

SIEMENS

Industrial Identification Systems

SIMATIC Ident

Catalog
ID 10

Edition
2014

Answers for industry.

Related catalogs

<p>Industrial Communication SIMATIC NET</p> <p>E86060-K6710-A101-B7-7600</p>	<p>IK PI</p> 	<p>SIMATIC HMI / PC-based Automation Human Machine Interface Systems PC-based Automation</p> <p>E86060-K4680-A101-C1-7600</p>	
<p>SIMATIC Products for Totally Integrated Automation and Micro Automation</p> <p>E86060-K4670-A101-B4-7600</p>	<p>ST 70</p> 	<p>SITRAIN Training for Industry</p> <p>Only available in German E86060-K6850-A101-C4</p>	
<p>SITOP Power supply SITOP</p> <p>E86060-K2410-A111-A8-7600</p>	<p>KT 10.1</p> 	<p>Products for Automation and Drives Interactive Catalog, DVD</p> <p>E86060-D4001-A510-D3-7600</p>	
<p>SIMATIC TOP connect System Cabling for SIMATIC S7</p> <p>PDF (E86060-K2410-A201-A5-7600)</p>	<p>KT 10.2</p> 	<p>Industry Mall Information and Ordering Platform in the Internet:</p> <p>www.siemens.com/industrymall</p>	
<p>Industrial Controls SIRIUS</p> <p>E86060-K1010-A101-A4-7600</p>	<p>IC 10</p> 		
<p>Safety Integrated Safety Technology for Factory Automation</p> <p>E86060-K7010-A121-A1-7600</p>	<p>SI 10 N</p> 		
<p>Safety Integrated Safety Technology for Factory Automation</p> <p>E86060-K7010-A101-A2-7600</p>	<p>SI 10</p> 		
<p>Process Automation Field Instruments for Process Automation</p> <p>E86060-K6201-A101-B6-7600</p>	<p>FI 01</p> 		
<p>Process Automation Process Analytical Instruments</p> <p>(Only PDF: E86060-K3501-A101-A9-7600)</p>	<p>PA 01</p> 		

SIMATIC Ident Industrial Identification Systems

Catalog ID 10 · 2014



The products and systems described in this catalog are manufactured/distributed under application of a certified quality management system in accordance with DIN EN ISO 9001. The certificate is recognized by all IQNet countries.

Supersedes:
Catalog ID 10 · 2012

Refer to the Industry Mall for current updates of this catalog:

www.siemens.com/industrymall

The products contained in this catalog can also be found in the Interactive Catalog CA 01.

Order No.:

E86060-D4001-A510-D3-7600

Please contact your local Siemens branch

© Siemens AG 2014

Introduction System overview SIMATIC Ident	1
RFID systems for the HF frequency range SIMATIC RF200 SIMATIC RF300 MOBY D	2
RFID system for the UHF frequency range SIMATIC RF600	3
RFID system for the microwave frequency range MOBY U	4
Code reading systems Stationary code reading systems Handheld reading systems Verification systems Optical character recognition (OCR) Object recognition	5
Communication modules for RFID systems and code reading systems RFID standard cables	6
Appendix	7





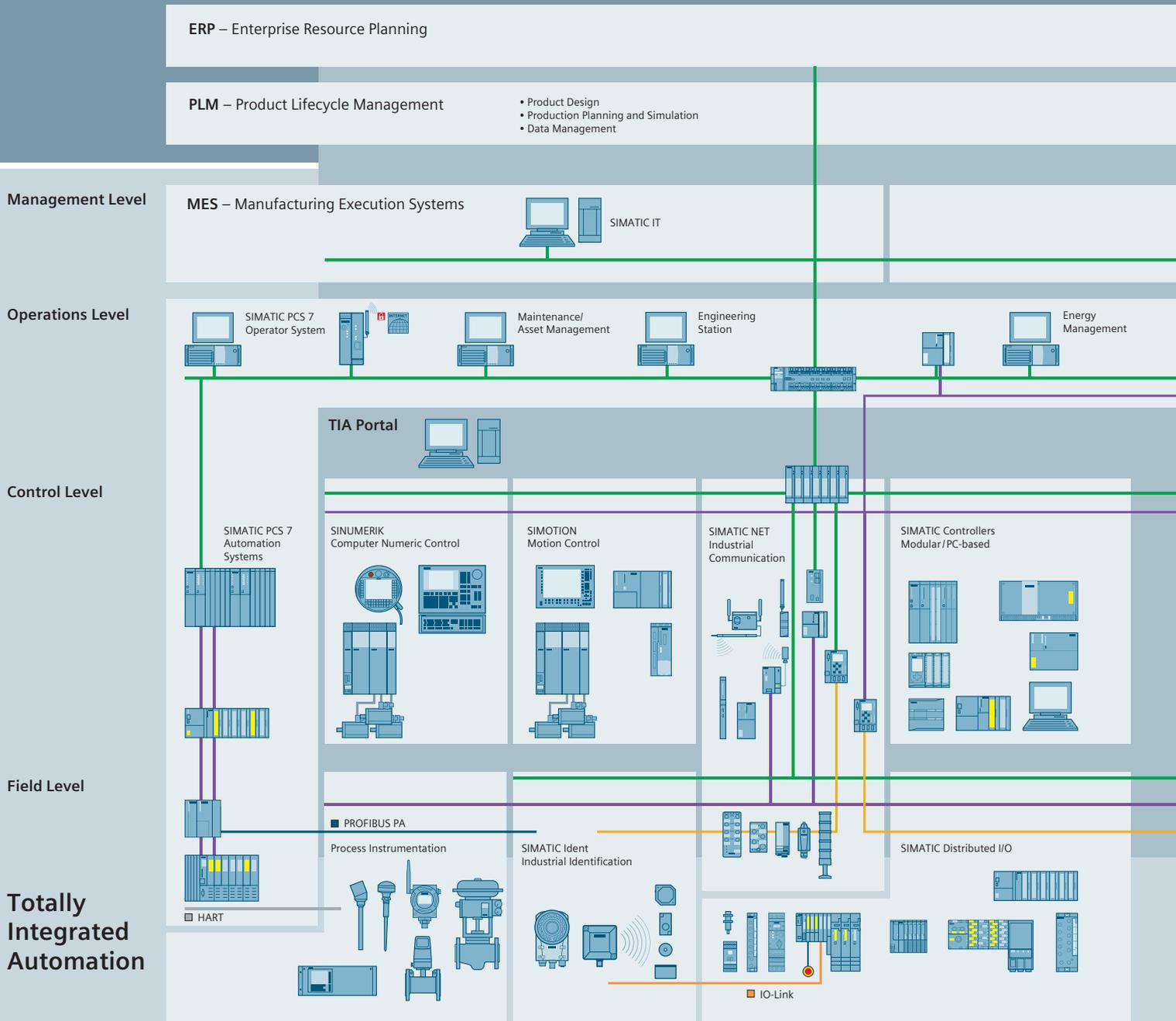
Answers for industry.

Integrated technologies, vertical market expertise and services for greater productivity, energy efficiency, and flexibility.

The Siemens Industry Sector is the world's leading supplier of innovative and environmentally friendly products and solutions for industrial companies. End-to-end automation technology and industrial software, solid market expertise, and technology-based services are the levers we use to increase our customers' productivity, efficiency and flexibility. With a global workforce of more than 100 000 employees, the Industry Sector comprises the Industry Automation, Drive Technologies, and Customer Services divisions, as well as the Metals Technologies Business Unit.

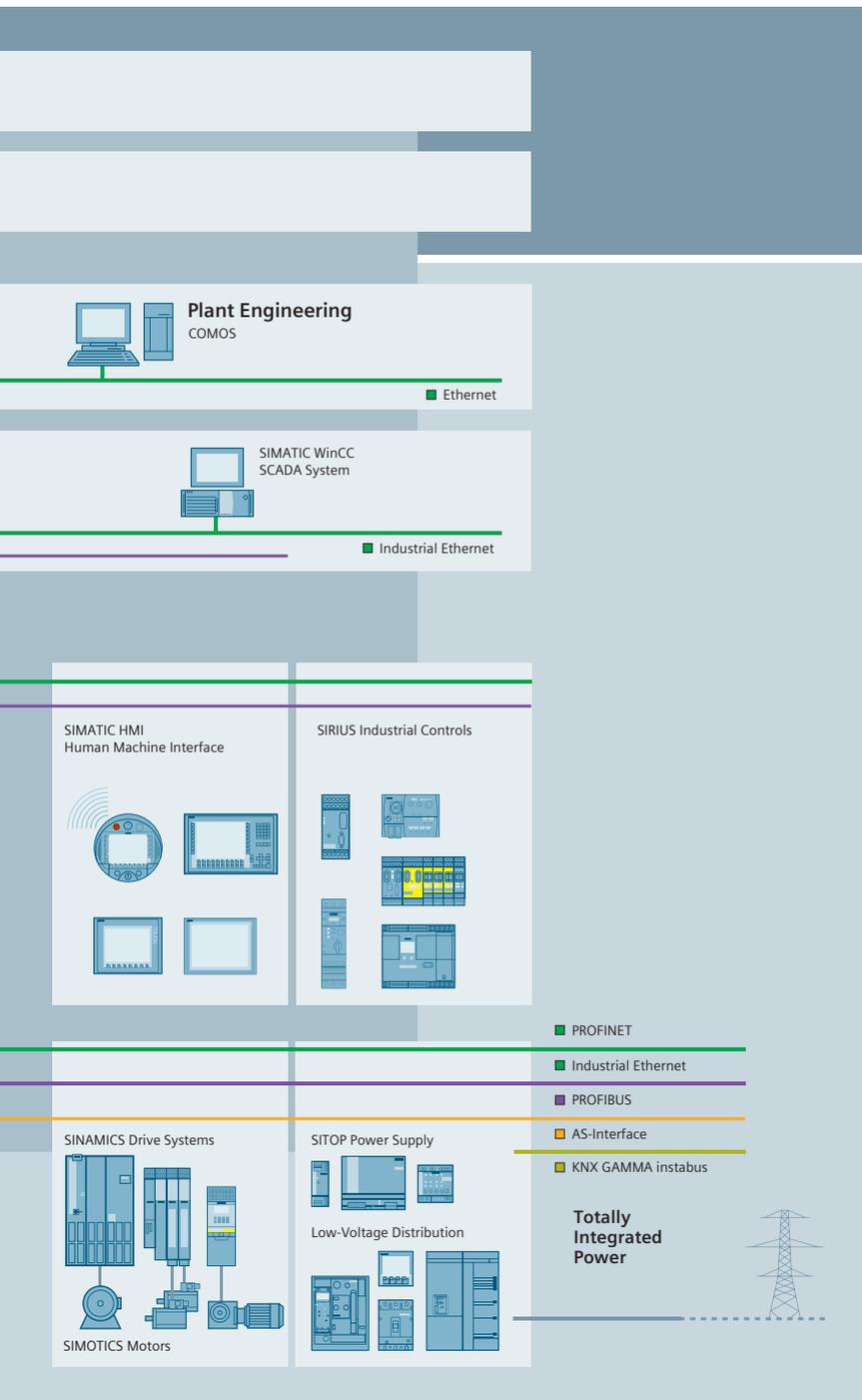
We consistently rely on integrated technologies and, thanks to our bundled portfolio, we can respond more quickly and flexibly to our customers' wishes. With our globally unmatched range of automation technology, industrial control and drive technology as well as industrial software, we equip companies with exactly what they need over their entire value chain – from product design and development to production, sales and service. Our industrial customers benefit from our comprehensive portfolio, which is tailored to their market and their needs.

Market launch times can be reduced by up to 50% due to the combination of powerful automation technology and intelligent industrial software from Siemens Industry. At the same time, the costs for energy or waste water for a manufacturing company can be reduced significantly. In this way, we increase our customers' competitive strength and make an important contribution to environmental protection with our energy-efficient products and solutions.



Setting standards in productivity and competitiveness.

Totally Integrated Automation.



TIA is characterized by its unique continuity.

It provides maximum transparency at all levels with reduced interfacing requirements – covering the field level, production control level, up to the corporate management level. With TIA you also profit throughout the complete life cycle of your plant – starting with the initial planning steps through operation up to modernization, where we offer a high measure of investment security resulting from continuity in the further development of our products and from reducing the number of interfaces to a minimum.

The unique continuity is already a defined characteristic at the development stage of our products and systems.

The result: maximum interoperability – covering the controller, HMI, drives, up to the process control system. This reduces the complexity of the automation solution in your plant. You will experience this, for example, in the engineering phase of the automation solution in the form of reduced time requirements and cost, or during operation using the continuous diagnostics facilities of Totally Integrated Automation for increasing the availability of your plant.

Thanks to Totally Integrated Automation, Siemens provides an integrated basis for the implementation of customized automation solutions – in all industries from inbound to outbound.

SIMATIC Ident



1/2

SIMATIC Ident - for more economic production and logistics processes

1/5

Simple integration into the automation level

SIMATIC Ident

SIMATIC Ident – for more economic production and logistics processes

1

Fiercer competition, stricter standards and legal regulations, shorter product life cycles, more individual customer requirements and increasingly globalized value-adding chains: to stay ahead in dynamic markets, companies must increase the efficiency of their value-adding chains - in production control, asset management, tracking & tracing as well as in supply chain management. Through the use of innovative identification technology, companies gain an important advantage.

We offer SIMATIC Ident, a unique portfolio for industrial identification which can provide the perfect solution for your requirements while keeping you flexible for the future.

The right identification technology depends on factors such as sensing distance, lighting conditions, single or repeat markings, as well as environmental effects such as temperature and pollution.

Whether RFID, barcode, DMC or OCR: every technology has its specific strengths. Character recognition is used for cases in which codes must also be readable by persons, such as expiration dates.

2D codes and RFID impress customers with their high level of data security and have proved reliable even under harsh industrial conditions.

The decisive criterion for an identification system:
Your individual application.



Identification, mobile data storage: RFID

RFID is the ideal solution when there is no line of sight between the reader and the marking, large volumes of data or wide ranges are required, or the stored information has to be changed. Here the product or object is fitted with a memory chip that can be programmed and read using radio techniques. With low-cost Smart Labels available for logistics, rugged data memories for assembly lines as well as transponders with a wide range, RFID is perfectly suited to a variety of different applications.

Our intelligent SIMATIC RF system family offers you transparency without gaps. Data is therefore available at any time along the complete production and distribution chain - for perfect control and optimization of material flow and logistics.



Verification, identification: Code reading systems

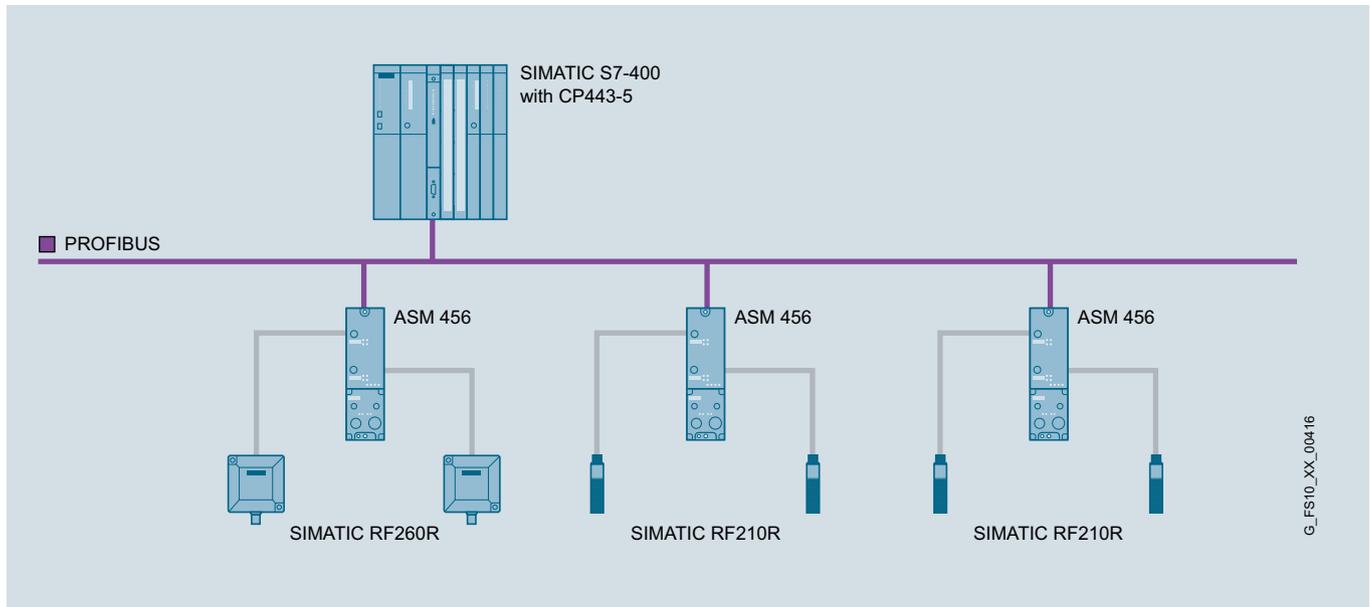
When higher performance is required, 2D codes are recommended as an alternative to barcodes, because they offer greater memory capacity and a better read rate. They can be applied inexpensively, e.g. together with shipping labels. They also enable products to be marked directly (Direct Part Marking, DPM) using lasers, printing or dot-peening, which is extremely resistant to external influences. 2D codes can be read with complete reliability even from a small viewing angle or under difficult lighting conditions.

With SIMATIC code reading systems, we offer you the ideal solution for reading and verifying 1D and 2D codes as well as for text recognition (OCR) and object recognition (Pat-Genius) – for the reliable tracing of production batches beyond the manufacturing plant

SIMATIC Ident – for more economic production and logistics processes

Production control

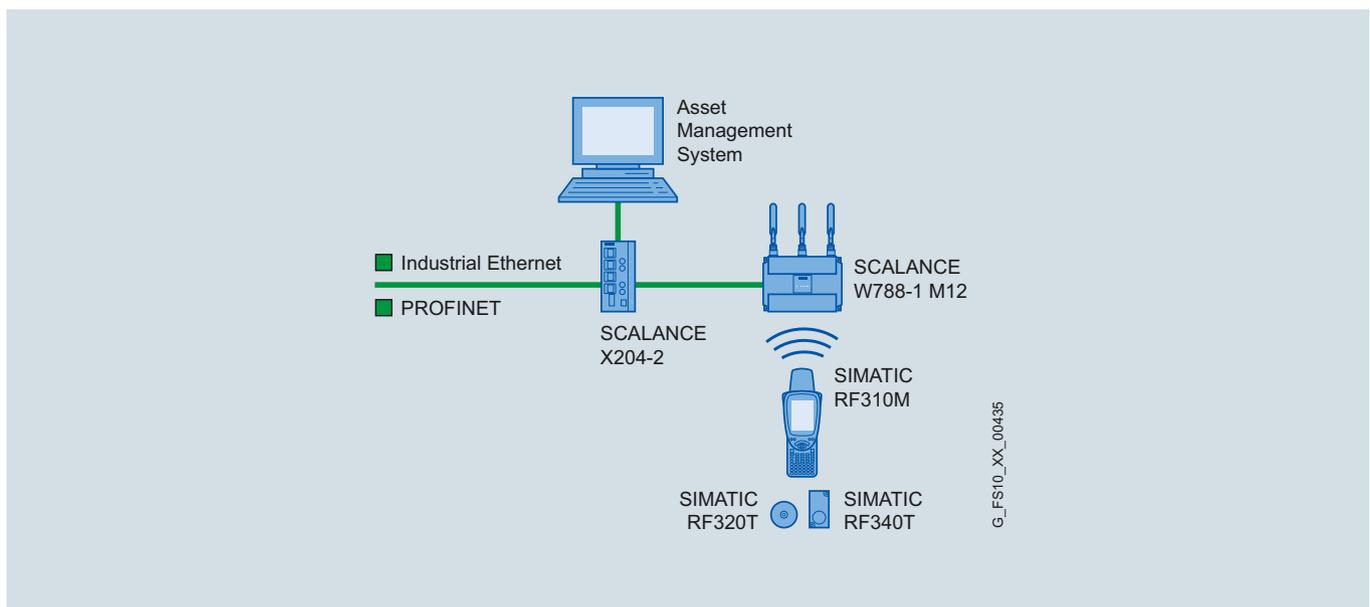
All over the world, consumers want more and more individual products. Versatile production and material flow control with industrial identification handles the requirements for growing product variety throughout the manufacturing process. This is made possible by reliable, efficient and cost-effective make-to-order production.



Example configuration of a small assembly line with SIMATIC RF200

Asset Management

Assets such as tools, plant parts, or containers are essential for production and logistics. Industrial identification ensures they are used efficiently. The inventory can be acquired in real time and the status determined precisely. This means that the use of the assets can be monitored perfectly at any time and optimized specifically for stock quantity, capacity and maintenance.



Example configuration of asset management with the SIMATIC RF310M handheld reader

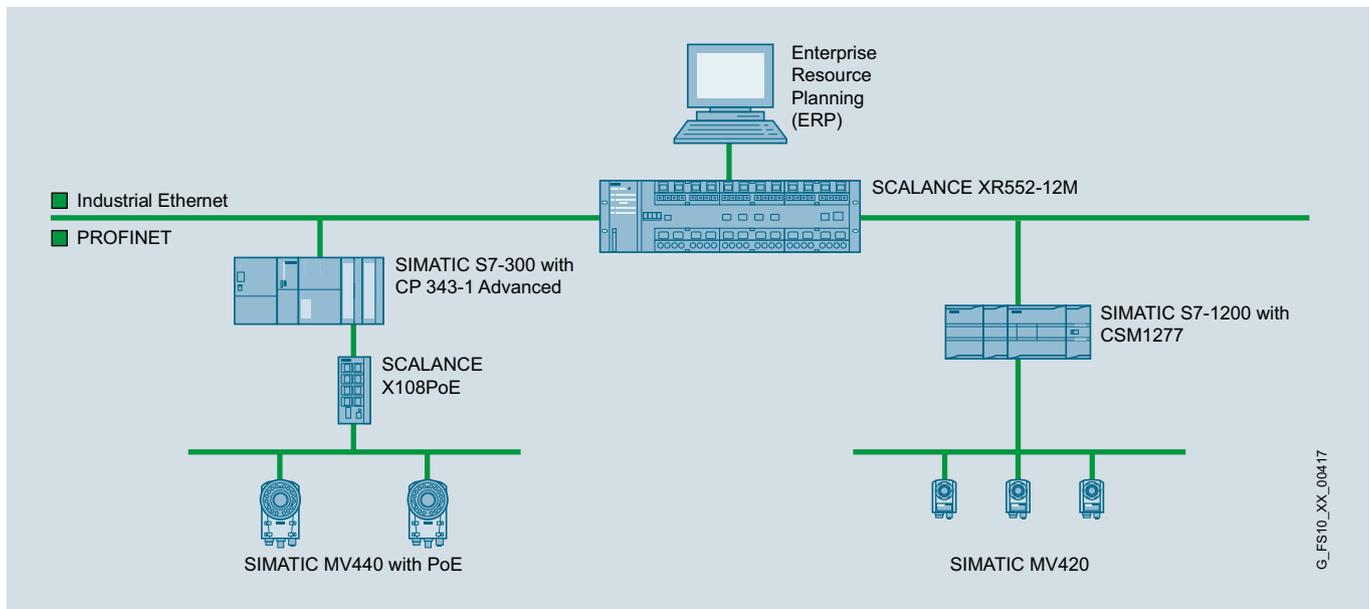
SIMATIC Ident

SIMATIC Ident – for more economic production and logistics processes

1

Tracking & Tracing

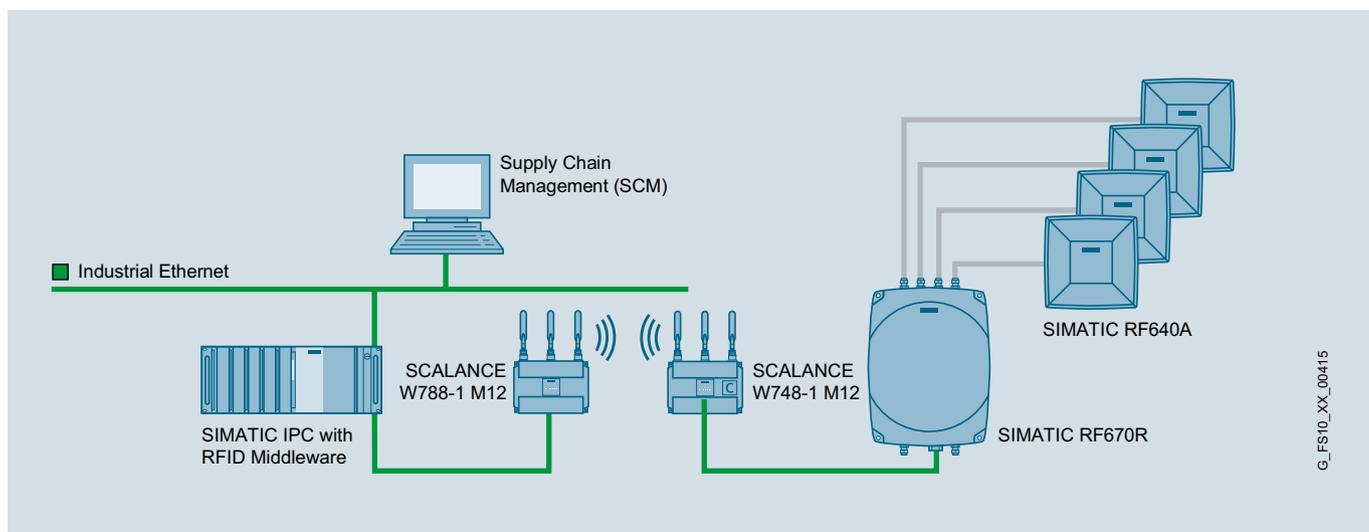
With industrial identification, each product leaves a digital trail that can be seamlessly traced and documented back to the origin of its individual components. This permits full transparency of the entire product life cycle and therefore the best possible quality.



Example configuration of tracking & tracing with code reading systems

Supply Chain Management

Competitive production on an industrial scale requires global supply chains for individual parts and components. Industrial identification makes these supply chains transparent and predictable, and facilitates optimum planning. This avoids delivery bottlenecks and downtimes, optimizes warehouse stocks and improves profit margins.



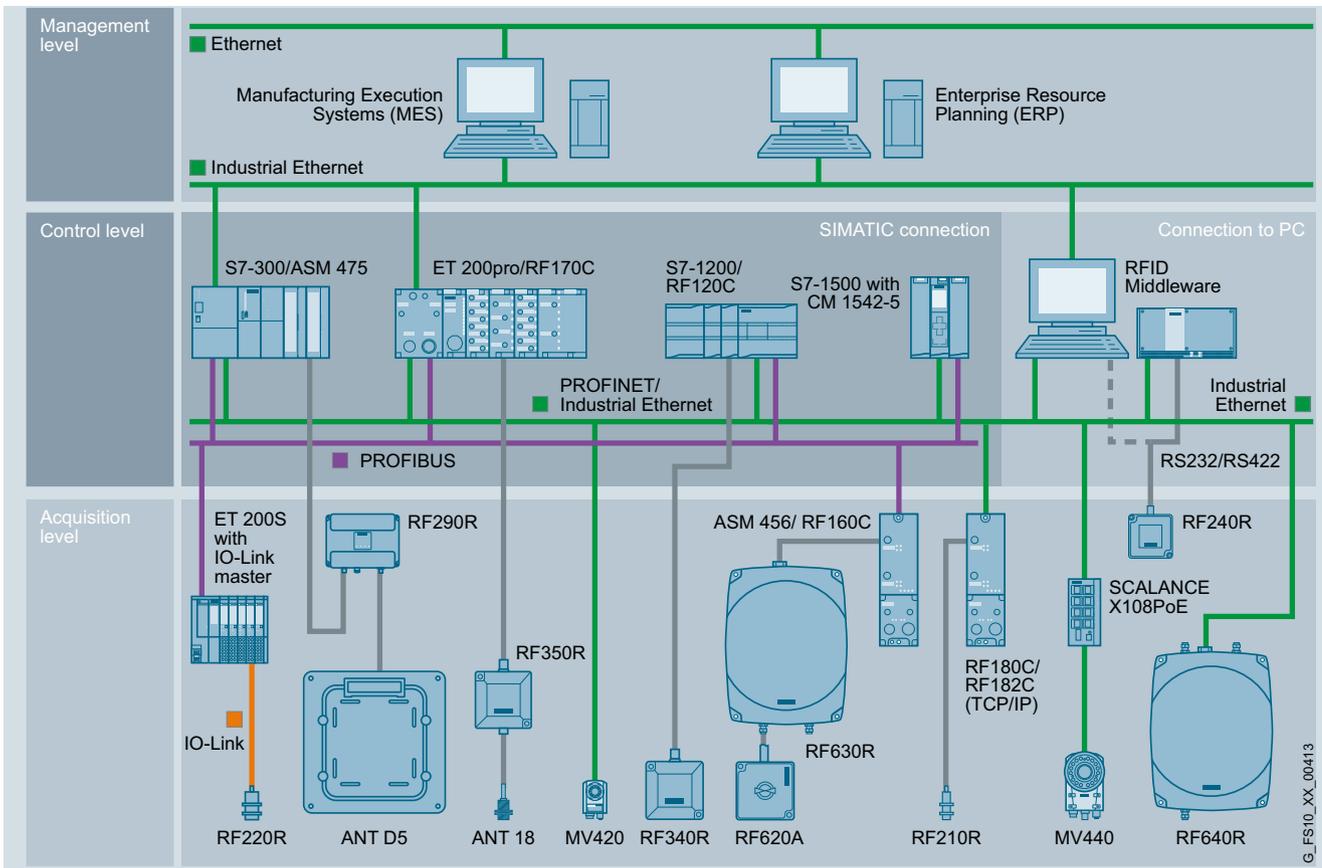
Example configuration of a logistics portal with SIMATIC RF600 and IWLAN

SIMATIC Ident

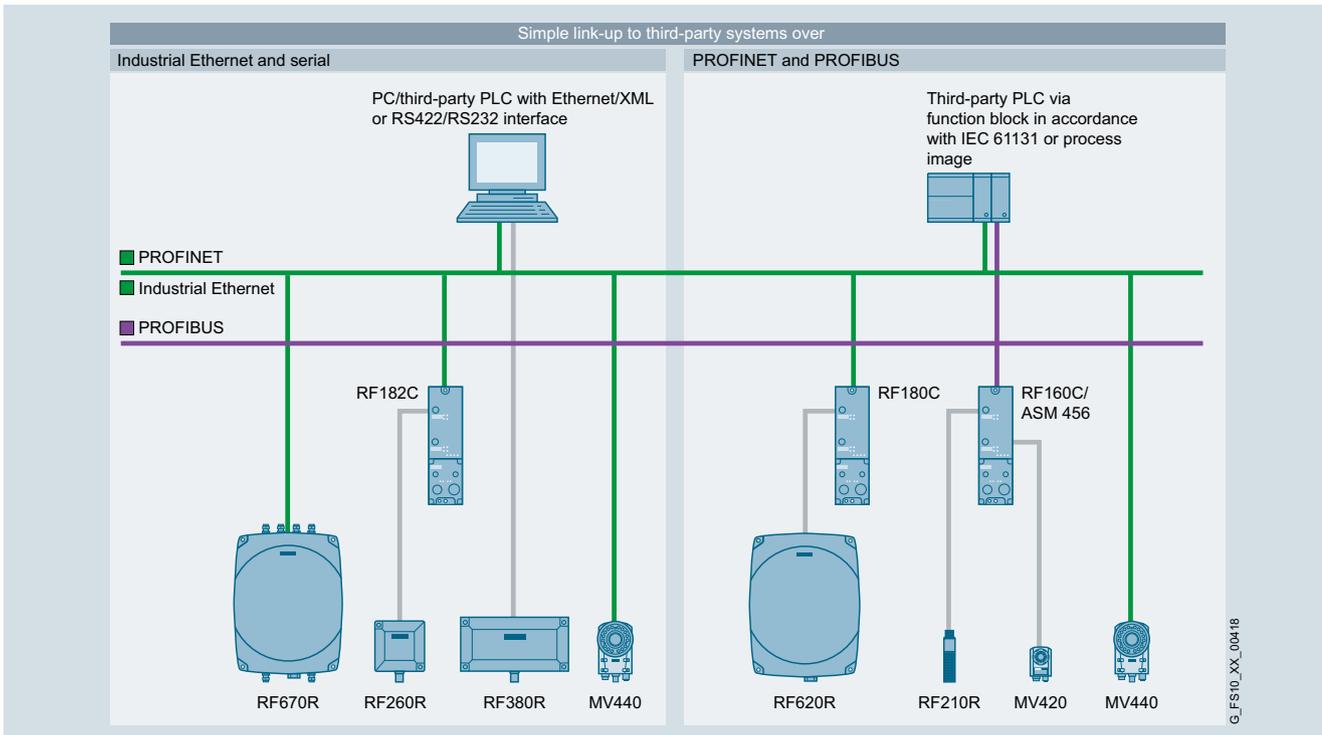
Simple integration into the automation level

1

With our SIMATIC Ident portfolio we can offer you the right solution: Using communication modules and convenient function blocks, it is easy to connect optical and RFID systems to the PLC (such as SIMATIC) or the IT landscape. This ensures that you have a system-wide, uniform software architecture and saves considerable outlay and costs in engineering, commissioning and maintenance.



Integration in Totally Integrated Automation



Connection to third-party systems

SIMATIC Ident

Notes

1

RFID systems

Introduction

Übersicht



RFID systems – for optimization of material flow and logistics

As the world-leading supplier of RFID systems, Siemens offers a unique scalable portfolio for flexible and cost-effective solutions.

RFID systems are offered for the most diverse requirements on performance, range, frequency range as well as HF and UHF.

Easy integration of the RFID systems via communication modules and pre-configured software blocks in the world of Totally Integrated Automation significantly reduces the outlay and costs for commissioning, diagnostics and maintenance.

Thanks to many years of experience in the area of RFID, Siemens is a competent partner for implementation of the most diverse solutions in all sectors, but especially in the areas of production and logistics.

Meaningful data from the outset

The RFID systems ensure that meaningful data accompanies a product or object from the very beginning. The transponders are attached to the product, product carrier, object, or its transport or packing unit, and are detected, read, and written contact-free. This means that all the application-specific data is located on the transponder. This is true whether you are dealing with vehicle body parts in the automotive industry or order picking boxes. Up to 64 KB of data can be stored and individually read and supplemented when required at the various workstations or manufacturing stations. This all means that the flow of material and data is synchronized optimally.

Contactless data transfer and a high degree of industrial compatibility

Powerful readers (write/read devices) in various rugged designs ensure fast and reliable data transfer between the transponders and the higher-level systems (e.g. PLC, PC).

The data and power are transmitted inductively by an electromagnetic alternating field or by radio waves. This principle of contactless data transfer works reliably in the presence of contamination or through numerous non-metallic materials.

Perfectly matched components

The RFID systems consist of perfectly matched individual components:

- Transponder
- Readers
- Antennas
- Communication modules for connection to the automation system (e.g. PROFIBUS, PROFINET)
- Software for system integration

For a wide range of applications in all sectors

- Production control
- Asset management
- Tracking & tracing
- Supply chain

Wide range of transponders

A wide range of different transponders is available using a variety of storage technologies and geometric designs. Their strength is not only their high level of data security but also the excellent high degree of protection against ambient conditions such as contamination, temperature fluctuations, washing water or shock load.

Benefits

get Designed for Industry

- Flexible and economic solutions thanks to the complete and scalable portfolio for the field of industrial identification.
- Simplified engineering, commissioning, diagnostics and maintenance through seamless integration into Totally Integrated Automation:
 - Integrated bus connection to an automation system, such as SIMATIC, SIMOTION or SINUMERIK via communication modules with PROFIBUS and PROFINET.
 - Simple S7 software integration via ready-to-use function blocks.
 - Extensive status and diagnostic functions.
- High degree of investment protection thanks to:
 - Open standards (e.g. ISO 15693, ISO 18000-6C).
 - Software compatibility between the RFID and code reading systems of Siemens.
 - Standardized communication interfaces.
- Openness through connection possibilities to different bus systems from different manufacturers and PC environments via communication modules.
- Worldwide Service and Support.

Integration

A wide range of communication modules, function blocks, as well as high-performance drivers and function libraries permits easy and quick integration into the application.

And best of all: SIMATIC RF is part of Totally Integrated Automation and can be incorporated easily and cost-effectively into the SIMATIC world.

For more details on the connection possibilities, see the section "Communication Modules".

Configuration guide for RFID systems

Here is a compact configuration tool for setting up RFID systems:

<http://support.automation.siemens.com/WW/view/en/67384964>

Technical specifications

Frequency range	HF		
RFID system	SIMATIC RF200 	SIMATIC RF300 	MOBY D 
Transmission frequency	13.56 MHz	13.56 MHz	13.56 MHz
Range, max.	650 mm	210 mm	900 mm
Protocol (air interface)	ISO 15693 ISO 18000-3	ISO 15693 ISO 18000-3 RF300 (proprietary)	ISO 15693 ISO 18000-3
Standards, specifications, approvals ¹⁾	<ul style="list-style-type: none"> • EN 300330. 301489, CE • FCC Part 15 • UL/CSA 	<ul style="list-style-type: none"> • EN 300330. 301489, CE • FCC Part 15 • UL/CSA • ATEX 	<ul style="list-style-type: none"> • EN 300330. 301489, CE • FCC Part 15 • UL/CSA
Memory capacity, max.	992 byte (EEPROM) / 2000 byte (FRAM)	64 KB	992 byte (EEPROM) / 2000 byte (FRAM)
Data transmission rate reader – transponder			
• Read, max.	1.5 kbyte/s	7.8 kbyte/s	1.5 kbyte/s
• Write, max.	0.5 kbyte/s	7.8 kbyte/s	0.5 kbyte/s
Multitag/Bulk capability	No	Yes	Yes
Special features	<ul style="list-style-type: none"> • Particularly compact designs • For particularly low-cost RFID solutions • IO-Link for simple identification tasks 	<ul style="list-style-type: none"> • High data transfer rate • Extended diagnostic possibilities • High memory capacity 	<ul style="list-style-type: none"> • SIMATIC or PC/IT integration • Long sensing ranges with excellent interference immunity • External antennas for industrial applications
Frequency range	UHF	Microwave range	
RFID system	SIMATIC RF600 	MOBY U 	
Transmission frequency	<ul style="list-style-type: none"> • 865 ... 868 MHz (ETSI) • 902 ... 928 MHz (FCC) • 920 ... 925 MHz (CMIIT) 	2.4 GHz	
Range, max.	8 m	3.0 m	
Protocol (air interface)	EPCglobal Class 1 Gen 2, ISO 18000-6C	ISO 18000-4	
Standards, specifications, approvals ¹⁾	<ul style="list-style-type: none"> • ETSI EN 302208, CE • FCC • UL 	<ul style="list-style-type: none"> • ETSI EN 302208, CE • FCC • UL 	
Memory capacity, max.	96/240 bit EPC, 512 bit user memory	32 Kbyte	
Data transmission rate reader – transponder			
• Read, max.	320 kbit/s	4.8 kbyte/s	
• Write, max.	320 kbit/s	8 kbyte/s	
Multitag/Bulk capability	Yes	Yes	
Special features	<ul style="list-style-type: none"> • SIMATIC or PC/IT integration • Configurable data processing in the readers • Special antennas for industrial applications 	<ul style="list-style-type: none"> • Active range limiting • High memory capacity 	

¹⁾ All current approvals are listed in the Internet at:
<http://www.siemens.com/rfid-approvals>

RFID systems

Introduction

Overview

HF frequency range (RF200. RF300. MOBY D)

Operating distance (mm) between transponder and reader	Transponder Order No.	MDS D165 6GT2600- 1AB00-0AX0	MDS D261 6GT2600- 1AA01-0AX0	MDS D100 6GT2600- 0AD10	MDS D200 6GT2600- 1AD00-0AX0	MDS D400 6GT2600- 4AD00	MDS D421 6GT2600- 4AE00	MDS D422 6GT2600- 4AF00	MDS D423 6GT2600- 4AA00
									
User memory		112 byte	256 byte	112 byte	256 byte	2 kbyte	2 kbyte	2 kbyte	2 kbyte
Temperature range		-25 °C to 85 °C	-25 °C to 85 °C	-25 °C to 80 °C	-20 °C to 60 °C	-25 °C to 60 °C	-25 °C to 85 °C	-25 °C to 85 °C	-25 °C to 85 °C
L x W x H or diameter x H (mm)		86 x 54 x 0.3	55 x 55 x 0.3	85.6 x 54 x 0.9	85.6 x 54 x 0.8	85.6 x 54 x 0.8	∅ 10 x 4.5	20 x 6	∅ 30 x 8
Reader	Page	2/53	2/53	2/55	2/57	2/59	2/61	2/63	2/65
SIMATIC RF200									
RF210R	2/16	–	–	–	–	–	0 ... 3	1 ... 9	2 ... 10
RF220R	2/19	–	–	–	–	–	–	1 ... 12	2 ... 24
RF240R	2/22	2 ... 80	2 ... 60	2 ... 84	2 ... 69	2 ... 80	–	1 ... 12	2 ... 35
RF250R with ANT 8	2/24	–	–	–	–	–	0 ... 3	–	–
RF250R with ANT 12	2/24	–	–	–	–	–	0 ... 3	0 ... 7	–
RF250R with ANT 18	2/24	–	–	–	–	–	0 ... 3	1 ... 8	1 ... 15
RF250R with ANT 30	2/24	–	–	–	–	–	–	0 ... 12	0 ... 18
RF260R	2/27	2 ... 120	2 ... 75	2 ... 110	2 ... 100	2 ... 110	–	–	2 ... 40
RF290R with ANT D5	2/30	0 ... 350	0 ... 300	0 ... 400	0 ... 400	0 ... 400	–	–	–
RF290R with ANT D6	2/30	0 ... 400	0 ... 350	0 ... 550	0 ... 500	0 ... 500	–	–	–
RF290R with ANT D10	2/30	0 ... 350	0 ... 350	0 ... 500	0 ... 450	0 ... 400	–	–	–
SIMATIC RF300									
RF310R	2/91	2 ... 90	2 ... 74	2 ... 93	2 ... 84	2 ... 104	–	–	2 ... 35
RF340R	2/94	5 ... 100	5 ... 60	5 ... 110	5 ... 80	2 ... 100	–	–	2 ... 40
RF350R with ANT 1	2/96	5 ... 100	5 ... 80	5 ... 110	5 ... 95	2 ... 110	–	–	2 ... 50
RF350R with ANT 12	2/96	–	–	–	–	–	0 ... 3	–	–
RF350R with ANT 18	2/96	–	–	–	–	–	0 ... 6	1 ... 10	–
RF350R with ANT 30	2/96	–	–	–	–	–	–	0 ... 15	2 ... 30
RF380R	2/101	5 ... 170	5 ... 120	5 ... 170	5 ... 150	2 ... 200	–	–	5 ... 75
RF382R	2/103	–	–	–	–	–	–	–	–
MOBY D									
SLG D10 / SLG D10S with ANT D5	2/113	0 ... 350	0 ... 300	0 ... 400	0 ... 400	0 ... 104	–	–	–
SLG D10 / SLG D10S with ANT D6	2/113	0 ... 400	0 ... 350	0 ... 550	0 ... 500	0 ... 550	–	–	–
SLG D10 / SLG D10S with ANT D10	2/113	0 ... 350	0 ... 300	0 ... 500	0 ... 450	0 ... 500	–	–	–
SLG D11 / SLG D11S with ANT D2	2/116	–	–	–	–	–	–	–	–
SLG D11 / SLG D11S with ANT D5	2/116	0 ... 220	0 ... 200	0 ... 300	0 ... 220	0 ... 240	–	–	–
SLG D12 / SLG D12S	2/119	0 ... 120	0 ... 100	0 ... 160	0 ... 120	0 ... 100	–	–	–

MDS D124 6GT2600-0AC10	MDS D324 6GT2600-3AC00	MDS D424 6GT2600-4AC00	MDS D425 6GT2600-4AG00	MDS D126 6GT2600-0AE00	MDS D426 6GT2600-4AH00	MDS D117 6GT2600-0AG00	MDS D127 6GT2600-0AF00	MDS D428 6GT2600-4AK00-0AX0	MDS D139 6GT2600-0AA10	MDS D339 6GT2600-3AA10	MDS D160 6GT2600-0AB10
											
112 byte	992 byte	2 kbyte	2 kbyte	112 byte	2 kbyte	112 byte	112 byte	2 kbyte	112 byte	992 byte	112 byte
-25 °C to 180 °C	-25 °C to 125 °C	-25 °C to 85 °C	-25 °C to 85 °C	-25 °C to 85 °C	-25 °C to 85 °C	-25 °C to 100 °C	-25 °C to 100 °C	-25 °C to 85 °C	-25 °C to 220 °C	-25 °C to 220 °C	-25 °C to 175 °C
Ø 27 x 4	Ø 27 x 4	Ø 27 x 4	Ø 27 x 10	Ø 50 x 3.6	Ø 50 x 3.6	Ø 4 x 5	Ø 6 x 5	Ø 18 x 20	Ø 85 x 15	Ø 85 x 15	Ø 16 x 3
2/67	2/69	2/71	2/73	2/75	2/77	2/79	2/80	2/81	2/82	2/84	2/86
1 ... 18	1 ... 8	1 ... 16	1 ... 7	–	–	0 ... 2	0 ... 2	1 ... 10	–	–	1 ... 10
1 ... 28	2 ... 21	2 ... 25	1 ... 12	2 ... 30	2 ... 25	–	–	1 ... 18	–	–	1 ... 20
2 ... 53	1 ... 36	1 ... 47	1 ... 17	2 ... 57	2 ... 45	–	–	1 ... 30	–	–	1 ... 33
–	–	–	–	–	–	0 ... 2	0 ... 3	–	–	–	–
–	0 ... 10	–	0 ... 8	–	–	0 ... 3	0 ... 4	1 ... 8	–	–	0 ... 19
0 ... 24	1 ... 18	1 ... 27	1 ... 11	–	–	–	–	1 ... 18	–	–	1 ... 18
1 ... 35	1 ... 22	0 ... 34	1 ... 12	0 ... 47	0 ... 44	–	–	1 ... 20	–	–	1 ... 23
2 ... 80	2 ... 60	2 ... 60	–	2 ... 75	2 ... 70	–	–	2 ... 40	2 ... 80	5 ... 65	2 ... 40
0 ... 200	0 ... 200	0 ... 200	–	0 ... 350	0 ... 300	–	–	–	0 ... 400	0 ... 300	0 ... 130
0 ... 220	0 ... 200	0 ... 220	–	0 ... 400	0 ... 350	–	–	–	0 ... 500	0 ... 400	0 ... 130
0 ... 200	0 ... 200	0 ... 200	–	0 ... 400	0 ... 350	–	–	–	0 ... 450	0 ... 300	0 ... 130
2 ... 64	2 ... 47	1 ... 40	1 ... 13	2 ... 65	5 ... 100	–	–	2 ... 25	5 ... 96	5 ... 74	1 ... 39
2 ... 60	2 ... 55	2 ... 55	2 ... 20	2 ... 85	0 ... 80	–	–	2 ... 35	5 ... 80	5 ... 75	2 ... 35
2 ... 65	2 ... 70	2 ... 60	2 ... 25	2 ... 90	0 ... 85	–	–	2 ... 35	5 ... 85	5 ... 90	2 ... 35
–	–	–	–	–	–	0 ... 3	0 ... 3	1 ... 10	–	–	0 ... 8
2 ... 24	1 ... 22	1 ... 27	1 ... 10	–	–	1 ... 3	0 ... 4	1 ... 12	–	–	1 ... 18
1 ... 35	1 ... 35	0 ... 45	1 ... 15	0 ... 47	0 ... 45	–	–	1 ... 25	–	–	1 ... 25
1 ... 120	2 ... 96	2 ... 120	2 ... 35	2 ... 145	0 ... 155	–	–	2 ... 70	5 ... 160	5 ... 160	2 ... 64
40 ... 65	40 ... 65	40 ... 65	–	–	–	–	–	–	–	–	35 ... 50
0 ... 200	0 ... 200	0 ... 200	–	0 ... 250	0 ... 220	–	–	0 ... 120	0 ... 400	0 ... 300	0 ... 130
0 ... 220	0 ... 200	0 ... 220	–	0 ... 300	0 ... 260	–	–	0 ... 100	0 ... 500	0 ... 400	0 ... 130
0 ... 200	0 ... 200	0 ... 200	–	0 ... 200	0 ... 180	–	–	0 ... 100	0 ... 450	0 ... 300	0 ... 130
45 ... 70	35 ... 60	45 ... 70	–	–	–	–	–	–	–	–	35 ... 55
0 ... 150	0 ... 120	0 ... 150	–	0 ... 200	0 ... 180	–	–	0 ... 70	0 ... 280	0 ... 180	0 ... 75
0 ... 70	0 ... 60	0 ... 70	–	0 ... 100	0 ... 90	–	–	0 ... 40	0 ... 120	0 ... 90	0 ... 45

MDS D460 6GT2600- 4AB00	RF320T 6GT2800- 1CA00	RF340T 6GT2800- 4BB00	RF350T 6GT2800- 5BD00	RF360T 6GT2800- 4AC00	RF370T 6GT2800- 5BE00 (32kb) 6BE00 (64kb)	RF380T 6GT2800- 5DA00	<i>Transponder Order No.</i>	<i>Operating distance (mm) between transponder and reader</i>
								
2 kbyte	20 byte	8 kbyte	32 kbyte	8 kbyte	32 / 64 kbyte	32 kbyte	<i>User memory</i>	
-25 °C to 85 °C	-25 °C to 125 °C	-25 °C to 85 °C	-25 °C to 85 °C	-25 °C to 70 °C	-25 °C to 85 °C	-25 °C to 110 °C	<i>Temperature range</i>	
∅ 16 x 3	∅ 27 x 4	48 x 25 x 15	50 x 50 x 20	85.8 x 54.1 x 2.5	75 x 75 x 41	∅ 114 x 83	<i>L x W x H or diameter x H (mm)</i>	
2/88	2/37	2/39	2/41	2/43	2/45	2/47	Page	Reader
								<i>SIMATIC RF200</i>
1 ... 8	–	–	–	–	–	–	2/16	RF210R
1 ... 18	–	–	–	–	–	–	2/19	RF220R
1 ... 30	–	–	–	–	–	–	2/22	RF240R
–	–	–	–	–	–	–	2/24	RF250R with ANT 8
1 ... 10	–	–	–	–	–	–	2/24	RF250R with ANT 12
1 ... 17	–	–	–	–	–	–	2/24	RF250R with ANT 18
1 ... 21	–	–	–	–	–	–	2/24	RF250R with ANT 30
2 ... 40	–	–	–	–	–	–	2/27	RF260R
0 ... 120	–	–	–	–	–	–	2/30	RF290R with ANT D5
–	–	–	–	–	–	–	2/30	RF290R with ANT D6
–	–	–	–	–	–	–	2/30	RF290R with ANT D10
								<i>SIMATIC RF300</i>
2 ... 20	1 ... 23	2 ... 36	2 ... 47	2 ... 60	–	–	2/91	RF310R
2 ... 25	1 ... 20	2 ... 50	2 ... 60	2 ... 65	5 ... 60	5 ... 80	2/94	RF340R
2 ... 35	1 ... 30	2 ... 55	2 ... 65	2 ... 75	5 ... 65	5 ... 90	2/96	RF350R with ANT 1
1 ... 10	–	–	–	–	–	–	2/96	RF350R with ANT 12
1 ... 12	0 ... 10	0 ... 20	–	–	–	–	2/96	RF350R with ANT 18
1 ... 18	0 ... 15	0 ... 30	0 ... 35	–	–	–	2/96	RF350R with ANT 30
2 ... 65	2 ... 45	2 ... 80	2 ... 100	2 ... 120	5 ... 100	5 ... 125	2/101	RF380R
30 ... 50	–	–	–	–	–	–	2/103	RF382R
								<i>MOBY D</i>
0 ... 120	–	–	–	–	–	–	2/113	SLG D10 / SLG D10S with ANT D5
0 ... 100	–	–	–	–	–	–	2/113	SLG D10 / SLG D10S with ANT D6
0 ... 100	–	–	–	–	–	–	2/113	SLG D10 / SLG D10S with ANT D10
30 ... 50	–	–	–	–	–	–	2/116	SLG D11 / SLG D11S with ANT D2
0 ... 70	–	–	–	–	–	–	2/116	SLG D11 / SLG D11S with ANT D5
0 ... 40	–	–	–	–	–	–	2/119	SLG D12 / SLG D12S

RFID systems

Introduction

2

Overview

UHF frequency range (RF600)

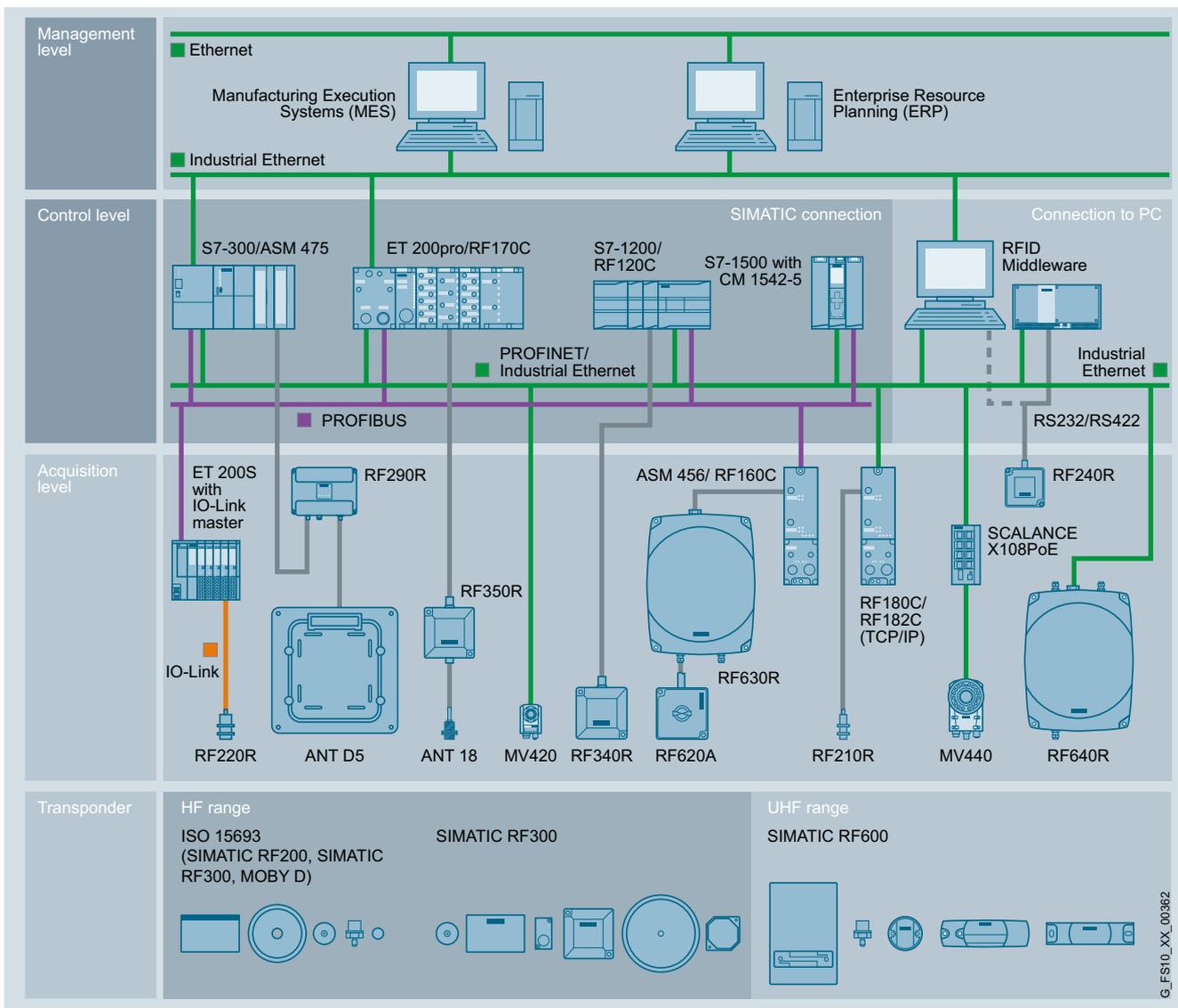
Maximum reading distance (m)	Transponder Order No.	RF630L 6GT2810-2AB00	RF630L 6GT2810-2AB01	RF630L 6GT2810-2AB02-0AX0	RF630L 6GT2810-2AB03	RF680L 6GT2810-2AG80	RF610T 6GT2810-2BB80	RF620T 6GT2810-2HC81
								
EPC-ID memory		12 byte	12 byte	16 byte	30 byte	30 byte	30 byte	16 byte
User memory		–	–	64 byte	64 byte	64 byte	64 byte	64 byte
L x W x H or diameter x H (mm)		101 x 152 x 0.3	101 x 50 x 0.3	27 x 97 x 0.3	34 x 54 x 0.3	54 x 86 x 0.4	54 x 86 x 0.4	127 x 38 x 6
Frequency range		860 - 960 MHz	860 - 960 MHz	860 - 960 MHz	860 - 960 MHz			
Reader	Page	3/6	3/6	3/6	3/6	3/9	3/10	3/12
SIMATIC RF620R								
SIMATIC RF620R	3/22	5	5	5	3	2.5	3	5
SIMATIC RF630R								
SIMATIC RF630R with RF620A	3/25	1.6	1.6	1.6	1	0.8	1	1.6
SIMATIC RF630R with RF640A	3/25	4.5	4.5	4.5	2.8	2.2	2.8	4.5
SIMATIC RF630R with RF642A	3/25	5.5	5.5	5.5	3.5	2.8	3.5	5.5
SIMATIC RF630R with RF660A	3/25	6	6	6	4	3	4	6
SIMATIC RF640R								
SIMATIC RF640R	3/28	7	7	7	4	3.5	4	7
SIMATIC RF640R with RF620A	3/28	2.2	2.2	2.2	1.4	1.1	1.4	2.2
SIMATIC RF640R with RF640A	3/28	6	6	6	4	3.1	4	6
SIMATIC RF640R with RF642A	3/28	8	8	8	5	4	5	8
SIMATIC RF640R with RF660A	3/28	8	8	8	5	4	5	8
SIMATIC RF670R								
SIMATIC RF670R with RF620A	3/31	2.2	2.2	2.2	1.4	1.1	1.4	2.2
SIMATIC RF670R with RF640A	3/31	6	6	6	4	3	4	6
SIMATIC RF670R with RF642A	3/31	8	8	8	5	4	5	8
SIMATIC RF670R with RF660A	3/31	8	8	8	5	4	5	8

Microwave frequency range (MOBY U)

Operating distance between transponder and reader (mm)	Transponder Order No.	MDS U315 6GT2500-3BF10	MDS U525 6GT2500-5CF10	MDS U589 6GT2500-5JK10
				
User memory		2 kbyte	32 kbyte	32 kbyte
Temperature range		-25 °C to 70 °C	-25 °C to 85 °C	-25 °C to 220 °C
L x W x D or diameter x H (mm)		67 x 111 x 23.5	67 x 111 x 23.5	∅ 114 x 83
Reader	Page	4/5	4/5	4/7
SLG U92	4/10	350 ... 2100	350 ... 2100	350 ... 2100

– Reader-transponder combination not released.

RF625T 6GT2810- 2EE00	RF625T 6GT2810- 2EE01	RF630T 6GT2810- 2EC00	RF630T 6GT2810- 2EC10	RF640T 6GT2810- 2DC00	RF640T 6GT2810- 2DC10	RF680T 6GT2810- 2HG80	Transponder Order number	Maximum reading distance (m)
								
16 byte	16 byte	30 byte	EPC-ID memory					
64 byte	64 byte	64 byte	64 byte	64 byte	64 byte	64 byte	User memory	
∅ 30 x 8	∅ 30 x 8	∅ 0 x 8	∅ 30 x 8	∅ 50 x 8	∅ 50 x 8	32 x 130 x 15	L x W x H or diameter x H (mm)	
860 - 870 MHz	900 - 930 MHz	860 - 870 MHz	900 - 930 MHz	860 - 870 MHz	900 - 930 MHz	860 - 960 MHz	Frequency range	
3/6	3/8	3/16	3/16	3/18	3/18	3/20	Page	Reader
								SIMATIC RF620R
1	1	0.8	0.8	2.5	2.5	2.5	3/22	SIMATIC RF620R
								SIMATIC RF630R
0.3	0.3	0.3	0.3	0.8	0.8	0.8	3/25	SIMATIC RF630R with RF620A
0.8	0.8	0.7	0.7	2.2	2.2	2.2	3/25	SIMATIC RF630R with RF640A
1.1	1.1	0.8	0.8	2.8	2.8	2.8	3/25	SIMATIC RF630R with RF642A
1.2	1.2	0.9	0.9	3	3	3	3/25	SIMATIC RF630R with RF660A
								SIMATIC RF640R
1.6	1.6	1	1	3.5	3.5	3.5	3/28	SIMATIC RF640R
0.4	0.4	0.3	0.3	1.1	1.1	1.1	3/28	SIMATIC RF640R with RF620A
1.2	1.2	0.9	0.9	3	3	3	3/28	SIMATIC RF640R with RF640A
1.5	1.5	1.2	1.2	4	4	4	3/28	SIMATIC RF640R with RF642A
1.5	1.5	1.2	1.2	4	4	4	3/28	SIMATIC RF640R with RF660A
								SIMATIC RF670R
0.4	0.4	0.3	0.3	1.1	1.1	1.1	3/31	SIMATIC RF670R with RF620A
1.2	1.2	0.9	0.9	3	3	3	3/31	SIMATIC RF670R with RF640A
1.5	1.5	1.2	1.2	4	4	4	3/31	SIMATIC RF670R with RF642A
1.5	1.5	1.2	1.2	4	4	4	3/31	SIMATIC RF670R with RF660A



G_FS10_XI_00382

RFID systems for the HF frequency range

SIMATIC RF200

Introduction

Overview



The RFID system SIMATIC RF200 is, thanks to its compact and low-cost reader, particularly suitable for use in industrial production in the areas of small assembly lines and intralogistics.

With RF200, identification tasks of medium-performance in the RF range (13.56 MHz, ISO 15693) can be implemented extremely cost effectively. RF200 readers can be operated with all ISO transponders of the product range of MOBY D (MDS Dxxx).

The communication modules that can be used for all MOBY and SIMATIC RF systems (ASM 456, ASM 475, SIMATIC RF1xxC) are available for connecting to SIMATIC S7-300, PROFIBUS, PROFINET and TCP/IP (XML).

IO-Link

For simple identification tasks (e.g. reading the identification number, "read-only") the RF210/RF220/RF260R readers are available in an interface version for IO-Link. With the help of this standardized interface it is extremely easy and economical to integrate the data automatically read by the reader into the automation level. The SIMATIC RF200 readers can be connected to the controllers of many well-known suppliers of automation solutions through an appropriate IO-Link master module.

Siemens offers two master modules, one for the SIMATIC ET 200eco PN (IP67) distributed I/O system at the field level and one for SIMATIC ET 200S (IP20) in the control cabinet. Both support seamless integration in the established PROFINET and PROFIBUS fieldbuses, and therefore also into the world of Totally Integrated Automation.

Both master modules allow up to four SIMATIC RF200 IO-Link readers to be connected.

The essential features of IO-Link are:

- Ease of use: No RFID-specific programming is necessary, ideal for RFID beginners
- Particularly low channel costs per reading point (reader + IO-Link master interface)
- Openness through standardization, many well-known manufacturers offer IO-Link master

The SIMATIC RF200 identification system offers the following features:

- 13.56 MHz operating frequency (operation according to ISO 15693).
- Passive (without battery), maintenance-free transponders (MDS Dxxx) with memory capacities up to 2000 byte FRAM.
- Rugged, compact components with IP67 degree of protection.
- Easy integration into SIMATIC, PROFIBUS, PROFINET and TCP/IP.
- Reader versions with RS422, RS232 or IO-Link.

Benefits

get Designed for Industry

- Price-optimized and compact, space-saving components.
- Operation with the attractively priced and battery-free ISO 15693 transponders of MOBY D for low investment and operating costs.
- Flexible and economic solutions thanks to the complete and scalable portfolio for the field of industrial identification.
- Simplified engineering, commissioning, diagnostics and maintenance through seamless integration into Totally Integrated Automation:
 - Integrated bus connection to an automation system, such as SIMATIC, SIMOTION or SINUMERIK, via communication modules with PROFIBUS and PROFINET
 - Simple S7 software integration via ready-to-use function blocks
- High degree of investment protection thanks to:
 - Open ISO 15693 standard
 - Software compatibility between the RFID systems of Siemens
 - Standardized communication interfaces
- Openness through connection options to various bus systems from different manufacturers and PC environments via communication modules, RS232 or IO-Link.
- Worldwide Service and Support.

Application

The RFID system SIMATIC RF200 is primarily used for non-contact identification of containers, pallets and workpiece holders where the demands on performance (data transmission rate, memory volume) satisfy the ISO 15693 standard.

The main application areas for SIMATIC RF200 are:

- Assembly and handling systems, assembly lines (identification of workpiece carriers), especially small assembly lines.
- Production logistics (material flow control, identification of containers and other vessels), intralogistics.
- Parts identification (the transponder is attached to the products or pallets).
- Conveyor systems (e.g. suspended monorails).

Design

Due to their compact design and the integrated antenna, SIMATIC RF200 readers are suitable for mounting in confined spaces, e.g. in small assembly lines or in intralogistics.

The high IP67 degree of protection of the SIMATIC RF200 reader enables it to be used in harsh industrial environments.

Each SIMATIC RF200 reader has a multicolor LED which locally indicates the function and status of the reader as well as of the transponder.

The interface to the automation level can be implemented by means of communication modules. For quick and easy cabling, pre-assembled cables with M12 plug-in connectors are available in various lengths.

The MOBY D transponders compliant with ISO 15693 are used as mobile data carriers.

Transponders suitable for a wide variety of different requirements can be selected from an extensive range: From low-cost SmartLabels for simple identification tasks, through rugged credit card formats, right up to screw-fit transponders that can be automatically attached by robots.

The transponders are attached to the object to be identified, e.g. by means of screws, adhesive, gluing or pre-assembled spacer.

Function

All of the SIMATIC RF200 readers are suitable for reliable reading and writing tasks in the HF range of 13.56 MHz. The SIMATIC RF200 IO-Link readers are available for simple several reading tasks.

The readers are connected (via an RS422 interface) to the automation level (e.g. SIMATIC S7) by means of communication modules over standard fieldbuses (e.g. PROFIBUS or PROFINET).

User-friendly function blocks are available for the S7 programming.

In the event of an error, the S7 application receives a detailed error message from the communication module via the function block.

In addition, there are the SIMATIC RF240R, RF250R and RF260R readers with an RS232 interface for connection to the PC or to SIMATIC S7-1200.

The SIMATIC RF210R, RF220R, and RF260R readers are available as versions with an IO-Link interface.

Integration

A wide range of communication modules, function blocks, as well as high-performance drivers and function libraries permits easy and quick integration into the application.

And best of all: SIMATIC RF200 is part of Totally Integrated Automation and can be integrated easily and cost-effectively into the SIMATIC world.

The IO-Link versions of the RF200 readers are integrated into the control level with the help of standardized IO-Link masters.

For more details on the connection possibilities, see the section "Communication Modules".

Configuration guide for RFID systems

Here is a compact configuration tool for setting up RFID systems:

<http://support.automation.siemens.com/WWW/view/en/67384964>

Technical specifications

RFID system	SIMATIC RF200
Transmission frequency	13.56 MHz
Maximum range	650 mm
Protocol (air interface)	<ul style="list-style-type: none"> • ISO 15693 • ISO 18000-3
Approvals ¹⁾	<ul style="list-style-type: none"> • EN 300330, 301489, CE • FCC Part 15 • UL/CSA
Memory capacity	Max. 992 bytes (EEPROM) / 2000 bytes (FRAM)
Data transfer rate, reader – transponder (not for IO-Link)	
<ul style="list-style-type: none"> • Read • Write 	Max. 1.5 kbyte/s Max. 0.5 kbyte/s
Transmission time per byte for user data during read access (IO-Link versions), typical	40 ms
Multitag/Bulk capability	No
Special features	<ul style="list-style-type: none"> • Particularly compact designs • For particularly low-cost RFID solutions • IO-Link for simple identification tasks

¹⁾ All current approvals are listed in the Internet under <http://www.siemens.com/rfid-approvals>

RFID systems for the HF frequency range

SIMATIC RF200 transponders

Transponders

Overview



The transponders can be used for the following RFID systems:

- SIMATIC RF200
- SIMATIC RF300 (in ISO 15693 operating mode)
- MOBY D (except MDS D421, MDS D422, MDS D423, MDS D425, MDS D117, MDS D127)

Transponder	Features	Page
MDS D165	SmartLabel, (PET) in credit card format. Applications range from simple identification such as electronic barcode substitution or supplementation to storage and distribution logistics, right up to product identification. <ul style="list-style-type: none"> • 112 bytes EEPROM • IP65 degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions L x W (mm): 86 x 54 	2/53
MDS D261	SmartLabel, (PET) in compact design. Applications range from simple identification such as electronic barcode substitution or supplementation to storage and distribution logistics, right up to product identification. <ul style="list-style-type: none"> • 256 bytes EEPROM • IP65 degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions L x W (mm): 55 x 55 	2/53
MDS D100	Universal transponder in credit card format. <ul style="list-style-type: none"> • 112 bytes EEPROM • IP68 degree of protection • Operating temperature range -25 °C to +80 °C • Dimensions L x W x H (mm): 85.6 x 54 x 0.9 	2/55
MDS D200	Universal transponder in credit card format. <ul style="list-style-type: none"> • 256 bytes EEPROM • IP67 degree of protection • Operating temperature range -20 °C to +60 °C • Dimensions L x W x H (mm): 85.6 x 54 x 0.9 	2/57
MDS D400	Universal transponder in credit card format. <ul style="list-style-type: none"> • 2048 bytes EEPROM • 2000 bytes FRAM • IP67 degree of protection • Operating temperature range -20 °C to +60 °C • Dimensions L x W x H (mm): 85.6 x 54 x 0.8 	2/59

Transponder	Features	Page
MDS D421	Transponder for tool coding according to DIN 69873. It can be used wherever very small data carriers and exact positioning are required (e.g. for tool identification). <ul style="list-style-type: none"> • 2000 bytes FRAM • IP67 / IPx9K degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions diameter x height (mm): Ø 10 x 4.5 Note: This transponder is operated exclusively with the following readers/antennas: SIMATIC RF350R with ANT 12 or ANT 18 and SIMATIC RF210R. Operation with the SIMATIC RF310M mobile reader is not possible.	2/61
MDS D422	Transponder for the identification of metallic workpiece holders, workpieces or containers. <ul style="list-style-type: none"> • 2000 bytes FRAM • IP68 degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions, thread diameter x height (mm): M20 x 6 Note: This transponder is operated exclusively with the following readers/antennas: SIMATIC RF350R with ANT 12, ANT 18, ANT 30 and SIMATIC RF210R, RF220R. Operation with the SIMATIC RF310M mobile reader is not possible.	2/63
MDS D423	Rugged transponder for use in production and distribution logistics as well as in assembly and production lines. <ul style="list-style-type: none"> • 2000 bytes FRAM • IP68 / IPx9K degree of protection • Operating temperature -25 °C to +85 °C • Dimensions diameter x height (mm): Ø 30 x 8 	2/65
MDS D124	Heat-resistant transponder for use in applications with high thermal stress. <ul style="list-style-type: none"> • 112 bytes EEPROM • IP68 / IPx9K degree of protection • Operating temperature range -25 °C to +180 °C • Dimensions diameter x height (mm): Ø 27 x 4 	2/67
MDS D324	Rugged transponder for use in harsh industrial environments and under extreme environmental conditions. <ul style="list-style-type: none"> • 992 bytes EEPROM • IP67 degree of protection • Operating temperature range -25 °C to +125 °C • Dimensions diameter x height (mm): Ø 27 x 4 	2/69
MDS D424	Rugged transponder for use in production and distribution logistics as well as in assembly and production lines. <ul style="list-style-type: none"> • 2000 bytes FRAM • IP67 / IPx9K degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions diameter x height (mm): Ø 27 x 4 	2/71

RFID systems for the HF frequency range

SIMATIC RF200 transponders

Transponders

2

Transponder	Features	Page
MDS D425	Compact and rugged transponder; suitable for screw mounting; for use in assembly and production lines in the powertrain area. <ul style="list-style-type: none"> • 2000 bytes FRAM • IP68 / IPx9K degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions diameter x height (mm): Ø 24 x 10 (without M6 grub screw) 	2/73
MDS D126	Compact and rugged transponder; suitable for identification of transport units in production-related logistics; can also be used under harsh environmental conditions. <ul style="list-style-type: none"> • 112 bytes EEPROM • IP68 degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions diameter x height (mm): Ø 50 x 3.6 	2/75
MDS D426	Compact and rugged transponder; suitable for identification of transport units in production-related logistics; can also be used under harsh environmental conditions. <ul style="list-style-type: none"> • 2000 bytes FRAM • IP68 / IPx9K degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions diameter x height (mm): Ø 50 x 3.6 	2/77
MDS D117	Subminiature transponder, ISO15693-compatible, for flush-mounting in metal. For direct identification of metallic workpiece holders, small workpieces or containers. <ul style="list-style-type: none"> • 112 bytes EEPROM • IP68 / IPx9K degree of protection • Operating temperature range -25 °C to +100 °C • Dimensions, thread x height (mm): Ø 4 x 5 	2/79
MDS D127	Subminiature transponder, ISO15693-compatible, for flush-mounting in metal. For direct identification of metallic workpiece holders, small workpieces or containers. <ul style="list-style-type: none"> • 112 bytes EEPROM • IP68 / IPx9K degree of protection • Operating temperature range -25 °C to +100 °C • Dimensions, thread x height (mm): M6 x 5 	2/80
MDS D428	Compact and rugged transponder; suitable for screw mounting; for use in assembly and production lines in the powertrain area. <ul style="list-style-type: none"> • 2000 bytes FRAM • IP68 / IPx9K degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions diameter x height (mm): Ø 24 x 20 (without M8 grub screw) 	2/81
MDS D139	Heat-resistant transponder for use in paint shops or applications with high thermal stress. <ul style="list-style-type: none"> • 112 bytes EEPROM • IP68 / IPx9K degree of protection • Operating temperature range -25 °C to +220 °C • Dimensions diameter x height (mm): Ø 85 x 15 	2/82

Transponder	Features	Page
MDS D339	Heat-resistant transponder for use in paint shops or applications with high thermal stress. <ul style="list-style-type: none"> • 992 bytes EEPROM • IP68 / IPx9K degree of protection • Operating temperature range -25 °C to +220 °C • Dimensions diameter x height (mm): Ø 85 x 15 	2/84
MDS D160	The transponder has been specially designed for harsh environments in the laundry and cleaning industry. <ul style="list-style-type: none"> • Its main applications include: <ul style="list-style-type: none"> - Rented work clothing - Rented laundry - OP textiles, hospital clothing - Hotel laundry - Dirt collection mats • 112 bytes EEPROM • IP68 / IPx9K degree of protection • Operating temperature range -25 °C to +175 °C • Dimensions diameter x height (mm): Ø 16 x 3 	2/86
MDS D460	Rugged transponder for use in assembly lines. <ul style="list-style-type: none"> • 2000 bytes FRAM • IP67 degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions diameter x height (mm): Ø 16 x 3 	2/88

Customer-specific transponder

Customer-specific transponders (packaging, temperature range, geometry, etc.) on request.

Benefits



The comprehensive portfolio of ISO 15693 transponders offers the right solution for every requirement in production and production logistics:

- Large memory up to 2000 byte FRAM.
- Low-cost transponders can, if necessary, be mounted on metal with a spacer.
- Extremely rugged transponder for high temperature ranges up to 220 °C with ATEX approval for use in paint shops.
- Extremely small transponder for exact positioning, e.g. for tool identification.
- Screw-fit transponders for automatic attachment by means of robots.
- Screw-fit transponders for flush-mounting in metal for identifying workpieces or workpiece holders.
- Customized solutions for SmartLabels and transponders on request.

RFID systems for the HF frequency range

SIMATIC RF200 transponders

Transponders

Technical specifications

Field data (operating/limit distance) of transponders and readers (all specifications in mm)

The following table shows the field data (unaffected by metal) for all ISO transponders (MDS Dxxx) in connection with RF200 readers. The listed technical data are typical values and are valid for a room temperature of +25 °C.

For detailed descriptions and ordering data of these ISO transponders, see pages 2/50 ff. The RF200 readers are described on pages 2/15 ff.

	MDS D165	MDS D261	MDS D100	MDS D200	MDS D400	MDS D421	MDS D422	MDS D423	MDS D124	MDS D324
SIMATIC RF210R	–	–	–	–	–	0 ... 3/4	1 ... 9/10	2 ... 10/12	1 ... 18/20	1 ... 8/9
SIMATIC RF220R	–	–	–	–	–	–	1 ... 12/14	2 ... 24/28	1 ... 28/31	2 ... 21/25
SIMATIC RF240R	2 ... 80/94	2 ... 60/70	2 ... 84/95	2 ... 69/78	2 ... 80/90	–	1 ... 12/15	2 ... 35/40	2 ... 53/60	1 ... 36/40
SIMATIC RF250R with ANT 8	–	–	–	–	–	0 ... 3/4	–	–	–	–
SIMATIC RF250R with ANT 12	–	–	–	–	–	0 ... 3/4	0 ... 7/10	–	–	0 ... 10/13
SIMATIC RF250R with ANT 18	–	–	–	–	–	0 ... 3/5	1 ... 8/14	1 ... 15/18	0 ... 24/37	1 ... 18/27
SIMATIC RF250R with ANT 30	–	–	–	–	–	–	0 ... 12/15	0 ... 18/26	1 ... 35/48	1 ... 22/35
SIMATIC RF260R	2 ... 120/135	2 ... 75/90	2 ... 110/130	2 ... 100/120	2 ... 110/140	–	–	2 ... 40/45	2 ... 80/85	2 ... 60/70
SIMATIC RF290R with ANT D5	0 ... 350/450	0 ... 300/400	0 ... 400/500	0 ... 400/500	0 ... 400/500	–	–	–	0 ... 200/280	0 ... 200/280
SIMATIC RF290R with ANT D6	0 ... 400/500	0 ... 350/450	0 ... 550/650	0 ... 500/600	0 ... 500/650	–	–	–	0 ... 220/300	0 ... 200/280
SIMATIC RF290R with ANT D10	0 ... 350/450	0 ... 350/450	0 ... 500/600	0 ... 450/550	0 ... 400/500	–	–	–	0 ... 200/280	0 ... 200/280

	MDS D424	MDS D425	MDS D126	MDS D426	MDS D117	MDS D127	MDS D428	MDS D139	MDS D339	MDS D160	MDS D460
SIMATIC RF210R	1 ... 16/18	1 ... 7/8	–	–	0 ... 2/2	0 ... 2/2	1 ... 10/11	–	–	1 ... 10/12	1 ... 8/9
SIMATIC RF220R	2 ... 25/29	1 ... 12/14	2 ... 30/35	2 ... 25/30	–	–	1 ... 18/21	–	–	1 ... 20/22	1 ... 18/20
SIMATIC RF240R	1 ... 47/53	1 ... 17/19	2 ... 57/65	2 ... 45/55	–	–	1 ... 30/34	–	–	1 ... 33/37	1 ... 30/34
SIMATIC RF250R with ANT 8	–	–	–	–	0 ... 2/3	0 ... 3/4	–	–	–	–	–
SIMATIC RF250R with ANT 12	–	0 ... 8/10	–	–	0 ... 3/4	0 ... 4/5	1 ... 8/15	–	–	0 ... 12/17	1 ... 10/14
SIMATIC RF250R with ANT 18	1 ... 27/36	1 ... 11/16	–	–	–	–	1 ... 18/25	–	–	1 ... 18/26	1 ... 17/21
SIMATIC RF250R with ANT 30	0 ... 34/48	1 ... 12/20	0 ... 47/60	0 ... 44/58	–	–	1 ... 20/32	–	–	1 ... 23/30	1 ... 21/27
SIMATIC RF260R	2 ... 60/70	–	2 ... 75/100	2 ... 70/85	–	–	2 ... 40/45	2 ... 80/110	5 ... 65/80	2 ... 40/45	2 ... 40/45
SIMATIC RF290R with ANT D5	0 ... 200/280	–	0 ... 350/400	0 ... 300/350	–	–	–	0 ... 400/500	0 ... 300/380	0 ... 130/180	0 ... 120/160
SIMATIC RF290R with ANT D6	0 ... 220/300	–	0 ... 400/500	0 ... 350/400	–	–	–	0 ... 500/600	0 ... 400/480	0 ... 130/180	–
SIMATIC RF290R with ANT D10	0 ... 200/280	–	0 ... 400/500	0 ... 350/400	–	–	–	0 ... 400/500	0 ... 300/380	0 ... 130/180	–

–: Reader-transponder combination not released

Overview



2

Type	Feature	Page
SIMATIC RF210R	M18 reader with integrated antenna. <ul style="list-style-type: none"> • ISO 15693 functionality (HF; 13.56 MHz) • IP67 degree of protection • Temperature range -20 °C to +70 °C • Dimensions, thread diameter x length (mm): M18 x 71 • RS422 interface or IO-Link 	2/16
SIMATIC RF220R	M30 reader with integrated antenna. <ul style="list-style-type: none"> • ISO 15693 functionality (HF; 13.56 MHz) • IP67 degree of protection • Temperature range -20 °C to +70 °C • Dimensions, thread diameter x length (mm): M30 x 71 • RS422 interface or IO-Link 	2/19
SIMATIC RF240R	Very small compact reader with integrated antenna. <ul style="list-style-type: none"> • ISO 15693 functionality (HF; 13.56 MHz) • IP67 degree of protection • Temperature range -20 °C to +70 °C • Dimensions L x W x H (mm): 50 x 50 x 30 • RS422 or RS232 interface 	2/22
SIMATIC RF250R	Extremely small compact reader for connecting external antennas (ANT 8, ANT 12, ANT 18 and ANT 30). <ul style="list-style-type: none"> • ISO 15693 functionality (HF; 13.56 MHz) • IP67 degree of protection • Temperature range -20 °C to +70 °C • Dimensions L x W x H (mm): 50 x 50 x 30 • RS422 or RS232 interface 	2/24

Type	Feature	Page
SIMATIC RF260R	Compact reader with integrated antenna. <ul style="list-style-type: none"> • ISO 15693 functionality (HF; 13.56 MHz) • IP67 degree of protection • Temperature range -20 °C to +70 °C • Dimensions L x W x H (mm): 75 x 75 x 41 • RS422 or RS232 interface or IO-Link 	2/27
SIMATIC RF290R	Compact reader for connecting external antennas. <ul style="list-style-type: none"> • ISO 15693 functionality (HF; 13.56 MHz) • IP67 degree of protection • Temperature range -20 °C to +55 °C • Dimensions L x W x H (mm): 200 x 140 x 80 • RS422 or RS232 interface 	2/30
SIMATIC RF310M	Mobile handheld terminal with integrated read/write unit (see "RF300" for description). <ul style="list-style-type: none"> • Degree of protection IP54 (splash proof) • Temperature range -20 °C to +50 °C • Dimensions L x W x H (mm): 280 x 92 x 42 • WLAN (optional) • Can be used for all ISO 15693 transponders (MDS Dxxx). Note: MDS D117, D127, D421 and D422 can only be operated with RF310M with an external antenna • Can be used for all RF300 transponders 	2/105

RFID systems for the HF frequency range

SIMATIC RF200 readers

SIMATIC RF210R

Overview



SIMATIC RF210R is an M18 reader with integrated antenna. Its extremely compact design makes it ideal for use on small assembly lines.

This reader has either

- an RS-422 interface with transmission procedure 3964R for connection to the RFID communication modules ASM 456, ASM 475, SIMATIC RF160C, RF170C, RF180C and RF182C,
- or a standardized IO-Link interface for connection to IO-Link master modules from Siemens or third parties.

Thanks to its high degree of protection and rugged design, the SIMATIC RF210R reader enables problem-free use even under the toughest industrial conditions. Connection is by means of either an 8-pin M12 plug-in connector (RS422 version) or a 4-pin M12 plug-in connector (IO-Link version).

The reader is operated with ISO 15693-compatible transponders.



Design

Field data

Minimum distance from reader to reader

SIMATIC RF210R	≥ 100 mm
----------------	----------

Technical specifications

Order No.	6GT2821-1AC10	6GT2821-1AC32
Product-type designation	RF210R reader	RF210R reader IO-Link
Suitability for installation	ISO 15693 transponder, for connecting to communication modules	ISO 15693 transponder, for connecting to IO-Link master
Wireless frequencies		
Operating frequency, rated value	13.56 MHz	13.56 MHz
Electrical data		
Range, maximum	20 mm	20 mm
Protocol for radio transmission	ISO 15693, ISO 18000-3	ISO 15693, ISO 18000-3
Transfer rate with radio transmission, maximum	26.5 kbit/s	26.5 kbit/s
Product property multitag-capable	No	No
Transmission rate at point-to-point connection serial, maximum	115.2 kbit/s	38.4 kbit/s
Transmission time for user data		
• for write access per byte, typical	0.6 ms	-
• for read access per byte, typical	0.6 ms	40 ms
Interfaces		
Design of the electrical connection	M12, 8-pin	M12, 4-pin
Standard for interfaces for communication	RS422	IO-Link
Mechanical data		
Material	Brass, nickel-plated / PBT	Brass, nickel-plated / PBT
Color	Silver/pastel turquoise	Silver/pastel turquoise
Tightening torque of screw for mounting the equipment, maximum	20 Nm	20 Nm
Mounting distance for metal surfaces, recommended, minimum	0 m	0 mm

RFID systems for the HF frequency range

SIMATIC RF200 readers

SIMATIC RF210R

2

Order No.	6GT2821-1AC10	6GT2821-1AC32
Product-type designation	RF210R reader	RF210R reader IO-Link
Supply voltage, current consumption, power loss		
Supply voltage for DC		
• rated value	24 V	24 V
• minimum	20.4 V	20.4 V
• maximum	28.8 V	28.8 V
Consumed current at 24 V DC, typical	0.05 A	0.05 A
Permitted ambient conditions		
Ambient temperature		
• during operating	-20 ... +70 °C	-20 ... +70 °C
• during storage	-25 ... +80 °C	-25 ... +80 °C
• during transport	-25 ... +80 °C	-25 ... +80 °C
Protection class IP	IP67	IP67
Resistance against shock	EN 60721-3-7, Class 7 M2	EN 60721-3-7, Class 7 M2
Resistance against shock	500 m/s ²	500 m/s ²
Resistance against vibration	200 m/s ²	200 m/s ²
Design, dimensions and weight		
Height	83 mm	83 mm
Diameter	18 mm	18 mm
Net weight	0.065 kg	0.065 kg
Type of mounting	2 x M18 nuts (included in scope of supply)	2 x M18 nuts (included in scope of supply)
Cable length for RS 422 interface, maximum	1000 m	-
Cable length between master and IO-Link device, maximum	-	20 m
Product properties, functions, components general		
Type of display	3-color LED	3-color LED
Product feature silicon-free	Yes	Yes
Standards, specifications, approvals		
Verification of suitability	Wireless according to R&TTE guidelines EN300 330 and EN 301489, FCC, UL/CSA	Wireless according to R&TTE guidelines EN300 330 and EN 301489, FCC, UL/CSA

RFID systems for the HF frequency range

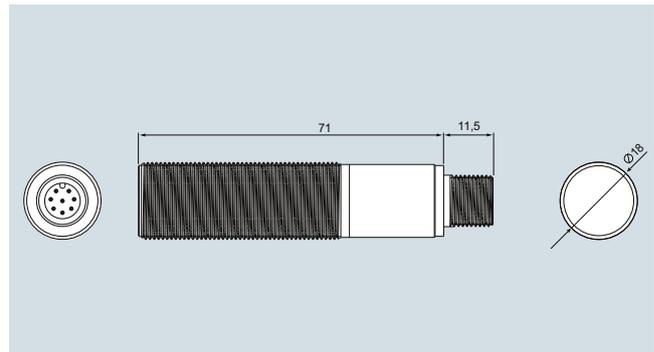
SIMATIC RF200 readers

SIMATIC RF210R

Selection and ordering data

	Order No.
SIMATIC RF210R reader (RS422)	6GT2821-1AC10
SIMATIC RF210R reader (IO-Link)	6GT2821-1AC32
Accessories	
Note: All connection options are shown in Chapter 6 "Communication Modules".	
IO-Link master For SIMATIC ET 200eco PN, for 4 readers.	6ES7148-6JA00-0AB0
IO-Link Master 4SI For SIMATIC ET 200S, for 4 readers.	6ES7138-4GA50-0AB0
IO-Link connecting cables	
• between IO-Link master and reader, with M12 plug on the IO-Link master, open end, 4-pole, 5 m	6GT2891-4LH50
• between IO-Link master and reader, with M12 plug on the IO-Link master, open end, 4-pole, 10 m	6GT2891-4LN10
• between IO-Link master and reader, with M12 plug at both ends, 4-pole, 5 m	6GT2891-0MH50
• between IO-Link master and reader, with M12 plug at both ends, 4-pole, 10 m	6GT2891-0MN10
DVD "RFID Systems Software & Documentation"	6GT2080-2AA20

Dimensional drawings



Reader SIMATIC RF210R

More information

All current approvals are listed in the Internet at:
<http://www.siemens.com/rfid-approvals>

RFID systems for the HF frequency range

SIMATIC RF200 readers

SIMATIC RF220R

Overview



SIMATIC RF220R is an M30 reader with integrated antenna. Its compact design makes it ideal for use in small assembly lines which require a slightly higher range.

This reader has either

- an RS-422 interface with transmission procedure 3964R for connection to the RFID communication modules ASM 456, ASM 475, SIMATIC RF160C, RF170C, RF180C and RF182C,
- or a standardized IO-Link interface for connection to IO-Link master modules from Siemens or third parties.

Thanks to its high degree of protection and rugged design, the SIMATIC RF220R reader enables problem-free use even under the toughest industrial conditions. Connection is by means of either an 8-pin M12 plug-in connector (RS422 version) or a 4-pin M12 plug-in connector (IO-Link version).

The reader is operated with ISO 15693-compatible transponders.



Design

Field data

Minimum distance from reader to reader

SIMATIC RF220R ≥ 150 mm

Technical specifications

Order No.	6GT2821-2AC10	6GT2821-2AC32
Product-type designation	RF220R reader	RF220R reader IO-Link
Suitability for installation	ISO 15693 transponder, for connecting to communication modules	ISO 15693 transponder, for connecting to IO-Link master
Wireless frequencies		
Operating frequency, rated value	13.56 MHz	13.56 MHz
Electrical data		
Range, maximum	35 mm	35 mm
Protocol for radio transmission	ISO 15693, ISO 18000-3	ISO 15693, ISO 18000-3
Transfer rate with radio transmission, maximum	26.5 kbit/s	26.5 kbit/s
Product property multitag-capable	No	No
Transmission rate at point-to-point connection serial, maximum	115.2 kbit/s	38.4 kbit/s
Transmission time for user data		
• for write access per byte, typical	0.6 ms	-
• for read access per byte, typical	0.6 ms	40 ms
Interfaces		
Design of the electrical connection	M12, 8-pin	M12, 4-pin
Standard for interfaces for communication	RS422	IO-Link
Mechanical data		
Material	Brass, nickel-plated / PBT	Brass, nickel-plated / PBT
Color	Silver/pastel turquoise	Silver/pastel turquoise
Tightening torque of screw for mounting the equipment, maximum	40 Nm	40 Nm
Mounting distance for metal surfaces, recommended, minimum	0 mm	0 mm

RFID systems for the HF frequency range

SIMATIC RF200 readers

SIMATIC RF220R

Order No.	6GT2821-2AC10	6GT2821-2AC32
Product-type designation	RF220R reader	RF220R reader IO-Link
Supply voltage, current consumption, power loss		
Supply voltage for DC		
• rated value	24 V	24 V
• minimum	20.4 V	20.4 V
• maximum	28.8 V	28.8 V
Consumed current at 24 V DC, typical	0.05 A	0.05 A
Permitted ambient conditions		
Ambient temperature		
• during operating	-20 ... +70 °C	-20 ... +70 °C
• during storage	-25 ... +80 °C	-25 ... +80 °C
• during transport	-25 ... +80 °C	-25 ... +80 °C
Protection class IP	IP67	IP67
Resistance against shock	EN 60721-3-7, Class 7 M2	EN 60721-3-7, Class 7 M2
Resistance against shock	500 m/s ²	500 m/s ²
Resistance against vibration	200 m/s ²	200 m/s ²
Design, dimensions and weight		
Height	83 mm	83 mm
Diameter	30 mm	30 mm
Net weight	0.14 kg	0.14 kg
Type of mounting	2 x M30 nuts (included in scope of supply)	2 x M30 nuts (included in scope of supply)
Cable length		
• for RS 422 interface, maximum	1000 m	-
• between master and IO-Link device, maximum	-	20 m
Product properties, functions, components general		
Type of display	3-color LED	3-color LED
Product feature silicon-free	Yes	Yes
Standards, specifications, approvals		
Verification of suitability	Wireless according to R&TTE guidelines EN300 330 and EN 301489, FCC, UL/CSA	Wireless according to R&TTE guidelines EN300 330 and EN 301489, FCC, UL/CSA

RFID systems for the HF frequency range

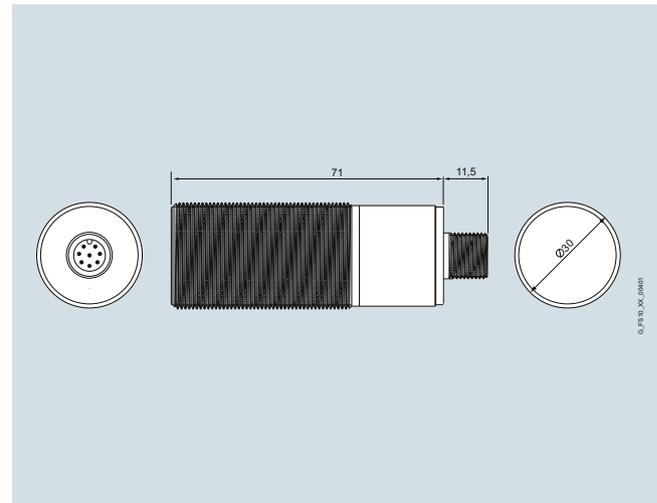
SIMATIC RF200 readers

SIMATIC RF220R

Selection and ordering data

	Order No.
SIMATIC RF220R reader (RS422)	6GT2821-2AC10
SIMATIC RF220R reader (IO-Link)	6GT2821-2AC32
Accessories	
Note: All connection options are shown in Chapter 6 "Communication Modules".	
IO-Link master For SIMATIC ET 200eco PN, for 4 readers.	6ES7148-6JA00-0AB0
IO-Link Master 4SI For SIMATIC ET 200S, for 4 readers.	6ES7138-4GA50-0AB0
IO-Link connecting cables	
• between IO-Link master and reader, with M12 plug on the IO-Link master, open end, 4-pole, 5 m	6GT2891-4LH50
• between IO-Link master and reader, with M12 plug on the IO-Link master, open end, 4-pole, 10 m	6GT2891-4LN10
• between IO-Link master and reader, with M12 plug at both ends, 4-pole, 5 m	6GT2891-0MH50
• between IO-Link master and reader, with M12 plug at both ends, 4-pole, 10 m	6GT2891-0MN10
DVD "RFID Systems Software & Documentation"	6GT2080-2AA20

Dimensional drawings



Reader SIMATIC RF220R

More information

All current approvals are listed in the Internet at:
<http://www.siemens.com/rfid-approvals>

RFID systems for the HF frequency range

SIMATIC RF200 readers

SIMATIC RF240R

Overview



SIMATIC RF240R is a reader with an integrated antenna. Its extra compact design makes it ideal for use in small assembly lines.

This reader has either

- an RS-422 interface with transmission procedure 3964R for connection to the RFID communication modules ASM 456, ASM 475, SIMATIC RF160C, RF170C, RF180C and RF182C,
- or an RS232 interface with a 3964R transmission procedure or ASCII protocol for connection to S7-1200, PC-based systems or third-party controllers.

Thanks to its high degree of protection and rugged design, the SIMATIC RF240R reader enables problem-free use even under the toughest industrial conditions. It is connected via an 8-pole M12 plug-in connector.

The reader is operated with ISO 15693-compatible transponders.



Design

Field data

Minimum distance from reader to reader

SIMATIC RF240R	≥ 120 mm
----------------	----------

Technical specifications

Order No.	6GT2821-4AC10	6GT2821-4AC11	6GT2821-4AC40
Product-type designation	RF240R reader	RF240R reader	RF240R reader ASCII
Suitability for installation	ISO 15693 transponder (MDS Dxxx), for connecting to communication modules.	ISO 15693 transponder (MDS Dxxx), for connecting to PC systems. With 3964R transmission procedure	ISO 15693 transponder (MDS Dxxx), for connecting to PC systems. With ASCII protocol
Wireless frequencies			
Operating frequency, rated value	13.56 MHz	13.56 MHz	13.56 MHz
Electrical data			
Range, maximum	65 mm	65 mm	65 mm
Protocol for radio transmission	ISO 15693, ISO 18000-3	ISO 15693, ISO 18000-3	ISO 15693, ISO 18000-3
Transfer rate with radio transmission, maximum	26.5 kbit/s	26.5 kbit/s	26.5 kbit/s
Product property multitag-capable	No	No	No
Transmission rate at point-to-point connection serial, maximum	115.2 kbit/s	115.2 kbit/s	115.2 kbit/s
Transmission time for user data			
• for write access per byte, typical	0.6 ms	0.6 ms	0.6 ms
• for read access per byte, typical	0.6 ms	0.6 ms	0.6 ms
Interfaces			
Design of the electrical connection	M12, 8-pin	M12, 8-pin	M12, 8-pin
Standard for interfaces for communication	RS422	RS232	RS232
Mechanical data			
Material	PA6.6	PA6.6	PA6.6
Color	Anthracite	Anthracite	Anthracite
Tightening torque of screw for mounting the equipment, maximum	1.5 Nm	1.5 Nm	1.5 Nm
Mounting distance for metal surfaces, recommended, minimum	0 mm	0 mm	0 mm

RFID systems for the HF frequency range

SIMATIC RF200 readers

SIMATIC RF240R

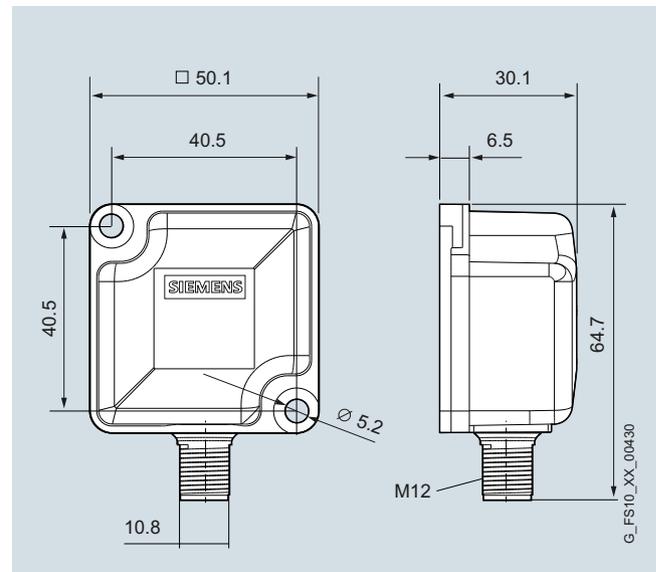
2

Order No.	6GT2821-4AC10	6GT2821-4AC11	6GT2821-4AC40
Product-type designation	RF240R reader	RF240R reader	RF240R reader ASCII
Supply voltage, current consumption			
Supply voltage for DC			
• rated value	24 V	24 V	24 V
• minimum	20.4 V	20.4 V	20.4 V
• maximum	28.8 V	28.8 V	28.8 V
Consumed current at 24 V DC, typical	0.05 A	0.05 A	0.05 A
Permitted ambient conditions			
Ambient temperature			
• during operating	-20 ... +70 °C	-20 ... +70 °C	-20 ... +70 °C
• during storage	-25 ... +80 °C	-25 ... +80 °C	-25 ... +80 °C
• during transport	-25 ... +80 °C	-25 ... +80 °C	-25 ... +80 °C
Protection class IP	IP67	IP67	IP67
Resistance against shock	EN 60721-3-7, Class 7 M2	EN 60721-3-7, Class 7 M2	EN 60721-3-7, Class 7 M2
Resistance against shock	500 m/s ²	500 m/s ²	500 m/s ²
Resistance against vibration	200 m/s ²	200 m/s ²	200 m/s ²
Design, dimensions and weight			
Width x Height x Depth (mm)	50 x 30 x 50	50 x 30 x 50	50 x 30 x 50
Net weight	0.06 kg	0.06 kg	0.06 kg
Type of mounting	2 x M5 screws	2 x M5 screws	2 x M5 screws
Cable length			
• with RS232 interface maximum	-	30 m	30 m
• for RS 422 interface maximum	1000 m	-	-
Product properties, functions, components general			
Type of display	3-color LED	3-color LED	3-color LED
Product feature [not supplied - silicon-free]	Yes	Yes	Yes
Standards, specifications, approvals			
Verification of suitability	Wireless according to R&TTE guidelines EN300 330 and EN 301489, FCC, UL/CSA	Wireless according to R&TTE guidelines EN300 330 and EN 301489, FCC, UL/CSA	Wireless according to R&TTE guidelines EN300 330 and EN 301489, FCC, UL/CSA

Selection and ordering data

	Order No.
SIMATIC RF240R reader (RS422)	6GT2821-4AC10
SIMATIC RF240R reader (RS232 - 3964R)	6GT2821-4AC11
SIMATIC RF240R reader (RS232 - ASCII)	6GT2821-4AC40
Accessories	
Note: All connection options are shown in Chapter 6 "Communication Modules".	
RS232 connecting cable	
Between reader and PC (RS232), 5 m long, material: PUR, CMG approval.	
• 24 V connection with M12 plug	6GT2891-4KH50
• 24 V connection with open ends	6GT2891-4KH50-0AX0
DVD "RFID Systems Software & Documentation"	6GT2080-2AA20

Dimensional drawings



SIMATIC RF240R reader

RFID systems for the HF frequency range

SIMATIC RF200 Reader

SIMATIC RF250R

Overview



SIMATIC RF250R is a reader for operation with external antennas. Thanks to the different cylindrical antenna designs (ANT 8, ANT 12, ANT 18 and ANT 30), the potential applications in the areas of tool identification and small assembly lines are extremely versatile.

This reader has either

- an RS422 interface with 3964R transmission procedure for connection to the RFID communication modules,
- or an RS232 interface with a ASCII protocol for connection to S7-1200, PC-based systems or third-party controllers.

Thanks to its high degree of protection and rugged design, the SIMATIC RF250R reader enables problem-free use even under the toughest industrial conditions. It is connected via an 8-pole M12 plug-in connector.

The reader is operated with ISO 15693-compatible transponders.

Connectable antennas

One of each of the following antennas can be operated on a SIMATIC RF250R reader:

- ANT 8 is a cylindrical antenna and is intended predominantly for the area of tool identification. The extremely small design of the antenna enables extremely accurate positioning, dimensions $\varnothing \times L$ (mm) M8 x 38
- ANT 12, universal round antenna in M12 design for assembly lines with extremely small workpiece holders, dimensions $\varnothing \times L$ (mm) M12 x 40.
- ANT 18, universal round antenna in M18 design for assembly lines with small workpiece holders, dimensions $\varnothing \times L$ (mm) M18 x 55.
- ANT 30, universal round antenna for assembly lines with small workpiece holders, dimensions $\varnothing \times L$ (mm) M30 x 58.

Design

Connectable antennas	ANT 8	ANT 12	ANT 18	ANT 30
Inductive interface to the transponder	13.56 MHz			
Range, max.	4 mm	16 mm	35 mm	55 mm
Antenna cable length (cannot be changed)	3 m ¹⁾	3 m	3 m	3 m
Ambient temperature				
• During operation	-25 ... +70 °C			
• Transport and storage	-40 ... +85 °C			
Protection Rating according to EN 60529	IP67 (front)			
Mechanical stress in accordance with EN 60721 3-7 Class 7 M2				
• Shock	50 g maximum value, no continuous load			
• Vibration	20 g maximum value, no continuous load			
Type of construction				
• Dimensions (mm)	M8 x 38	M12 x 40	M18 x 55	M30 x 58
• Color	Silver/pastel turquoise	Pastel turquoise		
• Weight, approx.	45 g	45 g	120 g	150 g
• Material	Stainless steel	Crastin plastic		
Fixing	2 x M8 stainless steel nuts	2 x M12 nuts	2 x M18 nuts	2 x M30 nuts

¹⁾ The antenna connecting cable is included in the scope of delivery of the antenna and can be connected at both ends (M8 connector straight / M8 angled)

RFID systems for the HF frequency range

SIMATIC RF200 Reader

SIMATIC RF250R

RF250R with antenna	ANT 8	ANT 12	ANT 18	ANT 30
Operating distance (S_a)	See field data of the transponder			
Limit distance (S_g)				
Diameter of the transmission window (L_d)				
Minimum distance (mm) from antenna to antenna (D)				
• ANT 8	60	70	100	150
• ANT 12	70	80	125	200
• ANT 18	100	125	125	200
• ANT 30	150	200	200	200

Technical specifications

Order No.	6GT2821-5AC10	6GT2821-5AC40
Product-type designation	Reader RF250R	Reader RF250R ASCII
Suitability for installation	ISO 15693 transponder (MDS Dxxx), for connecting to communication modules	ISO 15693 transponder (MDS Dxxx), for connecting to PCs and PLCs
Wireless frequencies		
Operating frequency, rated value	13.56 MHz	13.56 MHz
Electrical data		
Range, maximum	35 mm	35 mm
Protocol for radio transmission	ISO 15693, ISO 18000-3	ISO 15693, ISO 18000-3
Transfer rate with radio transmission, maximum	26.5 kbit/s	26.5 kbit/s
Product property multitag-capable	No	No
Transmission rate at point-to-point connection serial, maximum	115.2 kbit/s	115.2 kbit/s
Transmission time for user data		
• for write access per byte, typical	0.6 ms	1.2 ms
• for read access per byte, typical	0.6 ms	1.2 ms
Interfaces		
Design of the electrical connection for external antenna(s)	M8, 4-pin	M8, 4-pin
Number of external antennas	1	1
Standard for interfaces for communication	RS422	RS232
Mechanical data		
Material	PA6.6	PA6.6
Color	Anthracite	Anthracite
Supply voltage, current consumption, power loss		
Supply voltage for DC rated value	24 V	24 V
Supply voltage (DC)	20.4 ... 28.8 V	20.4 ... 28.8 V
Consumed current at 24 V DC, typical	0.05 A	0.05 A
Permitted ambient conditions		
Ambient temperature		
• during operating	-20 ... +70 °C	-20 ... +70 °C
• during storage	-25 ... +80 °C	-25 ... +80 °C
• during transport	-25 ... +80 °C	-25 ... +80 °C
Protection class IP	IP65	IP65
Resistance against shock	EN 60721-3-7, Class 7 M2	EN 60721-3-7, Class 7 M2
Resistance against shock	500 m/s ²	500 m/s ²
Resistance against vibration	200 m/s ²	200 m/s ²
Design, dimensions and weight		
Width	50 mm	50 mm
Height	30 mm	30 mm
Depth	50 mm	50 mm
Net weight	0.06 kg	0.06 kg
Type of mounting	2 x M5 screws	2 x M5 screws

RFID systems for the HF frequency range

SIMATIC RF200 Reader

SIMATIC RF250R

Order No.	6GT2821-5AC10	6GT2821-5AC40
Product-type designation	Reader RF250R	Reader RF250R ASCII
Cable length		
• for RS 232 interface, maximum	-	30 m
• for RS 422 interface, maximum	1000 m	-
Product properties, functions		
Type of display	3-color LED	3-color LED
Product feature silicon-free	Yes	Yes
Standards, specifications, accessories		
Verification of suitability	Wireless according to R&TTE guidelines EN300 330 and EN 301489, FCC, UL/CSA	Wireless according to R&TTE guidelines EN300 330 and EN 301489, FCC, UL/CSA
Accessories	Various antennas are available	Various antennas are available

Selection and ordering data

	Order No.
SIMATIC RF250 reader (RS422 - 3964R) without antenna, for connecting external antennas.	6GT2821-5AC10
SIMATIC RF250R reader (RS422 - ASCII) without antenna, for connecting external antennas.	6GT2821-5AC40
Accessories Note: All connection options are shown in Chapter 6 "Communication Modules".	
External antenna ANT 8 for RF250R readers The antenna connecting cable is included in the scope of delivery of the antenna and can be connected at both ends (M8 connector straight / M8 angled).	6GT2398-1CF00
External antenna ANT 12 for RF250R readers, with antenna connecting cable.	6GT2398-1CC00
External antenna ANT 18 for RF250R readers, with antenna connecting cable.	6GT2398-1CA00
External antenna ANT 30 for RF250R readers, with antenna connecting cable.	6GT2398-1CD00
RS232 connecting cable Between reader and PC (RS232), 5 m long, material: PUR, CMG approval. • 24 V connection with M12 plug • 24 V connection with open ends	6GT2891-4KH50 6GT2891-4KH50-0AX0
DVD "RFID Systems Software & Documentation"	6GT2080-2AA20

More information

All current approvals can be found on the Internet at:
<http://www.siemens.com/rfid-approvals>

RFID systems for the HF frequency range

SIMATIC RF200 readers

SIMATIC RF260R

Overview



SIMATIC RF260R is a reader with an integrated antenna. Its compact design makes it ideal for use in assembly lines.

This reader has either:

- An RS-422 interface with transmission procedure 3964R for connection to the RFID communication modules ASM 456, ASM 475, SIMATIC RF160C, RF170C, RF180C and RF182C,
- or an RS232 interface with a 3964R transmission procedure or ASCII protocol for connection to S7-1200, PC-based systems or third-party controllers,
- or a standardized IO-Link interface for connection to IO-Link master modules from Siemens or third parties.

Thanks to its high degree of protection and rugged design, the SIMATIC RF260R reader enables problem-free use even under the toughest industrial conditions. Connection is by means of either an 8-pin M12 plug-in connector (RS422/RS232 version) or a 4-pin M12 plug-in connector (IO-Link version).

The reader is operated with ISO 15693-compatible transponders.

Design

Field data

Minimum distance from reader to reader

SIMATIC RF260R	≥ 150 mm
----------------	----------

Technical specifications

Order No.	6GT2821-6AC10	6GT2821-6AC11	6GT2821-6AC40	6GT2821-6AC32
Product-type designation	RF260R reader	RF260R reader	RF260R ASCII reader	RF260R reader IO-Link
Suitability for installation	ISO 15693 transponder, for connecting to communication modules	ISO 15693 transponder, for connecting to PCs and PLCs. With transmission procedure 3964R	ISO 15693 transponder, for connecting to PCs and PLCs. With ASCII protocol	ISO 15693 transponder, for connecting to IO-Link master
Wireless frequencies				
Operating frequency, rated value	13.56 MHz	13.56 MHz	13.56 MHz	13.56 MHz
Electrical data				
Range, maximum	135 mm	135 mm	135 mm	135 mm
Protocol for radio transmission	ISO 15693, ISO 18000-3	ISO 15693, ISO 18000-3	ISO 15693, ISO 18000-3	ISO 15693, ISO 18000-3
Transfer rate with radio transmission, maximum	26.5 kbit/s	26.5 kbit/s	26.5 kbit/s	26.5 kbit/s
Product property multitag-capable	No	No	No	No
Transmission rate at point-to-point connection serial, maximum	115.2 kbit/s	115.2 kbit/s	115.2 kbit/s	38.4 kbit/s
Transmission time for user data				
• for write access per byte, typical	0.6 ms	0.6 ms	1.2 ms	-
• for read access per byte, typical	0.6 ms	0.6 ms	1.2 ms	40 ms
Interfaces				
Design of the electrical connection	M12, 8-pin	M12, 8-pin	M12, 8-pin	M12, 4-pin
Standard for interfaces for communication	RS422	RS232	RS232	IO-Link

RFID systems for the HF frequency range

SIMATIC RF200 readers

SIMATIC RF260R

Order No.	6GT2821-6AC10	6GT2821-6AC11	6GT2821-6AC40	6GT2821-6AC32
Product-type designation	RF260R reader	RF260R reader	RF260R ASCII reader	RF260R reader IO-Link
Mechanical data				
Material	PA6.6	PA6.6	PA6.6	PA6.6
Color	Anthracite	Anthracite	Anthracite	Anthracite
Tightening torque of screw for mounting the equipment, maximum	1.5 Nm	1.5 Nm	1.5 Nm	1.5 Nm
Mounting distance for metal surfaces, recommended, minimum	0 mm	0 mm	0 mm	0 mm
Supply voltage, current consumption, power loss				
Supply voltage for DC				
• rated value	24 V	24 V	24 V	24 V
• minimum	20.4 V	20.4 V	20.4 V	20.4 V
• maximum	28.8 V	28.8 V	28.8 V	28.8 V
Consumed current at 24 V DC, typical	0.05 A	0.05 A	0.05 A	0.05 A
Permitted ambient conditions				
Ambient temperature				
• during operating	-20 ... +70 °C			
• during storage	-25 ... +80 °C			
• during transport	-25 ... +80 °C			
Protection class IP	IP67	IP67	IP67	IP67
Resistance against shock	EN 60721-3-7, Class 7 M2			
Resistance against shock	500 m/s ²	500 m/s ²	500 m/s ²	500 m/s ²
Resistance against vibration	200 m/s ²	200 m/s ²	200 m/s ²	200 m/s ²
Design, dimensions and weight				
Width	75 mm	75 mm	75 mm	75 mm
Height	41 mm	41 mm	41 mm	41 mm
Depth	75 mm	75 mm	75 mm	75 mm
Diameter	-	-	-	-
Net weight	0.2 kg	0.2 kg	0.2 kg	0.2 kg
Type of mounting	2 x M5 screws			
Cable length				
• with RS232 interface, maximum	-	30 m	30 m	-
• for RS 422 interface, maximum	1000 m	-	-	-
Cable length between master and IO-Link device maximum	-	-	-	20 m
Product properties, functions, components general				
Type of display	3-color LED	3-color LED	3-color LED	3-color LED
Product feature silicon-free	Yes	Yes	Yes	Yes
Standards, specifications, approvals				
Verification of suitability	Wireless according to R&TTE guidelines EN300 330 and EN 301489, FCC, UL/CSA	Wireless according to R&TTE guidelines EN300 330 and EN 301489, FCC, UL/CSA	Wireless according to R&TTE guidelines EN300 330 and EN 301489, FCC, UL/CSA	Wireless according to R&TTE guidelines EN300 330 and EN 301489, FCC, UL/CSA

RFID systems for the HF frequency range

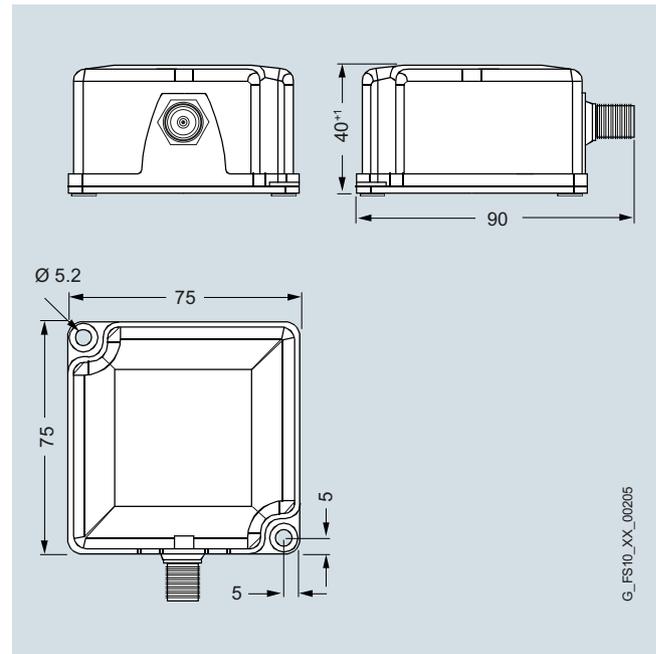
SIMATIC RF200 readers

SIMATIC RF260R

Selection and ordering data

	Order No.
SIMATIC RF260R reader (RS422)	6GT2821-6AC10
SIMATIC RF260R reader (RS232 - 3964R)	6GT2821-6AC11
SIMATIC RF260R reader (RS232 - ASCII)	6GT2821-6AC40
SIMATIC RF260R reader (IO-Link)	6GT2821-6AC32
Accessories	
Note: All connection options are shown in Chapter 6 "Communication Modules".	
RS232 connecting cables	
Between reader and PC (RS232), 5 m long, material: PUR, CMG approval.	
• 24 V connection with M12 plug	6GT2891-4KH50
• 24 V connection with open ends	6GT2891-4KH50-0AX0
IO-Link master	
For SIMATIC ET 200eco PN, for 4 readers	
IO-Link Master 4SI	6ES7138-4GA50-0AB0
For SIMATIC ET 200S, for 4 readers	
IO-Link connecting cables	
• between IO-Link master and reader, with M12 plug on the IO-Link master, open end, 4-pole, 5 m	6GT2891-4LH50
• between IO-Link master and reader, with M12 plug on the IO-Link master, open end, 4-pole, 10 m	6GT2891-4LN10
• between IO-Link master and reader, with M12 plug at both ends, 4-pole, 5 m	6GT2891-0MH50
• between IO-Link master and reader, with M12 plug at both ends, 4-pole, 10 m	6GT2891-0MN10
DVD "RFID Systems Software & Documentation"	6GT2080-2AA20

Dimensional drawings



Reader SIMATIC RF260R

More information

All current approvals are listed in the Internet at:
<http://www.siemens.com/rfid-approvals>

RFID systems for the HF frequency range

SIMATIC RF200 readers

SIMATIC RF290R

Overview



The SIMATIC RF290R reader is a compact long-range reader for the upper performance range and ranges of up to 60 cm. Intended for operation with antennas ANT D5, ANT D6 and ANT D10. The application range for RF290R lies in the area of production control and intralogistics through to gate applications in which longer ranges for HF-RFID are required.

The reader is equipped with a combined RS422/RS232 interface, which is switched over when the corresponding connecting cable is used.

In the RS422 mode, the reader can be connected to SIMATIC S7, PROFIBUS, PROFINET or Ethernet TCP/IP via the communication modules ASM475, ASM456, SIMATIC RF160C, RF180C or RF182C.

In the RS232 mode, the reader is suitable for integration into PC-based control systems. Trigger and alarm signals can be connected via digital inputs/outputs. Furthermore, bulk detection of several hundred transponders is possible.

The antenna switch or the multiplexer enables several individual antennas or portal solutions to be implemented with only one RF290R. The RF260X antenna multiplexer supports the connection of up to 6 antennas to one reader and operates in quasi-parallel mode.

One of each of the following antennas can be operated on a SIMATIC RF290R:

- ANT D5, universal flat antenna, dimensions L x W x H (mm): 380 x 380 x 110.
- ANT D6, universal flat antenna, dimensions L x W x H (mm): 580 x 480 x 110.
- ANT D10, universal flat antenna for warehouse, logistics and distribution, dimensions L x W x H (mm): 1150 x 365 x 115.

Connectable antennas

ANT D5

An antenna for universal applications designed for warehouse, logistics and distribution applications. The high degree of protection (IP65) enables the antenna to be used under harsh industrial conditions.

ANT D6

An antenna in the upper performance range, designed for warehouse, logistics and distribution applications. It can be used wherever high speeds are required together with a large write/read distance.

ANT D10

The ANT D10 is suitable for use in warehouses, logistics and distribution. An antenna with this geometry is required in the clothing industry and laundries in particular.

Design

Connectable antennas	ANT D5	ANT D6	ANT D10
Range	480 mm	650 mm	480 mm

Field data

SIMATIC RF290R with antenna	ANT D5	ANT D6	ANT D10
Operating distance (S_A)	See transponder field data		
Limit distance (S_g)			
Diameter of transmission window (L_D)			
Minimum distance (m) from antenna to antenna (D)			
ANT D5	2		
ANT D6		2	
ANT D10			2

RFID systems for the HF frequency range

SIMATIC RF200 readers

SIMATIC RF290R

Technical specifications

Order No.	6GT2821-0AC12
Product-type designation	RF290R reader
Suitability for installation	MOBY D transponder, for connecting to communication modules and PC systems
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	0.65 m
Range note	Range adjustable in reader via the transmit power
Protocol for radio transmission	ISO 15693, ISO 18000-3
Transfer rate with radio transmission, maximum	26500 bit/s
Product property multitag-capable	Yes
Transmission rate at point-to-point connection serial, maximum	115200 bit/s
Transmission time for user data	
• for write access per byte, typical	0.6 ms
• for read access per byte, typical	0.6 ms
Interfaces	
Design of the electrical connection for external antenna(s)	TNC
Number of external antennas	1
Standard for interfaces for communication	RS422/RS232
Mechanical data	
Material	Aluminum
Color	Silver/anthracite
Supply voltage, current consumption, power loss	
Supply voltage for DC, rated value	24 V
Supply voltage (DC)	21.6 ... 26.4 V
Consumed current at 24 V DC, typical	0.4 A

Order No.	6GT2821-0AC12
Product-type designation	RF290R reader
Permitted ambient conditions	
Ambient temperature	
• during operating	-20 ... +55 °C
• during storage	-25 ... +85 °C
• during transport	-25 ... +85 °C
Protection class IP	IP65
Resistance against shock	EN 60721-3-7 Class 7 M2
Resistance against shock	300 m/s ²
Resistance against vibration	20 m/s ²
Design, dimensions and weight	
Width	200 mm
Height	80 mm
Depth	140 mm
Net weight	1.8 kg
Type of mounting	4 x M6 screws
Cable length	
• of antenna cable, fixed value	-
• for RS 422 interface, maximum	1000 m
Product properties, functions, components general	
Type of display	4 LEDs
Standards, specifications, accessories	
Verification of suitability	CE, FCC, IC (Canada)
Accessories	Various antennas, antenna switch, and antenna multiplexers are available

2

RFID systems for the HF frequency range

SIMATIC RF200 readers

SIMATIC RF290R

Order No.	6GT2698-5AA10	6GT2698-5AB00	6GT2698-5AF00
Product-type designation	Antenna ANT D5	Antenna ANT D6	Antenna ANT D10
Suitability for installation	SIMATIC RF200 with reader RF290R, MOBY D with reader SLG D10, D11	SIMATIC RF200 with reader RF290R, MOBY D with reader SLG D10	SIMATIC RF200 with reader RF290R, MOBY D with reader SLG D10
Wireless frequencies			
Transmission frequency, rated value	13.56 MHz	13.56 MHz	13.56 MHz
Electrical data			
Design of electrical connection of antenna	1-pole TNC connector	1-pole TNC-connector	1-pole TNC connector
Mechanical data			
Material	Aluminum/plastic	Aluminum/plastic	Aluminum/plastic
Color	Black/gray	gray / black	Pastel turquoise (cover), gray/black (antenna)
Mounting distance for metal surfaces, recommended, minimum	0 m	0 m	0 m
Design of the plug-in connection	Female	Female	Female
Permitted ambient conditions			
Ambient temperature			
• during operating	-20 ... +55 °C	-20 ... +55 °C	-20 ... +55 °C
• during storage	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C
• during transport	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C
Protection class IP	IP65	IP65	IP65
Resistance against shock	According to EN 60721-3-7 Class 7M2	According to EN 60721-3-7 Class 7M2	According to EN 60721-3-7 Class 7M2
Resistance against shock	300 m/s ²	300 m/s ²	300 m/s ²
Resistance against vibration	10 m/s ²	10 m/s ²	10 m/s ²
Design, dimensions and weight			
Width	380 mm	480 mm	365 mm
Height	380 mm	580 mm	1 150 mm
Depth	110 mm	110 mm	115 mm
Net weight	2 kg	3.3 kg	10 kg
Type of mounting	4 screws M5	4 screws M6	4 screws M6
Standards, specifications			
Verification of suitability	CE, FCC	CE, FCC, cULus	CE, FCC, cULus

Selection and ordering data

	Order No.		Order No.
Reader SIMATIC RF290R	6GT2821-0AC12	SIMATIC RF260X antenna multiplexer	6GT2894-0EA00
Without antenna		Antenna multiplexer for RF290R reader; 6 x antenna outputs (for ANT D5, ANT D6 and ANT D10); IP65; 240 mm x 150 mm x 70 mm; including antenna cable, cable length 0.4 m.	
Antennas for SIMATIC RF290R reader		Covering hood for ANT D6	6GT2690-0AD00
• Antenna ANT D5	6GT2698-5AA10	Serves as protection against contact.	
• Antenna ANT D6	6GT2698-5AB00	RS232 connecting cable	
• Antenna ANT D10	6GT2698-5AF00	Between reader and PC (RS232), 5 m long, material: PUR, CMG approval.	
Cover and antenna cable included in scope of delivery.		• 24 V connection with M12 plug	6GT2891-4KH50
Accessories		• 24 V connection with open ends	6GT2891-4KH50-0AX0
Note: All connection options are shown in Chapter 6 "Communication Modules".		DVD "RFID Systems Software & Documentation"	6GT2080-2AA20
Antenna switch	6GT2690-0AC00		
For connecting several antennas (ANT D5 or ANT D6) to one reader.			

More information

All current approvals are listed in the Internet at:
<http://www.siemens.com/rfid-approvals>

Overview



The RFID system SIMATIC RF300 is particularly suitable for use in industrial production in the areas of production control, assembly lines and conveyors.

SIMATIC RF300 is used to implement identification tasks with medium to high performance in the HF range (13.56 MHz).

Depending on the demands on the performance of the identification system, three versions of the system are available:

- A particularly economical solution with a link to SIMATIC S7-300 over the IQ-Sense interface for low requirements in terms of speed and data volume.
- Medium performance: System configuration with SIMATIC RF300 readers in ISO 15963 mode and low-cost MOBY D transponders.
- High performance: System configuration with SIMATIC RF300 readers in RF300 mode and SIMATIC RF300 transponders.

The SIMATIC RF300 identification system offers the following features:

- 13.56 MHz operating frequency
- For operating with ISO 15693 mode or RF300 mode
- Passive (without battery), maintenance-free transponder (MDS Dxxx and RF3xxT) with memory up to 64 KB
- Rugged, compact components with IP67 / IP68 degree of protection
- Very high immunity to noise
- Extensive diagnostic functions
- Extremely fast data transmission
- Easy integration in SIMATIC, PROFIBUS, PROFINET and TCP/IP.

Benefits

get Designed for Industry

- Rugged, compact components with high degree of protection (up to IP68).
- Data communication that is highly resistant to interference with a high degree of data security.
- Maintenance-free data carriers with up to 64 KB.
- Extremely high-speed data transmission between reader and tag (up to 7.8 kbytes/s).
- Flexible and economic solutions thanks to the complete and scalable portfolio for the field of industrial identification.
- Simplified engineering, commissioning, diagnostics and maintenance through seamless integration into Totally Integrated Automation:
 - Integrated bus connection to an automation system, such as SIMATIC, SIMOTION or SINUMERIK via communication modules with PROFIBUS and PROFINET.
 - Simple S7 software integration via ready-to-use function blocks.
 - Extensive status and diagnostic functions.
- High degree of investment protection thanks to:
 - Open ISO 15693 standard.
 - Software compatibility between the RFID systems of Siemens.
 - Standardized communication interfaces.
- Openness through connection possibilities to various bus systems from different manufacturers and PC environments via communication modules.
- Worldwide Service and Support.

Application

The RFID system SIMATIC RF300 is used primarily for contact-free identification of containers, pallets and workpiece holders in a closed production cycle. This means that the data carriers (transponders, tags) remain in the production chain and are not shipped out with the products. Thanks to the compact enclosure dimensions of the transponders as well as of the read/write devices, SIMATIC RF300 is particularly suitable for (small) assembly lines where space is at a premium.

The main application areas of SIMATIC RF300 are:

- Assembly and handling systems, assembly lines (identification of workpiece carriers)
- Production logistics (material flow control, identification of containers and other vessels)
- Parts identification (e.g. transponder is attached to product or pallet)
- Conveyor systems (e.g. overhead monorail conveyors)

RFID systems for the HF frequency range

SIMATIC RF300

Introduction

Design

The high IP67 degree of protection of the SIMATIC RF300 reader enables it to be used in harsh industrial environments.

The SIMATIC RF310R, RF340R and RF380R devices have an integrated antenna. The SIMATIC RF350R reader is operated with an external antenna.

Each SIMATIC RF300 reader has a multicolor LED which locally indicates the function and status of the reader as well as of the transponder.

The interface to the automation level can be implemented by means of communication modules. For quick and easy cabling, pre-assembled cables with M12 plug-in connectors are available in various lengths.

All readers can be operated either according to the RFID standard ISO 15693, or in high-performance RF300 mode.

Depending on the mode of the reader, a comprehensive range of transponders is available for a wide variety of requirements.

For use in accordance with ISO 15693 there are various versions, e.g. low-cost SmartLabels for simple identification tasks, rugged credit card formats or screw-fit transponders that can be attached automatically by robots.

Additional transponders are available for selection for the high-performance RF300 mode, e.g. particularly heat-resistant transponders for temperatures up to +220 °C, or particularly compact rectangular designs for use on small workpiece holders.

The transponders are attached to the object to be identified, e.g. by means of screws, adhesive, gluing or pre-assembled spacer.

Function

All of the SIMATIC RF300 readers are suitable for reliable reading and writing tasks in the HF range of 13.56 MHz. In the ISO 15693 operating mode, identification tasks in the medium-performance range are possible.

The RF300 mode permits high-performance operation with a high-speed data transmission of up to 7.8 kbytes/s and is therefore one of the fastest RFID systems in the HF range.

Connection of readers to the automation level (e.g. SIMATIC S7) via standard fieldbuses (e.g. PROFIBUS or PROFINET) is by means of communication modules to which the readers can be connected via an RS422 interface.

User-friendly function blocks are available for the S7 programming.

In the event of an error, the S7 application receives a detailed error message from the communication module via the function block.

In addition, there is the option of the SIMATIC RF380R readers with an RS232 interface for the connection to the PC or to SIMATIC S7-1200.

The two readers SIMATIC RF382R and RF310R as scan mode versions (read only) are available for identification tasks without special command control. In these variants, the reader reads each detected transponder (UID or user data) automatically and outputs this data via the serial interface to be received by a PC, for example.

The SIMATIC RF310R reader is available with an IQ-Sense interface for low requirements in terms of speed and data volume.

Extended diagnostics functions in RF300 mode, such as the field strength measured variable or the signature error counter, enable the HF field or the quality of the air interface to be measured.

Integration

A wide range of communication modules, function blocks, as well as high-performance drivers and function libraries permits easy and quick integration into the application.

And best of all: SIMATIC RF300 is part of Totally Integrated Automation and can be integrated easily and cost-effectively into the SIMATIC world.

For more details on the connection possibilities, see Chapter 6 "Communication Modules".

Configuration guide for RFID systems

Here is a compact configuration tool for setting up RFID systems:

<http://support.automation.siemens.com/WW/view/en/67384964>

Technical specifications

RFID system	SIMATIC RF300
Transmission frequency	13.56 MHz
Maximum range	210 mm
Protocol (air interface)	<ul style="list-style-type: none"> • ISO 15693 • ISO 18000-3 • RF300 (proprietary)
Approvals ¹⁾	<ul style="list-style-type: none"> • EN 300330, 301489, CE • FCC Part 15 • UL/CSA • ATEX
Memory capacity	Max. 64 KB
Data transmission rate reader – transponder	<ul style="list-style-type: none"> • Read • Write
Multitag/Bulk capability	Yes
Special features	<ul style="list-style-type: none"> • High data transfer rate • Extended diagnostic possibilities • High memory capacity

¹⁾ All current approvals are listed in the Internet at <http://www.siemens.com/rfid-approvals>

RFID systems for the HF frequency range

SIMATIC RF300 transponders (RF300 mode)

Introduction

Overview



Transponder	Features
SIMATIC RF320T	Universal, compact transponder. <ul style="list-style-type: none"> • 20 + 4 bytes EEPROM • Degree of protection IP67 / IPx9K¹⁾ • Operating temperature range -25 °C to +125 °C • Dimensions diameter x height (mm): Ø 27 x 4
SIMATIC RF340T	Universal transponder, for mounting directly on metal. <ul style="list-style-type: none"> • 8 KB FRAM + 24 byte EEPROM • Degree of protection IP68 / IPx9K¹⁾ • Operating temperature range -25 °C to +85 °C • Dimensions L x W x H (mm): 48 x 25 x 15
SIMATIC RF350T	Universal transponder, for mounting directly on metal. <ul style="list-style-type: none"> • 32 KB FRAM + 24 byte EEPROM • IP68 degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions L x W x H (mm): 50 x 50 x 20
SIMATIC RF360T	Universal transponder in credit card format. <ul style="list-style-type: none"> • 8 KB FRAM + 24 byte EEPROM • IP67 degree of protection • Operating temperature range -25 °C to +75 °C • Dimensions L x W x H (mm): 86 x 55 x 2.5
SIMATIC RF370T	Universal transponder, for mounting directly on metal. <ul style="list-style-type: none"> • 32 KB FRAM + 24 byte EEPROM or 64 KB FRAM + 24 byte EEPROM • IP68 degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions L x W x H (mm): 75 x 75 x 41
SIMATIC RF380T	Heat-resistant transponder, designed for skid identification in paint shops, for mounting directly on metal. <ul style="list-style-type: none"> • 32 KB FRAM + 24 byte EEPROM • IP68 degree of protection • Operating temperature range -25 °C to +220 °C (cyclic) • Dimensions diameter x height (mm): Ø 114 x 83

Benefits

get **Designed for Industry**

The comprehensive portfolio of SIMATIC RF300 transponders offers the right solution for every requirement in production:

- For high-performance applications.
- Large memory up to 64 KB.
- IP68 / IPx9K degree of protection.
- Extremely rugged transponder for high temperature ranges up to 220 degrees with ATEX approval for use in paint shops.
- Customized solutions for SmartLabels and transponders on request.

2

1) Excerpt:
 Test equipment: Steam jet 0 °C, 30 °C, 60 °C, 90 °C
 Water flow rate: 10 to 15 l/min at 100 bar (75 °C)
 Distance: 10 to 15 cm

RFID systems for the HF frequency range

SIMATIC RF300 transponders (RF300 mode)

Introduction

Technical specifications

Field data (operating/limit distance) of transponders and readers (all specifications in mm)

The following table shows the field data (unaffected by metal) for the RF300 transponders (SIMATIC RF3xxT) in connection with RF300 readers. The listed technical data are typical values and are valid for a room temperature of +25 °C.

Transponder	SIMATIC RF320T	SIMATIC RF340T	SIMATIC RF350T	SIMATIC RF360T	SIMATIC RF370T	SIMATIC RF370T	SIMATIC RF390T
Order No.	6GT2800-1CA00	6GT2800-4BB00	6GT2800-5BD00	6GT2800-4AC00	6GT2800-5BE00	6GT2800-6BE00	6GT2800-5DA00
Reader							
SIMATIC RF310R	1 ... 23/26	2 ... 36/41	2 ... 47/53	2 ... 60/68	-	-	-
SIMATIC RF340R	1 ... 20/25	2 ... 50/65	2 ... 60/75	2 ... 65/85	5 ... 60/80	5 ... 60/80	5 ... 80/100
SIMATIC RF350R with ANT 1	1 ... 30/40	2 ... 55/70	2 ... 65/85	2 ... 75/100	5 ... 65/85	5 ... 65/85	5 ... 90/110
SIMATIC RF350R with ANT 12	-	-	-	-	-	-	-
SIMATIC RF350R with ANT 18	0 ... 10/15	0 ... 20/25	-	-	-	-	-
SIMATIC RF350R with ANT 30	0 ... 15/20	0 ... 30/35	0 ... 35/40	-	-	-	-
SIMATIC RF380R	2 ... 45/60	2 ... 80/105	2 ... 100/125	2 ... 120/150	5 ... 100/135	5 ... 100/135	5 ... 125/160
SIMATIC RF382R	-	-	-	-	-	-	-

Selection and ordering data

Detailed descriptions and ordering data of these RF300 transponders: See from page 2/37 onwards. The RF300 readers are described from page 2/90 onwards.

RFID systems for the HF frequency range

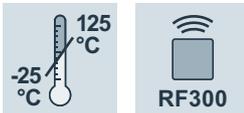
SIMATIC RF300 transponders (RF300 mode)

SIMATIC RF320T

Overview



Universal, compact transponder (20 + 4 bytes EEPROM) in button format (Ø 27 mm x 4 mm).



2

Technical specifications

Order No.	6GT2800-1CA00
Product-type designation	RF320T transponder
Suitability for installation	RF300
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	60 mm
Protocol for radio transmission	RF300-specific
Transfer rate with radio transmission, maximum	106 kbit/s
Product property multitag-capable	Yes
Product component Buffer battery	No
Memory	
Type of memory	EEPROM
Memory capacity of user memory	20 byte
Type of memory organization	UID (fixed code) 4 bytes, user memory 20 bytes,
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁴
Number of write cycles at ambient temperature < 40 °C, maximum	10 ⁵
Data retention time at ambient temperature < 40 °C, at least	10 a
Property of memory	Block-by-block write protection of the user memory
Mechanical data	
Material	Epoxy resin
Color	Black
Mounting distance for metal surfaces, recommended, minimum	20 mm

Order No.	6GT2800-1CA00
Product-type designation	RF320T transponder
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +125 °C
• during storage	-40 ... +150 °C
• during transport	-40 ... +150 °C
Protection class IP	IP67 / IPx9K
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	1000 m/s ²
Resistance against vibration	200 m/s ²
Design, dimensions and weight	
Height	4 mm
Diameter	27 mm
Net weight	5 g
Type of mounting	Screw M3, gluing
Product properties, functions, components general	
Product feature silicon-free	Yes
Product property suitable for printing	No
Accessories	
Accessories	Mounting support and spacer

RFID systems for the HF frequency range

SIMATIC RF300 transponders (RF300 mode)

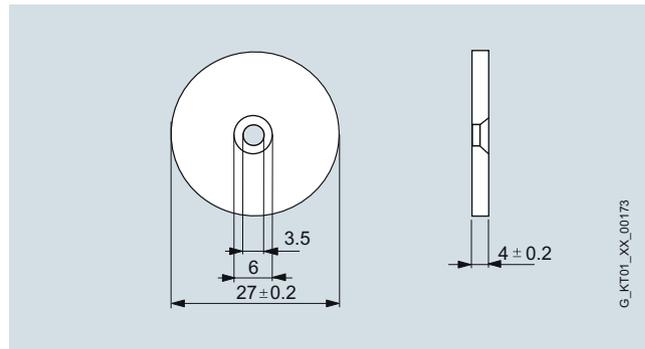
SIMATIC RF320T

Selection and ordering data

	Order No.
Transponder SIMATIC RF320T 20 bytes EEPROM Ordering quantity 20 units or a multiple thereof.	6GT2800-1CA00
Accessories	
Spacer For MDS D124, MDS D324, MDS D424 and RF320T. Necessary for mounting onto metal surfaces. Diameter = 35 mm, height = 15 mm. Ordering quantity 20 units or a multiple thereof.	6GT2690-0AK00



Dimensional drawings



SIMATIC RF320T transponder

RFID systems for the HF frequency range

SIMATIC RF300 transponders (RF300 mode)

SIMATIC RF340T

Overview



Universal transponder (8 KB FRAM + 24 byte EEPROM + 4 byte serial number), particularly suitable for small workpiece carriers. For mounting directly onto metal.



2

Technical specifications

Order No.	6GT2800-4BB00
Product-type designation	RF340T transponder
Suitability for installation	RF300
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	105 mm
Protocol for radio transmission	RF300-specific
Transfer rate with radio transmission, maximum	106 kbit/s
Product property multitag-capable	Yes
Product component Buffer battery	No
Memory	
Type of memory	FRAM/EEPROM
Memory capacity of user memory	8189 byte
Type of memory organization	UID (fixed code) 4 bytes, user memory 8 189 bytes, OTP memory 20 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Number of write cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Data retention time at ambient temperature < 40°C, at least	10 a
Property of memory	Block-by-block write protection of the OTP memory
Mechanical data	
Material	PA12
Color	Black
Mounting distance for metal surfaces, recommended, minimum	0 mm

Order No.	6GT2800-4BB00
Product-type designation	RF340T transponder
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +85 °C
• during storage	-40 ... +85 °C
• during transport	-40 ... +85 °C
Protection class IP	IP67 / IPx9K ¹⁾
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	500 m/s ²
Resistance against vibration	200 m/s ²
Design, dimensions and weight	
Width	25 mm
Height	15 mm
Depth	48 mm
Net weight	25 g
Type of mounting	2 screws M3
Product properties, functions, components general	
Product feature silicon-free	Yes
Product property suitable for printing	No

1) Extract:
 Test equipment: Steam jet 0 °C, 30 °C, 60 °C, 90 °C
 Water flowrate: 10 to 15 l/min at 100 bar (75 °C)
 Distance: 10 to 15 cm

RFID systems for the HF frequency range

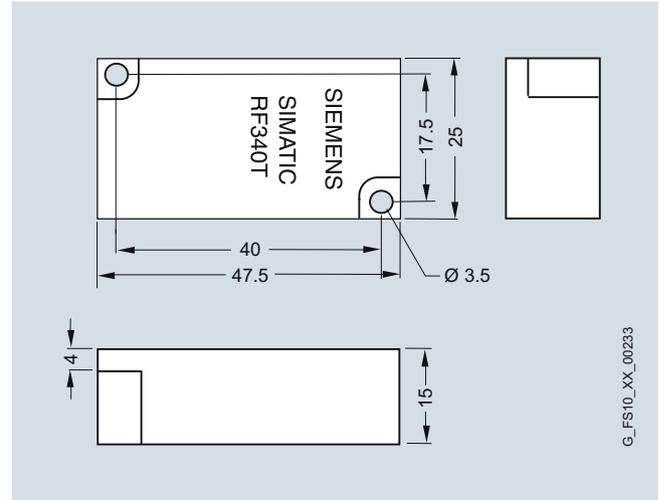
SIMATIC RF300 transponders (RF300 mode)

SIMATIC RF340T

Selection and ordering data

	Order No.
Transponder SIMATIC RF340T	6GT2800-4BB00
8 KB FRAM	
Ordering quantity 5 units or a multiple thereof.	

Dimensional drawings



SIMATIC RF340T transponder

RFID systems for the HF frequency range

SIMATIC RF300 transponders (RF300 mode)

SIMATIC RF350T

Overview



Universal transponder (32 KB FRAM + 24 byte EEPROM).
For mounting directly onto metal.



2

Technical specifications

Order No.	6GT2800-5BD00
Product-type designation	RF350T transponder
Suitability for installation	RF300
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	125 mm
Protocol for radio transmission	RF300-specific
Transfer rate with radio transmission, maximum	106 kbit/s
Product property multitag-capable	Yes
Product component Buffer battery	No
Memory	
Type of memory	FRAM/EEPROM
Memory capacity of user memory	32765 byte
Type of memory organization	UID (fixed code) 4 bytes, user memory 32765 bytes, OTP memory 20 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Number of write cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Data retention time at ambient temperature < 40°C, at least	10 a
Property of memory	Block-by-block write protection of the OTP memory
Mechanical data	
Material	PA12
Color	Black
Mounting distance for metal surfaces, recommended, minimum	0 mm

Order No.	6GT2800-5BD00
Product-type designation	RF350T transponder
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +85 °C
• during storage	-40 ... +85 °C
• during transport	-40 ... +85 °C
Protection class IP	IP68
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	500 m/s ²
Resistance against vibration	200 m/s ²
Design, dimensions and weight	
Width	50 mm
Height	20 mm
Depth	50 mm
Net weight	25 g
Type of mounting	2 screws M4
Product properties, functions, components general	
Product feature silicon-free	Yes
Product property suitable for printing	No

RFID systems for the HF frequency range

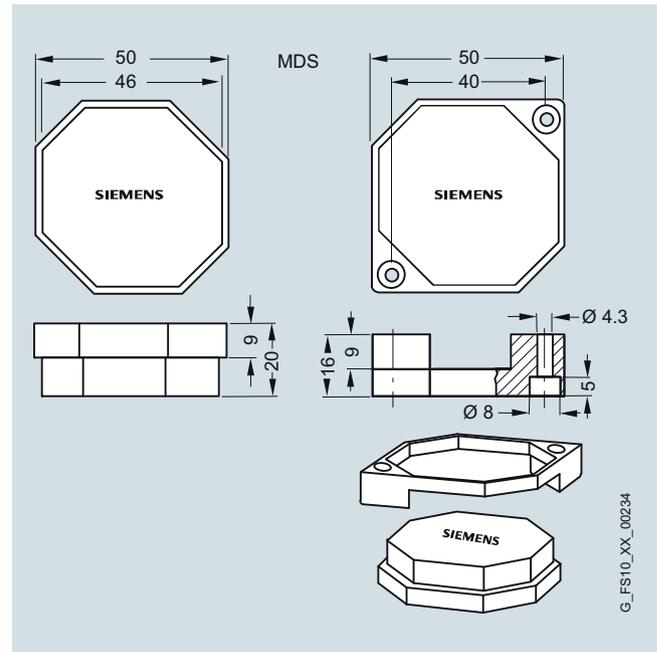
SIMATIC RF300 transponders (RF300 mode)

SIMATIC RF350T

Selection and ordering data

	Order No.
Transponder SIMATIC RF350T 32 KB FRAM	6GT2800-5BD00

Dimensional drawings



Left: Transponder SIMATIC RF350T.

Top right: Mounting frame.

Lower right: Installation diagram. The transponder can be mounted with the mounting frame as shown.

RFID systems for the HF frequency range

SIMATIC RF300 transponders (RF300 mode)

SIMATIC RF360T

Overview



Universal transponder in credit card format (8 KB FRAM + 24 byte EEPROM). For mounting with spacer onto metal.



2

Technical specifications

Order No.	6GT2800-4AC00
Product-type designation	RF360T transponder
Suitability for installation	RF300
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	150 mm
Protocol for radio transmission	RF300-specific
Transfer rate with radio transmission, maximum	106 kbit/s
Product property multitag-capable	Yes
Product component Buffer battery	No
Memory	
Type of memory	FRAM/EEPROM
Memory capacity of user memory	8189 byte
Type of memory organization	UID (fixed code) 4 bytes, user memory 8 189 bytes, OTP memory 20 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Number of write cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Data retention time at ambient temperature < 40°C, at least	10 a
Property of memory	Block-by-block write protection of the OTP memory
Mechanical data	
Material	Epoxy resin
Color	Black
Mounting distance for metal surfaces, recommended, minimum	20 mm

Order No.	6GT2800-4AC00
Product-type designation	RF360T transponder
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +75 °C
• during storage	-40 ... +85 °C
• during transport	-40 ... +85 °C
Protection class IP	IP67
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	500 m/s ²
Resistance against vibration	200 m/s ²
Mechanical stress resistance	Continuous torsion and bending stress not permissible
Design, dimensions and weight	
Width	55 mm
Height	2.5 mm
Depth	86 mm
Net weight	25 g
Type of mounting	2 screws M3, fixing pocket (see under "Accessories")
Product properties, functions, components general	
Product feature silicon-free	Yes
Product property suitable for printing	No
Accessories	
Accessories	Fixing pocket, spacer

RFID systems for the HF frequency range

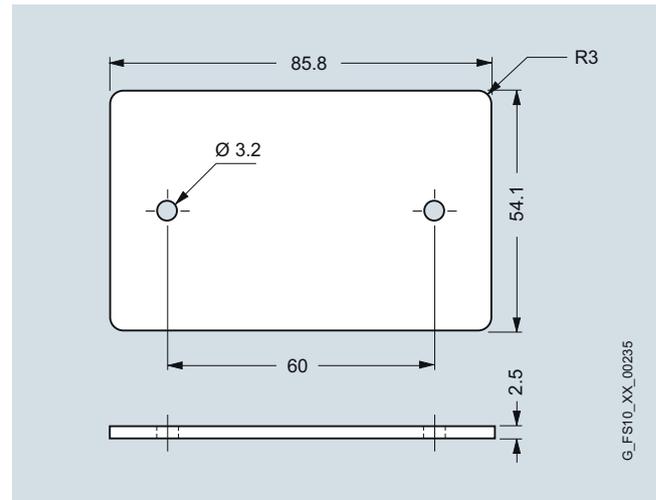
SIMATIC RF300 transponders (RF300 mode)

SIMATIC RF360T

Selection and ordering data

	Order No.
Transponder SIMATIC RF360T 8 KB FRAM Ordering quantity 10 units or a multiple thereof.	6GT2800-4AC00
Accessories	
Fixing pocket For SIMATIC RF360T, only usable together with spacer 6GT2190-0AA00. Ordering quantity 50 units or a multiple thereof.	6GT2190-0AB00
	
Spacer For 6GT2190-0AB00 fixing pocket, thickness 20 mm The purpose of the spacer is to maintain the recommended distance to the metal when installing the transponder. Ordering quantity 50 units or a multiple thereof.	6GT2190-0AA00
	

Dimensional drawings



SIMATIC RF360T transponder

RFID systems for the HF frequency range

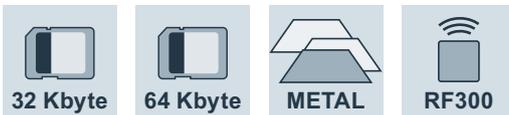
SIMATIC RF300 transponders (RF300 mode)

SIMATIC RF370T

Overview



Universal transponder in block format (available with 32 or 64 KB FRAM + 24 byte EEPROM). For mounting directly onto metal.



Technical specifications

Order No.	6GT2800-5BE00	6GT2800-6BE00
Product-type designation	RF370T transponder	RF370T transponder
Suitability for installation	RF300	RF300
Wireless frequencies		
Operating frequency, rated value	13.56 MHz	13.56 MHz
Electrical data		
Range, maximum	135 mm	135 mm
Protocol for radio transmission	RF300-specific	RF300-specific
Transfer rate with radio transmission, maximum	10 ⁹ bit/s	10 ⁹ bit/s
Product property multitag-capable	Yes	Yes
Product component Buffer battery	No	No
Memory		
Type of memory	FRAM/EEPROM	FRAM/EEPROM
Memory capacity of user memory	32765 byte	65277 byte
Type of memory organization	UID (fixed code) 4 bytes, user memory 32765 bytes, OTP memory 20 bytes	UID (fixed code) 4 bytes, user memory 65277 bytes, OTP memory 20 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁰	10 ¹⁰
Number of write cycles at ambient temperature < 40 °C, maximum	10 ¹⁰	10 ¹⁰
Data retention time at ambient temperature < 40°C, at least	10 a	10 a
Property of memory	Block-by-block write protection of the OTP memory	Block-by-block write protection of the OTP memory

RFID systems for the HF frequency range

SIMATIC RF300 transponders (RF300 mode)

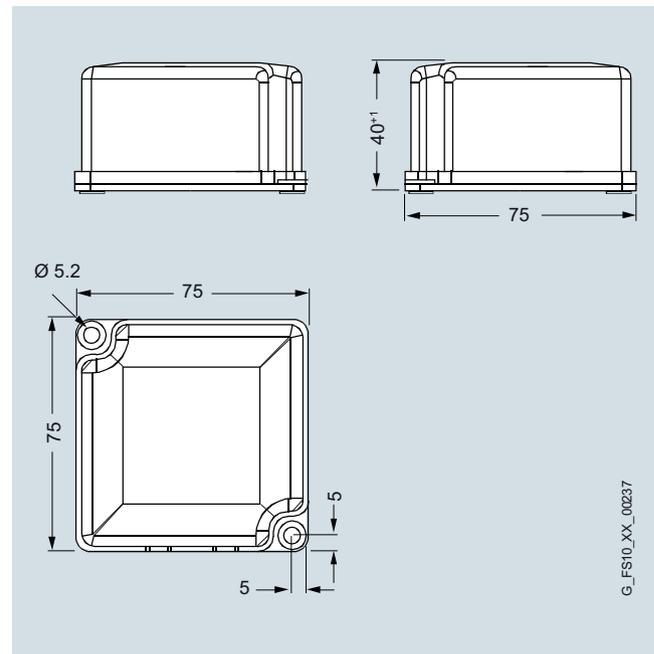
SIMATIC RF370T

Order No.	6GT2800-5BE00	6GT2800-6BE00
Product-type designation	RF370T transponder	RF370T transponder
Mechanical data		
Material	PA12	PA12
Color	black	black
Tightening torque of screw for mounting the equipment, maximum	1.2 Nm	1.2 Nm
Mounting distance for metal surfaces, recommended, minimum	0 mm	0 mm
Permitted ambient conditions		
Ambient temperature		
• during operating	-25 ... +85 °C	-25 ... +85 °C
• during storage	-40 ... +85 °C	-40 ... +85 °C
• during transport	-40 ... +85 °C	-40 ... +85 °C
Protection class IP	IP68	IP68
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	500 m/s ²	500 m/s ²
Resistance against vibration	200 m/s ²	200 m/s ²
Design, dimensions and weight		
Width	75 mm	75 mm
Height	41 mm	41 mm
Depth	75 mm	75 mm
Net weight	200 g	200 g
Type of mounting	2 screws M5	2 screws M5
Product properties, functions, components general		
Product feature silicon-free	Yes	Yes
Product property suitable for printing	No	No

Selection and ordering data

	Order No.
Transponder SIMATIC RF370T	6GT2800-5BE00
With 32 KB FRAM	
Transponder SIMATIC RF370T	6GT2800-6BE00
With 64 KB FRAM	

Dimensional drawings



SIMATIC RF370T transponder

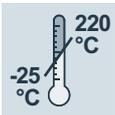
G_FS10_XX_00237

RFID systems for the HF frequency range

SIMATIC RF300 transponders (RF300 mode)

SIMATIC RF380T

Overview



Heat-resistant transponder, designed for skid identification in paint shops (32 KB FRAM + 24 byte EEPROM), temperature range up to +220 °C (cyclic).

Application

Typical applications are:

- Primer application, cataphoresis with the associated drying ovens
- Outer paint coating area with drying ovens
- Washing area with temperatures > +85°C

2

Mode of operation

Cyclic operation of the transponder at temperatures > 100 °C

At ambient temperatures between +110 °C and +220 °C, care must be taken to ensure that the internal temperature of the SIMATIC RF380T does not exceed the critical threshold of +110 °C. Each heating phase must therefore be followed by a cooling phase. Some limit cycles are listed in the table below.

Heating up		Cooling down	
Temperature	Time	Temperature	Time
200 °C	2 h	25 °C	> 8 h
200 °C	1 h	25 °C	> 2 h
190 °C	2 h	25 °C	> 7 h
190 °C	1 h	25 °C	> 1 h 45 min
180 °C	2 h	25 °C	> 5 h 30 min
180 °C	2 h	25 °C	> 4 h 30 min

A temperature calculation tool can compute the temperature curve for the heat-proof SIMATIC RF380T transponder (see DVD "RFID Systems Software & Documentation", Order No. 6GT2080-2AA20).

RFID systems for the HF frequency range

SIMATIC RF300 transponders (RF300 mode)

SIMATIC RF380T

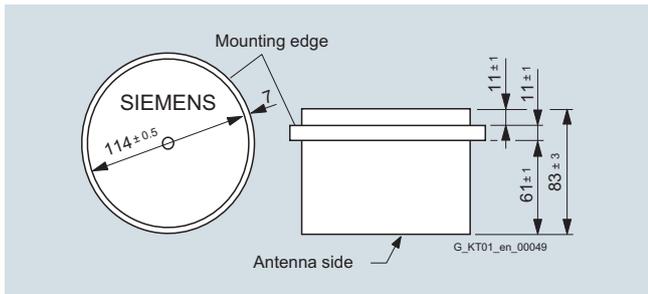
Technical specifications

Order No.	6GT2800-5DA00
Product-type designation	RF380T transponder
Suitability for installation	RF300
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	160 mm
Protocol for radio transmission	RF300-specific
Transfer rate with radio transmission, maximum	106 kbit/s
Product property multitag-capable	Yes
Product component Buffer battery	No
Memory	
Type of memory	FRAM/EEPROM
Memory capacity of user memory	32765 byte
Type of memory organization	UID (fixed code) 4 bytes, user memory 32765 bytes, OTP memory 20 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Number of write cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Data retention time at ambient temperature < 40°C, at least	10 a
Property of memory	Block-by-block write protection of the OTP memory
Mechanical data	
Material	PPS
Color	Brown
Mounting distance for metal surfaces, recommended, minimum	0 m
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +220 °C
• during storage	-40 ... +110 °C
• during transport	-40 ... +110 °C
Ambient condition for (standard) operation mode	Cyclic operation at ambient temperature > 110 °C
Protection class IP	IP68
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	500 m/s ²
Resistance against vibration	200 m/s ²
Design, dimensions and weight	
Height	83 mm
Diameter	114 mm
Net weight	900 g
Type of mounting	Holder, (see under "Accessories")
Product properties, functions, components general	
Product feature silicon-free	Yes
Product property suitable for printing	No
Standards, specifications, approvals	
Verification of suitability	Ex: II 3G Ex nC IIB T5
Accessories	
Accessories	Skid holder, shrouding cover, universal holder

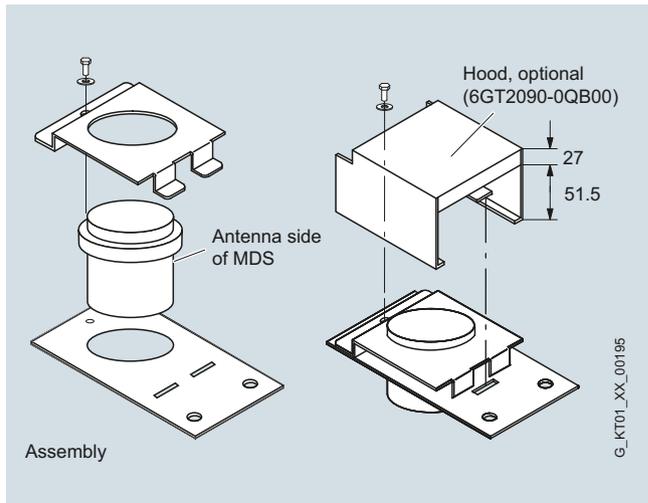
Selection and ordering data

	Order No.
Transponder SIMATIC RF380T	6GT2800-5DA00
With 32 KB FRAM	
Accessories	
Skid support for SIMATIC RF380T	
• Short type	6GT2090-0QA00
• Long type	6GT2090-0QA00-0AX3
Universal support	
For SIMATIC RF380T, e.g. for attaching to the body with a customer-specific adapter.	6GT2590-0QA00
Shrouding cover	
For skid support.	6GT2090-0QB00

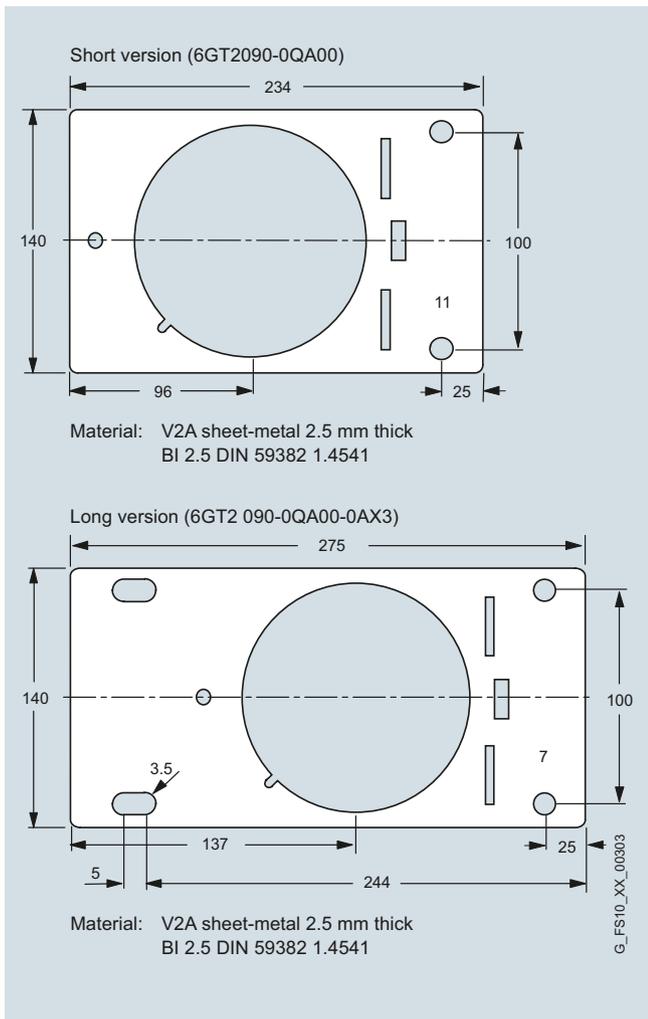
Dimensional drawings



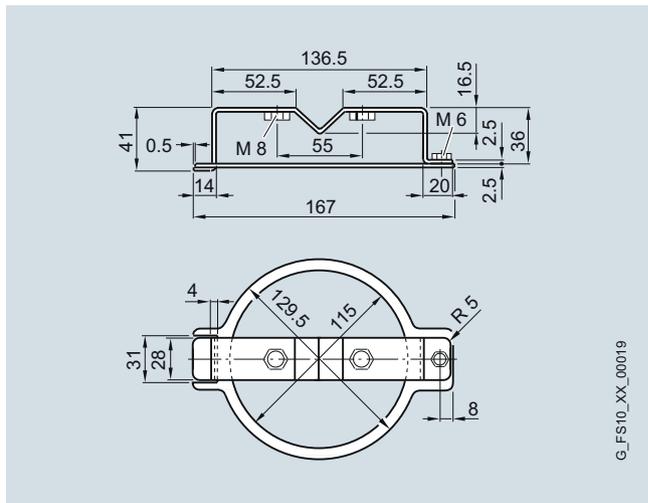
Transponder SIMATIC RF380T



Skid holder, shrouding cover



Holder for RF380T



Universal support

RFID systems for the HF frequency range

Transponders (ISO mode)

Introduction

Overview



The transponders can be used for the following RFID systems:

- SIMATIC RF200
- SIMATIC RF300 (in ISO 15693 operating mode)
- MOBY D (except MDS D421, MDS D422, MDS D423, MDS D425, MDS D117, MDS D127)

Note

For detailed descriptions and ordering data of these transponders look up the specified pages.

Transponder	Features	Page
MDS D165	SmartLabel, (PET) in credit card format. Applications range from simple identification such as electronic barcode substitution or supplementation, to storage and distribution logistics, up to product identification. <ul style="list-style-type: none"> • 112 bytes EEPROM • IP65 degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions L x W (mm): 86 x 54 	2/53
MDS D261	SmartLabel, (PET) in compact design. Applications range from simple identification such as electronic barcode substitution or supplementation, to storage and distribution logistics, up to product identification. <ul style="list-style-type: none"> • 256 bytes EEPROM • IP65 degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions L x W (mm): 55 x 55 	2/53
MDS D100	Universal transponder in credit card format. <ul style="list-style-type: none"> • 112 bytes EEPROM • IP68 degree of protection • Operating temperature range -25 °C to +80 °C • Dimensions L x W x H (mm): 85.6 x 54 x 0.9 	2/55
MDS D200	Universal transponder in credit card format. <ul style="list-style-type: none"> • 256 bytes EEPROM • IP67 degree of protection • Operating temperature range -20 °C to +60 °C • Dimensions L x W x H (mm): 85.6 x 54 x 0.9 	2/57
MDS D400	Universal transponder in credit card format. <ul style="list-style-type: none"> • 2048 bytes EEPROM • 2000 bytes FRAM • IP67 degree of protection • Operating temperature range -20 °C to +60 °C • Dimensions L x W x H (mm): 85.6 x 54 x 0.8 	2/59

Transponder	Features	Page
MDS D421	Transponder for tool coding according to DIN 69873. It can be used wherever very small data carriers and exact positioning are required (e.g. for tool identification). <ul style="list-style-type: none"> • 2000 bytes FRAM • IP67 / IPx9K degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions diameter x height (mm): Ø 10 x 4.5 Note: This transponder is operated exclusively with the following readers/antennas: SIMATIC RF350R with ANT 12 or ANT 18 and SIMATIC RF210R. Operation with the SIMATIC RF310M mobile reader is not possible.	2/61
MDS D422	Transponder for the identification of metallic workpiece holders, workpieces or containers. <ul style="list-style-type: none"> • 2000 bytes FRAM • IP68 degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions, thread diameter x height (mm): M20 x 6 Note: This transponder is operated exclusively with the following readers/antennas: SIMATIC RF350R with ANT 12, ANT 18, ANT 30 and SIMATIC RF210R, RF220R. Operation with the SIMATIC RF310M mobile reader is not possible.	2/63
MDS D423	Rugged transponder for use in production and distribution logistics as well as in assembly and production lines. <ul style="list-style-type: none"> • 2000 bytes FRAM • IP68 / IPx9K degree of protection • Operating temperature -25 °C to +85 °C • Dimensions diameter x height (mm): Ø 30 x 8 	2/65
MDS D124	Heat-resistant transponder for use in applications with high thermal stress. <ul style="list-style-type: none"> • 112 bytes EEPROM • IP68 / IPx9K degree of protection • Operating temperature range -25 °C to +180 °C • Dimensions diameter x height (mm): Ø 27 x 4 	2/67
MDS D324	Rugged transponder for use in harsh industrial environments and under extreme environmental conditions. <ul style="list-style-type: none"> • 992 bytes EEPROM • IP67 degree of protection • Operating temperature range -25 °C to +125 °C • Dimensions diameter x height (mm): Ø 27 x 4 	2/69
MDS D424	Rugged transponder for use in production and distribution logistics as well as in assembly and production lines. <ul style="list-style-type: none"> • 2000 bytes FRAM • IP67 / IPx9K degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions diameter x height (mm): Ø 27 x 4 	2/71

RFID systems for the HF frequency range

Transponders (ISO mode)

Introduction

2

Transponder	Features	Page
MDS D425	Compact and rugged transponder; suitable for screw mounting; for use in assembly and production lines in the powertrain area. <ul style="list-style-type: none"> • 2000 bytes FRAM • IP68 / IPx9K degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions diameter x height (mm): Ø 24 x 10 (without M6 grub screw) 	2/73
MDS D126	Compact and rugged transponder; suitable for identification of transport units in production-related logistics; can also be used under harsh environmental conditions. <ul style="list-style-type: none"> • 112 bytes EEPROM • IP68 degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions diameter x height (mm): Ø 50 x 3.6 	2/75
MDS D426	Compact and rugged transponder; suitable for identification of transport units in production-related logistics; can also be used under harsh environmental conditions. <ul style="list-style-type: none"> • 2000 bytes FRAM • IP68 / IPx9K degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions diameter x height (mm): Ø 50 x 3.6 	2/77
MDS D117	Subminiature transponder, ISO15693-compatible, for flush-mounting in metal. For direct identification of metallic workpiece holders, small workpieces or containers. <ul style="list-style-type: none"> • 112 bytes EEPROM • IP68 degree of protection • Operating temperature range -25 °C to +100 °C • Dimensions diameter x height (mm): Ø 4 x 5 	2/79
MDS D127	Subminiature transponder, ISO15693-compatible, for flush-mounting in metal. For direct identification of metallic workpiece holders, small workpieces or containers. <ul style="list-style-type: none"> • 112 bytes EEPROM • IP68 / IPx9K degree of protection • Operating temperature range -25 °C to +125 °C • Dimensions, thread x height (mm): M6 x 5 	2/80
MDS D428	Compact and rugged transponder; suitable for screw mounting; for use in assembly and production lines in the powertrain area. <ul style="list-style-type: none"> • 2000 bytes FRAM • IP68 / IPx9K degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions diameter x height (mm): Ø 24 x 20 (without M8 grub screw) 	2/81
MDS D139	Heat-resistant transponder for use in paint shops or applications with high thermal stress. <ul style="list-style-type: none"> • 112 bytes EEPROM • IP68 / IPx9K degree of protection • Operating temperature range -25 °C to +220 °C • Dimensions diameter x height (mm): Ø 85 x 15 	2/82

Transponder	Features	Page
MDS D339	Heat-resistant transponder for use in paint shops or applications with high thermal stress. <ul style="list-style-type: none"> • 1024 bytes EEPROM • IP68 / IPx9K degree of protection • Operating temperature range -25 °C to +220 °C • Dimensions diameter x height (mm): Ø 85 x 15 	2/84
MDS D160	The transponder has been specially designed for harsh environments in the laundry and cleaning industry. <ul style="list-style-type: none"> • Its main applications include: <ul style="list-style-type: none"> - Rented work clothing - Rented laundry - OP textiles, hospital clothing - Hotel laundry - Dirt collection mats • 112 bytes EEPROM • IP68 / IPx9K degree of protection • Operating temperature range -25 °C to +175 °C • Dimensions diameter x height (mm): Ø 16 x 3 	2/86
MDS D460	Rugged transponder for use in assembly lines. <ul style="list-style-type: none"> • 2000 bytes FRAM • IP67 degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions diameter x height (mm): Ø 16 x 3 	2/88

Customer-specific transponders

Customer-specific transponders (packaging, temperature range, geometry, etc.) on request.

Benefits



The comprehensive portfolio of ISO 15693 transponders offers the right solution for every requirement in production and production logistics:

- Large memory up to 2000 byte FRAM.
- Low-cost transponders can, if necessary, be mounted on metal with a spacer.
- Extremely rugged transponder for high temperature ranges up to 220 °C with ATEX approval for use in paint shops.
- Extremely small transponder for exact positioning, e.g. for tool identification.
- Screw-fit transponders for automatic attachment by means of robots
- Screw-fit transponders for flush-mounting in metal for identifying workpieces or workpiece holders.
- Customized solutions for SmartLabels and transponders on request.

RFID systems for the HF frequency range

Transponders (ISO mode)

Introduction

Technical specifications

Field data (operating/limit distance) of transponders and readers (all specifications in mm)

The following table shows the field data (unaffected by metal) for all ISO transponders (MDS Dxxx) in connection with RF300 readers. The listed technical data are typical values and are valid for a room temperature of +25 °C.

For detailed descriptions and ordering data of these ISO transponders see the following pages. The RF300 readers are described on pages 2/90 ff.

	MDS D165	MDS D261	MDS D100	MDS D200	MDS D400	MDS D421	MDS D422	MDS D423	MDS D124	MDS D324
SIMATIC RF310R	2 ... 90/102	2 ... 74/83	2 ... 93/105	2 ... 84/95	2 ... 104/117	–	–	2 ... 35/45	2 ... 64/72	2 ... 47/63
SIMATIC RF340R	5 ... 100/125	5 ... 60/70	5 ... 110/140	5 ... 80/110	2 ... 100/130	–	–	2 ... 40/55	2 ... 60/75	2 ... 55/70
SIMATIC RF350R with ANT 1	5 ... 100/120	5 ... 80/95	5 ... 110/140	5 ... 95/115	2 ... 110/140	–	–	2 ... 50/70	2 ... 65/85	2 ... 70/90
SIMATIC RF350R with ANT 12	–	–	–	–	–	0 ... 3/5	–	–	–	–
SIMATIC RF350R with ANT 18	–	–	–	–	–	0 ... 6/8	1 ... 10/13	–	2 ... 24/34	1 ... 22/28
SIMATIC RF350R with ANT 30	–	–	–	–	–	–	0 ... 15/19	2 ... 30/40	1 ... 35/46	1 ... 35/45
SIMATIC RF380R	5 ... 170/200	5 ... 120/160	5 ... 170/210	5 ... 150/195	2 ... 200/240	–	–	5 ... 75/90	1 ... 120/140	2 ... 96/120
SIMATIC RF382R	–	–	–	–	–	–	–	–	40 ... 65/75	40 ... 65/75

	MDS D424	MDS D425	MDS D126	MDS D426	MDS D117	MDS D127	MDS D428	MDS D139	MDS D339	MDS D160	MDS D460
SIMATIC RF310R	1 ... 40/45	1 ... 13/15	2 ... 65/73	5 ... 100/113	–	–	2 ... 25/35	5 ... 96/109	5 ... 74/84	1 ... 39/44	2 ... 20/30
SIMATIC RF340R	2 ... 55/70	2 ... 20/30	2 ... 85/110	0 ... 80/100	–	–	2 ... 35/50	5 ... 80/110	5 ... 75/85	2 ... 35/60	2 ... 25/40
SIMATIC RF350R with ANT 1	2 ... 60/80	2 ... 25/35	2 ... 90/120	0 ... 85/110	–	–	2 ... 35/50	5 ... 85/115	5 ... 90/105	2 ... 35/60	2 ... 35/50
SIMATIC RF350R with ANT 12	–	–	–	–	0 ... 3/4	0 ... 3/4	1 ... 10/17	–	–	0 ... 8/15	1 ... 10/14
SIMATIC RF350R with ANT 18	1 ... 27/35	1 ... 10/14	–	–	1 ... 3/4	0 ... 4/5	1 ... 12/14	–	–	1 ... 18/27	1 ... 12/18
SIMATIC RF350R with ANT 30	0 ... 45/50	1 ... 15/20	0 ... 47/60	0 ... 45/57	–	–	1 ... 25/34	–	–	1 ... 25/30	1 ... 18/25
SIMATIC RF380R	2 ... 120/140	2 ... 35/50	2 ... 145/190	0 ... 155/195	–	–	2 ... 70/95	5 ... 160/200	5 ... 160/180	2 ... 64/80	2 ... 65/90
SIMATIC RF382R	40 ... 65/75	–	–	–	–	–	–	–	–	35 ... 50/65	30 ... 50/60

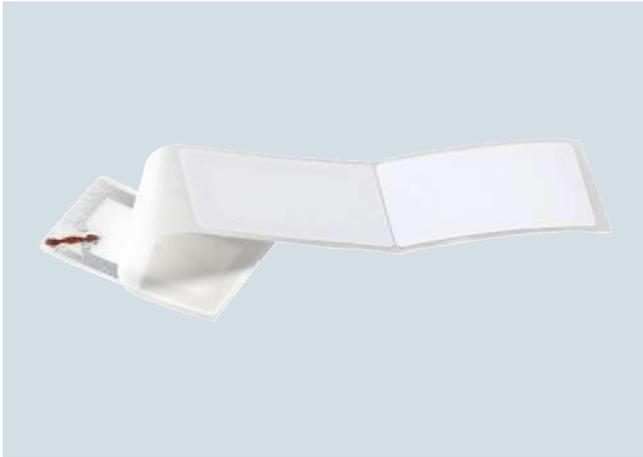
–: Reader-transponder combination not released.

Selection and ordering data

Note

For detailed descriptions and ordering data of these transponders: See the specified pages.

Overview



The SmartLabel can be used for the RFID system MOBY D as well as for SIMATIC RF200 and SIMATIC RF300 (ISO mode).

SmartLabels permit numerous flexible constructions to ensure optimum dimensioning for many different applications.

Thanks to their very reasonable price, the SmartLabels can be used universally as "electronic barcode substitutes or supplements" or "delivery notes".

Technical specifications

Order No.	6GT2600-1AB00-0AX0	6GT2600-1AA01-0AX0
Product-type designation	SmartLabel MDS D165	SmartLabel MDS D261
Suitability for installation	RF200, RF300, MOBY D	RF200, RF300, MOBY D
Wireless frequencies		
Operating frequency, rated value	13.56 MHz	13.56 MHz
Electrical data		
Range, maximum	500 mm	500 mm
Protocol for radio transmission	ISO 15693	ISO 15693
Transfer rate with radio transmission, maximum	26.5 kbit/s	26.5 kbit/s
Product property multitag-capable	Yes	Yes
Product component Buffer battery	No	No
Memory		
Type of memory	EEPROM	EEPROM
Memory capacity of user memory	112 byte	256 byte
Type of memory organization	UID (fixed code) 8 bytes, user memory 112 bytes, configuration memory 8 bytes	UID (fixed code) 8 bytes, user memory 256 bytes, configuration memory 8 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁴	10 ¹⁴
Number of write cycles at ambient temperature < 40 °C, maximum	10 ⁶	10 ⁶
Data retention time at ambient temperature < 40°C, at least	10 a	10 a
Property of memory	Block-by-block write protection of the user memory	Block-by-block write protection of the user memory
Mechanical data		
Material	Top side + inlay: PET, antenna aluminum	Top side + inlay: PET, antenna aluminum
Color	White	White
Mounting distance for metal surfaces, recommended, minimum	25 mm	25 mm

RFID systems for the HF frequency range

Transponders (ISO mode)

MDS D165/D261

Order No.	6GT2600-1AB00-0AX0	6GT2600-1AA01-0AX0
Product-type designation	SmartLabel MDS D165	SmartLabel MDS D261
Permitted ambient conditions		
Ambient temperature		
• during operating	-25 ... +85 °C	-25 ... +85 °C
• during storage	20 ... 30 °C	20 ... 30 °C
• during transport	20 ... 30 °C	20 ... 30 °C
Protection class IP	IP65	IP65
Mechanical stress resistance	Maximum storage period: 2 years (determined by durability of the adhesive)	Maximum storage period: 2 years (determined by durability of the adhesive)
Design, dimensions and weight		
Width	54 mm	55 mm
Height	0.3 mm	0.3 mm
Depth	86 mm	55 mm
Net weight	1 g	1 g
Type of mounting	Adhesive on one side	Adhesive on one side
Product properties, functions, components general		
Product property suitable for printing	Yes	Yes
Printing process	Thermal transfer process	Thermal transfer process

Selection and ordering data

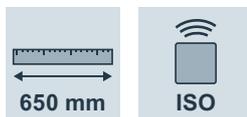
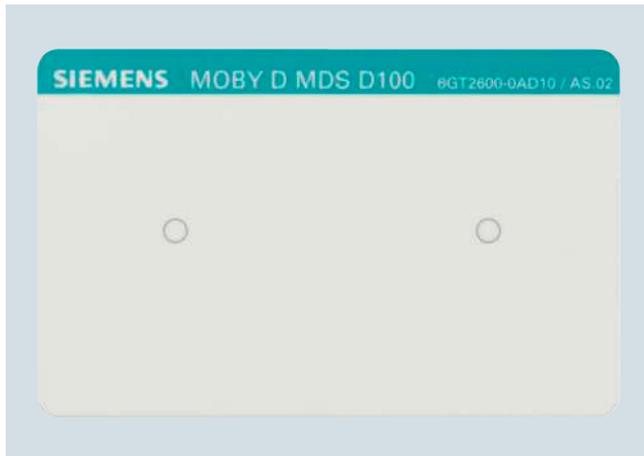
	Order No.
SmartLabel MDS D165 112 bytes EEPROM Ordering quantity 1000 units or a multiple thereof.	6GT2600-1AB00-0AX0
SmartLabel MDS D261 256 bytes EEPROM Ordering quantity 1000 units or a multiple thereof.	6GT2600-1AA01-0AX0

RFID systems for the HF frequency range

Transponders (ISO mode)

MDS D100

Overview



The transponder in credit card format can be used for the RFID system MOBY D as well as for SIMATIC RF200 and SIMATIC RF300 (ISO mode).

Application

Applications range from simple identification such as electronic bar code substitution or supplementation, to storage and distribution logistics, up to product identification.

This transponder can even be used problem-free under extreme environmental conditions (e.g. when subjected to temperatures up to +80 °C).

Technical specifications

Order No.	6GT2600-0AD10
Product-type designation	MDS D100 transponder
Suitability for installation	RF200, RF300, MOBY D
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	650 mm
Protocol for radio transmission	ISO 15693
Transfer rate with radio transmission, maximum	26.5 kbit/s
Product property multitag-capable	Yes
Product component Buffer battery	No
Memory	
Type of memory	EEPROM
Memory capacity of user memory	112 byte
Type of memory organization	UID (fixed code) 8 bytes, user memory 112 bytes, configuration memory 8 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁴
Number of write cycles at ambient temperature < 40 °C, maximum	10 ⁶
Data retention time at ambient temperature < 40 °C, at least	10 a
Property of memory	Block-by-block write protection of the user memory
Mechanical data	
Material	PC laminated plastic
Color	White/petrol
Mounting distance for metal surfaces, recommended, minimum	20 mm
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +80 °C
• during storage	-25 ... +80 °C
• during transport	-25 ... +80 °C
Ambient condition for (standard) operation mode	
Protection class IP	IP68
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Mechanical stress resistance	Shock and vibration according to ISO 10373 / ISO 7810, torsion and twisting according to ISO 10373 / ISO 7816-3
Design, dimensions and weight	
Width	54 mm
Height	0.9 mm
Depth	85.6 mm
Net weight	5 g
Type of mounting	Adhesive, with fixing pocket
Product properties, functions, components general	
Product property suitable for printing	Yes
Printing process	Printable on both sides
Accessories	
Accessories	Fixing pocket, holder, spacer

2

RFID systems for the HF frequency range

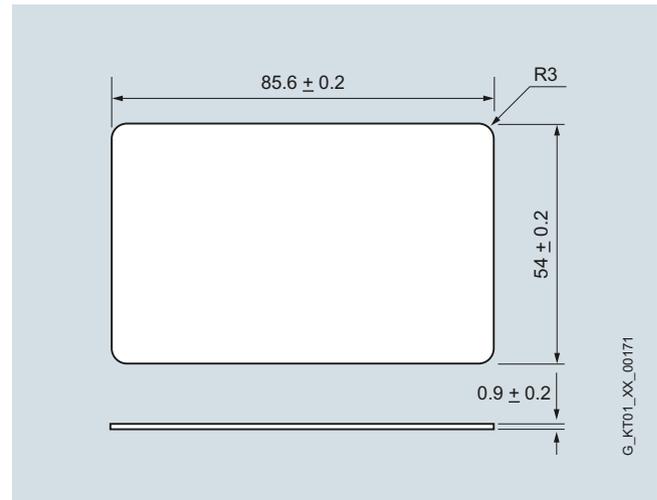
Transponders (ISO mode)

MDS D100

Selection and ordering data

	Order No.
Transponder MDS D100 112 bytes EEPROM Ordering quantity 50 units or a multiple thereof.	6GT2600-0AD10
Accessories	
Fixing pocket For MDS D100, usable together with spacer 6GT2190-0AA00. Ordering quantity 50 units or a multiple thereof.	6GT2190-0AB00
	
Spacer For fixing pocket (6GT2190-0AB00), thickness 20 mm The purpose of the spacer is to maintain the recommended distance to the metal when installing the transponder. Ordering quantity 50 units or a multiple thereof.	6GT2190-0AA00
	
Holder For MDS D100. Ordering quantity 50 units or a multiple thereof.	6GT2390-0AA00
	

Dimensional drawings



MDS D100 transponder

More information

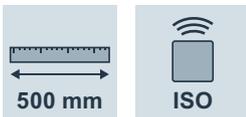
All current approvals are listed in the Internet at:
<http://www.siemens.com/rfid-approvals>

RFID systems for the HF frequency range

Transponders (ISO mode)

MDS D200

Overview



The MDS D200 is a mobile, passive, maintenance-free transponder based on ISO 15693.

The MDS D200 can be used for the RFID system MOBY D as well as for SIMATIC RF200 and SIMATIC RF300 (ISO mode).

Application

From simple identification, e.g. as electronic barcode replacement or supplementation, through warehouse and distribution logistics, up to product identification.

Technical specifications

Order No.	6GT2600-1AD00-0AX0
Product-type designation	MDS D200 transponder
Suitability for installation	RF200, RF300, MOBY D
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	450 mm
Protocol for radio transmission	ISO 15693
Transfer rate with radio transmission, maximum	26.5 kbit/s
Product property multitag-capable	Yes
Product component Buffer battery	No
Memory	
Type of memory	EEPROM
Memory capacity of user memory	256 byte
Type of memory organization	UID (fixed code) 8 bytes, user memory 256 bytes, configuration memory 8 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁴
Number of write cycles at ambient temperature < 40 °C, maximum	10 ⁶
Data retention time at ambient temperature < 40°C, at least	10 a
Property of memory	Block-by-block write protection of the user memory
Mechanical data	
Material	PVC laminated plastic
Color	White
Mounting distance for metal surfaces, recommended, minimum	25 mm
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +60 °C
• during storage	-25 ... +60 °C
• during transport	-25 ... +60 °C
Protection class IP	IP67
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Mechanical stress resistance	Shock and vibration according to ISO 10373 / ISO 7810, torsion and twisting according to ISO 10373 / ISO 7816-3
Design, dimensions and weight	
Width	54 mm
Height	0.8 mm
Depth	85.6 mm
Net weight	5 g
Type of mounting	Adhesive, with fixing pocket
Product properties, functions, components general	
Product property suitable for printing	Yes
Printing process	Printable on both sides
Accessories	
Accessories	Fixing pocket, holder, spacer

2

RFID systems for the HF frequency range

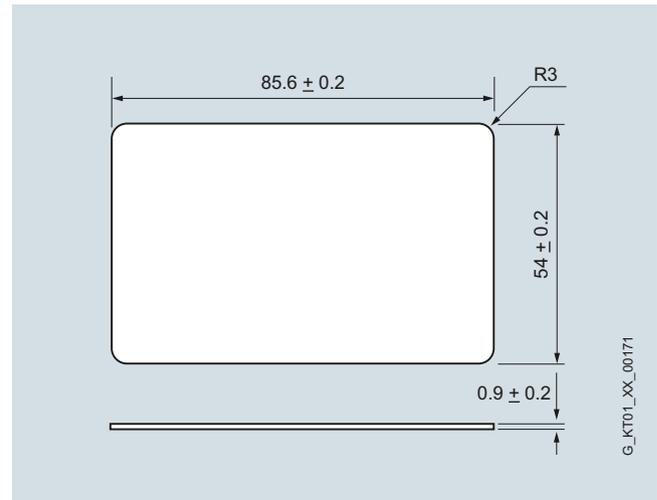
Transponders (ISO mode)

MDS D200

Selection and ordering data

	Order No.
MDS D200 transponder 256 bytes EEPROM Ordering quantity 250 units or a multiple thereof.	6GT2600-1AD00-0AX0
Accessories	
Fixing pocket For MDS D200, usable together with spacer 6GT2190-0AA00. Ordering quantity 50 units or a multiple thereof.	6GT2190-0AB00
	
Spacer For fixing pocket (6GT2190-0AB00), thickness 20 mm The purpose of the spacer is to maintain the recommended distance to the metal when installing the transponder. Ordering quantity 50 units or a multiple thereof.	6GT2190-0AA00
	
Holder For MDS D200. Ordering quantity 50 units or a multiple thereof.	6GT2390-0AA00
	

Dimensional drawings



RFID systems for the HF frequency range

Transponders (ISO mode)

MDS D400

Overview



The MDS D400 is a passive, maintenance-free transponder based on the ISO standard 15693 with FRAM technology.

The MDS D400 transponder can be used for the RFID system MOBY D as well as for SIMATIC RF300 (ISO mode) and SIMATIC RF200.

Application

ISO transponder, suitable for the identification of transport units in production-related logistics.

Technical specifications

Order No.	6GT2600-4AD00
Product-type designation	MDS D400 transponder
Suitability for installation	RF200, RF300, MOBY D
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	650 mm
Protocol for radio transmission	ISO 15693
Transfer rate with radio transmission, maximum	26.5 kbit/s
Product property multitag-capable	Yes
Product component Buffer battery	No
Memory	
Type of memory	FRAM
Memory capacity of user memory	2000 byte
Type of memory organization	UID (fixed code) 8 bytes, user memory 2000 bytes, configuration memory 40 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Number of write cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Data retention time at ambient temperature < 40 °C, at least	10 a
Property of memory	Block-by-block write protection of the user memory
Mechanical data	
Material	PVC laminated plastic
Color	White
Mounting distance for metal surfaces, recommended, minimum	20 mm
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +60 °C
• during storage	-25 ... +60 °C
• during transport	-25 ... +60 °C
Protection class IP	IP67
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M4
Mechanical stress resistance	acc. to ISO 10373/ ISO 7816-1
Design, dimensions and weight	
Width	54 mm
Height	0.8 mm
Depth	85.6 mm
Net weight	5 g
Type of mounting	Adhesive, with fixing pocket
Product properties, functions, components general	
Product property Suitable for printing	Yes
Printing process	Printable on both sides
Accessories	
Accessories	Fixing pocket, holder, spacer

RFID systems for the HF frequency range

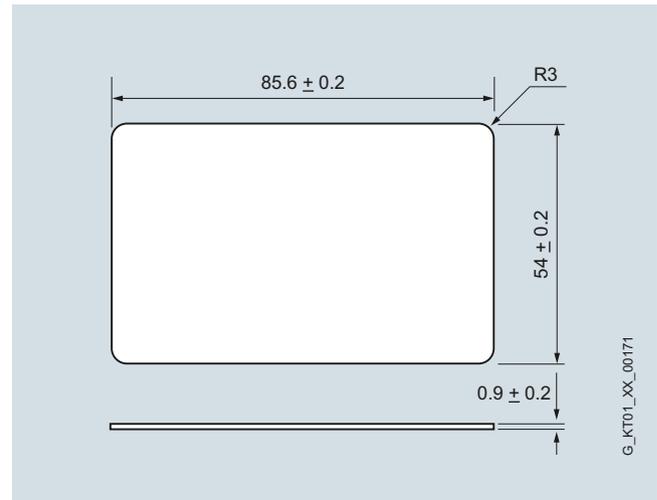
Transponders (ISO mode)

MDS D400

Selection and ordering data

	Order No.
Transponder MDS D400 2000 bytes EEPROM	6GT2600-4AD00
Accessories Fixing pocket For MDS D400, usable together with spacer 6GT2190-0AA00. Ordering quantity 50 units or a multiple thereof.	6GT2190-0AB00
	
Spacer For fixing pocket (6GT2190-0AB00), thickness 20 mm The purpose of the spacer is to maintain the recommended distance to the metal when installing the transponder. Ordering quantity 50 units or a multiple thereof.	6GT2190-0AA00
	
Holder For MDS D400. Ordering quantity 50 units or a multiple thereof.	6GT2390-0AA00
	

Dimensional drawings



Transponder MDS D400

RFID systems for the HF frequency range

Transponders (ISO mode)

MDS D421

Overview



The MDS D421 is a passive (maintenance-free) transponder based on ISO 15693 with FRAM technology.

Note

This transponder is operated exclusively with the following readers/antennas: SIMATIC RF350R with ANT 12 or ANT 18 and SIMATIC RF210R.

Operation with mobile readers (SIMATIC RF310M and MOBY STG D) and the MOBY D readers is not possible!

Application

The MDS D421 is designed for tool coding according to DIN 69873.

It can be used wherever small transponders and exact positioning are required, for example, for tool identification or on work-piece holders.

Technical specifications

Order No.	6GT2600-4AE00
Product-type designation	MDS D421 transponder
Suitability for installation	RF200, RF300
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	8 mm
Protocol for radio transmission	ISO 15693
Transfer rate with radio transmission, maximum	26.5 kbit/s
Product property multitag-capable	Yes
Product component Buffer battery	No
Memory	
Type of memory	FRAM
Memory capacity of user memory	2000 byte
Type of memory organization	UID (fixed code) 8 bytes, user memory 2000 bytes, configuration memory 40 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Number of write cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Data retention time at ambient temperature < 40°C, at least	10 a
Property of memory	Block-by-block write protection of the user memory
Mechanical data	
Material	Epoxy resin
Color	Black
Mounting distance for metal surfaces, recommended, minimum	0 mm
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +85 °C
• during storage	-40 ... +100 °C
• during transport	-40 ... +100 °C
Protection class IP	IP67 / IPx9K
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	1000 m/s ²
Resistance against vibration	200 m/s ²
Design, dimensions and weight	
Height	4.5 mm
Diameter	10 mm
Net weight	4 g
Type of mounting	Adhesive
Product properties, functions, components general	
Product feature silicon-free	Yes
Product property suitable for printing	No

2

RFID systems for the HF frequency range

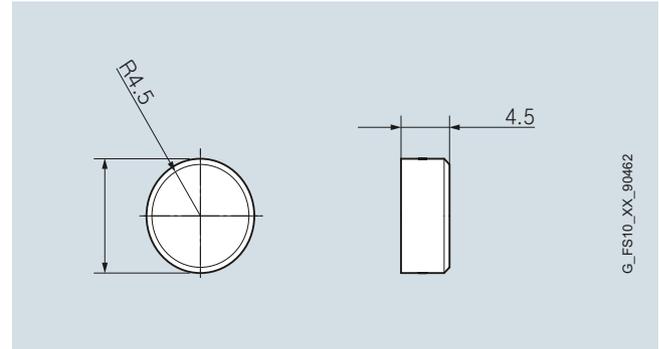
Transponders (ISO mode)

MDS D421

Selection and ordering data

	Order No.
Transponder MDS D421 2000 bytes FRAM Ordering quantity 10 units or a multiple thereof.	6GT2600-4AE00

Dimensional drawings



MDS D421 transponder

RFID systems for the HF frequency range

Transponders (ISO mode)

MDS D422

Overview



The MDS D422 is a passive (maintenance-free) transponder in accordance with ISO 15693 with FRAM technology.

The transponder can only be operated with the RFID systems SIMATIC RF200 and SIMATIC RF300 (ISO mode).

Operation with mobile readers (SIMATIC RF310M and MOBY STG D) and MOBY D readers is not possible!

Application

Identification of metallic workpiece holders, workpieces or containers.

Technical specifications

Order No.	6GT2600-4AF00
Product-type designation	MDS D422 transponder
Suitability for installation	RF200, RF300
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	15 mm
Protocol for radio transmission	ISO 15693
Transfer rate with radio transmission, maximum	26.5 kbit/s
Product property multitag-capable	Yes
Product component Buffer battery	No
Memory	
Type of memory	FRAM
Memory capacity of user memory	2000 byte
Type of memory organization	UID (fixed code) 8 bytes, user memory 2000 bytes, configuration memory 40 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Number of write cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Data retention time at ambient temperature < 40°C, at least	10 a
Property of memory	Block-by-block write protection of the user memory
Mechanical data	
Material	PA6.6 GF / brass, nickel-plated
Color	
Tightening torque of screw for mounting the equipment, maximum	1 Nm
Mounting distance for metal surfaces, recommended, minimum	0 mm
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +85 °C
• during storage	-40 ... +100 °C
• during transport	-40 ... +100 °C
Protection class IP	IP68
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	500 m/s ²
Resistance against vibration	200 m/s ²
Design, dimensions and weight	
Height	6 mm
Diameter	20 mm
Net weight	13 g
Type of mounting	Gluing, screwing
Product properties, functions, components general	
Product feature silicon-free	Yes
Product property suitable for printing	No

2

RFID systems for the HF frequency range

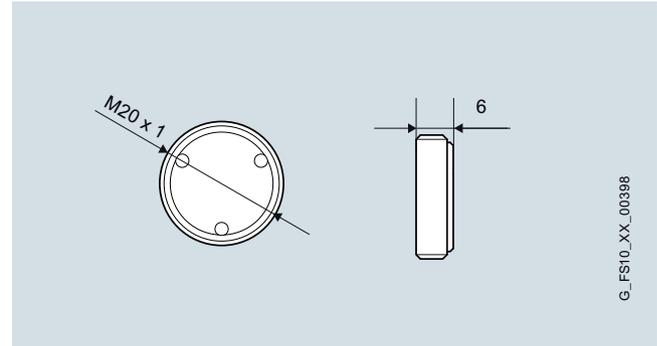
Transponders (ISO mode)

MDS D422

Selection and ordering data

	Order No.
Transponder MDS D422 2000 bytes FRAM One installation tool is included in each packing unit. Ordering quantity 5 units or a multiple thereof.	6GT2600-4AF00

Dimensional drawings



MDS D422 transponder

RFID systems for the HF frequency range

Transponders (ISO mode)

MDS D423

Overview



The MDS D423 is a passive (maintenance-free) transponder based on ISO 15693 with FRAM technology. The transponder can be operated with the SIMATIC RF200 and SIMATIC RF300 (ISO mode) RFID systems. Operation with MOBY D readers is not possible!

Application

The particularly compact transponder of small design can be flush-mounted in metal and is thus suitable for identifying metallic workpiece holders, workpieces or containers.

As a result of its high IP68 / IPx9K degree of protection, it is suitable for use in particularly harsh environments such as the passage through washers.

Technical specifications

Order No.	6GT2600-4AA00
Product-type designation	MDS D423 transponder
Suitability for installation	RF200, RF300
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	80 mm
Protocol for radio transmission	ISO 15693
Transfer rate with radio transmission, maximum	26.5 kbit/s
Product property multitag-capable	Yes
Product component Buffer battery	No
Memory	
Type of memory	FRAM
Memory capacity of user memory	2000 byte
Type of memory organization	UID (fixed code) 8 bytes, user memory 2000 bytes, configuration memory 40 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Number of write cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Data retention time at ambient temperature < 40°C, at least	10 a
Property of memory	Block-by-block write protection of the user memory
Mechanical data	
Material	PPS
Color	Black
Tightening torque of screw for mounting the equipment, maximum	1 Nm
Mounting distance for metal surfaces, recommended, minimum	0 mm
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +85 °C
• during storage	-40 ... +100 °C
• during transport	-40 ... +100 °C
Protection class IP	IP68 / IPx9K
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	500 m/s ²
Resistance against vibration	200 m/s ²
Design, dimensions and weight	
Height	8 mm
Diameter	30 mm
Net weight	15 g
Type of mounting	Screw M3, gluing
Product properties, functions, components general	
Product feature silicon-free	Yes
Product property suitable for printing	No

2

RFID systems for the HF frequency range

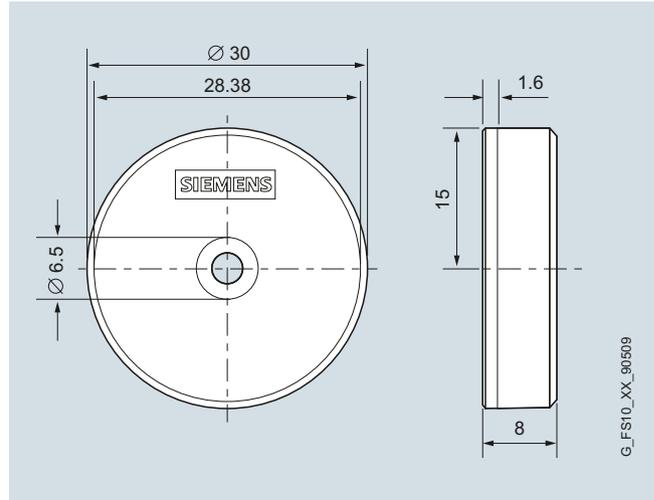
Transponders (ISO mode)

MDS D423

Selection and ordering data

	Order No.
Transponder MDS D423 2 000 bytes FRAM Ordering quantity 10 units or a multiple thereof.	6GT2600-4AA00

Dimensional drawings



MDS D423 transponder

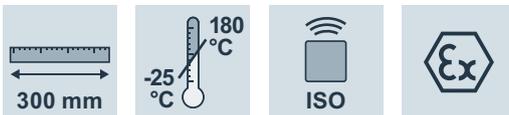
2

RFID systems for the HF frequency range

Transponders (ISO mode)

MDS D124

Overview



The MDS D124 is a mobile, passive, maintenance-free transponder based on ISO 15693.

The MDS D124 can be used for the RFID system MOBY D as well as for SIMATIC RF200 and SIMATIC RF300 (ISO mode).

Application

This transponder can even be used problem-free under extreme environmental conditions (e.g. when subjected to temperatures up to +180 °C).

Technical specifications

Order No.	6GT2600-0AC10
Product-type designation	MDS D124 transponder
Suitability for installation	RF200, RF300, MOBY D
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	300 mm
Protocol for radio transmission	ISO 15693
Transfer rate with radio transmission, maximum	26.5 kbit/s
Product property multitag-capable	Yes
Product component Buffer battery	No
Memory	
Type of memory	EEPROM
Memory capacity of user memory	112 byte
Type of memory organization	UID (fixed code) 8 bytes, user memory 112 bytes, configuration memory 8 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁴
Number of write cycles at ambient temperature < 40 °C, maximum	10 ⁶
Data retention time at ambient temperature < 40 °C, at least	10 a
Property of memory	Block-by-block write protection of the user memory
Mechanical data	
Material	PPS
Color	Black
Tightening torque of screw for mounting the equipment, maximum	1 Nm
Mounting distance for metal surfaces, recommended, minimum	25 mm
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +180 °C
• during storage	-40 ... +125 °C
• during transport	-40 ... +125 °C
Ambient condition for (standard) operation mode	at 180 °C: up to 5000 hours or 3000 thermal cycles
Protection class IP	IP68 / IPx9K
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	1000 m/s ²
Resistance against vibration	200 m/s ²
Design, dimensions and weight	
Height x diameter (mm)	4 x 27
Net weight	5 g
Type of mounting	Screw M3, gluing
Product properties, functions, components general	
Product feature silicon-free	Yes
Product property suitable for printing	No
Standards, specifications, approvals	
Verification of suitability	Ex: II 1 G Ex ia IIC T3T6 Ga / II 1 D Ex ia IIC T80°C T180°C
Accessories	
Accessories	Mounting support and spacer

2

RFID systems for the HF frequency range

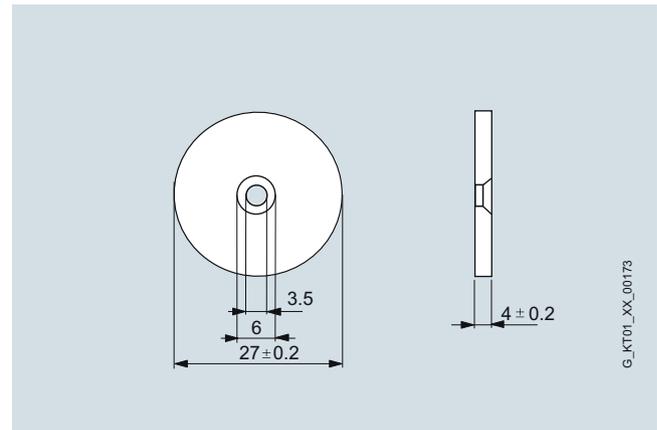
Transponders (ISO mode)

MDS D124

Selection and ordering data

	Order No.
Transponder MDS D124 112 bytes EEPROM Ordering quantity 20 units or a multiple thereof.	6GT2600-0AC10
Accessories	
Spacer For MDS D124, MDS D324, MDS D424, and RF320T. Necessary for mounting onto metal surfaces. Diameter = 35 mm, height = 15 mm Ordering quantity 20 units or a multiple thereof.	6GT2690-0AK00

Dimensional drawings



MDS D124 transponder

More information

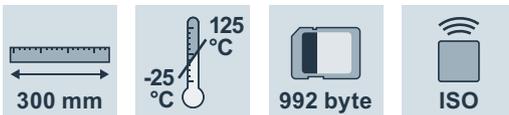
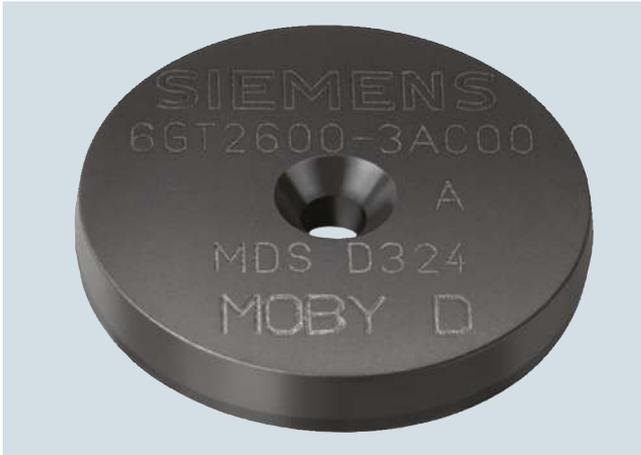
All current approvals are listed in the Internet at:
<http://www.siemens.com/rfid-approvals>

RFID systems for the HF frequency range

Transponders (ISO mode)

MDS D324

Overview



The MDS D324 is a passive (maintenance-free) transponder based on ISO15693.

The MDS D324 can be used for the RFID system MOBY D as well as for SIMATIC RF200 and SIMATIC RF300 (ISO mode).

Application

The MDS D324 was developed for applications in production and distribution logistics as well as product identification.

For the user, the usable application memory amounts to 992 byte.

This transponder can also be easily used in harsh environments under extreme environmental conditions (e.g. with higher thermal stress).

Technical specifications

Order No.	6GT2600-3AC00
Product-type designation	MDS D324 transponder
Suitability for installation	RF200, RF300, MOBY D
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	280 mm
Protocol for radio transmission	ISO 15693
Transfer rate with radio transmission, maximum	26.5 kbit/s
Product property multitag-capable	Yes
Product component Buffer battery	No
Memory	
Type of memory	EEPROM
Memory capacity of user memory	992 byte
Type of memory organization	UID (fixed code) 8 bytes, user memory 992 bytes, configuration memory 24 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁴
Number of write cycles at ambient temperature < 40 °C, maximum	10 ⁶
Data retention time at ambient temperature < 40 °C, at least	10 a
Property of memory	Block-by-block write protection of the user memory
Mechanical data	
Material	Epoxy resin
Color	Black
Tightening torque of screw for mounting the equipment, maximum	1 Nm
Mounting distance for metal surfaces, recommended, minimum	25 mm
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +125 °C
• during storage	-40 ... +150 °C
• during transport	-40 ... +150 °C
Protection class IP	IP67
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	1000 m/s ²
Resistance against vibration	200 m/s ²
Design, dimensions and weight	
Height	4 mm
Diameter	27 mm
Net weight	5 g
Type of mounting	Screw M3, gluing
Product properties, functions, components general	
Product feature silicon-free	Yes
Product property suitable for printing	No
Accessories	
Accessories	Mounting support and spacer

2

RFID systems for the HF frequency range

Transponders (ISO mode)

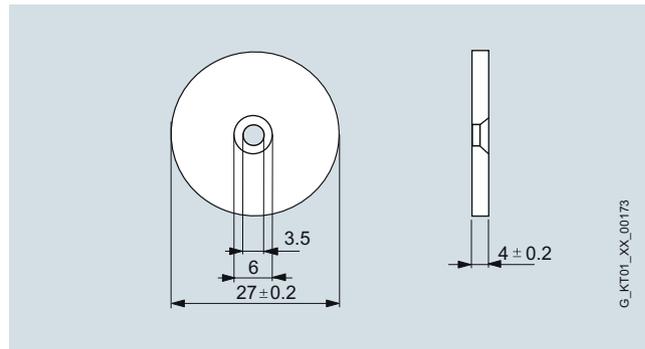
MDS D324

Selection and ordering data

	Order No.
Transponder MDS D324 992 bytes EEPROM Ordering quantity 20 units or a multiple thereof.	6GT2600-3AC00
Accessories	
Spacer For MDS D124, MDS D324, MDS D424 and RF320T. Necessary for mounting onto metal surfaces. Diameter = 35 mm, height = 15 mm Ordering quantity 20 units or a multiple thereof.	6GT2690-0AK00



Dimensional drawings



MDS D324 transponder

RFID systems for the HF frequency range

Transponders (ISO mode)

MDS D424

Overview



The MDS D424 is a passive (maintenance-free) transponder based on ISO 15693 with FRAM technology.

The MDS D424 can be used for the RFID system MOBY D as well as for SIMATIC RF200 and SIMATIC RF300 (ISO mode).

Application

Production and distribution logistics as well as for use in assembly and production lines.

Technical specifications

Order No.	6GT2600-4AC00
Product-type designation	MDS D424 transponder
Suitability for installation	RF200, RF300, MOBY D
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	300 mm
Protocol for radio transmission	ISO 15693
Transfer rate with radio transmission, maximum	26.5 kbit/s
Product property multitag-capable	Yes
Product component Buffer battery	No
Memory	
Type of memory	FRAM
Memory capacity of user memory	2000 byte
Type of memory organization	UID (fixed code) 8 bytes, user memory 2000 bytes, configuration memory 40 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Number of write cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Data retention time at ambient temperature < 40°C, at least	10 a
Property of memory	Block-by-block write protection of the user memory
Mechanical data	
Material	Epoxy resin
Color	Black
Tightening torque of screw for mounting the equipment, maximum	1 Nm
Mounting distance for metal surfaces, recommended, minimum	25 mm
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +85 °C
• during storage	-40 ... +100 °C
• during transport	-40 ... +100 °C
Protection class IP	IP67 / IPx9K
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	1000 m/s ²
Resistance against vibration	200 m/s ²
Design, dimensions and weight	
Height	4 mm
Diameter	27 mm
Net weight	5 g
Type of mounting	Screw M3, gluing
Product properties, functions, components general	
Product feature silicon-free	Yes
Product property suitable for printing	No
Accessories	
Accessories	Mounting support and spacer

2

RFID systems for the HF frequency range

Transponders (ISO mode)

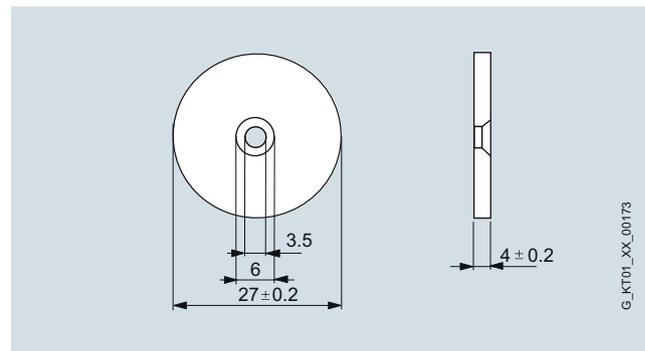
MDS D424

Selection and ordering data

	Order No.
Transponder MDS D424 2000 bytes FRAM Ordering quantity 20 units or a multiple thereof.	6GT2600-4AC00
Accessories	
Spacer For MDS D124, MDS D324, MDS D424 and RF320T. Necessary for mounting onto metal surfaces. Diameter = 35 mm, height = 15 mm Ordering quantity 20 units or a multiple thereof.	6GT2690-0AK00



Dimensional drawings



MDS D424 transponder

RFID systems for the HF frequency range

Transponders (ISO mode)

MDS D425

Overview



The MDS D425 is a passive (maintenance-free) transponder based on ISO 15693 with FRAM technology.

The MDS D425 can be operated with the RFID systems SIMATIC RF200 and SIMATIC RF300 (ISO mode).

Operation with MOBY D readers is not possible!

Application

Compact and rugged ISO transponder; suitable for screw mounting.

For use in assembly and production lines in the powertrain area.

Technical specifications

Order No.	6GT2600-4AG00
Product-type designation	MDS D425 transponder
Suitability for installation	RF200, RF300
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	50 mm
Protocol for radio transmission	ISO 15693
Transfer rate with radio transmission, maximum	26.5 kbit/s
Product property multitag-capable	Yes
Product component Buffer battery	No
Memory	
Type of memory	FRAM
Memory capacity of user memory	2000 byte
Type of memory organization	UID (fixed code) 8 bytes, user memory 2000 bytes, configuration memory 40 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Number of write cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Data retention time at ambient temperature < 40°C, at least	10 a
Property of memory	Block-by-block write protection of the user memory
Mechanical data	
Material	PA6.6 GF / stainless steel
Color	Black and silver
Tightening torque of screw for mounting the equipment, maximum	6 Nm
Mounting distance for metal surfaces, recommended, minimum	0 mm
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +85 °C
• during storage	-40 ... +125 °C
• during transport	-40 ... +125 °C
Protection class IP	IP68 / IPx9K
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	500 m/s ²
Resistance against vibration	200 m/s ²
Design, dimensions and weight	
Height	10 mm
Diameter	24 mm
Net weight	35 g
Type of mounting	Screwing (M6)
Product properties, functions, components general	
Product feature silicon-free	Yes
Product property suitable for printing	No

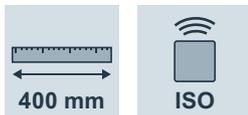
2

RFID systems for the HF frequency range

Transponders (ISO mode)

MDS D126

Overview



The MDS D126 is a passive (maintenance-free) transponder based on ISO 15693.

The MDS D126 can be used for the RFID system MOBY D as well as for SIMATIC RF200 and SIMATIC RF300 (ISO mode).

Application

Compact and rugged ISO transponder; suitable for identification of transport units in production-related logistics; can also be used under harsh environmental conditions.

Technical specifications

Order No.	6GT2600-0AE00
Product-type designation	MDS D126 transponder
Suitability for installation	RF200, RF300, MOBY D
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	400 mm
Protocol for radio transmission	ISO 15693
Transfer rate with radio transmission, maximum	26.5 kbit/s
Product property multitag-capable	Yes
Product component Buffer battery	No
Memory	
Type of memory	EEPROM
Memory capacity of user memory	112 byte
Type of memory organization	UID (fixed code) 8 bytes, user memory 112 bytes, configuration memory 8 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁴
Number of write cycles at ambient temperature < 40 °C, maximum	10 ⁶
Data retention time at ambient temperature < 40°C, at least	10 a
Property of memory	Block-by-block write protection of the user memory
Mechanical data	
Material	PA6.6 GF
Color	Black
Tightening torque of screw for mounting the equipment, maximum	1 Nm
Mounting distance for metal surfaces, recommended, minimum	25 mm
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +85 °C
• during storage	-40 ... +100 °C
• during transport	-40 ... +100 °C
Protection class IP	IP68
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	500 m/s ²
Resistance against vibration	200 m/s ²
Design, dimensions and weight	
Height	3.6 mm
Diameter	50 mm
Net weight	13 g
Type of mounting	Screw M4
Product properties, functions, components general	
Product property suitable for printing	No
Accessories	
Accessories	Mounting support and spacer

2

RFID systems for the HF frequency range

Transponders (ISO mode)

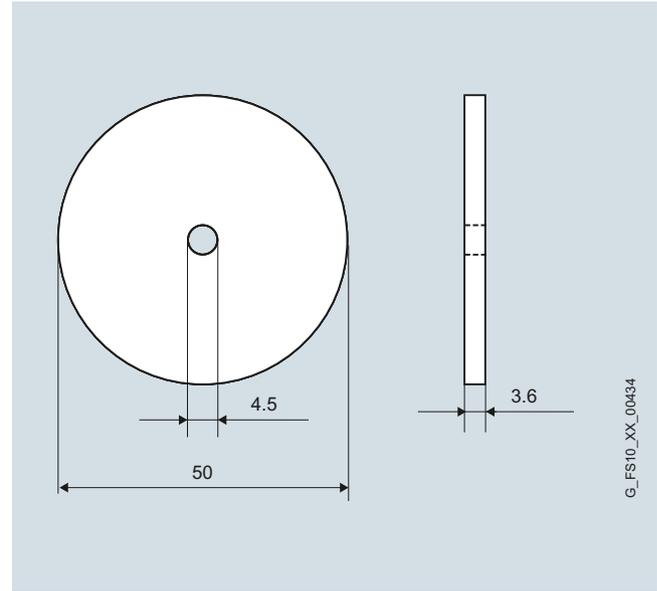
MDS D126

Selection and ordering data

	Order No.
Transponder MDS D126 112 bytes EEPROM Ordering quantity 250 units or a multiple thereof.	6GT2600-0AE00
Accessories Spacer For MDS D126, necessary for mounting onto metal surfaces. Diameter = 60 mm, height = 30 mm. Ordering quantity 50 units or a multiple thereof.	6GT2690-0AL00



Dimensional drawings



MDS D126 transponder

RFID systems for the HF frequency range

Transponders (ISO mode)

MDS D426

Overview



The MDS D426 is a passive (maintenance-free) transponder based on ISO 15693 with FRAM technology.

The MDS D426 can be used for the RFID system MOBY D as well as for SIMATIC RF200 and SIMATIC RF300 (ISO mode).

Application

Compact and rugged ISO transponder; suitable for identification of transport units in production-related logistics; can also be used under harsh environmental conditions.

Technical specifications

Order No.	6GT2600-4AH00
Product-type designation	MDS D426 transponder
Suitability for installation	RF200, RF300, MOBY D
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	350 mm
Protocol for radio transmission	ISO 15693
Transfer rate with radio transmission, maximum	26.5 kbit/s
Product property multitag-capable	Yes
Product component Buffer battery	No
Memory	
Type of memory	FRAM
Memory capacity of user memory	2000 byte
Type of memory organization	UID (fixed code) 8 bytes, user memory 2000 bytes, configuration memory 40 bytes
Number of write cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Data retention time at ambient temperature < 40°C, at least	10 a
Property of memory	Block-by-block write protection of the user memory
Mechanical data	
Material	PA6.6 GF
Color	Black
Tightening torque of screw for mounting the equipment, maximum	1 Nm
Mounting distance for metal surfaces, recommended, minimum	25 mm
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +85 °C
• during storage	-40 ... +100 °C
• during transport	-40 ... +100 °C
Protection class IP	IP68
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	500 m/s ²
Resistance against vibration	200 m/s ²
Design, dimensions and weight	
Height	3.6 mm
Diameter	50 mm
Net weight	13 g
Type of mounting	Screw M4
Product properties, functions, components general	
Product property suitable for printing	No
Accessories	
Accessories	Mounting support and spacer

2

RFID systems for the HF frequency range

Transponders (ISO mode)

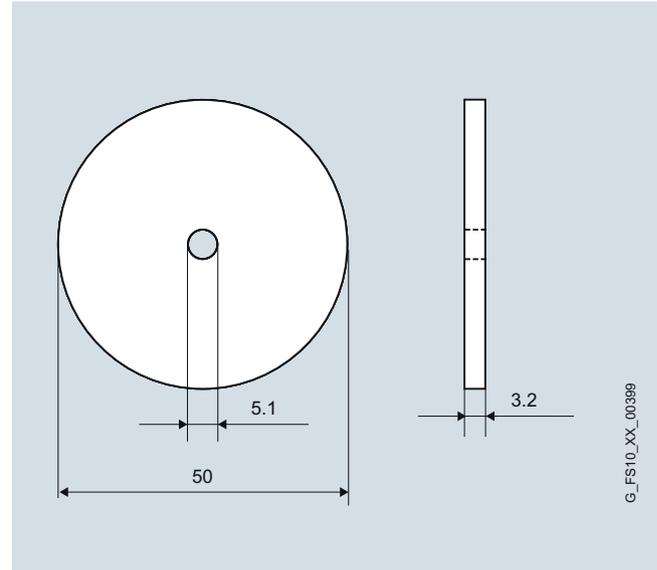
MDS D426

Selection and ordering data

	Order No.
Transponder MDS D426 2000 bytes FRAM Ordering quantity 50 units or a multiple thereof.	6GT2600-4AH00
Accessories Spacer For MDS D426, necessary for mounting onto metal surfaces. Diameter = 60 mm, height = 30 mm Ordering quantity 50 units or a multiple thereof.	6GT2690-0AL00



Dimensional drawings



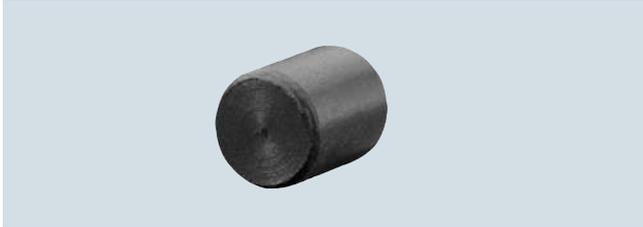
MDS D426 transponder

RFID systems for the HF frequency range

Transponders (ISO mode)

MDS D117

Overview

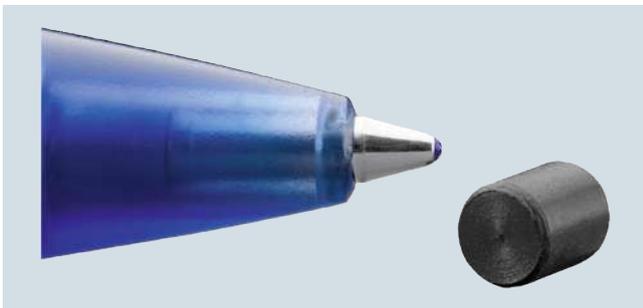


The MDS D117 is a passive, maintenance-free transponder based on the ISO standard 15693, small, compact and capable of being glued into metal.

The mobile transponder can only be operated with the RFID systems SIMATIC RF300 (ISO mode) and SIMATIC RF200.

Application

For direct identification of small metallic workpieces and workpiece holders.



Size comparison between tip of ballpoint pen and MDS D117

Technical specifications

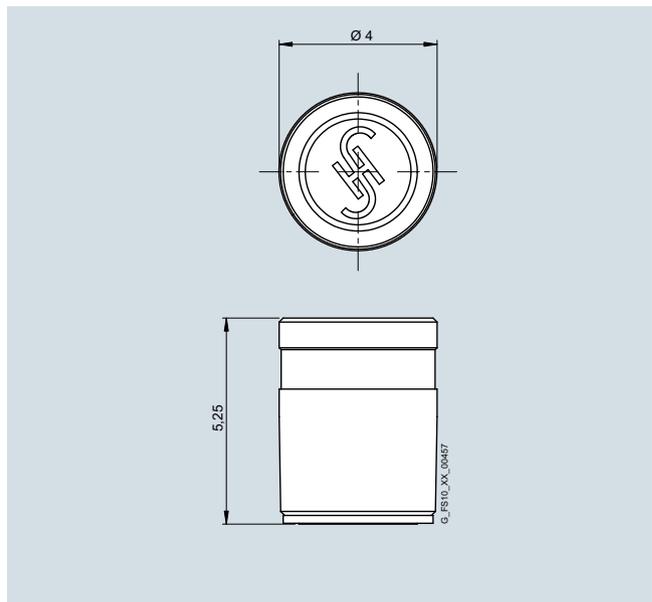
Order No.	6GT2600-0AG00
Product-type designation	Transponder MDS D117
Suitability for installation	RF200, RF300
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	5 mm
Protocol for radio transmission	ISO 15693
Transfer rate with radio transmission, maximum	26.5 kbit/s
Product property multitag-capable	Yes
Product component Buffer battery	No
Memory	
Type of memory	EEPROM
Memory capacity of user memory	112 byte
Type of memory organization	UID (fixed code) 8 bytes, user memory 112 bytes, configuration memory 8 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁴
Number of write cycles at ambient temperature < 40 °C, maximum	10 ⁶

Order No.	6GT2600-0AG00
Product-type designation	Transponder MDS D117
Data retention time at ambient temperature < 40 °C, at least	10 a
Property of memory	Block-by-block write protection of the user memory
Mechanical data	
Material	PA6
Color	Black
Mounting distance for metal surfaces, recommended, minimum	0 mm
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +100 °C
• during storage	-40 ... +125 °C
• during transport	-40 ... +125 °C
Protection class IP	IP68 / IPx9K
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	1000 m/s ²
Resistance against vibration	200 m/s ²
Design, dimensions and weight	
Height x diameter (mm)	5 x 4
Net weight	1 g
Type of mounting	Gluing
Product properties, functions, components general	
Product property suitable for printing	No

Selection and ordering data

	Order No.
Mobile data storage unit MDS D117	6GT2600-0AG00
112 bytes EEPROM	
Ordering quantity 10 units or a multiple thereof.	

Dimensional drawings



MDS D117 transponder

RFID systems for the HF frequency range

Transponders (ISO mode)

MDS D127

Overview



The MDS D127 is a passive, maintenance-free transponder based on the ISO standard 15693, small, compact and capable of being screwed into metal.

The MDS D127 transponder can only be operated with the RFID systems SIMATIC RF200 and SIMATIC RF300 (ISO mode).

Application

For direct identification of small metallic workpieces, workpiece holders or containers.

Technical specifications

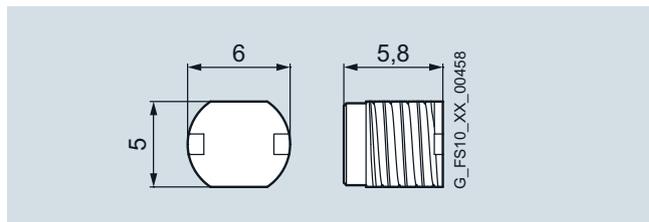
Order No.	6GT2600-0AF00
Product-type designation	MDS D127 transponder
Suitability for installation	RF200, RF300
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	5 mm
Protocol for radio transmission	ISO 15693
Transfer rate with radio transmission, maximum	26.5 kbit/s
Product property multitag-capable	Yes
Product component Buffer battery	No
Memory	
Type of memory	EEPROM
Memory capacity of user memory	112 byte
Type of memory organization	UID (fixed code) 8 bytes, user memory 112 bytes, configuration memory 8 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁴
Number of write cycles at ambient temperature < 40 °C, maximum	10 ⁶
Data retention time at ambient temperature < 40 °C, at least	10 a
Property of memory	Block-by-block write protection of the user memory
Mechanical data	
Material	PA6
Color	Black
Mounting distance for metal surfaces, recommended, minimum	0 mm

Order No.	6GT2600-0AF00
Product-type designation	MDS D127 transponder
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +100 °C
• during storage	-40 ... +125 °C
• during transport	-40 ... +125 °C
Protection class IP	IP68 / IPx9K
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	1000 m/s ²
Resistance against vibration	200 m/s ²
Design, dimensions and weight	
Height	5 mm
Diameter	6 mm
Net weight	1 g
Type of mounting	Gluing, screwing
Product properties, functions, components general	
Product property suitable for printing	No

Selection and ordering data

	Order No.
Transponder MDS 127	6GT2600-0AF00
112 bytes EEPROM	
Ordering quantity 10 units or a multiple thereof.	

Dimensional drawings



MDS D127 transponder

RFID systems for the HF frequency range

Transponders (ISO mode)

MDS D428

Overview



The MDS D428 is a passive (maintenance-free) transponder based on ISO 15693 with FRAM technology. The MDS D428 can be used for the RFID system MOBY D as well as for SIMATIC RF200 and SIMATIC RF300 (ISO mode).

Application

Compact and rugged ISO transponder; suitable for screw mounting. For use in assembly and production lines in the powertrain area.

Technical specifications

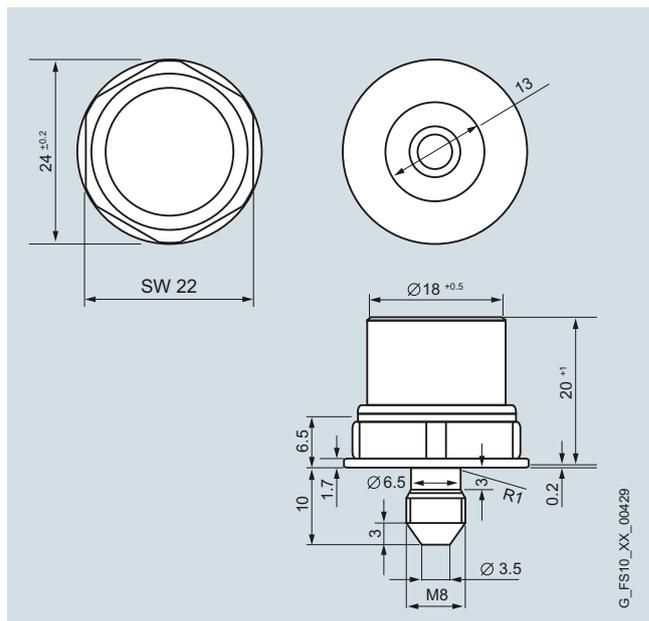
Order No.	6GT2600-4AK00-0AX0
Product-type designation	MDS D428 transponder
Suitability for installation	RF200, RF300, MOBY D
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	150 mm
Protocol for radio transmission	ISO 15693
Transfer rate with radio transmission, maximum	26.5 kbit/s
Product property multitag-capable	Yes
Product component Buffer battery	No
Memory	
Type of memory	FRAM
Memory capacity of user memory	2000 byte
Type of memory organization	UID (fixed code) 8 bytes, user memory 2000 bytes, configuration memory 40 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Number of write cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Data retention time at ambient temperature < 40°C, at least	10 a
Property of memory	Block-by-block write protection of the user memory

Order No.	6GT2600-4AK00-0AX0
Product-type designation	MDS D428 transponder
Mechanical data	
Material	PA6.6 GF / stainless steel
Color	silver/black
Tightening torque of screw for mounting the equipment, maximum	6 Nm
Mounting distance for metal surfaces, recommended, minimum	0 mm
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +85 °C
• during storage	-40 ... +125 °C
• during transport	-40 ... +125 °C
Protection class IP	IP68 / IPx9K
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	500 m/s ²
Resistance against vibration	200 m/s ²
Design, dimensions and weight	
Height x diameter (mm)	20 x 18
Net weight	35 g
Type of mounting	Screwing (M8)
Product properties, functions, components general	
Product feature silicon-free	Yes
Product property suitable for printing	No

Selection and ordering data

Order No.	6GT2600-4AK00-0AX0
Transponder MDS D428	6GT2600-4AK00-0AX0
2000 bytes FRAM	
Ordering quantity 5 units or a multiple thereof. With surface protection plate to prevent scratching of the screw-in surface	

Dimensional drawings



RFID systems for the HF frequency range

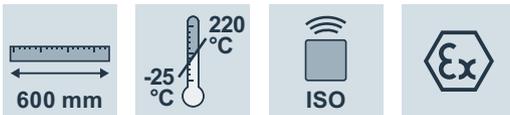
Transponders (ISO mode)

MDS D139

Overview



MDS D139 with spacer



The MDS D139 is a passive (maintenance-free) heat-resistant transponder based on ISO 15693.

The MDS D139 can be used for the RFID system MOBY D as well as for SIMATIC RF200 and SIMATIC RF300 (ISO mode).

Application

Applications in production logistics and in assembly lines subject to high temperatures (up to +200 °C, e.g. in a paint shop).

Technical specifications

Order No.	6GT2600-0AA10
Product-type designation	MDS D139 transponder
Suitability for installation	RF200, RF300, MOBY D
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	600 mm
Protocol for radio transmission	ISO 15693
Transfer rate with radio transmission, maximum	26.5 kbit/s
Product property multitag-capable	Yes
Product component Buffer battery	No

Order No.	6GT2600-0AA10
Product-type designation	MDS D139 transponder
Memory	
Type of memory	EEPROM
Memory capacity of user memory	112 byte
Type of memory organization	UID (fixed code) 8 bytes, user memory 112 bytes, configuration memory 8 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁴
Number of write cycles at ambient temperature < 40 °C, maximum	10 ⁶
Data retention time at ambient temperature < 40°C, at least	10 a
Property of memory	Block-by-block write protection of the user memory
Mechanical data	
Material	PPS
Color	Black
Tightening torque of screw for mounting the equipment, maximum	1.5 Nm
Mounting distance for metal surfaces, recommended, minimum	30 mm
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +220 °C
• during storage	-40 ... +100 °C
• during transport	-40 ... +100 °C
Ambient condition for (standard) operation mode	At 220 °C: up to 2000 hours or 1500 thermal cycles
Protection class IP	IP68 / IPx9K
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	500 m/s ²
Resistance against vibration	200 m/s ²
Design, dimensions and weight	
Height	15 mm
Diameter	85 mm
Net weight	50 g
Type of mounting	Screw M5
Product properties, functions, components general	
Product feature silicon-free	Yes
Product property suitable for printing	No
Standards, specifications, approvals	
Verification of suitability	Ex: II 3 G Ex nA II T2, II 3 D Ex tD A22 IP68 T 210°C
Accessories	
Accessories	Spacer, quick-change holder

RFID systems for the HF frequency range

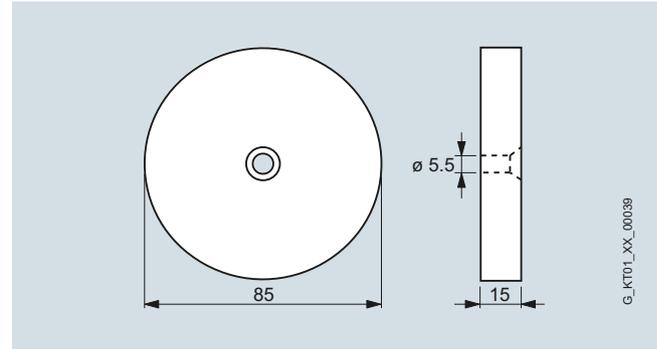
Transponders (ISO mode)

MDS D139

Selection and ordering data

	Order No.
Transponder MDS D139 112 bytes EEPROM Ordering quantity 10 units or a multiple thereof.	6GT2600-0AA10
Accessories	
Spacer Necessary for mounting onto metal surfaces. Ordering quantity 10 units or a multiple thereof.	6GT2690-0AA00
	
Quick change holder For MDS D139, stainless steel, diameter = 22 mm, height = 48 mm. Ordering quantity 10 units or a multiple thereof.	6GT2690-0AH00
	

Dimensional drawings



MDS D139 transponder

2

RFID systems for the HF frequency range

Transponders (ISO mode)

MDS D339

Overview



The MDS D339 is a passive (maintenance-free) heat-resistant transponder based on ISO 15693.

The MDS D339 can be used for the RFID system MOBY D as well as for SIMATIC RF200 and SIMATIC RF300 (ISO mode).

Application

Applications in production logistics and in assembly lines subject to high temperatures (up to +220 °C, e.g. in a paint shop).

Technical specifications

Order No.	6GT2600-3AA10
Product-type designation	MDS D339 transponder
Suitability for installation	RF200, RF300, MOBY D
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	500 mm
Protocol for radio transmission	ISO 15693
Transfer rate with radio transmission, maximum	26.5 kbit/s
Product property multitag-capable	Yes
Product component Buffer battery	No
Memory	
Type of memory	EEPROM
Memory capacity of user memory	992 byte
Type of memory organization	UID (fixed code) 8 bytes, user memory 992 bytes, configuration memory 24 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁴
Number of write cycles at ambient temperature < 40 °C, maximum	10 ⁶
Data retention time at ambient temperature < 40°C, at least	10 a
Property of memory	Block-by-block write protection of the user memory

Order No.	6GT2600-3AA10
Product-type designation	MDS D339 transponder
Mechanical data	
Material	PPS
Color	Black
Tightening torque of screw for mounting the equipment, maximum	1.5 Nm
Mounting distance for metal surfaces, recommended, minimum	30 mm
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +220 °C
• during storage	-40 ... +100 °C
• during transport	-40 ... +100 °C
Ambient condition for (standard) operation mode	At 220 °C: up to 2000 hours or 1500 thermal cycles
Protection class IP	IP68 / IPx9K
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	500 m/s ²
Resistance against vibration	200 m/s ²
Design, dimensions and weight	
Height	15 mm
Diameter	85 mm
Net weight	50 g
Type of mounting	Screw M5
Product properties, functions, components general	
Product property	
• silicon-free	Yes
• suitable for printing	No
Standards, specifications, approvals	
Verification of suitability	Ex: II 3 G Ex nA II T2, II 3 D Ex tD A22 IP68 T 210°C
Accessories	
Accessories	Spacer, quick-change holder

RFID systems for the HF frequency range

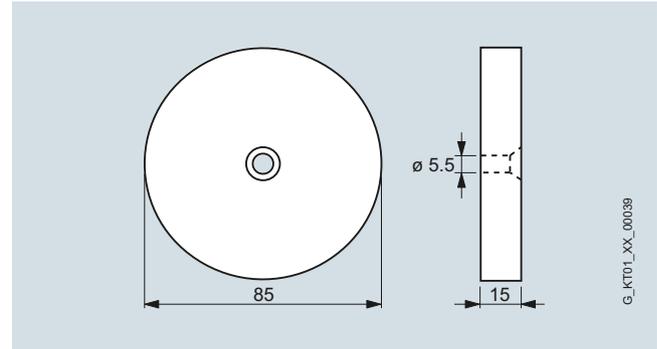
Transponders (ISO mode)

MDS D339

Selection and ordering data

	Order No.
MDS D339 ISO transponder 992 bytes EEPROM Ordering quantity 10 units or a multiple thereof.	6GT2600-3AA10
Accessories	
Spacer Necessary for mounting onto metal surfaces. Ordering quantity 10 units or a multiple thereof.	6GT2690-0AA00
	
Quick change holder For MDS D339, stainless steel, diameter = 22 mm, height = 48 mm. Ordering quantity 10 units or a multiple thereof.	6GT2690-0AH00
	

Dimensional drawings



MDS D339 ISO transponder

More information

All current approvals are listed in the Internet at:
<http://www.siemens.com/rfid-approvals>

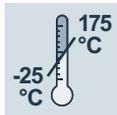
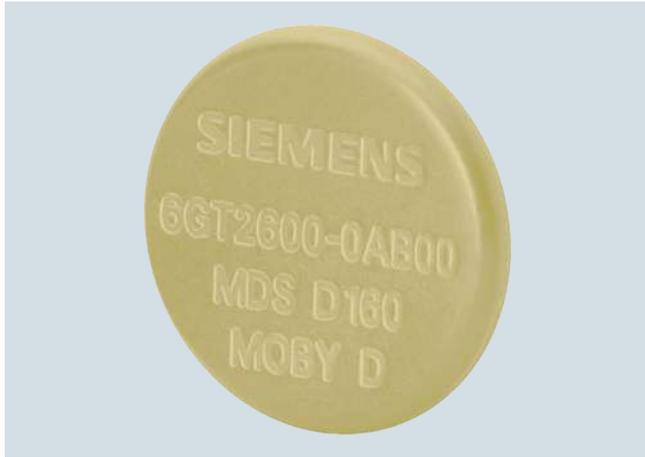
2

RFID systems for the HF frequency range

Transponders (ISO mode)

MDS D160

Overview



The MDS D160 transponder can be used for the RFID system MOBY D as well as for SIMATIC RF200 and SIMATIC RF300 (ISO mode).

Application

Typical applications are, for example:

- Rented work clothing
- Hotel laundry
- Surgical textiles
- Hospital clothing
- Dirt collection mats
- Clothing for nursing homes/hostels

Technical specifications

Order No.	6GT2600-0AB10
Product-type designation	MDS D160 transponder
Suitability for installation	RF200, RF300, MOBY D
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	180 mm
Protocol for radio transmission	ISO 15693
Transfer rate with radio transmission, maximum	26.5 kbit/s
Product property multitag-capable	Yes
Product component Buffer battery	No
Memory	
Type of memory	EEPROM
Memory capacity of user memory	112 byte
Type of memory organization	UID (fixed code) 8 bytes, user memory 112 bytes, configuration memory 8 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁴
Number of write cycles at ambient temperature < 40 °C, maximum	10 ⁶
Data retention time at ambient temperature < 40 °C, at least	10 a
Property of memory	Block-by-block write protection of the user memory
Mechanical data	
Material	PPS
Color	Beige
Mounting distance for metal surfaces, recommended, minimum	25 mm
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +175 °C
• during storage	-40 ... +100 °C
• during transport	-40 ... +100 °C
Ambient condition for (standard) operation mode	Once up to 220 °C for 30 s, min. 100 washing cycles
Protection class IP	IP68 / IPx9K
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	400 m/s ²
Resistance against vibration	100 m/s ²
Design, dimensions and weight	
Height	3 mm
Diameter	16 mm
Net weight	1.2 g
Type of mounting	Patching, sewing, gluing
Product properties, functions, components general	
Product property suitable for printing	No
Accessories	
Accessories	Mounting support and spacer

RFID systems for the HF frequency range

Transponders (ISO mode)

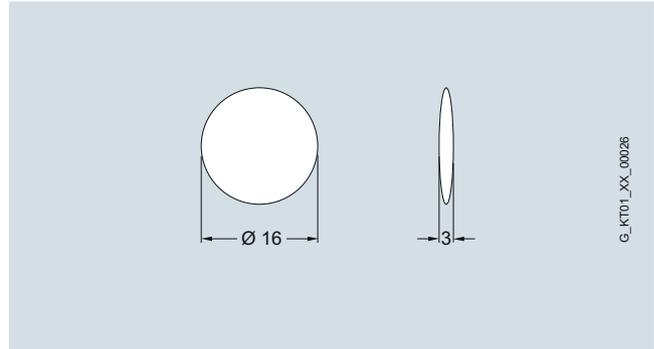
MDS D160

Selection and ordering data

	Order No.
Transponder MDS D160 112 bytes EEPROM Ordering quantity 100 units or a multiple thereof.	6GT2600-0AB10
Accessories	
Spacer for MDS D160 For MDS D160, necessary for mounting onto metal surfaces. Diameter = 20 mm, height = 15 mm. Ordering quantity 50 units or a multiple thereof.	6GT2690-0AG00



Dimensional drawings



MDS D160 transponder

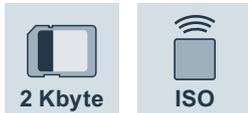
2

RFID systems for the HF frequency range

Transponders (ISO mode)

MDS D460

Overview



The MDS D460 is a passive (maintenance-free) transponder based on ISO 15693 with FRAM technology.

The MDS D460 can be used for the RFID system MOBY D as well as for SIMATIC RF200 and SIMATIC RF300 (ISO mode).

Application

Identification on small assembly lines.

Technical specifications

Order No.	6GT2600-4AB00
Product-type designation	MDS D460 transponder
Suitability for installation	RF200, RF300, MOBY D
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	160 mm
Protocol for radio transmission	ISO 15693
Transfer rate with radio transmission, maximum	26.5 kbit/s
Product property multitag-capable	Yes
Product component Buffer battery	No
Memory	
Type of memory	FRAM
Memory capacity of user memory	2000 byte
Type of memory organization	UID (fixed code) 8 bytes, user memory 2000 bytes, configuration memory 40 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Number of write cycles at ambient temperature < 40 °C, maximum	10 ¹⁰
Data retention time at ambient temperature < 40°C, at least	10 a
Property of memory	Block-by-block write protection of the user memory
Mechanical data	
Material	Epoxy resin
Color	Black
Mounting distance for metal surfaces, recommended, minimum	15 mm
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +85 °C
• during storage	-40 ... +100 °C
• during transport	-40 ... +100 °C
Protection class IP	IP67 / IPx9K
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	500 m/s ²
Resistance against vibration	200 m/s ²
Design, dimensions and weight	
Height	3 mm
Diameter	16 mm
Net weight	3 g
Type of mounting	Patching, sewing, gluing
Product properties, functions, components general	
Product property suitable for printing	No
Accessories	
Accessories	Mounting support and spacer

RFID systems for the HF frequency range

Transponders (ISO mode)

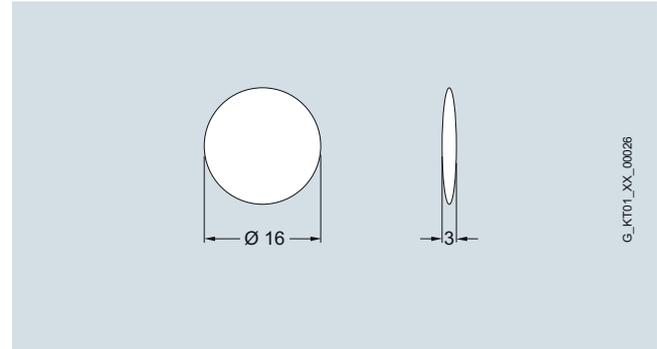
MDS D460

Selection and ordering data

	Order No.
Transponder MDS D460 2000 bytes FRAM Ordering quantity 50 units or a multiple thereof.	6GT2600-4AB00
Accessories	
Spacer For MDS D460, necessary for mounting onto metal surfaces. Diameter = 20 mm, height = 15 mm Ordering quantity 50 units or a multiple thereof.	6GT2690-0AG00



Dimensional drawings



Mobile data storage unit MDS D460

2

RFID systems for the HF frequency range

SIMATIC RF300 readers

Readers

Overview



Readers	Features
SIMATIC RF310R	<p>Ideal for use on small assembly lines. Reader with integrated antenna.</p> <ul style="list-style-type: none"> • IP67 degree of protection • Operating temperature range -25 °C to +70 °C • Dimensions L x W x H (mm): 55 x 75 x 30 • 2 interface variants (IQ-Sense or RS422) • Available as scan mode variant (read only) • Can be configured for ISO 15693 compatibility (only applies to RS422 models) and RF300 transponders
SIMATIC RF340R	<p>Ideal for use on assembly lines. Reader with integrated antenna.</p> <ul style="list-style-type: none"> • IP67 degree of protection • Operating temperature range -25 °C to +70 °C • Dimensions L x W x H (mm): 75 x 75 x 41 • Interface RS422 • Can be configured for ISO 15693 compatibility and RF300 transponders
SIMATIC RF350R	<p>Ideal for use on assembly lines. Reader for the connection of external antennas (ANT 1, ANT 12, ANT 18, ANT 30).</p> <ul style="list-style-type: none"> • IP65 degree of protection • Operating temperature range -25 °C to +70 °C • Dimensions L x W x H (mm): 75 x 75 x 41 • Interface RS422 • Can be configured for ISO 15693 compatibility and RF300 transponders
SIMATIC RF380R	<p>Ideal for use in assembly lines in which long ranges are required. Reader with integrated antenna.</p> <ul style="list-style-type: none"> • IP67 degree of protection • Operating temperature range -25 °C to +70 °C • Dimensions L x W x H (mm): 160 x 80 x 41 • Interface RS422 / RS232 • Can be configured for ISO 15693 compatibility and RF300 transponders
SIMATIC RF382R	<p>Ideal for use in assembly lines in which transponders must be read from the side. Reader with integrated special antenna. Scan mode (read only).</p> <ul style="list-style-type: none"> • IP67 degree of protection • Operating temperature range -25 °C to +70 °C • Dimensions L x W x H (mm): 160 x 80 x 41 • Interface RS422 / RS232 • Can be configured for ISO 15693 compatibility and RF300 transponders • Scan mode (automatic read mode, without command control)
SIMATIC RF310M	<p>Mobile handheld terminal with integral write/read antenna.</p> <ul style="list-style-type: none"> • Degree of protection IP54 (splash proof) • Operating temperature range -20 °C to +50 °C • Approx. dimensions L x W x H (mm): 280 x 100 x 45 • WLAN (optional)

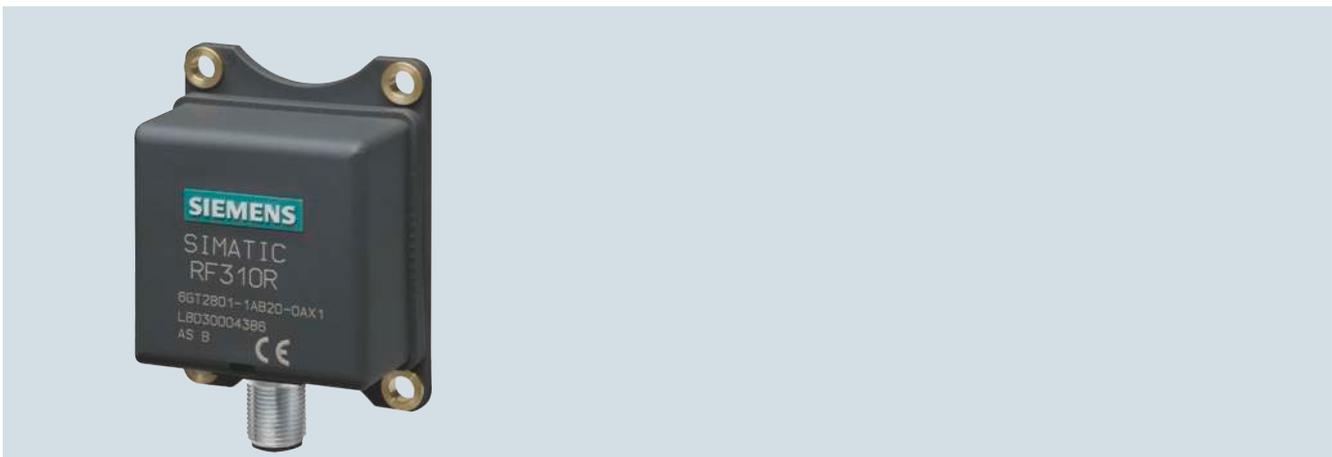
Overview



SIMATIC RF310R reader with IQ-Sense interface (6GT2801-0AA00)



SIMATIC RF310R (6GT2801-1AB10)



SIMATIC RF310R reader, scanmode version (6GT2801-1AB20-0AX1)



Due to its small, compact design, the SIMATIC RF310R reader can be used to considerable advantage in small assembly lines.

This reader is available in two interface variants:

- With IQ-Sense interface for the 8xIQ-Sense module SM338 on S7-300/ET 200M;
- With RS422 interface for the RFID communication modules ASM 456, ASM 475, SIMATIC RF160C, RF170C, RF180C and RF182C.

The RS422 version is also available as a scanmode variant (automatic read mode, without command control). This automatic read-only mode does not require a special command control, but supplies the autonomously read transponder data directly to the connected host system.

Due to the high degree of protection and the use of high-quality materials, the SIMATIC RF310R ensures problem-free operation even under the harshest industrial conditions. Connection is either via a 4-pin M12 plug-in connector (IQ-Sense variant) or an 8-pin M12 plug-in connector (RS422 variant). The RS422 model can also be parameterized for use with ISO 15693-compatible transponders, for example from the MOBY D product spectrum.

RFID systems for the HF frequency range

SIMATIC RF300 readers

SIMATIC RF310R

Design

Field data

Minimum distance from reader to reader	
SIMATIC RF310R	≥ 100 mm

Technical specifications

Order No.	6GT2801-0AA00	6GT2801-1AB20-0AX1	6GT2801-1AB10
Product-type designation	RF310R IQ-Sense reader	RF310R reader Scanmode version	RF310R reader
Suitability for installation	RF300 transponder, for connecting to IQ-Sense	RF300 and ISO 15693 transponders, for serial connection to control systems (scan mode)	RF300 and ISO 15693 transponders, for connecting to communication modules
Wireless frequencies			
Operating frequency, rated value	13.56 MHz	13.56 MHz	13.56 MHz
Electrical data			
Range, maximum	35 mm	60 mm	60 mm
Protocol for radio transmission	RF300-specific	RF300-specific, ISO 15693, ISO 18000-3	RF300-specific, ISO 15693, ISO 18000-3
Transfer rate with radio transmission, maximum	106 kbit/s	106 kbit/s	106 kbit/s
Product property multitag-capable	No	No	No
Transmission rate at point-to-point connection serial, maximum	0.4 kbit/s	115.2 kbit/s	115.2 kbit/s
Transmission time for user data			
• for write access per byte, typical	25 ms	0.13 ms	0.13 ms
• for read access per byte, typical	20 ms	0.13 ms	0.13 ms
Interfaces			
Design of the electrical connection	M12, 4-pin	M12, 8-pin	M12, 8-pin
Standard for interfaces for communication	IQ-Sense	RS422	RS422
Mechanical data			
Material	PA 12	PA 12	PA 12
Color	Anthracite	Anthracite	Anthracite
Mounting distance for metal surfaces, recommended, minimum	0 mm	0 mm	0 mm
Supply voltage, current consumption, power loss			
Supply voltage for DC			
• rated value	24 V	24 V	24 V
• minimum	20.4 V	20.4 V	20.4 V
• maximum	28.8 V	28.8 V	28.8 V
Consumed current at 24 V DC, typical	0.04 A	0.05 A	0.05 A
Permitted ambient conditions			
Ambient temperature			
• during operating	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C
• during storage	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
• during transport	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
Protection class IP	IP67	IP67	IP67
Resistance against shock	EN 60721-3-7, Class 7 M2	EN 60721-3-7, Class 7 M2	EN 60721-3-7, Class 7 M2
Resistance against shock	500 m/s ²	500 m/s ²	500 m/s ²
Resistance against vibration	200 m/s ²	200 m/s ²	200 m/s ²
Design, dimensions and weight			
Width	55 mm	55 mm	55 mm
Height	30 mm	30 mm	30 mm
Depth	75 mm	75 mm	75 mm
Net weight	0.2 kg	0.2 kg	0.2 kg
Type of mounting	4 x M5 screws	4 x M5 screws	4 x M5 screws

RFID systems for the HF frequency range

SIMATIC RF300 readers

SIMATIC RF310R

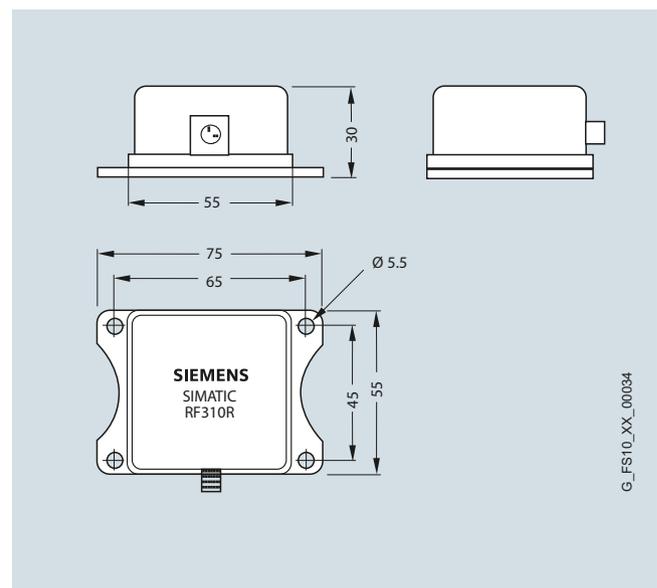
Order No.	6GT2801-0AA00	6GT2801-1AB20-0AX1	6GT2801-1AB10
Product-type designation	RF310R IQ-Sense reader	RF310R reader Scanmode version	RF310R reader
Cable length for RS 422 interface, maximum	-	1000 m	1000 m
Product properties, functions, components general			
Type of display	-	3-color LED	3-color LED
Product feature silicon-free	-	Yes	Yes
Standards, specifications, approvals			
Verification of suitability	Wireless according to R&TTE guidelines EN 300 330, EN 301489, CE, FCC, UL/CSA	Wireless according to R&TTE guidelines EN 300 330, EN 301489, CE, FCC, UL/CSA	Wireless according to R&TTE guidelines EN 300 330, EN 301489, CE, FCC, UL/CSA

2

Selection and ordering data

	Order No.
SIMATIC RF310R reader	
• With IQ-Sense interface	6GT2801-0AA00
• With RS422 interface (3964R procedure)	6GT2801-1AB10
• Scanmode version (RS422)	6GT2801-1AB20-0AX1
Accessories	
Note: All connection options are shown in the chapter on "Communication Modules".	
IQ-Sense module SM 338 for S7-300 and ET 200M	6ES7338-7XF00-0AB0
M12 cable plug	
PUR cable 4 x 0.34 mm ² , straight connector for SIMATIC RF310R (IQ-Sense)	
5 m	6GT2891-0LH50
10 m	6GT2891-0LN10
DVD "RFID Systems Software & Documentation"	6GT2080-2AA20

Dimensional drawings



SIMATIC RF310R reader (6GT2801-0AA00 and 6GT2801-1AB10)

More information

All current approvals are listed in the Internet at:

<http://www.siemens.com/rfid-approvals>

RFID systems for the HF frequency range

SIMATIC RF300 readers

SIMATIC RF340R

Overview



The SIMATIC RF340R is a reader with integrated antenna for the medium performance range and can be used to great advantage in assembly lines thanks to its compact design. This reader is also particularly suitable for dynamic applications, in which the transponder does not stop during the read/write process.

This reader has an RS422 interface with transmission procedure 3964R for connection to the RFID communication modules ASM 456, ASM 475, SIMATIC RF160C, RF170C, RF180C and RF182C.

Thanks to the high degree of protection and the use of high-quality materials, the SIMATIC RF340R ensures problem-free use even under the toughest industrial conditions. It is connected via an 8-pole M12 plug-in connector.

The reader can also be parameterized for use with ISO 15693-compatible transponders, for example from the MOBY D product spectrum.

Design

Field data

Minimum distance from reader to reader	
SIMATIC RF340R	≥ 200 mm

Technical specifications

Order No.	6GT2801-2AB10
Product-type designation	RF340R reader
Suitability for installation	RF300 and ISO 15693 transponders, for connecting to communication modules
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	140 mm
Protocol for radio transmission	RF300-specific, ISO 15693, ISO 18000-3
Transfer rate with radio transmission, maximum	106 kbit/s

Order No.	6GT2801-2AB10
Product-type designation	RF340R reader
Product property multitag-capable	No
Transmission rate at point-to-point connection serial, maximum	115.2 kbit/s
Transmission time for user data	
• for write access per byte, typical	0.13 ms
• for read access per byte, typical	0.13 ms
Interfaces	
Design of the electrical connection	M12, 8-pin
Standard for interfaces for communication	RS422
Mechanical data	
Material	PA 12
Color	Anthracite
Mounting distance for metal surfaces, recommended, minimum	0 mm
Supply voltage, current consumption, power loss	
Supply voltage for DC	
• rated value	24 V
• minimum	20.4 V
• maximum	28.8 V
Consumed current at 24 V DC, typical	0.1 A
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +70 °C
• during storage	-40 ... +85 °C
• during transport	-40 ... +85 °C
Protection class IP	IP67
Resistance against shock	EN 60721-3-7, Class 7 M2
Resistance against shock	500 m/s ²
Resistance against vibration	200 m/s ²
Design, dimensions and weight	
Width	75 mm
Height	41 mm
Depth	75 mm
Net weight	0.25 kg
Type of mounting	2 x M5 screws
Product properties, functions, components general	
Type of display	3-color LED
Product feature silicon-free	Yes
Standards, specifications, approvals	
Verification of suitability	Radio in accordance with R&TTE guidelines EN 300 330, EN 301489, CE, FCC, UL/CSA, Ex: II 3G Ex nA nC IIB T5, II 3D Ex tD A22 IP6x T80°C

RFID systems for the HF frequency range

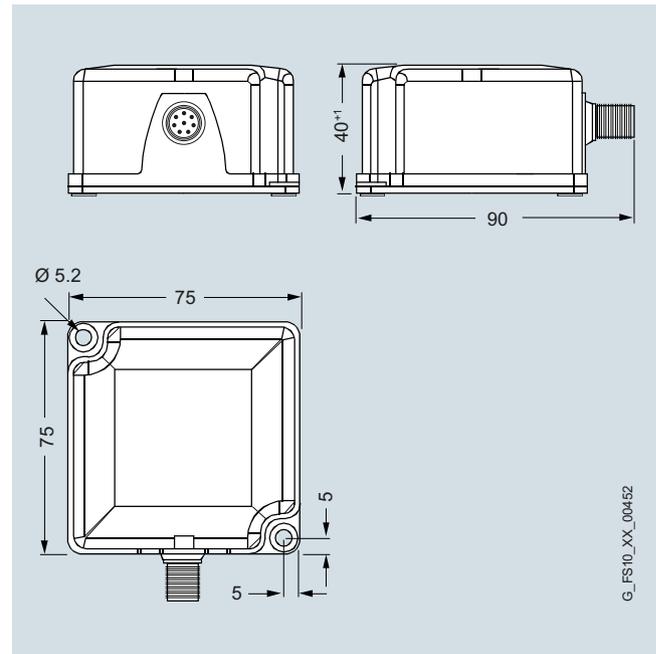
SIMATIC RF300 readers

SIMATIC RF340R

Selection and ordering data

	Order No.
Reader SIMATIC RF340R	6GT2801-2AB10
Accessories	
Note: All connection options are shown in Chapter 6 "Communication Modules".	
DVD "RFID Systems Software & Documentation"	6GT2080-2AA20

Dimensional drawings



Reader SIMATIC RF340R

More information

All current approvals are listed in the Internet at:
<http://www.siemens.com/rfid-approvals>

2

RFID systems for the HF frequency range

SIMATIC RF300 readers

SIMATIC RF350R

Overview



SIMATIC RF350R is a universal reader for operation with external antennas. Due to the different, pluggable antenna designs (flat antenna, round antennas), there are many possible applications in the area of industrial production, especially in assembly lines.

This reader has an RS422 interface with transmission procedure 3964R for connection to the RFID communication modules ASM 456, ASM 475, SIMATIC RF160C, RF170C, RF180C and RF182C.

Thanks to the high degree of protection and the use of high-quality materials, the SIMATIC RF350R ensures problem-free use even under the toughest industrial conditions. It is connected via an 8-pole M12 plug-in connector.

The reader can also be parameterized for use with ISO 15693-compatible transponders, for example from the MOBY D product spectrum.

Suitable antennas

One of each of the following antennas can be operated on a SIMATIC RF350R:

- ANT 1, universal flat antenna, also for dynamic applications, dimensions L x W x H (mm): 75 x 75 x 20.
- ANT 12, universal round antenna in M12 design for assembly lines with extremely small workpiece holders, dimensions Ø x L (mm) M12 x 40.
- ANT 18, universal round antenna in M18 design for assembly lines with small workpiece holders, dimensions Ø x L (mm) M18 x 55.
- ANT 30, universal round antenna for assembly lines with small workpiece holders, dimensions Ø x L (mm) M30 x 58.

Design

Connectable antennas	ANT 1	ANT 12	ANT 18	ANT 30
Inductive interface to the transponder	13.56 MHz			
Range, max.	140 mm	16 mm	35 mm	55 mm
Antenna cable length (cannot be changed)	3 m			
Ambient temperature				
• During operation	- 25 ... + 70 °C			
• During transportation and storage	- 40 ... + 85 °C			
Degree of protection according to EN 60529	IP67	IP67 (front)		
Mechanical stress in accordance with EN 60721 3-7 Class 7 M2				
• Shock	50 g Maximum value, no continuous load			
• Vibration	20 g Maximum value, no continuous load			
Type of construction				
• Dimensions (mm)	75 x 75 x 20	M12 x 40	M18 x 55	M30 x 58
• Color	Anthracite	Pastel turquoise		
• Weight, approx.	80 g	45 g	120 g	150 g
• Material	Plastic PA 12	Crastin plastic		
Mounting	2 x M5 screws	2 x M12 nuts	2 x M18 nuts	2 x M30 nuts

RFID systems for the HF frequency range

SIMATIC RF300 readers

SIMATIC RF350R

Field data in mm

RF350R with antenna	ANT 1	ANT 12	ANT 18	ANT 30
Operating distance (S_a)	See field data of the transponder			
Limit distance (S_g)				
Diameter of the transmission window (L_d)				
Minimum distance (mm) from antenna to antenna (D)				
• ANT 1	800	400	400	400
• ANT 12	400	80	125	200
• ANT 18	400	125	125	200
• ANT 30	400	200	200	200

Technical specifications

Order No.	6GT2801-4AB10
Product-type designation	RF350R reader
Suitability for installation	RF300 and ISO 15693 transponders, for connecting to communication modules
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	140 mm
Protocol for radio transmission	RF300-specific, ISO 15693, ISO 18000-3
Transfer rate with radio transmission, maximum	106 kbit/s
Product property multitag-capable	No
Transmission rate at point-to-point connection serial, maximum	115.2 kbit/s
Transmission time for user data	
• for write access per byte, typical	0.13 ms
• for read access per byte, typical	0.13 ms
Interfaces	
Design of the electrical connection for external antenna(s)	M8, 4-pin
Number of external antennas	1
Standard for interfaces for communication	RS422
Mechanical data	
Material	PA 12
Color	Anthracite
Supply voltage, current consumption, power loss	
Supply voltage for DC, rated value	24 V
Supply voltage	
• for DC	20.4 ... 28.8 V
Consumed current at 24 V DC typical	0.1 A

Order No.	6GT2801-4AB10
Product-type designation	RF350R reader
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +70 °C
• during storage	-40 ... +85 °C
• during transport	-40 ... +85 °C
Protection class IP	IP65
Resistance against shock	EN 60721-3-7, Class 7 M2
Resistance against shock	500 m/s ²
Resistance against vibration	200 m/s ²
Design, dimensions and weight	
Width	75 mm
Height	41 mm
Depth	75 mm
Net weight	0.25 kg
Type of mounting	2 x M5 screws
Cable length	
• of antenna cable fixed value	3 m
• for RS 422 interface maximum	1000 m
Product properties, functions, components general	
Type of display	3-color LED
Product feature silicon-free	Yes
Standards, specifications, approvals	
Verification of suitability	Radio in accordance with R&TTE guidelines EN 300 330, EN 301489, CE, FCC, UL/CSA, Ex: II 3G Ex nA nC IIB T5, II 3D Ex tD A22 IP6x T80°C
Mean time between failures (MTBF)	140 a
Accessories	
Accessories	Various antennas are available

Order No.	6GT2398-1CB00	6GT2398-1CC00
Product-type designation	Antenna ANT 1	Antenna ANT 12
Suitability for installation	RF300 / MOBY E	RF300 / MOBY E
Wireless frequencies		
Transmission frequency, rated value	13.56 MHz	13.56 MHz
Mechanical data		
Material		
Color	Anthracite	Pastel turquoise
Tightening torque of screw for mounting the equipment, maximum	2 Nm	3 Nm

RFID systems for the HF frequency range

SIMATIC RF300 readers

SIMATIC RF350R

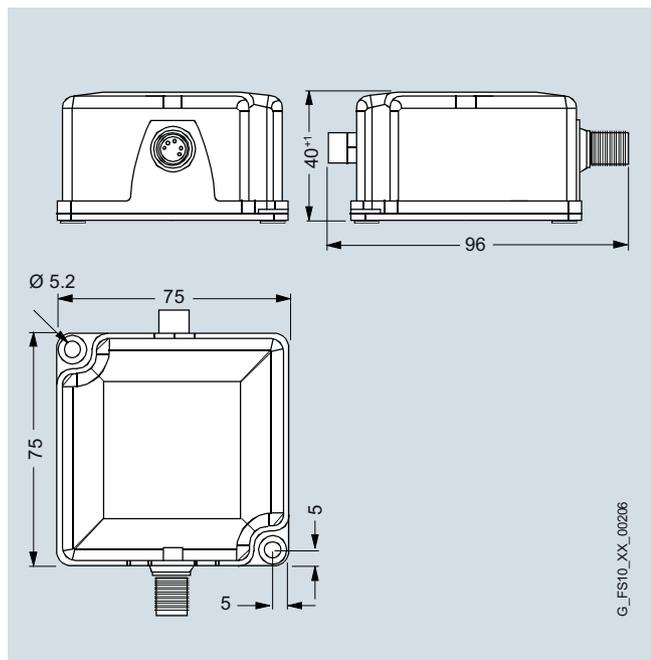
Order No.	6GT2398-1CB00	6GT2398-1CC00
Product-type designation	Antenna ANT 1	Antenna ANT 12
Mounting distance for metal surfaces, recommended, minimum	20 mm	0 mm
Design of the plug-in connection	M8, 4-pin	M8, 4-pin
Permitted ambient conditions		
Ambient temperature		
• during operating	-25 ... +70 °C	-25 ... +70 °C
• during storage	-40 ... +85 °C	-40 ... +85 °C
• during transport	-40 ... +85 °C	-40 ... +85 °C
Protection class IP	IP67	IP67, front
Mechanical stress resistance	no bending or torsion permitted	-
Resistance against shock	according to EN 60721-3-7 Class 7M2	according to EN 60721-3-7 Class 7M2
Resistance against shock	500 m/s ²	500 m/s ²
Resistance against vibration	200 m/s ²	200 m/s ²
Design, dimensions and weight		
Width	75 mm	-
Height	75 mm	-
Depth	20 mm	40 mm
Diameter	-	12 mm
Net weight	80 g	45 g
Type of mounting	2 screws M5	2 plastic nuts M12 x 1.0
Product properties, general		
Verification of suitability	CE, FCC, IC, cULus, Ex approval only together with 6GT2801-4AB10	CE, FCC, IC, cULus, Ex approval only together with 6GT2801-4AB10

Order No.	6GT2398-1CA00	6GT2398-1CD00
Product-type designation	Antenna ANT 18	Antenna ANT 30
Suitability for installation	RF300 / MOBY E	RF300 / MOBY E
Wireless frequencies		
Transmission frequency, rated value	13.56 MHz	13.56 MHz
Mechanical data		
Material	Crastin plastic	Crastin plastic
Color	Pastel turquoise	Pastel turquoise
Tightening torque of screw for mounting the equipment, maximum	3 Nm	3 Nm
Mounting distance for metal surfaces, recommended, minimum	0 m	0 m
Design of the plug-in connection	M8, 4-pin	M8, 4-pin
Permitted ambient conditions		
Ambient temperature		
• during operating	-25 ... +70 °C	-25 ... +70 °C
• during storage	-40 ... +85 °C	-40 ... +85 °C
• during transport	-40 ... +85 °C	-40 ... +85 °C
Protection class IP	IP67, front	IP67, front
Resistance against shock	according to EN 60721-3-7 Class 7M2	according to EN 60721-3-7 Class 7M2
Resistance against shock	500 m/s ²	500 m/s ²
Resistance against vibration	200 m/s ²	200 m/s ²
Design, dimensions and weight		
Depth	55 mm	58 mm
Diameter	18 mm	30 mm
Net weight	120 g	150 g
Type of mounting	2 plastic nuts M18 x 1.0	2 plastic nuts M30 x 1.5
Product properties, general		
Verification of suitability	CE, FCC, IC, cULus, Ex approval only together with 6GT2801-4AB10	CE, FCC, IC, cULus, Ex approval only together with 6GT2801-4AB10

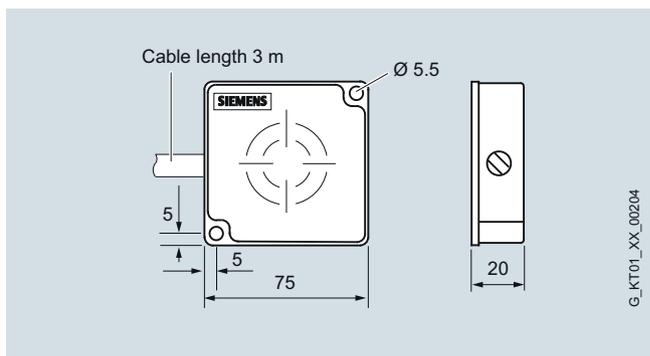
Selection and ordering data

	Order No.
Reader SIMATIC RF350R	6GT2801-4AB10
Without antenna	
ANT 1 antenna	6GT2398-1CB00
For RF350R reader	
ANT 12 antenna	6GT2398-1CC00
For RF350R reader	
ANT 18 antenna	6GT2398-1CA00
For RF350R reader	

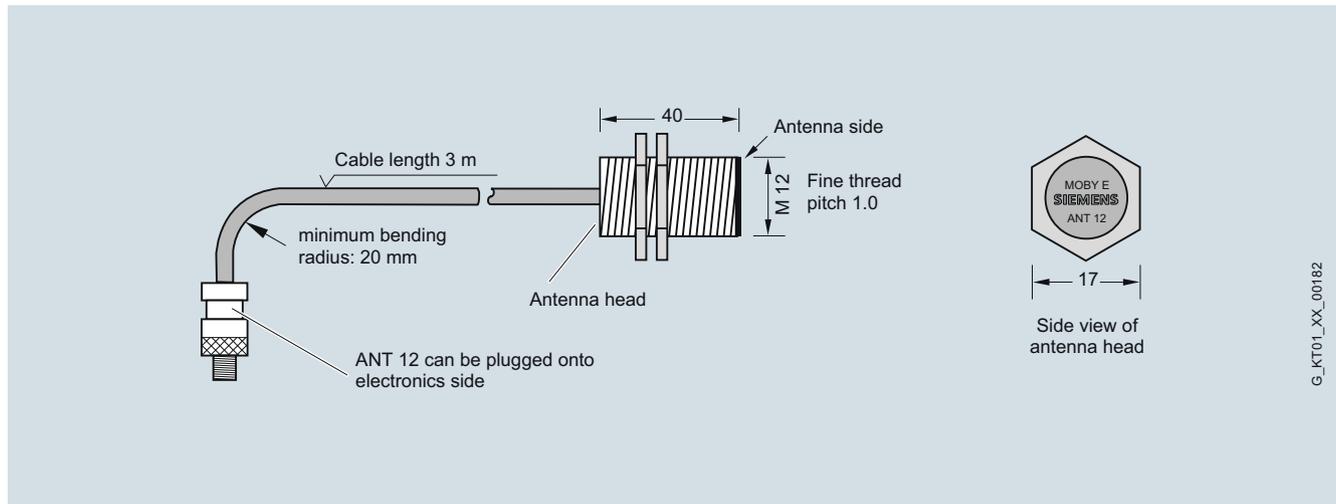
	Order No.
ANT 30 antenna	6GT2398-1CD00
For RF350R reader	
Accessories	
Note: All connection options are shown in the chapter on "Communication Modules".	
DVD "RFID Systems Software & Documentation"	6GT2080-2AA20

Dimensional drawings


Reader SIMATIC RF350R



Antenna ANT 1



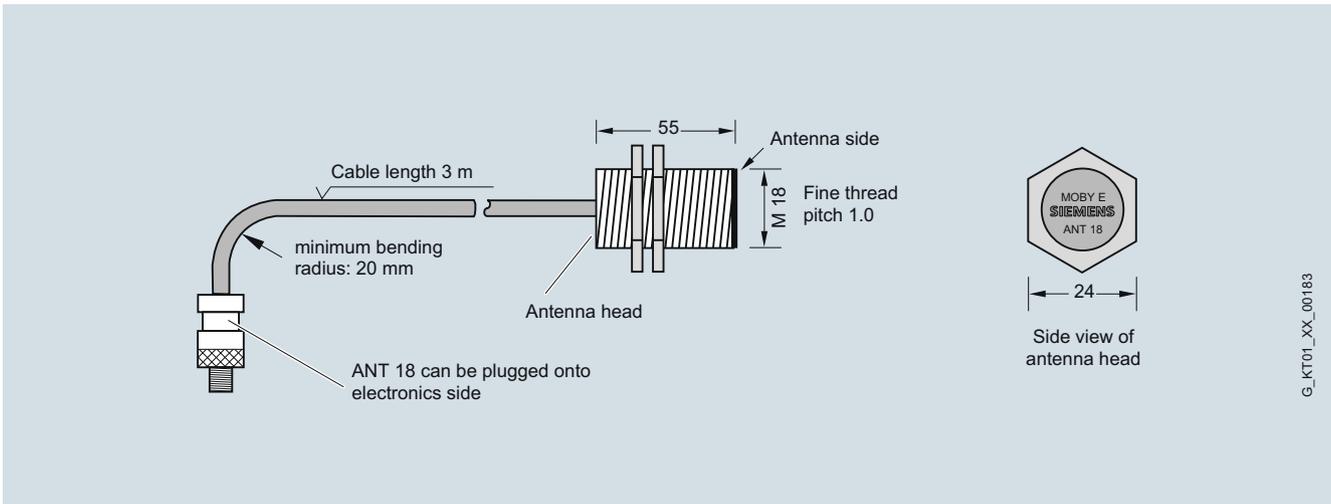
Antenna ANT 12

RFID systems for the HF frequency range

SIMATIC RF300 readers

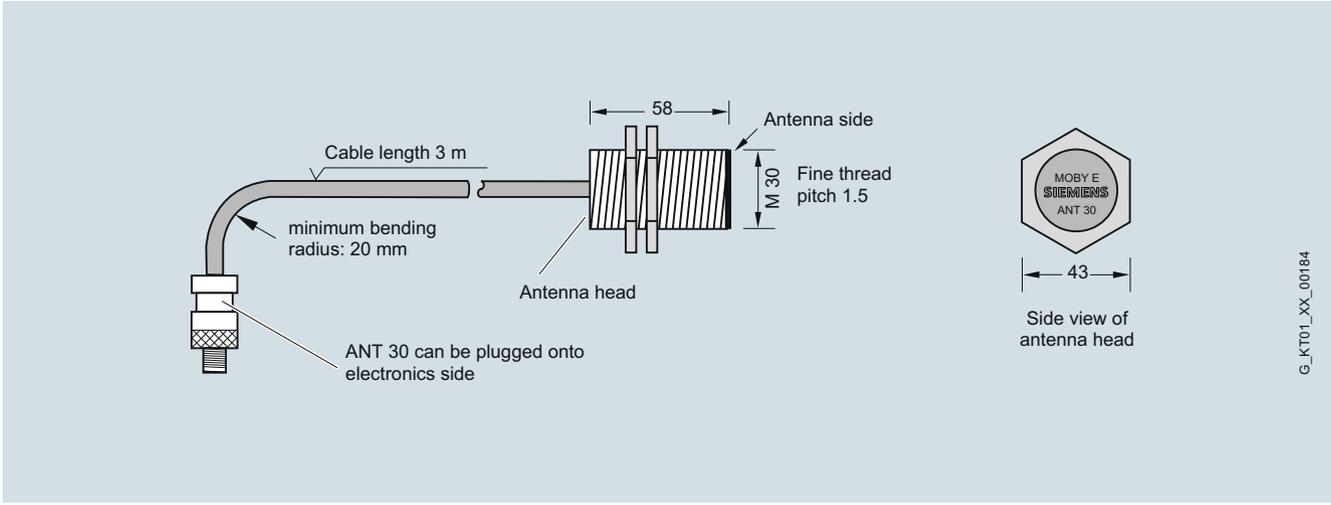
SIMATIC RF350R

2



G_KT01_XX_00183

Antenna ANT 18



G_KT01_XX_00184

Antenna ANT 30

More information

All current approvals are listed in the Internet at:
<http://www.siemens.com/rfid-approvals>

RFID systems for the HF frequency range

SIMATIC RF300 readers

SIMATIC RF380R

Overview



SIMATIC RF380R is a reader with an integral antenna for the top-end performance range and its compact construction makes it ideal for implementation in assembly lines in which long ranges are required (e.g. body shop/paint shop in the automotive industry). This reader is also particularly well-suited to dynamic applications in which the transponder is not stopped during the read/write process (e.g. baggage conveyors in airports).

This reader has both an RS422 and an RS232 interface with a 3964R transmission procedure for connection to RFID communication modules ASM 456, ASM 475, SIMATIC RF160C, RF170C, RF180C and SIMATIC RF182C as well as to non-Siemens controllers or PCs.

Due to the high degree of protection and the use of high-quality materials, the SIMATIC RF380R ensures problem-free operation even under the harshest industrial conditions. It is connected via an 8-pole M12 plug-in connector.

The reader can also be parameterized for use with ISO 15693-compatible transponders, for example from the MOBY D product spectrum.

Design

Field data

Minimum distance from reader to reader	
SIMATIC RF380R	≥ 400 mm

Technical specifications

Order No.	6GT2801-3AB10
Product-type designation	RF380R reader
Suitability for installation	RF300 and ISO 15693 transponders, for connecting to communication modules and PC systems
Wireless frequencies	
Operating frequency, rated value	13.56 MHz

Order No.	6GT2801-3AB10
Product-type designation	RF380R reader
Electrical data	
Range, maximum	200 mm
Protocol for radio transmission	RF300-specific, ISO 15693, ISO 18000-3
Transfer rate with radio transmission, maximum	106 kbit/s
Product property multitag-capable	No
Transmission rate at point-to-point connection serial, maximum	115.2 kbit/s
Transmission time for user data	
• for write access per byte, typical	0.13 ms
• for read access per byte, typical	0.13 ms
Design of the electrical connection	M12, 8-pin
Interfaces	
Standard for interfaces for communication	RS422/RS232
Mechanical data	
Material	PA 12
Color	Anthracite
Mounting distance for metal surfaces, recommended, minimum	0 mm
Supply voltage, current consumption, power loss	
Supply voltage for DC	
• rated value	24 V
• minimum	20.4 V
• maximum	28.8 V
Consumed current at 24 V DC, typical	0.16 A
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +70 °C
• during storage	-40 ... +85 °C
• during transport	-40 ... +85 °C
Protection class IP	IP67
Resistance against shock	EN 60721-3-7, Class 7 M2
Resistance against shock	500 m/s ²
Resistance against vibration	200 m/s ²
Design, dimensions and weight	
Width	80 mm
Height	41 mm
Depth	160 mm
Net weight	0.6 kg
Type of mounting	4 x M5 screws
Cable length	
• with RS232 interface maximum	30 m
• for RS 422 interface maximum	1000 m
Product properties, functions, components general	
Type of display	3-color LED
Product feature silicon-free	Yes
Standards, approvals	
Verification of suitability	Radio in accordance with R&TTE guidelines EN 300 330, EN 301489, CE, FCC, UL/CSA, Ex: II 3G Ex nC IIB T5

RFID systems for the HF frequency range

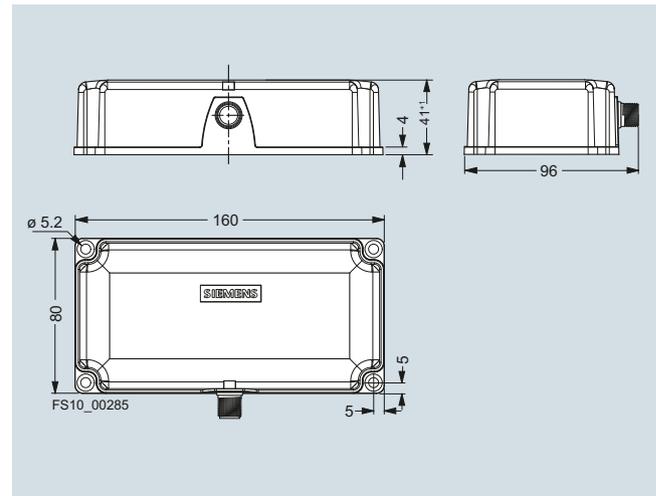
SIMATIC RF300 readers

SIMATIC RF380R

Selection and ordering data

	Order No.
SIMATIC RF380R reader RF300 and ISO15693 modes	6GT2801-3AB10
Accessories Note: All connection options are shown in Chapter 6 "Communication Modules".	
RS232 connecting cable Between reader and PC (RS232), 5 m long, material: PUR, CMG approval. <ul style="list-style-type: none"> • 24 V connection with M12 plug • 24 V connection with open ends 	6GT2891-4KH50 6GT2891-4KH50-0AX0
DVD "RFID Systems Software & Documentation"	6GT2080-2AA20

Dimensional drawings



SIMATIC RF380R reader

More information

All current approvals are listed in the Internet at:
<http://www.siemens.com/rfid-approvals>

RFID systems for the HF frequency range

SIMATIC RF300 readers

SIMATIC RF382R

Overview



SIMATIC RF382R is a reader with an integral special antenna for the top-end performance range and its compact construction makes it ideal for implementation in conveyor systems in which transponders have to be read from the side (e.g. in the clothing industry or laundry applications). This reader is also particularly suitable for dynamic applications, in which the transponder does not stop during the read/write process.

The reader has both an RS422 interface and an RS232 interface with scanmode functionality. This automatic read-only mode does not require a special command control, but supplies the autonomously read transponder data directly to the connected host system.

Due to the high degree of protection and the use of high-quality materials, the SIMATIC RF382R ensures problem-free operation even under the harshest industrial conditions. It is connected via an 8-pole M12 plug-in connector.

The reader can also be parameterized for use with ISO 15693-compatible transponders, for example from the MOBY D product spectrum.

Design

Field data

Minimum distance from reader to reader

SIMATIC RF382R:	≥ 200 mm
-----------------	----------

Technical specifications

Order No.	6GT2801-3AB20-0AX0
Product-type designation	RF382R reader
Suitability for installation	RF300 and ISO 15693 transponders, sidereal antenna field, for serial connecting to control systems (scan mode)
Wireless frequencies	
Operating frequency, rated value	13.56 MHz

Order No.	6GT2801-3AB20-0AX0
Product-type designation	RF382R reader
Electrical data	
Range, maximum	75 mm
Protocol for radio transmission	RF300-specific, ISO 15693, ISO 18000-3
Transfer rate with radio transmission, maximum	106 kbit/s
Product property multitag-capable	No
Transmission rate at point-to-point connection serial, maximum	115.2 kbit/s
Transmission time for user data	
• for write access per byte, typical	0.13 ms
• for read access per byte, typical	0.13 ms
Design of the electrical connection	M12, 8-pin
Interfaces	
Standard for interfaces for communication	RS422/RS232
Mechanical data	
Material	PA 12
Color	Anthracite
Mounting distance for metal surfaces, recommended, minimum	0 mm
Supply voltage, current consumption, power loss	
Supply voltage for DC	
• rated value	24 V
• minimum	20.4 V
• maximum	28.8 V
Consumed current at 24 V DC, typical	0.16 A
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +70 °C
• during storage	-40 ... +85 °C
• during transport	-40 ... +85 °C
Protection class IP	IP67
Resistance against shock	EN 60721-3-7, Class 7 M2
Resistance against shock	500 m/s ²
Resistance against vibration	200 m/s ²
Design, dimensions and weight	
Width	80 mm
Height	41 mm
Depth	160 mm
Net weight	0.6 kg
Type of mounting	4 x M5 screws
Cable length	
• with RS232 interface maximum	30 m
• for RS 422 interface maximum	1000 m
Product properties, functions, components general	
Type of display	3-color LED
Product feature silicon-free	Yes
Standards, approvals	
Verification of suitability	Radio in accordance with R&TTE guidelines EN 300 330, EN 301489, CE, FCC, UL/CSA

RFID systems for the HF frequency range

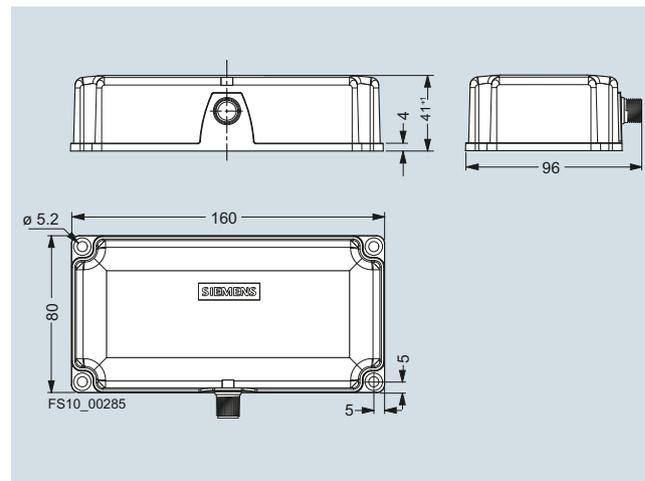
SIMATIC RF300 readers

SIMATIC RF382R

Selection and ordering data

	Order No.
SIMATIC RF382R Reader RF300 and ISO15693 modes	6GT2801-3AB20-0AX0
Accessories	
RS232 connecting cable Between reader and PC (RS232), 5 m long, material: PUR, CMG approval.	
• 24 V connection with M12 plug	6GT2891-4KH50
• 24 V connection with open ends	6GT2891-4KH50-0AX0
DVD "RFID Systems Software & Documentation"	6GT2080-2AA20

Dimensional drawings



SIMATIC RF382R Reader

RFID systems for the HF frequency range

SIMATIC RF300 readers

SIMATIC RF310M mobile handheld terminal

Overview



The SIMATIC RF310M is a powerful mobile handheld terminal for applications in the field of production logistics, distribution and service. In addition, it is an indispensable tool for commissioning and testing. RF310M is available with integral read/write antenna as well as for connection of external antennas.

Design

The SIMATIC RF310M mobile handheld terminal consists of one basic unit (based on PSION Workabout PRO-3C) and an integrated read/write device for RF300 transponders and MOBY D transponders according to the ISO15693 standard. The read/write device is equipped either with an integrated antenna or with a socket for connecting external antennas.

The SIMATIC RF310M has a splash water-proof enclosure (IP65), LCD color monitor 1/4 VGA, 640 x 480 pixels, TFT portrait format, alphanumeric keyboard and various interfaces (for SD memory card, battery charging, USB, Compact Flash for expansion modules, Bluetooth, etc.).

Integrated read/write unit, inductive interface to transponder	for SIMATIC RF300 / MOBY D (ISO)
Read/write distance to the transponder (with integrated antenna)	<ul style="list-style-type: none"> RF300: up to 50 mm ISO: up to 80 mm
Read/write distance to the transponder (with external antenna)	<ul style="list-style-type: none"> RF300: up to 30 mm ISO: up to 50 mm
Energy/data transmission frequency	13.56 MHz
Serial interface (internal, to basic unit)	RS232, 3964R procedure
Functionality of the software application	Standard user interface for reading/writing of transponders, etc.

Function

The supplied and pre-installed RF300 software provides the following service and test functions for RF300 and MOBY D MDS Dxxx transponders¹⁾:

- Reading data from the transponder
- Writing data to the transponder
- Reading and displaying the ID number of the transponder
- Displaying and editing the data in hexadecimal, ASCII, decimal and binary formats
- Activate/deactivate password

Based on the operating system and communication standard (WIN CE), the unit ensures simple integration into existing or planned infrastructures. Various optional development tools for the PC and a wide selection of accessories are available for this direct from PSION and Microsoft.

In addition to the standard applications, the user has access to an RFID function library (API), with which he can create his own ".Net"-based applications. The software components required for this purpose are also preinstalled.

Technical specifications

Order No.	6GT2803-1AC00 / 6GT2803-1AC10
Product-type designation	RF310M mobile hand-held terminal
Suitability for installation	RF300 and ISO 15693 transponders
Wireless frequencies	
Operating frequency, rated value	13.56 MHz
Electrical data	
Range, maximum	80 mm
Protocol for radio transmission	RF300-specific, ISO 15693, ISO 18000-3
Transfer rate with radio transmission, maximum	106 kbit/s
Product property multitag-capable	No
Supply voltage, current consumption, power loss	
Type of current supply	Battery operation or mains operation via docking station
Type of battery	Lithium ion battery, fast charging capability
• as back-up battery integrated	Lithium ion battery, permanently installed, cannot be replaced by customer
Battery capacity	3 Ah
Operating period with standard battery typical	8 h
Permitted ambient conditions	
Ambient temperature	
• during operating	-20 ... +50 °C
• during storage	-40 ... +60 °C
Protection class IP	IP54
Height of fall maximum	1.5 m
Design, dimensions and weight	
Width	92 mm
Height	265 mm
Depth	42 mm
Net weight	0.6 kg

¹⁾ Exception:
Transponders MDS D421, MDS D422, MDS D117 and MDS D127 can only be operated in conjunction with SIMATIC RF310M having an external antenna.

RFID systems for the HF frequency range

SIMATIC RF300 readers

SIMATIC RF310M mobile handheld terminal

Order No.	6GT2803-1AC00 / 6GT2803-1AC10
Product-type designation	RF310M mobile hand-held terminal
Product properties, functions, components general	
Design of the display	VGA color touch screen 3.6", 480 x 640 pixels
Design of the control elements	Alphanumeric
Design of acoustic signaling element	Speakers
Design of the interface	Tether port with RS232 and USB 1.1, docking connection with low insertion force (LIF)
Memory capacity	
• of the RAM main memory	256 Mibyte
• of data and program memory	1 000 Mibyte
• of the data memory can be used/available	900 Mibyte
Product functions management, configuration	
Operating system pre-installed	Windows Embedded CE 5.0
Product function of the software	RF310M.exe for execution of RF300 and ISO15693 (RF200, MOBY D) transponders
Type of programming	.NET and C++ Programming with Microsoft Visual Studio over API "RFID reader interface"
Verification of suitability	EMC: EN 55022, safety RF EFT: IEC 801-2, IEC 801-3, IEC 801-4, FCC ID NXW-RF310M01
Accessories	Loading/docking station, WLAN module For 6GT2698-1AC10 additionally: Barcode scanner, antenna ANT 8, ANT 12, ANT 18 and ANT 30, antenna cable

Selection and ordering data

	Order No.
SIMATIC RF310M mobile handheld terminal	6GT2803-1AC00
<ul style="list-style-type: none"> Basic unit (PSION Workabout PRO-3) with integrated RFID read/write unit (RF300 and ISO 15693), integrated antenna, battery, standard software pre-installed, without loading/docking station. 	
<ul style="list-style-type: none"> Basic unit (PSION Workabout PRO-3) with integrated RFID read/write unit (RF300 and ISO 15693), for external antennas, battery, standard software pre-installed, without loading/docking station, without external antenna. 	6GT2803-1AC10
External antennas	
Descriptions: See page 2/24.	
External antenna ANT 8	6GT2398-1CF10
for RF310M mobile handheld terminal The antenna connecting cable is included in the scope of delivery of the antenna and can be connected at both ends (M8 connector straight / M8 angled).	
External antenna ANT 12	6GT2398-1CC00
for RF310M mobile handheld terminal, with antenna connecting cable.	
External antenna ANT 18	6GT2398-1CA00
for RF310M mobile handheld terminal, with antenna connecting cable.	
External antenna ANT 30	6GT2398-1CD00
for RF310M mobile handheld terminal, with antenna connecting cable.	
Accessories	
Note: All connection options are shown in Chapter 6 "Communication Modules".	
Loading/docking station	6GT2898-0BA00
For a mobile handheld terminal as well as a spare battery, incl. wide-range plug-in power supply 100 to 240 V AC and country-specific adapters as well as USB cable.	
SIMATIC RF WLAN module	6GT2898-0DA00
CF card according to standard IEEE 802.11b/g.	
Spare battery	6GT2898-0CA00
For basic unit (PSION Workabout PRO), High Capacity 3300 mAh, Li-ion.	
DVD "RFID Systems Software & Documentation"	6GT2080-2AA20

More information

All current approvals are listed in the Internet at:
<http://www.siemens.com/rfid-approvals>

Overview



The RFID system MOBY D is particularly suitable for use in industrial production in the areas of production control, asset management and tracking & tracing.

MOBY D is used to implement identification tasks with medium to high performance (ISO 15693) in the HF range (13.56 MHz) that require particularly high ranges.

MOBY D offers a comprehensive portfolio of ISO 15693 transponders for a whole variety of requirements - from low-cost SmartLabels for simple identification tasks through rugged credit card formats, right up to transponders for use in especially harsh environments such as paint shops or in the laundry and cleaning industry.

The communication modules that can be used for all MOBY and SIMATIC RF systems (ASM 456, ASM 475, SIMATIC RF1xxC) are available for connecting to SIMATIC S7-300, PROFIBUS, PROFINET and TCP/IP (XML).

Depending on the read/write distance, different readers are available with integrated or remote antennas.

The MOBY D identification system boasts the following performance features:

- 13.56 MHz operating frequency
- Operation according to ISO 15693
- Passive (without battery), maintenance-free transponder (MDS Dxxx) with memory of up to 2000 byte FRAM.
- Rugged, compact components with IP67 / IPx9K degree of protection.
- Simple integration in SIMATIC, PROFIBUS, PROFINET and TCP/IP with the help of tried and tested function blocks (FC45, FB45).

Benefits

get Designed for Industry

- High-performance reader with bulk detection capability and range of up to 0.9 m.
- Cost-effective and battery-free ISO 15693 transponders up to 64 KB with IP68 degree of protection and 220 °C temperature range, with ATEX approval.
- Flexible and economic solutions thanks to the complete and scalable portfolio for the field of industrial identification.
- Simplified engineering, commissioning, diagnostics and maintenance through seamless integration into Totally Integrated Automation:

- Integrated bus connection to an automation system, such as SIMATIC, SIMOTION or SINUMERIK via communication modules with PROFIBUS and PROFINET.
- Simple S7 software integration via ready-to-use function blocks.
- High degree of investment protection thanks to:
 - Open ISO 15693 standard.
 - Software compatibility between the RFID systems of Siemens,
 - Standardized communication interfaces.
- Openness through connection possibilities to different bus systems from different manufacturers and PC environments via communication modules.
- Worldwide Service and Support.

Application

Applications range from simple identification, such as electronic barcode substitution or supplementation, or delivery notes in harsh environments, storage and distribution logistics, right up to product identification.

The main applications for MOBY D are:

- Container and box identification in logistics and distribution in open systems
- Distribution logistics and goods identification
- Parcel and postal services, couriers and logistics companies
- Baggage check-in and baggage tracking
- Production logistics and in assembly lines, including those with demanding temperature requirements, (e.g.: paint shop, temperature range up to +220 °C)
- Parts identification (e.g.: transponder is attached directly to products/pallets).

Design

The MOBY D readers are available in different designs. In addition to the SLG D12 and SLG D12S readers with integrated antennas, the SLG D10/SLG D10S and SLG D11/SLG D11S readers permit the connection of various external antennas with which particularly long ranges of up to 650 mm can be achieved.

The high degree of protection of up to IP65 enables the MOBY D readers to be used in harsh, industrial environments.

The interface to the automation level can be implemented by means of communication modules. For quick and easy cabling, pre-assembled cables with M12 plug-in connectors are available in various lengths.

The MOBY D transponders compliant with ISO 15693 are used as mobile data carriers.

Transponders suitable for a wide variety of different requirements can be selected from an extensive range: From low-cost SmartLabels for simple identification tasks, through rugged credit card formats, right up to screw-fit transponders that can be automatically attached by robots.

The transponders are attached to the object to be identified, e.g. by means of screws, adhesive, gluing or pre-assembled spacer.

RFID systems for the HF frequency range

MOBY D

Introduction

Function

All MOBY D readers are suitable for reliable reading and writing tasks in the HF range.

The readers are equipped either with an RS232 interface for the connection to the PC or to SIMATIC S7-1200 or with an RS422 interface for the connection via communication modules to the automation level (e.g. SIMATIC S7) via standard fieldbuses (e.g. PROFIBUS or PROFINET).

User-friendly function blocks are available for the S7 programming.

In the event of an error, the S7 application receives a detailed error message from the communication module via the function block.

Integration

A wide range of communication modules, function blocks, as well as high-performance drivers and function libraries permits easy and quick integration into the application.

And best of all: MOBY D is part of Totally Integrated Automation and can be integrated easily and cost-effectively into the SIMATIC world.

For more details on the connection possibilities, see the section "Communication Modules".

Configuration guide for RFID systems

Here is a compact configuration tool for setting up RFID systems:

<http://support.automation.siemens.com/WW/view/en/67384964>

Technical specifications

RFID system	MOBY D
Transmission frequency	13.56 MHz
Range	Max. 900 mm
Protocol (air interface)	<ul style="list-style-type: none"> • ISO 15693 • ISO 18000-3
Approvals ¹⁾	<ul style="list-style-type: none"> • EN 300330, 301489, CE • FCC Part 15 • UL/CSA
Memory capacity	992 bytes (EEPROM) / 2000 bytes (FRAM)
Data transmission rate reader – transponder	
<ul style="list-style-type: none"> • Read • Write 	Max. 1.5 kbyte/s Max. 0.5 kbyte/s
Multitag/Bulk capability	Yes
Special features	<ul style="list-style-type: none"> • SIMATIC or PC/IT integration • Long sensing ranges with excellent interference immunity • External antennas for industrial applications

¹⁾ All current approvals are listed in the Internet at: <http://www.siemens.com/rfid-approvals>

RFID systems for the HF frequency range

MOBY D transponders

Transponders

Overview



The transponders can be used for the following RFID systems:

- SIMATIC RF200
- SIMATIC RF300 (in ISO 15693 operating mode)
- MOBY D

Note

Look up the specified pages for detailed descriptions and ordering data of these transponders.

Transponder	Features	Page
MDS D165	SmartLabel, (PET) in credit card format. Applications range from simple identification such as electronic barcode substitution or supplementation, to storage and distribution logistics, up to product identification. <ul style="list-style-type: none"> • 112 bytes EEPROM • IP65 degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions L x W (mm): 86 x 54 	2/53
MDS D261	SmartLabel, (PET) in compact design. Applications range from simple identification such as electronic barcode substitution or supplementation, to storage and distribution logistics, up to product identification. <ul style="list-style-type: none"> • 256 bytes EEPROM • IP65 degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions L x W (mm): 55 x 55 	2/53
MDS D100	Universal transponder in credit card format. <ul style="list-style-type: none"> • 112 bytes EEPROM • IP68 degree of protection • Operating temperature range -25 °C to +80 °C • Dimensions L x W x H (mm): 85.6 x 54 x 0.9 	2/55
MDS D200	Universal transponder in credit card format. <ul style="list-style-type: none"> • 256 bytes EEPROM • IP67 degree of protection • Operating temperature range -20 °C to +60 °C • Dimensions L x W x H (mm): 85.6 x 54 x 0.9 	2/57
MDS D400	Universal transponder in credit card format. <ul style="list-style-type: none"> • 2048 bytes EEPROM • 2000 bytes FRAM • IP67 degree of protection • Operating temperature range -20 °C to +60 °C • Dimensions L x W x H (mm): 85.6 x 54 x 0.8 	2/59
MDS D124	Heat-resistant transponder for use in applications with high thermal stress. <ul style="list-style-type: none"> • 112 bytes EEPROM • IP68 / IPx9K degree of protection • Operating temperature range -25 °C to +180 °C • Dimensions diameter x height (mm): Ø 27 x 4 	2/67
MDS D324	Rugged transponder for use in harsh industrial environments and under extreme environmental conditions. <ul style="list-style-type: none"> • 992 bytes EEPROM • IP67 degree of protection • Operating temperature range -25 °C to +125 °C • Dimensions diameter x height (mm): Ø 27 x 4 	2/69
MDS D424	Rugged transponder for use in production and distribution logistics as well as in assembly and production lines: <ul style="list-style-type: none"> • 2000 bytes FRAM • IP67 / IPx9K degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions diameter x height (mm): Ø 27 x 4 	2/71

RFID systems for the HF frequency range

MOBY D transponders

Transponders

Transponder	Features	Page
MDS D126	<p>Compact and rugged transponder; suitable for identification of transport units in production-related logistics; can also be used under harsh environmental conditions.</p> <ul style="list-style-type: none"> • 112 bytes EEPROM • IP68 degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions diameter x height (mm): Ø 50 x 3.6 	2/75
MDS D426	<p>Compact and rugged transponder; suitable for identification of transport units in production-related logistics; can also be used under harsh environmental conditions.</p> <ul style="list-style-type: none"> • 2000 bytes FRAM • IP68 / IPx9K degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions diameter x height (mm): Ø 50 x 3.6 	2/77
MDS D428	<p>Compact and rugged ISO transponder; suitable for screw mounting; for use in assembly and production lines in the powertrain area.</p> <ul style="list-style-type: none"> • 2000 bytes FRAM • IP68 / IPx9K degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions diameter x height (mm): Ø 24 x 20 (without M8 grub screw) 	2/81
MDS D139	<p>Heat-resistant transponder for use in paint shops or applications with high thermal stress.</p> <ul style="list-style-type: none"> • 112 bytes EEPROM • IP68 / IPx9K degree of protection • Operating temperature range -25 °C to +220 °C • Dimensions diameter x height (mm): Ø 85 x 15 	2/82
MDS D339	<p>Heat-resistant transponder for use in paint shops or applications with high thermal stress.</p> <ul style="list-style-type: none"> • 992 bytes EEPROM • IP68 / IPx9K degree of protection • Operating temperature range -25 °C to +220 °C • Dimensions diameter x height (mm): Ø 85 x 15 	2/84
MDS D160	<p>The transponder has been specially designed for harsh environments in the laundry and cleaning industry.</p> <ul style="list-style-type: none"> • Its main applications include: <ul style="list-style-type: none"> - Rented work clothing - Rented laundry - OP textiles, hospital clothing - Hotel laundry - Dirt collection mats • 112 bytes EEPROM • IP68 / IPx9K degree of protection • Operating temperature range -25 °C to +175 °C • Dimensions diameter x height (mm): Ø 16 x 3 	2/86
MDS D460	<p>Rugged transponder for use in assembly lines.</p> <ul style="list-style-type: none"> • 2000 bytes FRAM • IP67 degree of protection • Operating temperature range -25 °C to +85 °C • Dimensions diameter x height (mm): Ø 16 x 3 	2/88

Benefits



The comprehensive portfolio of ISO 15693 transponders offers the right solution for every requirement in production and production logistics:

- Large memory up to 2000 byte FRAM.
- Low-cost transponders can, if necessary, be mounted on metal with a spacer.
- Extremely rugged transponder for high temperature ranges up to 220 °C with ATEX approval for use in paint shops.
- Extremely small transponder for exact positioning, e.g. for tool identification.
- Screw-fit transponders for automatic attachment by means of robots.
- Screw-fit transponders for flush-mounting in metal for identifying workpieces or workpiece holders.
- Customized solutions for SmartLabels and transponders on request.

Technical specifications

Field data (operating/limit distance) of transponders and readers (all specifications in mm)

The following tables show the field data (unaffected by metal) for all ISO transponders (MDS Dxxx) in connection with MOBY D readers. The listed technical data are typical values and are valid for a room temperature of +25 °C.

	MDS D165	MDS D261	MDS D100	MDS D200	MDS D400	MDS D124	MDS D324	MDS D424
SLG D10/D10S with ANT D5	0 ... 350/450	0 ... 300/400	0 ... 400/500	0 ... 400/500	0 ... 400/500	0 ... 200/280	0 ... 200/280	0 ... 200/280
SLG D10/D10S with ANT D6	0 ... 400/500	0 ... 350/400	0 ... 550/650	0 ... 500/600	0 ... 550/650	0 ... 220/300	0 ... 200/280	0 ... 220/300
SLG D10/D10S with ANT D10	0 ... 350/450	0 ... 300/400	0 ... 500/600	0 ... 450/550	0 ... 500/600	0 ... 200/280	0 ... 200/280	0 ... 200/280
SLG D11/D11S with ANT D2	-	-	-	-	-	45 ... 70/90	35 ... 60/70	45 ... 70/90
SLG D11/D11S with ANT D5	0 ... 220/300	0 ... 200/280	0 ... 300/380	0 ... 220/320	0 ... 240/300	0 ... 150/220	0 ... 120/160	0 ... 150/200
SLG D12/D12S	0 ... 120/150	0 ... 100/140	0 ... 160/220	0 ... 120/150	0 ... 100/130	0 ... 70/100	0 ... 60/80	0 ... 70/100

	MDS D126	MDS D426	MDS D428	MDS D139	MDS D339	MDS D160	MDS D460
SLG D10/D10S ANT D5	0 ... 250/350	0 ... 220/300	0 ... 120/160	0 ... 400/500	0 ... 300/380	0 ... 130/180	0 ... 120/160
SLG D10/D10S ANT D6	0 ... 300/400	0 ... 260/350	0 ... 100/150	0 ... 500/600	0 ... 400/480	0 ... 130/180	0 ... 100/150
SLG D10/D10S ANT D10	0 ... 200/260	0 ... 180/220	0 ... 100/150	0 ... 450/550	0 ... 300/380	0 ... 130/180	0 ... 100/150
SLG D11/D11S ANT D2	-	-	-	-	-	35 ... 55/65	30 ... 50/60
SLG D11/D11S ANT D5	0 ... 200/260	0 ... 180/220	0 ... 70/100	0 ... 280/350	0 ... 180/220	0 ... 75/110	0 ... 70/100
SLG D12/D12S	0 ... 100/140	0 ... 90/120	0 ... 40/60	0 ... 120/150	0 ... 90/110	0 ... 45/65	0 ... 40/60

–: Reader-transponder combination not released.

RFID systems for the HF frequency range

MOBY D readers

Readers

Overview



Readers	Features
SLG D10 basic unit	<p>Reader for connection of an external antenna (ANT D5 / ANT D6 / ANT D10).</p> <ul style="list-style-type: none"> • IP65 degree of protection • Operating temperature range -20 °C to +55 °C • RS232 interface for connection to PC/PLC
SLG D10S basic unit	<p>Reader for connection of an external antenna (ANT D5 / ANT D6 / ANT D10).</p> <ul style="list-style-type: none"> • IP65 degree of protection • Operating temperature range -20 °C to +55 °C • RS422 interface for connection to SIMATIC S7 / PROFIBUS / PROFINET / Ethernet TCP/IP via ASM 456, ASM 475, SIMATIC RF160C, RF170C, RF180C or RF182C
SLG D11 basic unit	<p>Reader for connection of an external antenna (ANT D2 / ANT D5).</p> <ul style="list-style-type: none"> • IP65 degree of protection • Operating temperature range -25 °C to +55 °C • RS232 interface for connection to a standard PC or external controllers
SLG D11S basic unit	<p>Reader for connection of an external antenna (ANT D2 / ANT D5).</p> <ul style="list-style-type: none"> • IP65 degree of protection • Operating temperature range -25 °C to +55 °C • RS422 interface for connection to SIMATIC S7 / PROFIBUS / PROFINET / Ethernet TCP/IP via ASM 456, ASM 475, SIMATIC RF160C, RF170C, RF180C or RF182C
SLG D12	<p>Universal reader with integrated antenna (160 mm x 80 mm x 40 mm).</p> <ul style="list-style-type: none"> • Max. range 160 mm • IP65 degree of protection • Operating temperature range -25 °C to +55 °C • With RS232 interface for connection to PC/PLC
SLG D12S	<p>Like SLG D12, but with RS422 interface for connection to SIMATIC S7 / PROFIBUS / PROFINET / Ethernet TCP/IP via ASM 456, ASM 475, SIMATIC RF160C, RF170C, RF180C or RF182C</p>

RFID systems for the HF frequency range

MOBY D readers

SLG D10/SLG D10S basic unit for ANT D5, ANT D6 and ANT D10 antennas

Overview



SLG D10 (6GT2698-1AA00)



SLG D10S (6GT2698-2AA00)



The SLG D10 / SLG D10S basic units are readers in the upper performance range and can be operated with the ANT D5, ANT D6 and ANT D10 antennas.

The readers are equipped with an RS232 serial interface for connection to PCs/PLCs or RS422, which permits communication via the communication modules ASM 456, ASM 475, SIMATIC RF160C, RF170C, RF180C or SIMATIC RF182C to SIMATIC S7, PROFIBUS/PROFINET or Ethernet TCP/IP.

The antenna switch enables several individual antennas or portal solutions to be operated with only one reader (SLG D10 / SLG D10S).

The RF260X antenna multiplexer supports the connection of up to 6 antennas to one reader and operates in quasi-parallel mode.

Connectable antennas

ANT D5

An antenna for universal applications designed for warehouse, logistics and distribution applications. The high degree of protection (IP65) enables the antenna to be used under harsh industrial conditions.

ANT D6

An antenna in the upper performance range, designed for warehouse, logistics and distribution applications. It can be used wherever high speeds are required together with a large write/read distance.

ANT D10

The ANT D10 is suitable for use in warehouses, logistics and distribution. An antenna with this geometry is required in the clothing industry and laundries in particular.

Technical specifications

Order No.	6GT2698-1AA00	6GT2698-2AA00
Product-type designation	SLG D10 reader	SLG D10S reader
Suitability for installation	ISO 15693 transponder (MDS Dxxx), for connecting to PC systems	ISO 15693 transponder (MDS Dxxx), for connecting to communication modules
Wireless frequencies		
Operating frequency, rated value	13.56 MHz	13.56 MHz
Electrical data		
Range, maximum	650 mm	650 mm
Protocol for radio transmission	ISO 15693, ISO 18000-3	ISO 15693, ISO 18000-3
Transfer rate with radio transmission, maximum	26.5 kbit/s	26.5 kbit/s
Product property multitag-capable	Yes	No
Transmission rate at point-to-point connection serial, maximum	115.2 kbit/s	115.2 kbit/s
Transmission time for user data		
• for write access per byte, typical	2.5 ms	2.5 ms
• for read access per byte, typical	2.5 ms	2.5 ms
Interfaces		
Design of the electrical connection for external antenna(s)	TNC	TNC
Number of external antennas	1	1
Design of electrical connection for supply voltage	M12, 4-pin, female connector	M12, 4-pin, female connector
Standard for interfaces for communication	RS232	RS422
Design of the electrical connection for communications interface	Sub-D, 9-pin, male	Sub-D, 9-pin, male

RFID systems for the HF frequency range

MOBY D readers

SLG D10/SLG D10S basic unit for ANT D5, ANT D6 and ANT D10 antennas

Order No.	6GT2698-1AA00	6GT2698-2AA00
Product-type designation	SLG D10 reader	SLG D10S reader
Mechanical data		
Material	Aluminum	Aluminum
Color	Anthracite	Anthracite
Supply voltage, current consumption, power loss		
Supply voltage for DC, rated value	24 V	24 V
Supply voltage for DC		
• minimum	22.8 V	22.8 V
• maximum	25.2 V	25.2 V
Consumed current at 24 V DC		
• typical	1.4 A	1.4 A
• maximum	2.8 A	2.8 A
Permitted ambient conditions		
Ambient temperature		
• during operating	-20 ... +55 °C	-20 ... +55 °C
• during storage	-25 ... +70 °C	-25 ... +70 °C
• during transport	-25 ... +70 °C	-25 ... +70 °C
Protection class IP	IP65	IP65
Resistance against shock	EN 60721-3-7 Class 7 M2	EN 60721-3-7 Class 7 M2
Resistance against shock	300 m/s ²	300 m/s ²
Resistance against vibration	15 m/s ²	15 m/s ²
Design, dimensions and weight		
Width	145 mm	145 mm
Height	100 mm	100 mm
Depth	320 mm	320 mm
Net weight	3.5 kg	3.5 kg
Type of mounting	4 x M6 screws	4 x M6 screws
Cable length		
• of antenna cable, minimum	3.3 m	3.3 m
• of antenna cable, maximum	25 m	25 m
• with RS232 interface, maximum	30 m	-
• for RS 422 interface, maximum	-	300 m
Standards, specifications, approvals		
Verification of suitability	CE, FCC, IC (Canada), UL 60950, safe for cardiac pacemakers	CE, FCC, IC (Canada), UL 60950, safe for cardiac pacemakers
Accessories		
Accessories	Various antennas, antenna switch, and antenna multiplexer are available	Various antennas and antenna switch are available

RFID systems for the HF frequency range

MOBY D readers

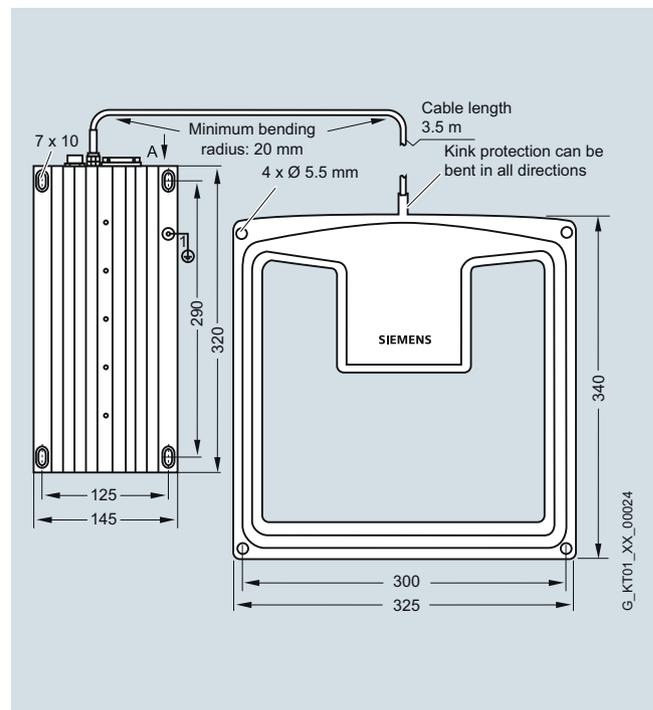
SLG D10/SLG D10S basic unit for ANT D5, ANT D6 and ANT D10 antennas

Selection and ordering data

	Order No.
Reader SLG D10 Basic unit (without antenna) with RS232 serial interface for connection to PC/PLC.	6GT2698-1AA00
Reader SLG D10S Basic unit (without antenna) with RS422 serial interface for connection to SIMATIC S7/PROFIBUS/PROFINET or Ethernet TCP/IP.	6GT2698-2AA00
Accessories	
Note: All connection options are shown in Chapter 6 "Communication Modules".	
Antenna ANT D5 For SLG D10 / SLG D10S basic units.	6GT2698-5AA10
Antenna ANT D6 For SLG D10 / SLG D10S basic units.	6GT2698-5AB00
Covering hood for ANT D6 Serves as protection against contact.	6GT2690-0AD00
Antenna ANT D10 For SLG D10 / SLG D10S basic units, cover and antenna cable included in scope of delivery.	6GT2698-5AF00
Antenna switch For connecting several antennas (ANT D5 or ANT D6) to the SLG D10 / SLG D10S, IP65, -25 °C to +65 °C	6GT2690-0AC00
SIMATIC RF260X antenna multiplexer Antenna multiplexer for SLG D10; 6 x antenna outputs (for ANT D5, ANT D6 and ANT D10); IP65; 240 mm x 150 mm x 70 mm; including antenna cable, cable length 0.4 m.	6GT2894-0EA00
MOBY D cables	
• Cable between ANT D6 and SLG D10/SLG D10S, antenna switch; PVC, length 3.3 m.	6GT2691-0CH33
• Cable between ANT D6 and SLG D10/SLG D10S, antenna switch; PVC, length 10 m.	6GT2691-0CN10
• Cable extension between ANT D6 and SLG D10/SLG D10S, antenna switch; PVC, length 7.2 m.	6GT2691-0DH72
RS232 connecting cable	
between the PC and SLG D10 reader, PUR.	
5 m	6GT2691-4BH50
20 m	6GT2691-4BN20
Connector for reader and SIM of MOBY D	
IP65 degree of protection, 9-pin Sub-D connector.	6GT2490-1AA00

	Order No.
Reader cable	
Without connector, between communication module and reader; 6 x 0.25 mm ² , PUR.	
50 m	6GT2090-4AN50
120 m	6GT2090-4AT12
800 m	6GT2090-4AT80
Note: The total length of a reader cable must not exceed 300 m.	
Wide-range power supply	
Primary side: AC 100 ... 240 V, secondary side: 24 V DC, 3 A, with no-load protection and continuous short-circuit protection.	
• EU connector version	6GT2898-0AA00
• UK connector version	6GT2898-0AA10
• US connector version	6GT2898-0AA20
Cable for wide-range power supply	
24 V DC, length 5 m, PUR	6GT2491-1HH50
24 V connector (M12 socket)	
for ASM 424/724/754 communication modules, SLG Ux readers (over PC connecting cable).	6GT2390-1AB00
DVD "RFID Systems Software & Documentation"	
	6GT2080-2AA20

Dimensional drawings



SLG D10 reader basic unit

More information

All current approvals are listed in the Internet at:

<http://www.siemens.com/rfid-approvals>

RFID systems for the HF frequency range

MOBY D readers

SLG D11/SLG D11S basic unit for ANT D2 and ANT D5 antennas

Overview



SLG D11 (6GT2698-1AC00)



SLG D11S (6GT2698-2AC00)



The SLG D11/SLG D11S basic units are readers in the mid-performance range and can be operated with the ANT D2 and ANT D5 antennas.

SLG D11

Equipped with RS232 serial interface for connection to PC/PLC

SLG D11S

Equipped with an RS422 serial interface, which permits communication via the communication modules ASM 456, ASM 475, SIMATIC RF160C, RF170C and SIMATIC RF180C, or RF182C to SIMATIC S7, PROFIBUS/PROFINET or Ethernet TCP/IP.

Connectable antennas

ANT D2

Designed for transponders that are directed sideways past the antenna. This antenna is specially designed for high speeds, e.g. in overhead conveyors, assembly lines, production and order picking. It can be mounted directly onto metal surfaces.

ANT D5

An antenna for universal applications designed for warehouse, logistics and distribution applications. The high degree of protection (IP65) enables the antenna to be used under harsh industrial conditions. A spacer kit is required for mounting on metal surfaces.

Technical specifications

Order No.	6GT2698-1AC00	6GT2698-2AC00
Product-type designation	SLG D11 reader	SLG D11S reader
Suitability for installation	MOBY D transponder, for connecting to PC systems	MOBY D transponder, for connecting to communication modules
Wireless frequencies		
Operating frequency, rated value	13.56 MHz	13.56 MHz
Electrical data		
Range, maximum	380 mm	380 mm
Protocol for radio transmission	ISO 15693, ISO 18000-3	ISO 15693, ISO 18000-3
Transfer rate with radio transmission, maximum	26.5 kbit/s	26.5 kbit/s
Product property multitag-capable	Yes	No
Transmission rate at point-to-point connection serial, maximum	38.4 kbit/s	19.2 kbit/s
Transmission time for user data		
• for write access per byte, typical	2.5 ms	2.5 ms
• for read access per byte, typical	2.5 ms	2.5 ms
Interfaces		
Design of the electrical connection for external antenna(s)	TNC	TNC
Number of external antennas	1	1
Design of electrical connection for supply voltage	M12, 4-pin, female connector	M12, 4-pin, female connector
Standard for interfaces for communication	RS232	RS422
Design of the electrical connection for communications interface	Sub-D, 9-pin, male	Sub-D, 9-pin, male
Mechanical data		
Material	PA 12	PA 12
Color	Anthracite	Anthracite
Tightening torque of screw for mounting the equipment, maximum	2 Nm	2 Nm

RFID systems for the HF frequency range

MOBY D readers

**SLG D11/SLG D11S basic unit for ANT D2
and ANT D5 antennas**

2

Order No.	6GT2698-1AC00	6GT2698-2AC00
Product-type designation	SLG D11 reader	SLG D11S reader
Supply voltage, current consumption, power loss		
Supply voltage for DC		
• rated value	24 V	24 V
• minimum	20 V	20 V
• maximum	30 V	30 V
Consumed current at 24 V DC		
• typical	0.2 A	0.2 A
• maximum	0.6 A	0.6 A
Permitted ambient conditions		
Ambient temperature		
• during operating	-25 ... +55 °C	-25 ... +55 °C
• during storage	-25 ... +70 °C	-25 ... +70 °C
• during transport	-25 ... +70 °C	-25 ... +70 °C
Protection class IP	IP65	IP65
Resistance against shock	EN 60721-3-7 Class 7 M2	EN 60721-3-7 Class 7 M2
Resistance against shock	300 m/s ²	300 m/s ²
Resistance against vibration	15 m/s ²	15 m/s ²
Design, dimensions and weight		
Width	80 mm	80 mm
Height	40 mm	40 mm
Depth	160 mm	160 mm
Net weight	0.26 kg	0.26 kg
Type of mounting	2 x M5 screws	2 x M5 screws
Cable length		
• of antenna cable, minimum	3.3 m	3.3 m
• of antenna cable, maximum	10.5 m	10.5 m
• with RS232 interface, maximum	30 m	-
• for RS 422 interface, maximum	-	300 m
Standards, specifications, approvals		
Verification of suitability	CE, FCC, IC (Canada), UL 60950, safe for cardiac pacemakers	CE, FCC, IC (Canada), UL 60950, safe for cardiac pacemakers
Accessories		
Accessories	Various antennas are available	Various antennas are available

RFID systems for the HF frequency range

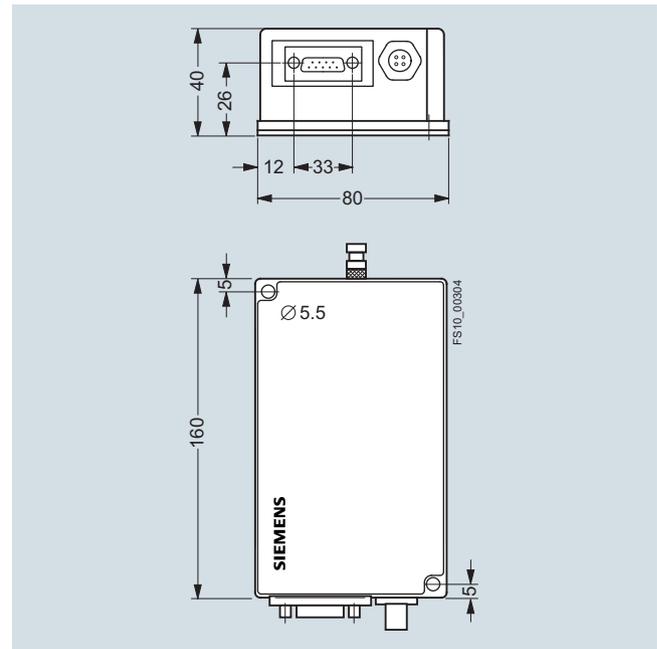
MOBY D readers

SLG D11/SLG D11S basic unit for ANT D2 and ANT D5 antennas

Selection and ordering data

	Order No.
Reader SLG D11 Basic unit (without antenna) with RS232 serial interface for connection to PC/PLC	6GT2698-1AC00
Reader SLG D11S Basic unit (without antenna) with RS422 serial interface for connection to SIMATIC S7/PROFIBUS/PROFINET via communication module	6GT2698-2AC00
Accessories Note: All connection options are shown in Chapter 6 "Communication Modules".	
Antenna ANT D2 For SLG D11 / SLG D11S basic units, incl. antenna cable, PVC, length 3.3 m	6GT2698-5BB00
Antenna ANT D5 For SLG D11 / SLG D11S basic units	6GT2698-5AA10
Wide-range power supply Primary side: AC 100 ... 240 V, secondary side: 24 V DC, 3 A, with no-load protection and continuous short-circuit protection.	
<ul style="list-style-type: none"> • With EU plug 	6GT2898-0AA00
<ul style="list-style-type: none"> • With UK plug 	6GT2898-0AA10
<ul style="list-style-type: none"> • With US plug 	6GT2898-0AA20
Connecting cable for 24 V DC for wide-range power supply, PUR, length 5 m	6GT2491-1HH50
RS232 cable for SLG D11, PUR 5 m	6GT2691-4BH50
20 m	6GT2691-4BN20
DVD "RFID Systems Software & Documentation"	6GT2080-2AA20

Dimensional drawings



SLG D11 / SLG D11S reader basic unit

More information

All current approvals are listed in the Internet at:
<http://www.siemens.com/rfid-approvals>

RFID systems for the HF frequency range

MOBY D readers

SLG D12 / SLG D12S
Overview


The SLG D12 / SLG D12S basic devices are universal readers in the medium performance range with integral antennas.

SLG D12

Equipped with RS232 serial interface for connection to PC/PLC.

SLG D12S

Equipped with an RS422 serial interface which permits communication via the communication modules ASM 456, ASM 475, SIMATIC RF160C, RF170C and SIMATIC RF180C or RF182C to SIMATIC S7, PROFIBUS/PROFINET or Ethernet TCP/IP.

SLG D12 (6GT2601-0AB00)



SLG D12S (6GT2602-0AB00 and 6GT2602-0AB10-0AX0)


Technical specifications

Order No.	6GT2601-0AB00	6GT2602-0AB00	6GT2602-0AB10-0AX0
Product-type designation	SLG D12 reader	SLG D12S reader	SLG D12S reader
Suitability for installation	ISO 15693 transponders, for connecting to PC systems	ISO 15693 transponders, for connecting to communication modules	ISO 15693 transponders, for connecting to communication modules
Wireless frequencies			
Operating frequency, rated value	13.56 MHz	13.56 MHz	13.56 MHz
Electrical data			
Range, maximum	220 mm	220 mm	220 mm
Protocol for radio transmission	ISO 15693, ISO 18000-3	ISO 15693, ISO 18000-3	ISO 15693, ISO 18000-3
Transfer rate with radio transmission, maximum	26.5 kbit/s	26.5 kbit/s	26.5 kbit/s
Product property multitag-capable	Yes	No	No
Transmission rate at point-to-point connection serial, maximum	38.4 kbit/s	19.2 kbit/s	19.2 kbit/s
Transmission time for user data for write access per byte, typical	2.5 ms	2.5 ms	2.5 ms
Transmission time for user data for read access per byte, typical	2.5 ms	2.5 ms	2.5 ms
Interfaces			
Design of the electrical connection	Data: Sub-D, 9-pin, male, Voltage: M12, 4-pin, female connector	Data: Sub-D, 9-pin, male, Voltage: M12, 4-pin, female connector	M12, 8-pin
Standard for interfaces for communication	RS232	RS422	RS422
Mechanical data			
Material	PA 12	PA 12	PA 12
Color	Anthracite	Anthracite	Anthracite
Tightening torque of screw for mounting the equipment, maximum	2 Nm	2 Nm	2 Nm
Mounting distance for metal surfaces, recommended, minimum	0 mm	0 mm	0 mm

RFID systems for the HF frequency range

MOBY D readers

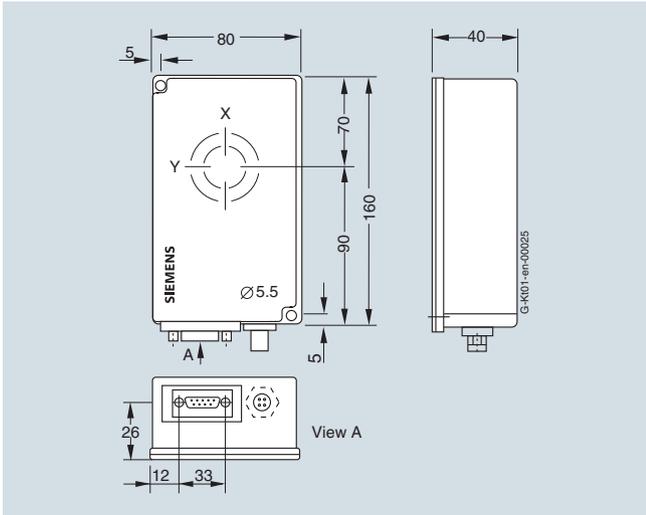
SLG D12 / SLG D12S

Order No.	6GT2601-0AB00	6GT2602-0AB00	6GT2602-0AB10-0AX0
Product-type designation	SLG D12 reader	SLG D12S reader	SLG D12S reader
Supply voltage, current consumption, power loss			
Supply voltage for DC			
• rated value	24 V	24 V	24 V
• minimum	20 V	20 V	20 V
• maximum	30 V	30 V	30 V
Consumed current at 24 V DC			
• typical	0.15 A	0.15 A	0.15 A
• maximum	0.6 A	0.6 A	0.6 A
Permitted ambient conditions			
Ambient temperature			
• during operating	-25 ... +55 °C	-25 ... +55 °C	-25 ... +55 °C
• during storage	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C
• during transport	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C
Protection class IP			
	IP65	IP65	IP65
Resistance against shock			
	EN 60721-3-7 Class 7 M2	EN 60721-3-7 Class 7 M2	EN 60721-3-7 Class 7 M2
Resistance against shock			
	300 m/s ²	300 m/s ²	300 m/s ²
Resistance against vibration			
	15 m/s ²	15 m/s ²	15 m/s ²
Design, dimensions and weight			
Width			
	80 mm	80 mm	80 mm
Height			
	40 mm	40 mm	40 mm
Depth			
	160 mm	160 mm	160 mm
Net weight			
	0.23 kg	0.23 kg	0.23 kg
Type of mounting			
	2 x M5 screws	2 x M5 screws	2 x M5 screws
Cable length			
• with RS232 interface maximum	30 m	-	-
• for RS 422 interface maximum	-	300 m	300 m
Standards, specifications, approvals			
Verification of suitability			
	CE, FCC, IC (Canada), UL 60950, safe for cardiac pacemakers	CE, FCC, IC (Canada), UL 60950, safe for cardiac pacemakers	CE, FCC, IC (Canada), UL 60950, safe for cardiac pacemakers

Selection and ordering data

	Order No.		Order No.
Reader SLG D12	6GT2601-0AB00	Connector for reader	6GT2490-1AA00
With RS232 serial interface and integrated antenna.		IP65 degree of protection, 9-pin Sub-D connector.	
Reader SLG D12S	6GT2602-0AB00	Wide-range power supply	
With RS422 serial interface and integrated antenna for connection to SIMATIC S7 / PROFIBUS / PROFINET or Ethernet TCP/IP.		Primary side: AC 100 ... 240 V, secondary side: 24 V DC, 3 A, with no-load protection and continuous short-circuit protection.	
Reader SLG D12S, for single-cable connection	6GT2602-0AB10-0AX0	• EU connector version	6GT2898-0AA00
With RS422 serial interface and integrated antenna. Only one connector for data and voltage supply. Power supply via communication module.		• UK connector version	6GT2898-0AA10
Connector: M12, 8-pin (male)		• US connector version	6GT2898-0AA20
Accessories		Cable for wide-range power supply	6GT2491-1HH50
Note:		24 V DC, PUR, length 5 m.	
All connection options are shown in Chapter 6 "Communication Modules".		24 V connector (M12 socket)	6GT2390-1AB00
RS232 connecting cable		For ASM 424/724/754 communication modules, SLG Ux readers (via PC connecting cable), SLG D1x.	
Between PC and SLG D12, PUR.		DVD "RFID Systems Software & Documentation"	6GT2080-2AA20
5 m	6GT2691-4BH50		
20 m	6GT2691-4BN20		

Dimensional drawings



SLG D12 reader basic unit

More information

All current approvals are listed in the Internet at:
<http://www.siemens.com/rfid-approvals>

RFID systems for the HF frequency range

MOBY D antennas

Antennas

Overview



ANT D5 (front), ANT D6

Antennas	Features
ANT D2	<p>Universal antenna can be connected to basic units SLG D11 / SLG D11S.</p> <ul style="list-style-type: none"> • IP65 degree of protection • Operating temperature range -20 °C to +55 °C • Dimensions L x W x H (mm): 75 x 75 x 40 <p>Cable length 3.3 m (for plugging in at both ends)</p>
ANT D5	<p>Universal antenna can be connected to basic units SLG D10 / SLG D10S, SLG D11 / SLG D11S.</p> <ul style="list-style-type: none"> • IP65 degree of protection • Operating temperature range -20 °C to +55 °C • Dimensions L x W x H (mm): 380 x 380 x 110 <p>Cable length 3.6 m (permanently connected on antenna side)</p>
ANT D6	<p>Universal antenna can be connected to basic units SLG D10 / SLG D10S.</p> <ul style="list-style-type: none"> • IP65 degree of protection • Operating temperature range -20 °C to +55 °C • Dimensions L x W x H (mm): 580 x 480 x 110 <p>Cable length 3.3 m (connectable at both ends, included in scope of delivery)</p>
ANT D10	<p>Antenna for warehousing, logistics and distribution. Ideally suited to the clothing industry/laundries. For connection to SLG D10 and SLG D10S. Advantageous geometry for small transponders and a long transmission field.</p> <ul style="list-style-type: none"> • IP65 degree of protection • Operating temperature range -20 °C to +55 °C • Dimensions L x W x H (mm): 1150 x 365 x 115 <p>Cable length 3.3 m (connectable at both ends, included in scope of delivery), cover included in scope of delivery</p>

RFID systems for the HF frequency range

MOBY D antennas

ANT D2

Overview



The ANT D2 antenna is designed for transponders that pass the antenna at the side. This antenna is specially designed for high speeds, e.g. in overhead conveyors, assembly lines, production and order picking. It can be mounted directly onto metal surfaces.

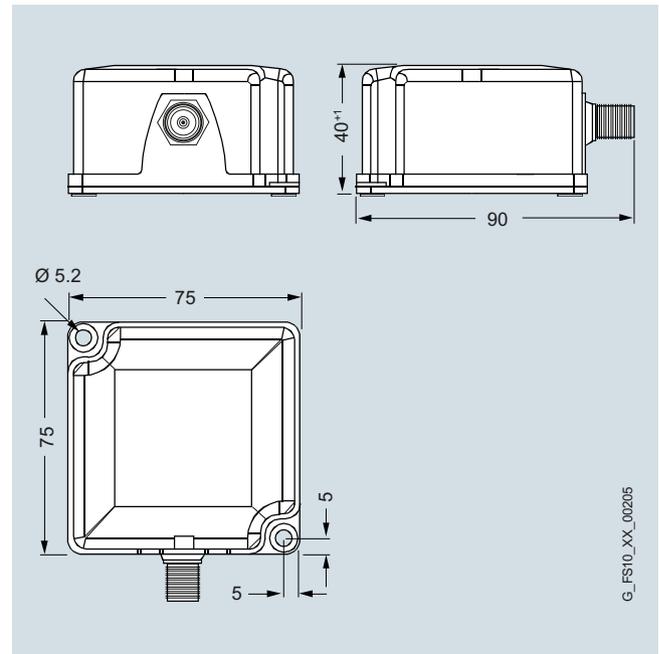
Technical specifications

Order No.	6GT2698-5BB00
Product-type designation	Antenna ANT D2
Suitability for installation	MOBY D with SLG D11
Wireless frequencies	
Transmission frequency, rated value	13.56 MHz
Electrical data	
Design of electrical connection of antenna	1-pin TNC plug
Mechanical data	
Material	PA 12
Color	Anthracite
Tightening torque of screw for mounting the equipment, maximum	2 Nm
Mounting distance for metal surfaces, recommended, minimum	0 m
Design of the plug-in connection	Female
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +70 °C
• during storage	-40 ... +85 °C
• during transport	-40 ... +85 °C
Protection class IP	IP65
Resistance against shock	According to EN 60721-3-7 Class 7M2
Resistance against shock	500 m/s ²
Resistance against vibration	100 m/s ²
Design, dimensions and weight	
Width	75 mm
Height	75 mm
Depth	40 mm
Net weight	260 g
Type of mounting	2 screws M5, proper orientation is important
Product properties, functions, components general	
Verification of suitability	CE, FCC, IC, cULus

Selection and ordering data

	Order No.
ANT D2 antenna	6GT2698-5BB00
for SLG D11 / SLG D11S basic units, including antenna cable, lateral antenna field, PVC, length 3.3 m	

Dimensional drawings



ANT D2 antenna

2

RFID systems for the HF frequency range

MOBY D antennas

ANT D5

Overview



An ANT D5 is a universal antenna designed for warehouse, logistics and distribution applications. The high degree of protection (IP65) enables the antenna to be used under harsh industrial conditions. The antenna is designed for transponders that are directed sideways past the antenna.

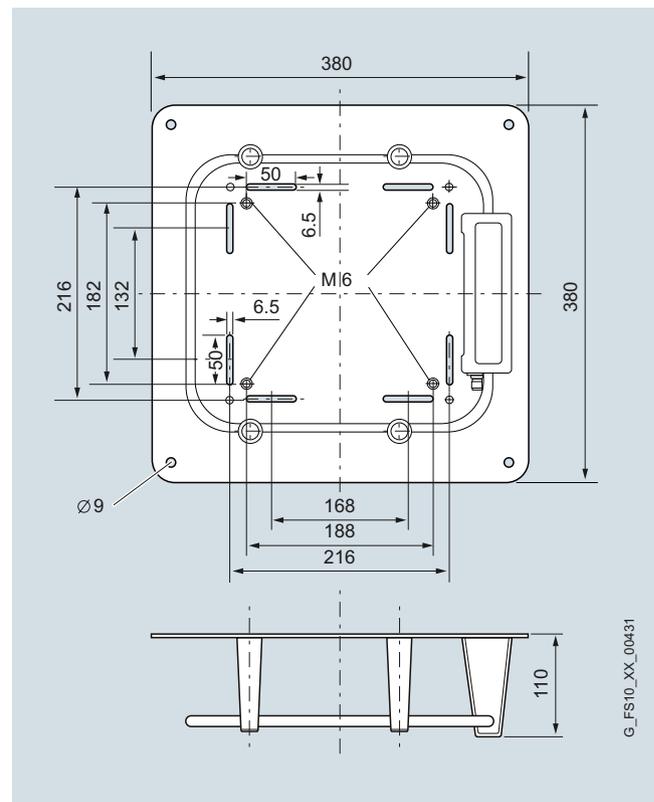
Selection and ordering data

	Order No.
ANT D5 antenna for SLG D10 / SLG D10S / SLG D11 / SLG D11S basic units, including antenna cable, PVC, cable length 3.3 m	6GT2698-5AA10
Accessories	
Antenna switch for connecting several antennas (ANT D5 or ANT D6) to ne SLG D10 / SLG D10S reader, IP65, -25 °C to +65 °C	6GT2690-0AC00
SIMATIC RF260X antenna multiplexer Antenna multiplexer for SLG D10; 6 x antenna outputs (for ANT D5, ANT D6 and ANT D10); IP65; 240 mm x 150 mm x 70 mm; including antenna connecting cable, cable length 0.4 m	6GT2894-0EA00

Technical specifications

Order No.	6GT2698-5AA10
Product-type designation	Antenna ANT D5
Suitability for installation	RF290R, MOBY D with SLG D10, D11
Wireless frequencies	
Transmission frequency, rated value	13.56 MHz
Electrical data	
Design of electrical connection of antenna	1-pin TNC plug
Mechanical data	
Material	Aluminum/plastic
Color	Black/gray
Mounting distance for metal surfaces, recommended, minimum	0 m
Design of the plug-in connection	Female
Permitted ambient conditions	
Ambient temperature	
• during operating	-20 ... +55 °C
• during storage	-25 ... +70 °C
• during transport	-25 ... +70 °C
Protection class IP	IP65
Resistance against shock	According to EN 60721-3-7 Class 7M2
Resistance against shock	300 m/s ²
Resistance against vibration	10 m/s ²
Design, dimensions and weight	
Width	380 mm
Height	380 mm
Depth	110 mm
Net weight	2 kg
Type of mounting	4 screws M5
Standards, specifications, approvals	
Verification of suitability	CE, FCC

Dimensional drawings



ANT D5 antenna

G_FS10_XX_00431

RFID systems for the HF frequency range

MOBY D antennas

ANT D6

Overview



The ANT D6 is a universal antenna designed for warehouse, logistics and distribution applications. The high degree of protection (IP65) enables the antenna to be used under harsh industrial conditions.

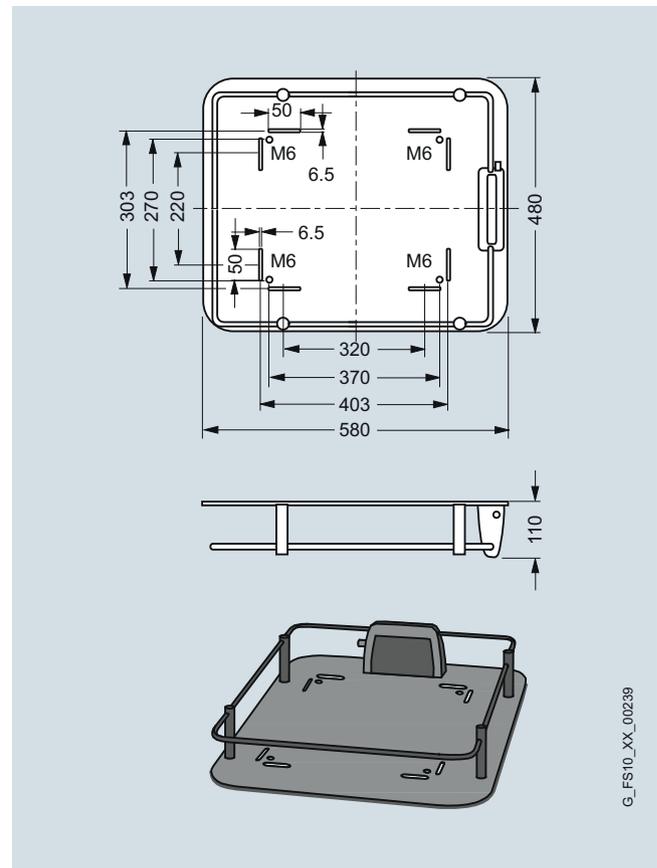
Technical specifications

Order No.	6GT2698-5AB00
Product-type designation	Antenna ANT D6
Suitability for installation	RF290R, MOBY D with SLG D10
Wireless frequencies	
Transmission frequency, rated value	13.56 MHz
Electrical data	
Design of electrical connection of antenna	1-pin TNC plug
Mechanical data	
Material	Aluminum/plastic
Color	Gray / black
Mounting distance for metal surfaces, recommended, minimum	0 m
Design of the plug-in connection	Female
Permitted ambient conditions	
Ambient temperature	
• during operating	-20 ... +55 °C
• during storage	-25 ... +70 °C
• during transport	-25 ... +70 °C
Protection class IP	IP65
Resistance against shock	According to EN 60721-3-7 Class 7M2
Resistance against shock	300 m/s ²
Resistance against vibration	10 m/s ²
Design, dimensions and weight	
Width	480 mm
Height	580 mm
Depth	110 mm
Net weight	3.3 kg
Type of mounting	4 screws M6
Standards, specifications	
Verification of suitability	CE, FCC, cULus

Selection and ordering data

	Order No.
ANT D6 antenna	6GT2698-5AB00
for SLG D10 / SLG D10S basic units, including antenna cable, PVC, length 3.3 m	
Accessories	
Shrouding cover	6GT2690-0AD00
Serves as contact protection for ANT D6	
Antenna switch	6GT2690-0AC00
For connecting several antennas (ANT D5 or ANT D6) to one SLG D10 / SLG D10S reader, IP65, -25 °C to +65 °C	
SIMATIC RF260X antenna multiplexer	6GT2894-0EA00
Antenna multiplexer for SLG D10; 6 x antenna outputs (for ANT D5, ANT D6 and ANT D10); IP65; 240 mm x 150 mm x 70 mm; including antenna connecting cable, cable length 0.4 m	

Dimensional drawings



ANT D6 antenna

G_FS10_XX_00239

RFID systems for the HF frequency range

MOBY D antennas

ANT D10

Overview



The ANT D10 is a universal antenna designed for warehouse, logistics and distribution applications. The high degree of protection (IP65) enables the antenna to be used under harsh industrial conditions.

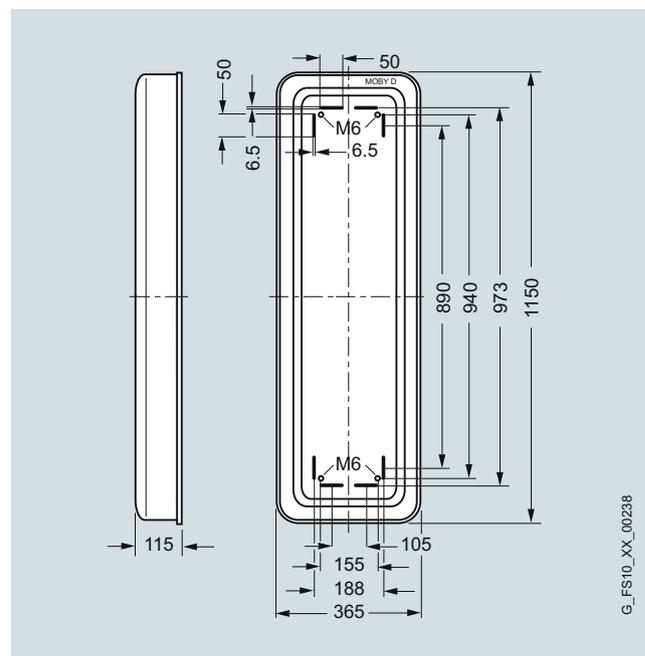
Technical specifications

Order No.	6GT2698-5AF00
Product-type designation	Antenna ANT D10
Suitability for installation	RF290R, MOBY D with SLG D10
Wireless frequencies	
Transmission frequency, rated value	13.56 MHz
Electrical data	
Design of electrical connection of antenna	1-pin TNC plug
Mechanical data	
Material	Aluminum/plastic
Color	Pastel turquoise (cover), gray/black (antenna)
Mounting distance for metal surfaces, recommended, minimum	0 m
Design of the plug-in connection	Female
Permitted ambient conditions	
Ambient temperature	
• during operating	-20 ... +55 °C
• during storage	-25 ... +70 °C
• during transport	-25 ... +70 °C
Protection class IP	IP65
Resistance against shock	According to EN 60721-3-7 Class 7M2
Resistance against shock	300 m/s ²
Resistance against vibration	10 m/s ²
Design, dimensions and weight	
Width	365 mm
Height	1 150 mm
Depth	115 mm
Net weight	10 kg
Type of mounting	4 screws M6
Standards, specifications	
Verification of suitability	CE, FCC, cULus

Selection and ordering data

	Order No.
ANT D10 antenna for SLG D10 / SLG D10S basic units, including antenna cable, PVC, length 3.3 m	6GT2698-5AF00
Accessories	
SIMATIC RF260X antenna multiplexer Antenna multiplexer for SLG D10; 6 x antenna outputs (for ANT D5, ANT D6 and ANT D10); IP65; 240 mm x 150 mm x 70 mm; including antenna connecting cable, cable length 0.4 m	6GT2894-0EA00

Dimensional drawings



ANT D10 antenna

G_FS10_XX_00238

Overview

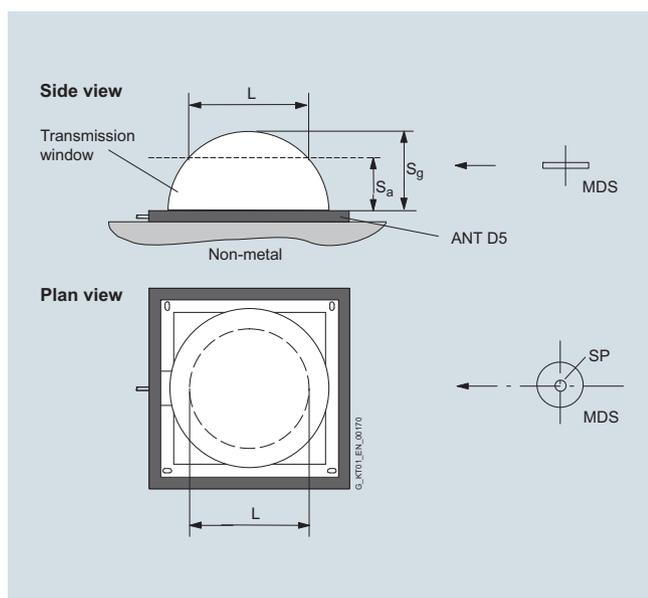
Note

Detailed configuration and commissioning data is contained in the "Manual for Configuration, Assembly and Service".

Transmission window

The reader generates an inductive alternating field. The field is at its strongest near the antenna and declines considerably as the distance from the antenna increases. The distribution of the field depends on the structure and geometry of the antennas in the reader and transponder.

A prerequisite for the function of the transponder is a minimum field strength at the transponder that is achieved at a distance S_g from the reader. The picture below shows the transmission window between the transponder and reader:



S_a : Operating distance between transponder and reader

S_g : Limit distance (maximum clear distance between upper surface of antenna and transponder, at which the transmission can still function under normal conditions)

L: Length of a transmission window

SP: Intersection of the axes of symmetry of the transponder

The transmittable quantity of information between reader and transponder depends on:

- the speed at which the transponder passes the antenna ("passing speed")
- Length of the inductive alternating field of the reader, through which the transponder moves ("transmission window").

Communication between reader and transponder

Communication between the reader and transponder is asynchronous.

Data transfer, reader - transponder	
Read	≥ 3.5 ms/byte
Write	≥ 9.5 ms/byte
Transmission time of ID number	
• SLG D10 ANT D5, ANT D6, ANT D10	30 ms (8 bytes at 115.2 Kbit/s)
• SLG D11S ANT D5	
• SLG D12S ANT D5, ANT D6, ANT D10	90 ms (8 bytes at 19.2 Kbit/s)
• SLG D11S ANT D5	
• SLG D12 ANT D5, ANT D6, ANT D10	60 ms (8 bytes at 38.4 Kbit/s)
• SLG D11 ANT D5	

Traversing speed for SLG D1x / ANT Dx (with one transponder in the field)

	SLG D10		SLG D11		SLG D12	SLG D10S		SLG D11S		SLG D12S		
	ANT D10*	ANT D6	ANT D5	ANT D2	ANT D5	ANT D10*	ANT D6	ANT D5	ANT D2	ANT D5		
UID number (8 bytes)	≤ 15	≤ 8.0	≤ 5.0	≤ 1.2	≤ 3.5	≤ 2.5	≤ 6.0	≤ 3.8	≤ 2.0	≤ 0.4	≤ 1.0	≤ 0.8
ISO transponder. e.g. MDS D100												
Read (with 4 bytes of user data / 1 block)	≤ 10	≤ 6.0	≤ 3.5	≤ 1.2	≤ 1.6	≤ 1.2	≤ 6.5	≤ 4.0	≤ 2.2	≤ 0.4	≤ 3.0	≤ 1.4
Write (with 4 bytes of user data / 1 block)	≤ 9	≤ 5.5	≤ 3.0	≤ 0.2	≤ 1.2	≤ 1.0	≤ 5.5	≤ 3.4	≤ 1.8	≤ 0.3	≤ 2.8	≤ 1.2
Read (with 112 bytes of complete user data)	≤ 7.5	≤ 4.0	≤ 2.4	≤ 0.4	≤ 1.4	≤ 0.8	≤ 5.0	≤ 3.0	≤ 1.6	≤ 0.2	≤ 2.2	≤ 1.0
Write (with 112 bytes of complete user data)	≤ 2.0	≤ 1.0	≤ 0.6	≤ 0.1	≤ 0.4	≤ 0.2	≤ 2.0	≤ 1.0	≤ 0.6	≤ 0.1	≤ 0.5	≤ 0.2

All values in the table in m/s

* Passing velocity in the transverse direction as for SLG D10 ANT D5/SLG D10S ANT D5

RFID systems for the HF frequency range

Notes

2

RFID systems for the UHF frequency range



3/2	SIMATIC RF600
3/4	<u>SIMATIC RF600 transponders</u>
3/6	SIMATIC RF630L
3/9	SIMATIC RF680L
3/10	SIMATIC RF610T
3/12	SIMATIC RF620T
3/14	SIMATIC RF625T
3/16	SIMATIC RF630T
3/18	SIMATIC RF640T
3/20	SIMATIC RF680T
3/21	<u>SIMATIC RF600 readers</u>
3/22	SIMATIC RF620R
3/25	SIMATIC RF630R
3/28	SIMATIC RF640R
3/31	SIMATIC RF670R
3/34	SIMATIC RF680M mobile handheld terminal
3/36	<u>SIMATIC RF600 antennas</u>
3/37	SIMATIC RF620A
3/39	SIMATIC RF640A, SIMATIC RF642A
3/41	SIMATIC RF660A
3/44	<u>SIMATIC RF600 software</u>
3/44	SIMATIC RF-DIAG

RFID systems for the UHF frequency range

SIMATIC RF600

SIMATIC RF600

Overview



Identification tasks in the UHF range (865 to 868 MHz, 902 to 928 MHz, and 920 to 925 MHz) that demand a wide range of several meters are implemented with SIMATIC RF600. The system is suitable for storing and recording a unique identification according to the EPCglobal standard (Electronic Product Code) on products, containers or transport units. Storage of additional, freely-definable user data is also possible.

Various data carriers - from low-cost SmartLabels through to heat-resistant transponders that can be used for several thousand cycles - are available for industrial applications.

SIMATIC RF600 can be used with SIMATIC controllers and PC/IT systems.

Benefits

get Designed for Industry

SIMATIC RF600 has been specially developed for the requirements of industry. It enables economical and reliable use of RFID in production, materials management and logistics.

- Cost savings and improvement in process quality through application of UHF RFID with maximum reliability in the industrial environment:
 - Application of a uniform RFID system throughout the entire production process and supplier chain as a result of inexpensive transponders and wide ranges (no technology gaps).
 - Maximum availability even in applications with a complex radio environment such as high reader density, strongly reflecting metal environments, dynamic surroundings.
 - Permanent RFID identification of products thanks to disposable transponders matched to the application, e.g. heat-resistant, high degree of protection.
 - Wide transponder portfolio and customized versions for cost-optimized use.
- Flexibility due to compact designs and remote antennas.
- Safe and selective individual acquisition or bulk identification is possible.
- High reading speed: Even fast-moving transponders are reliably detected.
- Simplified engineering, commissioning, diagnostics and maintenance through seamless integration into Totally Integrated Automation:

- Integrated bus connection to an automation system, such as SIMATIC, SIMOTION or SINUMERIK via communication modules with PROFIBUS and PROFINET.
- Direct interfacing to IT systems via Ethernet.
- Integrated processing logic allows data preprocessing in the reader and saves costs for external PCs, software modules, etc.
- Simple S7 software integration via ready-to-use function blocks.
- Extensive diagnostic functions.
- High degree of investment protection thanks to
 - Open standards EPCglobal Class 1 Gen 2 / ISO 18000-6C.
 - Software compatibility between the RFID systems of Siemens.
 - Standardized communication interfaces.
 - Openness through connection possibilities to various bus systems from different manufacturers and PC environments via communication modules.
- Worldwide service and support.
 - Tried and tested in numerous customer projects.

Application

SIMATIC RF600 is used for the contactless identification of every kind of object, e.g. transport containers, pallets, production goods, or it can be used generally for recording goods in bulk. As a rule, these applications are open loops in which passive SmartLabels on goods, products, bulk containers or transport units are used. In this case, the system distinguishes itself due to its high reading speeds, large data transmission rates and the fact that it can handle long reading distances.

In addition, the system is suitable for reading and writing reusable transponders that are used in closed loops.

Typical applications include:

- Acquisition of deliveries in the incoming goods / outgoing goods departments.
- Identification of transport containers, barrels or containers at important stations in the process; creation of a "Container passport" for automatic creation of a usage history.
- Control of material flow and production in multi-variant, order-related production.
- Labeling of products under severe ambient conditions, e.g. dust, dirt, high temperatures.
- Stock monitoring and usage monitoring of tools and devices.
- Automation of warehouses and distribution centers with industrial trucks.

RFID systems for the UHF frequency range

SIMATIC RF600

SIMATIC RF600

Design

The SIMATIC RF600 readers are available as variants with an integral antenna and with connection options for external antennas.

The high IP65 degree of protection of the SIMATIC RF600 reader enables it to be used in harsh industrial environments.

Each SIMATIC RF600 reader has a multicolor LED which locally indicates the function and status of the reader as well as of the transponder.

The SIMATIC RF620R and RF630R readers can be connected to the automation level by means of communication modules. For quick and easy cabling, pre-assembled cables with M12 plug-in connectors are available in various lengths. The SIMATIC RF640R and RF670R readers have an onboard Ethernet interface for direct connection to the IT level.

The SIMATIC RF600 transponders are used as mobile data carriers.

Transponders suitable for a wide variety of different requirements can be selected from an extensive range: from low-cost, heat-resistant SmartLabel for the temperature range up to 220 degrees, by way of rugged credit card formats, right up to screw-fit transponders that can be affixed on an automated basis by robots.

The transponders are attached to the object to be identified, e.g. by means of screws, adhesive or pre-assembled spacer.

Function

All SIMATIC RF600 readers are suitable for reliable writing and reading tasks in the UHF range from 865 to 868 MHz (ETSI), 902 to 928 MHz (FCC), and 920 to 925 MHz (CMIIT), with very large ranges up to 8 m.

The SIMATIC RF620R and RF630R readers are particularly suitable for applications in production environments.

The two readers are connected via standard fieldbuses such as PROFIBUS or PROFINET to the automation level, for example SIMATIC S7, by means of communication modules to which the readers can be connected via an RS422 interface.

User-friendly function blocks are available for the S7 programming. In the event of an error, the S7 application receives a detailed error message from the communication module via the function block.

Special functions are available for the difficult environmental conditions encountered in production environments, such as reflections and dead zones resulting from metal or superimposed radio fields due to a high reader density.

In this manner, process stability is substantially increased by automatic adaptation of the transmit power and intelligent filtering of the reading results. The multi-stage filter concept ensures that, based on the wireless properties, the correct transponder within the RF field of the reader is always processed. The appropriate data storage medium is automatically selected on the basis of various indicators, such as the evaluation of the RSSI value (Received Signal Strength Indicator), the reading frequency, or the transmit power required.

Transponders that have already been processed can be stored in a "blacklist" in the reader and thus filtered out. Various mechanisms can be activated according to requirements. Configuration and diagnostics are carried out in the SIMATIC RF-DIAG software.

The SIMATIC RF640R and RF670R readers are particularly suitable for applications in the logistics sector.

The two readers have an Ethernet interface (XML protocol via TCP/IP) which enables simple connection to the PC or IT level.

The integrated processing logic allows comprehensive filter functions and control of the digital inputs/outputs in the reader itself. The readers are configured using the RF-MANAGER Basic, which is provided free with each reader.

In addition, both readers have digital inputs/outputs for connecting sensors or actuators.

Whereas the RF640R with its integrated antenna is suitable for implementing single recording stations, the RF670R and its four external antenna connections can be used to implement up to four individual reading stations or large gate applications.

Integration

A wide range of communication modules, function blocks, as well as high-performance drivers and function libraries permits easy and quick integration into the application.

And best of all: SIMATIC RF600 is part of Totally Integrated Automation and can be integrated easily and cost-effectively into the SIMATIC world.

For more details on the connection possibilities, see chapter 6 "Communication Modules".

Configuration guide for RFID systems

Here is a compact configuration tool for setting up RFID systems:

<http://support.automation.siemens.com/WW/view/en/67384964>

Technical specifications

RFID system	SIMATIC RF600
Transmission frequency	865 ... 868 MHz (ETSI) 902 ... 928 MHz (FCC) 920 ... 925 MHz (CMIIT)
Range	Max. 8 m
Protocol (air interface)	<ul style="list-style-type: none"> EPCglobal Class 1 Gen 2 ISO 18000-6C
Approvals ¹⁾	<ul style="list-style-type: none"> ETSI EN 302208, CE FCC UL CMIIT
Memory capacity	Max. 96/240 bit EPC, 512-bit user memory
Data transmission rate	<ul style="list-style-type: none"> Read Write
Multitag/Bulk capability	Yes
Special features	<ul style="list-style-type: none"> SIMATIC or PC/IT integration Configurable data processing in the readers Special antennas for industrial applications Powerful diagnostics functions

¹⁾ All current approvals are listed in the Internet under <http://www.siemens.com/rfid-approvals>

RFID systems for the UHF frequency range

SIMATIC RF600 transponders

Introduction

Overview



SIMATIC RF600 offers a variety of transponders for numerous applications. All transponders are designed to be passive and maintenance-free and thus ensure problem-free operation. The transponders support the EPCglobal Class 1, Gen 2 / ISO 18000-6C standard, and can be used with all SIMATIC RF600 readers.

Transponder	Features
SIMATIC RF630L	SmartLabel based on UHF Class 1 Gen 2 technology <ul style="list-style-type: none"> • available in four versions • up to 96/128 bits (EPC) • up to 512 bit (user memory) • up to IP65 degree of protection • Operating temperature range -40 °C to +65 °C • Dimensions L x W (mm): 101 x 152; 101 x 50; 97 x 27; 54 x 34.
SIMATIC RF680L	Heat-resistant UHF SmartLabel <ul style="list-style-type: none"> • 64/240 bit (EPC) • 512 bit (user memory) • Operating temperature range -25 °C to +240 °C (short term) • Dimensions L x W x H (mm): 86 x 54 x 0.3
SIMATIC RF610T	ISO card <ul style="list-style-type: none"> • 96/240 bit (EPC) • 512 bit (user memory) • Operating temperature range -25 °C to +85 °C • IP67 degree of protection • Dimensions L x W x H (mm): 86 x 54 x 0.4
SIMATIC RF620T	Container transponder <ul style="list-style-type: none"> • 96/128 bit (EPC) • 512 bit (user memory) • Operating temperature range -25 °C to +80 °C • IP67 degree of protection • Dimensions L x W x H (mm): 127 x 38 x 6
SIMATIC RF625T	Disk transponder <ul style="list-style-type: none"> • 96/128 bit (EPC) • 512 bit (user memory) • Operating temperature range -25 °C to +85 °C • IP68 / IPx9K degree of protection • Dimensions diameter x H (mm): 30 x 8

Transponder	Features
SIMATIC RF630T	Screw transponder (M6) <ul style="list-style-type: none"> • 96/240 bit (EPC) • 512 bit (user memory) • Operating temperature range -25 °C to +85 °C • IP68 / IPx9K degree of protection • Dimensions diameter x H (mm): 21 x 20 (without thread)
SIMATIC RF640T	Tool transponder <ul style="list-style-type: none"> • 96/240 bit (EPC) • 512 bit (user memory) • Operating temperature range -25 °C to +85 °C • IP68 / IPx9K degree of protection • Dimensions diameter x H (mm): 50 x 8
SIMATIC RF680T	High-temperature transponder <ul style="list-style-type: none"> • 96/240 bit (EPC) • 512 bit (user memory) • Operating temperature range -25 °C to +220 °C (tested for up to 2000 hours or for 1500 cycles) • IP68 / IPx9K degree of protection • Dimensions L x W x H (mm): 130 x 32 x 15

Benefits



The comprehensive portfolio of SIMATIC RF600 transponders with long ranges according to EPCglobal standard offers the appropriate solution for every requirement in logistics and production:

- Low-cost SmartLabels and credit card formats.
- Heat-resistant SmartLabels and transponders for high temperature ranges up to 220 degrees for use in paint shops.
- Screw-fit transponders for automatic attachment by means of robots.
- Screw-fit transponders for flush-mounting in metal for identifying workpieces or workpiece holders.
- Rugged transponders with high resistance to environmental influences.
- Customized solutions for SmartLabels and transponders on request.

Technical specifications

Range between reader and transponder (all specifications in m)

The following table shows the maximum range of all UHF transponders in conjunction with RF600 readers. All technical specifications listed are typical data and apply at a room temperature of +25 °C. With the RF620T the data applies when mounted on a non-metallic base, with the RF625T when mounted on metal.

Reader	Transponder SIMATIC RF630L 6GT2810-2AB00 6GT2810-2AB01 6GT2810-2AB02-0AX0	SIMATIC RF630L 6GT2810-2AB03	SIMATIC RF680L	SIMATIC RF610T	SIMATIC RF620T
SIMATIC RF620R					
SIMATIC RF620R	5	3	2.5	3	5
SIMATIC RF630R					
SIMATIC RF630R with RF620A	1.6	1	0.8	1	1.6
SIMATIC RF630R with RF640A	4.5	2.8	2.2	2.8	4.5
SIMATIC RF630R with RF642A	5.5	3.5	2.8	3.5	5.5
SIMATIC RF630R with RF660A	6	4	3	4	6
SIMATIC RF640R					
SIMATIC RF640R	7	4	3.5	4.5	7
SIMATIC RF640R with RF620A	2.2	1.4	1.1	1.4	2.2
SIMATIC RF640R with RF640A	6	4	3.1	4	6
SIMATIC RF640R with RF642A	8	5	4	5	8
SIMATIC RF640R with RF660A	8	5	4	5	8
SIMATIC RF670R					
SIMATIC RF670R with RF620A	2.2	1.4	1.1	1.4	2.2
SIMATIC RF670R with RF640A	6	4	3.1	4	6
SIMATIC RF670R with RF642A	8	5	4	5	8
SIMATIC RF670R with RF660A	8	5	4	5	8

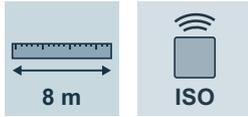
Reader	Transponder SIMATIC RF625T	SIMATIC RF630T	SIMATIC RF640T	SIMATIC RF680T
SIMATIC RF620R				
SIMATIC RF620R	1	0.8	2.5	2.5
SIMATIC RF630R				
SIMATIC RF630R with RF620A	0.3	0.3	0.8	0.8
SIMATIC RF630R with RF640A	0.8	0.7	2.2	2.2
SIMATIC RF630R with RF642A	1.1	0.8	2.8	2.8
SIMATIC RF630R with RF660A	1.2	0.9	3	3
SIMATIC RF640R				
SIMATIC RF640R	1.3	1	3.5	3.5
SIMATIC RF640R with RF620A	0.4	0.3	1.1	1.1
SIMATIC RF640R with RF640A	1.2	0.9	3	3
SIMATIC RF640R with RF642A	1.5	1.2	4	4
SIMATIC RF640R with RF660A	1.5	1.2	4	4
SIMATIC RF670R				
SIMATIC RF670R with RF620A	0.4	0.3	1.1	1.1
SIMATIC RF670R with RF640A	1.2	0.9	3	3
SIMATIC RF670R with RF642A	1.5	1.2	4	4
SIMATIC RF670R with RF660A	1.5	1.2	4	4

RFID systems for the UHF frequency range

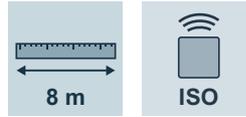
SIMATIC RF600 transponders

SIMATIC RF630L

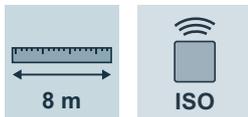
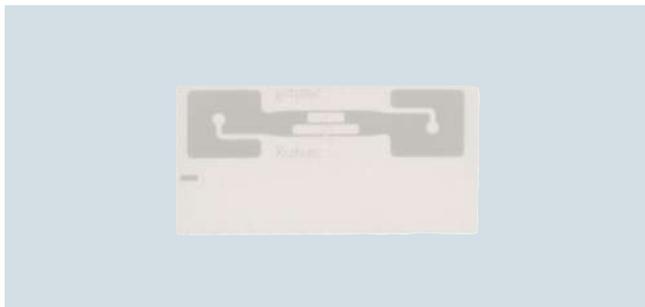
Overview



6GT2810-2AB00



6GT2810-2AB02-0AX0



6GT2810-2AB01



6GT2810-2AB03

The SIMATIC RF630L SmartLabels are suitable for (permanent) identification of products or shipping units with the Electronic Product Code (EPC) as well as with other user data. Thanks to its broadband design, the SIMATIC RF630L SmartLabel can be used in numerous countries.

Technical specifications

Order No.	6GT2 810-2AB00	6GT2 810-2AB01	6GT2 810-2AB02-0AX0	6GT2 810-2AB03
Product-type designation	RF630L transponder	RF630L transponder	RF630L transponder	RF630L transponder
Suitability for installation	RF600	RF600	RF600	RF600
Wireless frequencies				
Operating frequency	860 ... 960 MHz			
Electrical data				
Range maximum	8 m	8 m	8 m	4 m
Range note	Refer to RF600 system manual, overrange is possible	Refer to RF600 system manual, overrange is possible	Refer to RF600 system manual, overrange is possible	Refer to RF600 system manual, overrange is possible
Protocol for radio transmission	EPCglobal Class 1 Gen 2 / ISO 18000-6C	EPCglobal Class 1 Gen 2 / ISO 18000-6C	EPCglobal Class 1 Gen 2 / ISO 18000-6C	EPCglobal Class 1 Gen 2 / ISO 18000-6C
Transfer rate with radio transmission maximum	320 kbit/s	320 kbit/s	320 kbit/s	320 kbit/s
Product property multitag-capable	Yes	Yes	Yes	Yes
Polarization	Linear	Linear	Linear	Linear
Product component Buffer battery	No	No	No	No

RFID systems for the UHF frequency range

SIMATIC RF600 transponders

SIMATIC RF630L

Order No.	6GT2 810-2AB00	6GT2 810-2AB01	6GT2 810-2AB02-0AX0	6GT2 810-2AB03
Product-type designation	RF630L transponder	RF630L transponder	RF630L transponder	RF630L transponder
Memory				
Type of memory	EEPROM	EEPROM	EEPROM	EEPROM
Memory capacity of user memory	12 byte	12 byte	64 byte	64 byte
Type of memory organization	EPC memory 96 bits, TID memory 4 bytes	EPC memory 96 bits, TID memory 4 bytes	EPC memory 96/128 bits, user memory 64 bytes (512 bits), TID memory 4 bytes	EPC memory 96/240 bits, user memory 64 bytes (512 bits), TID memory 8 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁴	10 ¹⁴	10 ¹⁴	10 ¹⁴
Number of write cycles at ambient temperature < 40 °C, maximum	10 ⁵	10 ⁵	10 ⁵	10 ⁵
Data retention time at ambient temperature < 40°C at least	10 a	10 a	10 a	10 a
Property of memory	Lock, unlock, kill, write protection, password protection			
Mechanical data				
Material	Paper	Paper	PET	PET
Color	White	White		
Mounting distance for metal surfaces, recommended, minimum	3 mm	3 mm	3 mm	3 mm
Permitted ambient conditions				
Ambient temperature				
• during operating	-40 ... +65 °C			
• during storage	15 ... 25 °C			
• during transport	15 ... 25 °C			
Ambient condition for (standard) operation mode	Maximum storage life 2 years at 40 to 60% humidity, operating temperature up to 80 °C for 200 cycles	Maximum storage life 2 years at 40 to 60% humidity, operating temperature up to 80 °C for 200 cycles	Maximum storage life 2 years at 40 to 60% humidity, operating temperature up to 80 °C for 200 cycles	Maximum storage life 2 years at 40 to 60% humidity, operating temperature up to 80 °C for 200 cycles
Protection class IP	None, the label must be protected against humidity	None, the label must be protected against humidity	IP65	IP65
Mechanical stress resistance	Torsion and bending stress conditionally permissible			
Design, dimensions and weight				
Width	101 mm	101 mm	27 mm	34 mm
Height	0.3 mm	0.3 mm	0.3 mm	0.3 mm
Depth	152 mm	50 mm	97 mm	54 mm
Net weight	3 g	2 g	1 g	1 g
Type of mounting	Adhesive (single-sided) on paper/cardboard	Adhesive (single-sided) on paper/cardboard	Adhesive (single-sided) on plastic/foil	Adhesive (single-sided) on plastic/foil
Product properties, functions, components general				
Product property suitable for printing	Yes	Yes	Yes	Yes
Printing process	Thermal transfer process	Thermal transfer process	Thermal transfer process (currently only using Toshiba B-SX4T)	Thermal transfer process (currently only using Toshiba B-SX4T)

RFID systems for the UHF frequency range

SIMATIC RF600 transponders

SIMATIC RF630L

Selection and ordering data

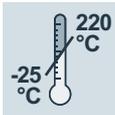
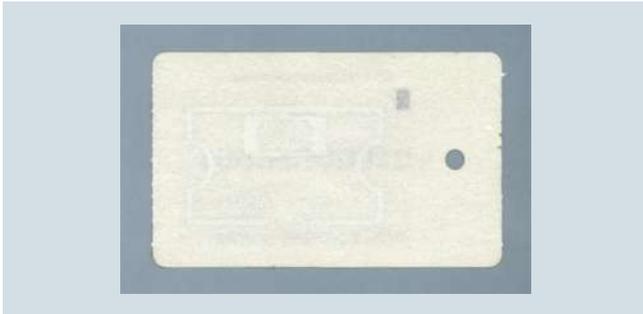
	Order No.
SIMATIC RF630L SmartLabel Frequency 865 to 960 MHz (ETSI, FCC)	
<ul style="list-style-type: none"> Paper, adhesive on one side, 100 mm x 150 mm (4" x 6"); minimum ordering quantity 1600 units (supplied on two rolls). 	6GT2810-2AB00
<ul style="list-style-type: none"> Paper, adhesive on one side, 101 mm x 55 mm (4" x 2"); minimum ordering quantity 1000 units (supplied on one roll). 	6GT2810-2AB01
<ul style="list-style-type: none"> Plastic PET, adhesive on one side, 97 mm x 27 mm (3.8" x 1.1"); minimum ordering quantity 5000 units (supplied on one roll). 	6GT2810-2AB02-0AX0
<ul style="list-style-type: none"> Plastic PET, adhesive on one side, 54 mm x 34 mm (2.1" x 1.3"); minimum ordering quantity 2000 units (supplied on one roll). 	6GT2810-2AB03

RFID systems for the UHF frequency range

SIMATIC RF600 transponders

SIMATIC RF680L

Overview



SIMATIC RF680L is a heat-resistant SmartLabel that is suitable for the identification of objects in production and logistics with high temperature requirements (e.g. for the identification of products in the paint shop/drying area).

The storage capacity is 96/240 bits for the Electronic Product Code (EPC) and 512 bits for user memory. Thanks to its broadband design, the SIMATIC RF680L SmartLabel can be used in numerous countries.

Technical specifications

Order No.	6GT2810-2AG80
Product-type designation	RF680L transponder
Suitability for installation	RF600
Wireless frequencies	
Operating frequency	860 ... 960 MHz
Electrical data	
Range maximum	4 m
Range note	Refer to RF600 system manual, overrange is possible
Protocol for radio transmission	EPCglobal Class 1 Gen 2 / ISO 18000-6C
Transfer rate with radio transmission maximum	320 kbit/s
Product property multitag-capable	Yes
Polarization	Linear
Product component Buffer battery	No
Memory	
Type of memory	EEPROM
Memory capacity of user memory	64 byte
Type of memory organization	EPC memory 96/240 bits, user memory 64 bytes (512 bits), TID memory 8 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁴
Number of write cycles at ambient temperature < 40 °C, maximum	10 ⁵
Data retention time at ambient temperature < 40°C at least	10 a
Property of memory	Lock, unlock, kill, write protection, password protection

Order No.	6GT2810-2AG80
Product-type designation	RF680L transponder
Mechanical data	
Material	Paper
Color	Beige
Mounting distance for metal surfaces recommended minimum	3 mm
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +230 °C
• during storage	-40 ... +85 °C
• during transport	-40 ... +85 °C
Ambient condition for (standard) operation mode	Operating temperature permanent up to 85 °C, for 6 hours up to 200 °C, for 1 hour up to 220 °C, short-term up to 230 °C
Mechanical stress resistance	Torsion and bending stress conditionally permissible
Design, dimensions and weight	
Width	54 mm
Height	0.3 mm
Depth	89 mm
Net weight	3 g
Type of mounting	Gluing, cable tie, screw fixing
Product properties, functions, components general	
Product feature silicon-free	Yes
Product property suitable for printing	Yes
Printing process	Thermal transfer process

Selection and ordering data

	Order No.
SmartLabel SIMATIC RF680L	6GT2810-2AG80
Frequency 865 to 960 MHz (ETSI, FCC).	
Minimum order quantity 1000 units (supplied on a roll).	

RFID systems for the UHF frequency range

SIMATIC RF600 transponders

SIMATIC RF610T

Overview



ISO



The transponder SIMATIC RF610T is a flexible card in ISO format that is suitable for a wide variety of applications, e.g. for identification of containers, pallets, vessels, or trolleys. SIMATIC RF610T can be attached to many different materials, including plastic, wood, glass and metal (with spacer).

The plastic enclosure is designed for food safety and is therefore also suitable for use with food and beverages. Thanks to its broadband design, the transponder can be used in numerous countries.

Technical specifications

Order No.	6GT2 810-2BB80
Product-type designation	RF610T transponder
Suitability for installation	RF600
Wireless frequencies	
Operating frequency	860 ... 960 MHz
Electrical data	
Range, maximum	5 m
Range note	Refer to RF600 system manual, overrange is possible
Protocol for radio transmission	EPCglobal Class 1 Gen 2 / ISO 18000-6C
Transfer rate with radio transmission, maximum	320 kbit/s
Product property multitag-capable	Yes
Polarization	Linear
Product component Buffer battery	No
Memory	
Type of memory	EEPROM
Memory capacity of user memory	64 byte
Type of memory organization	EPC memory 96/240 bits, user memory 64 bytes (512 bits), TID memory 8 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁴
Number of write cycles at ambient temperature < 40 °C, maximum	10 ⁵
Data retention time at ambient temperature < 40°C, at least	10 a
Property of memory	Lock, unlock, write protection, password protection
Mechanical data	
Material	PVC, food-safe
Color	White
Mounting distance for metal surfaces, recommended, minimum	3 mm
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +85 °C
• during storage	-40 ... +85 °C
• during transport	-40 ... +85 °C
Protection class IP	IP67
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	1000 m/s ²
Resistance against vibration	500 m/s ²
Mechanical stress resistance	Torsion and bending stress conditionally permissible
Design, dimensions and weight	
Width x Thickness x Height (mm)	54 x 0.4 x 86
Net weight	3 g
Type of mounting	Gluing, cable tie, screw fixing, fixing pocket
Product properties, functions, components general	
Product property suitable for printing	Yes
Printing process	Thermal transfer process
Accessories	
Accessories	Fixing pocket, spacer

RFID systems for the UHF frequency range

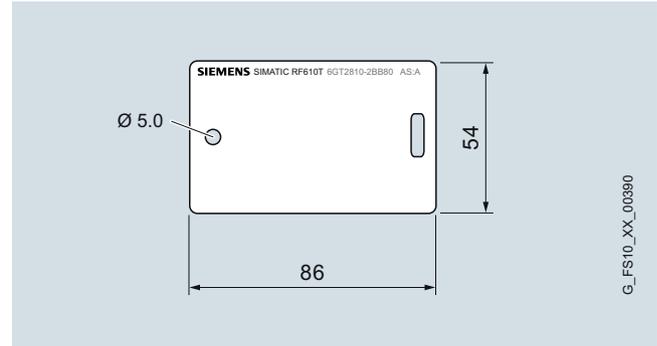
SIMATIC RF600 transponders

SIMATIC RF610T

Selection and ordering data

	Order No.
ISO card transponder SIMATIC RF610T Frequency 865 MHz to 960 MHz (ETSI, FCC). Ordering quantity 1000 units or a multiple thereof.	6GT2810-2BB80
Accessories	
Fixing pocket For SIMATIC RF610T, for attaching to metal surfaces in combination with spacer 6GT2190-0AA00. Ordering quantity 50 units or a multiple thereof.	6GT2190-0AB00
	
Spacer For SIMATIC RF610T, for attaching to metal surfaces, in combination with fixing pocket 6GT2190-0AB00. Ordering quantity 50 units or a multiple thereof.	6GT2190-0AA00
	

Dimensional drawings



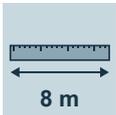
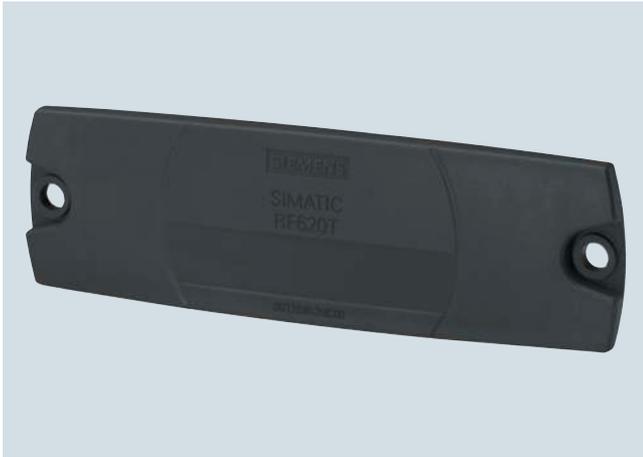
SIMATIC RF610T

RFID systems for the UHF frequency range

SIMATIC RF600 transponders

SIMATIC RF620T

Overview



The SIMATIC RF620T container transponder is designed for industrial requirements and has a high immunity to environmental effects and cleaning agents. It can be attached to plastic, wood or glass; and with a spacer even on metal and ESD plastic.

The SIMATIC RF620T is suitable for identification of transport containers, pallets or vessels. The plastic enclosure is food safe. Thanks to its broadband design, the transponder can be used in numerous countries.

Technical specifications

Order No.	6GT2 810-2HC81
Product-type designation	RF620T transponder
Suitability for installation	RF600
Wireless frequencies	
Operating frequency	860 ... 960 MHz
Electrical data	
Range, maximum	8 m
Range, note	Refer to RF600 system manual, overrange is possible
Protocol for radio transmission	EPCglobal Class 1 Gen 2 / ISO 18000-6C
Transfer rate with radio transmission, maximum	320 kbit/s
Product property multitag-capable	Yes
Polarization	Linear
Product component Buffer battery	No
Memory	
Type of memory	EEPROM
Memory capacity of user memory	64 byte
Type of memory organization	EPC memory 96/128 bits, user memory 64 bytes (512 bits), TID memory 4 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁴
Number of write cycles at ambient temperature < 40 °C, maximum	10 ⁵
Data retention time at ambient temperature < 40°C, at least	10 a
Property of memory	Lock, unlock, write protection, password protection
Mechanical data	
Material	PP (polypropylene)
Color	Black
Mounting distance for metal surfaces, recommended, minimum	0 mm
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +85 °C
• during storage	-40 ... +80 °C
• during transport	-40 ... +80 °C
Protection class IP	IP67
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	1000 m/s ²
Resistance against vibration	500 m/s ²
Mechanical stress resistance	Torsion and bending stress not permissible
Design, dimensions and weight	
Width	38 mm
Height	6 mm
Depth	127 mm
Net weight	18 g
Type of mounting	Gluing, 2 screws M5, spacer (see under accessories)
Product properties, functions, components general	
Product property suitable for printing	No
Accessories	
Accessories	Spacer

RFID systems for the UHF frequency range

SIMATIC RF600 transponders

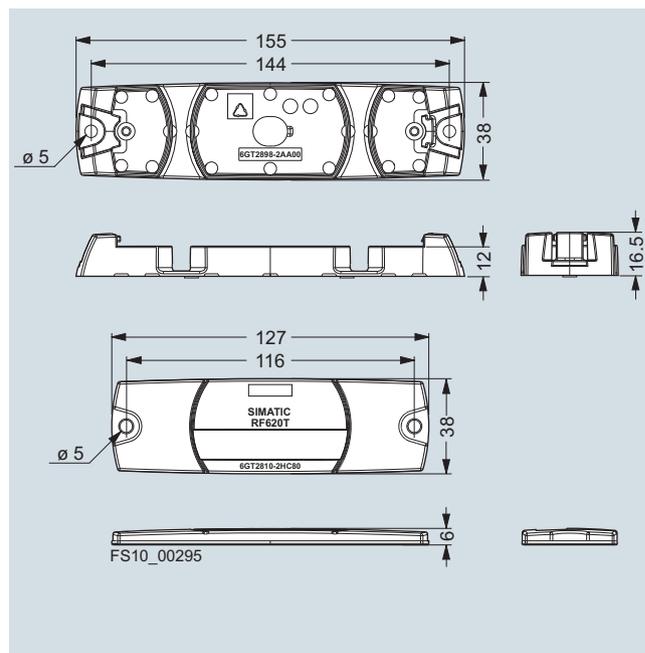
SIMATIC RF620T

Selection and ordering data

	Order No.
Container transponder SIMATIC RF620T Frequency 860 MHz to 960 MHz (ETSI, FCC) Ordering quantity 20 units or a multiple thereof.	6GT2810-2HC81
Accessories Spacer For SIMATIC RF620T, for mounting on metal; dimensions L x W x H (mm) 155 x 38 x 12 Ordering quantity 20 units or a multiple thereof.	6GT2898-2AA00



Dimensional drawings



SIMATIC RF620T container transponder

3

RFID systems for the UHF frequency range

SIMATIC RF600 transponders

SIMATIC RF625T

Overview



The SIMATIC RF625T disk transponder can be fitted recessed in metal, on metal, and also flush-mounted on non-metallic surfaces.

Thanks to its rugged design and high IP68 degree of protection, it is ideal for use for demanding production processes in industrial environments.

The SIMATIC RF625T can not only be used for applications in the field of installation, production and logistics, but also for the permanent equipping of tools, machines and plants for RFID-based asset management.

SIMATIC RF625T is available in two frequency versions for 865 to 868 MHz (ETSI) and 902 to 928 MHz (FCC).



Technical specifications

Order No.	6GT2 810-2EE00	6GT2 810-2EE01
Product-type designation	RF625T transponder	RF625T transponder
Suitability for installation	RF600	RF600
Wireless frequencies		
Operating frequency	865 ... 868 MHz	902 ... 928 MHz
Electrical data		
Range, maximum	1.5 m	1.5 m
Range note	Refer to RF600 system manual, overrange is possible	Refer to RF600 system manual, overrange is possible
Protocol for radio transmission	EPCglobal Class 1 Gen 2 / ISO 18000-6C	EPCglobal Class 1 Gen 2 / ISO 18000-6C
Transfer rate with radio transmission, maximum	320 kbit/s	320 kbit/s
Product property multitag-capable	Yes	Yes
Polarization	Linear	Linear
Product component Buffer battery	No	No
Memory		
Type of memory	EEPROM	EEPROM
Memory capacity of user memory	64 byte	64 byte
Type of memory organization	EPC memory 96/128 bits, user memory 64 bytes (512 bits), TID memory 4 bytes	EPC memory 96/128 bits, user memory 64 bytes (512 bits), TID memory 4 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁴	10 ¹⁴
Number of write cycles at ambient temperature < 40 °C, maximum	10 ⁵	10 ⁵
Data retention time at ambient temperature < 40°C, at least	10 a	10 a
Property of memory	Lock, unlock, write protection, password protection	Lock, unlock, write protection, password protection
Mechanical data		
Material	PA6.6	PA6.6
Color	Black	Black
Mounting distance for metal surfaces recommended minimum	0 mm	0 mm

RFID systems for the UHF frequency range

SIMATIC RF600 transponders

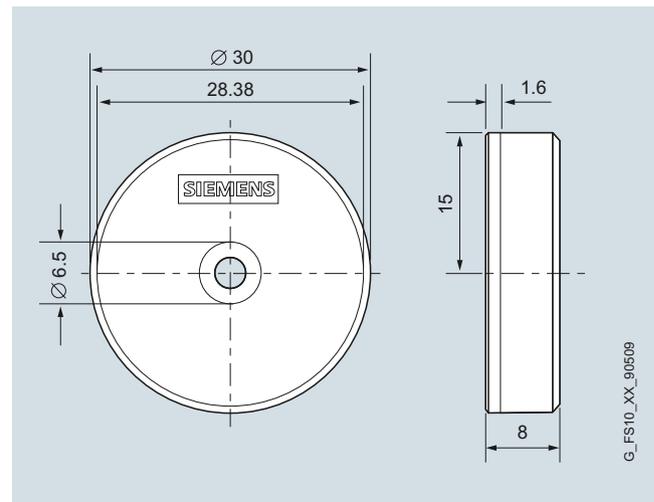
SIMATIC RF625T

Order No.	6GT2 810-2EE00	6GT2 810-2EE01
Product-type designation	RF625T transponder	RF625T transponder
Permitted ambient conditions		
Ambient temperature		
• during operating	-25 ... +85 °C	-25 ... +85 °C
• during storage	-40 ... +125 °C	-40 ... +125 °C
• during transport	-40 ... +125 °C	-40 ... +125 °C
Protection class IP	IP68	IP68
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	1000 m/s ²	1000 m/s ²
Resistance against vibration	500 m/s ²	500 m/s ²
Design, dimensions and weight		
Height	8 mm	8 mm
Diameter	30 mm	30 mm
Type of mounting	Gluing, screw M3	Gluing, screw M3
Product properties		
Product property suitable for printing	No	No

Selection and ordering data

	Order no.
SIMATIC RF625T disk transponder	
Ordering quantity 20 units or a multiple thereof.	
• Frequency 865 MHz to 868 MHz (ETSI)	6GT2810-2EE00
• Frequency 902 MHz to 928 MHz (FCC)	6GT2810-2EE01

Dimensional drawings



SIMATIC RF625T disk transponder

3

RFID systems for the UHF frequency range

SIMATIC RF600 transponders

SIMATIC RF630T

Overview



The SIMATIC RF630T screw transponder is particularly suitable for controlling and monitoring production processes. It can be automatically screwed on to products such as motors or gearbox casings by means of robots and using the M6 grub screw.

The screw transponder for industrial requirements is rugged and highly resistant to cleaning agents.

It can be attached to materials such as plastic or wood as well as directly onto metal. SIMATIC RF630T is available in two frequency versions for 865 to 868 MHz (ETSI) and 902 to 928 MHz (FCC).



Technical specifications

Order No.	6GT2 810-2EC00	6GT2 810-2EC10
Product-type designation	RF630T transponder	RF630T transponder
Suitability for installation	RF600	RF600
Wireless frequencies		
Operating frequency	865 ... 868 MHz	902 ... 928 MHz
Electrical data		
Range, maximum	1.5 m	1.5 m
Range note	Refer to RF600 system manual, overrange is possible	Refer to RF600 system manual, overrange is possible
Protocol for radio transmission	EPCglobal Class 1 Gen 2 / ISO 18000-6C	EPCglobal Class 1 Gen 2 / ISO 18000-6C
Transfer rate with radio transmission maximum	320 kbit/s	320 kbit/s
Product property multitag-capable	Yes	Yes
Polarization	Linear	Linear
Product component Buffer battery	No	No
Memory		
Type of memory	EEPROM	EEPROM
Memory capacity of user memory	64 byte	64 byte
Type of memory organization	EPC memory 96/240 bits, user memory 64 bytes (512 bits), TID memory 8 bytes	EPC memory 96/240 bits, user memory 64 bytes (512 bits), TID memory 8 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁴	10 ¹⁴
Number of write cycles at ambient temperature < 40 °C, maximum	10 ⁵	10 ⁵
Data retention time at ambient temperature < 40°C, at least	10 a	10 a
Property of memory	Lock, unlock, write protection, password protection	Lock, unlock, write protection, password protection
Mechanical data		
Material	PA6.6 GF / stainless steel	PA6.6 GF / stainless steel
Color	Black and silver	Black and silver
Mounting distance for metal surfaces recommended minimum	0 mm	0 mm

RFID systems for the UHF frequency range

SIMATIC RF600 transponders

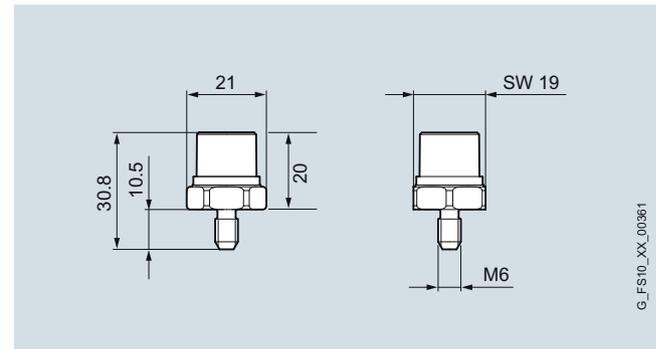
SIMATIC RF630T

Order No.	6GT2 810-2EC00	6GT2 810-2EC10
Product-type designation	RF630T transponder	RF630T transponder
Permitted ambient conditions		
Ambient temperature		
• during operating	-25 ... +85 °C	-25 ... +85 °C
• during storage	-40 ... +125 °C	-40 ... +125 °C
• during transport	-40 ... +125 °C	-40 ... +125 °C
Protection class IP	IP68 / IPx9K	IP68 / IPx9K
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	1000 m/s ²	1000 m/s ²
Resistance against vibration	200 m/s ²	200 m/s ²
Design, dimensions and weight		
Height	20 mm	20 mm
Diameter	21 mm	21 mm
Net weight	22 g	22 g
Type of mounting	Screwing (M6)	Screwing (M6)
Product properties		
Product property suitable for printing	No	No

Selection and ordering data

	Order No.
Screw transponder SIMATIC RF630T	
Ordering quantity 10 units or a multiple thereof.	
• Frequency 865 to 868 MHz (ETSI)	6GT2810-2EC00
• Frequency 902 to 928 MHz (FCC)	6GT2810-2EC10

Dimensional drawings



SIMATIC RF630T screw transponder

RFID systems for the UHF frequency range

SIMATIC RF600 transponders

SIMATIC RF640T

Overview



The SIMATIC RF640T tool transponder can be used directly on metal, and is therefore particularly suitable for tracking tools, containers and metallic equipment (asset management).

Its rugged and yet compact design, its high degree of protection and resistance to mineral oils, lubricants and cleaning agents make it the first choice in industrial environments. The European version has ATEX approval.

This tool transponder is available in two frequency variants: 865 to 868 MHz (ETSI) and 902 to 928 MHz (FCC)



Technical specifications

Order No.	6GT2 810-2DC00	6GT2 810-2DC10
Product-type designation	RF640T transponder	RF640T transponder
Suitability for installation	RF600	RF600
Wireless frequencies		
Operating frequency	865 ... 868 MHz	902 ... 928 MHz
Electrical data		
Range maximum	4 m	4 m
Range note	Refer to RF600 system manual, overrange is possible	Refer to RF600 system manual, overrange is possible
Protocol for radio transmission	EPCglobal Class 1 Gen 2 / ISO 18000-6C	EPCglobal Class 1 Gen 2 / ISO 18000-6C
Transfer rate with radio transmission maximum	320 kbit/s	320 kbit/s
Product property multitag-capable	Yes	Yes
Polarization	Linear	Linear
Product component Buffer battery	No	No
Memory		
Type of memory	EEPROM	EEPROM
Memory capacity of user memory	64 byte	64 byte
Type of memory organization	EPC memory 96/240 bits, user memory 64 bytes (512 bits), TID memory 8 bytes	EPC memory 96/240 bits, user memory 64 bytes (512 bits), TID memory 8 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁴	10 ¹⁴
Number of write cycles at ambient temperature < 40 °C, maximum	10 ⁵	10 ⁵
Data retention time at ambient temperature < 40°C at least	10 a	10 a
Property of memory	Lock, unlock, write protection, password protection	Lock, unlock, write protection, password protection
Mechanical data		
Material	PA12	PA12
Color	Black	Black
Mounting distance for metal surfaces recommended minimum	0 mm	0 mm
Permitted ambient conditions		
Ambient temperature		
• during operating	-25 ... +85 °C	-25 ... +85 °C
• during storage	-40 ... +125 °C	-40 ... +125 °C
• during transport	-40 ... +125 °C	-40 ... +125 °C

RFID systems for the UHF frequency range

SIMATIC RF600 transponders

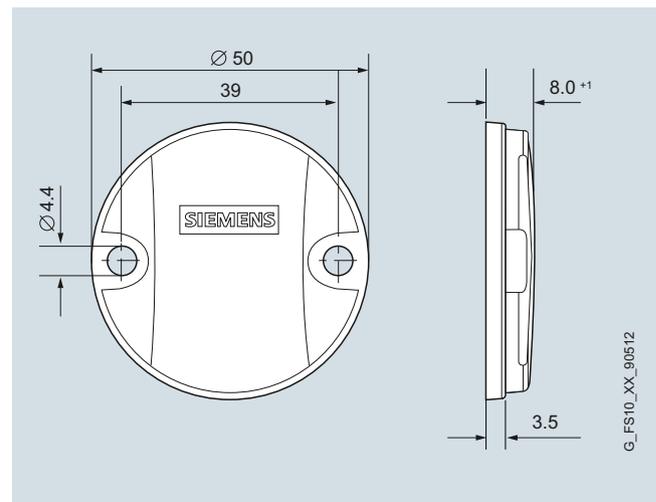
SIMATIC RF640T

Order No.	6GT2 810-2DC00	6GT2 810-2DC10
Product-type designation	RF640T transponder	RF640T transponder
Protection class IP	IP68 / IPx9K	IP68 / IPx9K
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	1000 m/s ²	1000 m/s ²
Resistance against vibration	200 m/s ²	200 m/s ²
Design, dimensions and weight		
Height	8 mm	8 mm
Diameter	50 mm	50 mm
Net weight	13 g	13 g
Type of mounting	2 screws M4	2 screws M4
Product properties		
Product feature silicon-free	Yes	Yes
Product property suitable for printing	No	No
Standards, specifications, approvals		
Verification of suitability	Ex: II 2 G Ex ib IIC T6 to T3, II 2 D Ex ibD 21 T140°C, -25 °C < Ta° < +85 °C	

Selection and ordering data

	Order No.
Tool transponder SIMATIC RF640T	
Ordering quantity 10 units or a multiple thereof.	
<ul style="list-style-type: none"> Frequency 865 MHz to 868 MHz (ETSI) 	6GT2810-2DC00
<ul style="list-style-type: none"> Frequency 902 MHz to 928 MHz (FCC) 	6GT2810-2DC10

Dimensional drawings



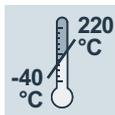
SIMATIC RF640T tool transponder

RFID systems for the UHF frequency range

SIMATIC RF600 transponders

SIMATIC RF680T

Overview



The heat-resistant transponder SIMATIC RF680T has a wide range and, thanks to the high IP68 / IPx9K degree of protection and its resistance to chemicals, it can even be used in harsh industrial applications, for example, in automotive production (including identification of skids in paint shops) or in the chemical industry. The transponder is silicon-free and withstands temperatures up to 220 °C. The storage capacity is 96/240 bit Electronic Product Code (EPC) plus 512-bit user memory. Thanks to its broadband design, the transponder can be used in numerous countries. The European version has ATEX approval.

Technical specifications

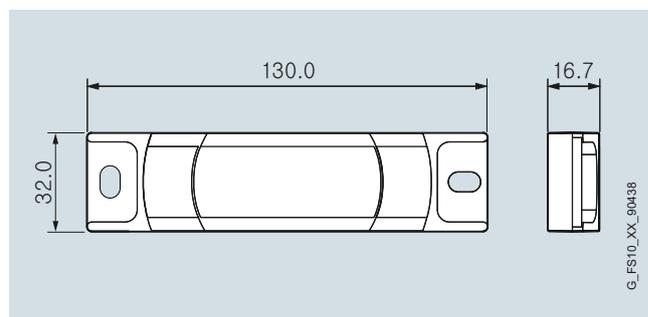
Order No.	6GT2810-2HG80
Product-type designation	RF680T transponder
Suitability for installation	RF600
Wireless frequencies	
Operating frequency	865 ... 928 MHz
Electrical data	
Range maximum	4 m
Range note	Refer to RF600 system manual, overrange is possible
Protocol for radio transmission	EPCglobal Class 1 Gen 2 / ISO 18000-6C
Transfer rate with radio transmission maximum	320 kbit/s
Product property multitag-capable	Yes
Polarization	Linear
Product component Buffer battery	No
Memory	
Type of memory	EEPROM
Memory capacity of user memory	64 byte
Type of memory organization	EPC memory 96/240 bits, user memory 64 bytes (512 bits), TID memory 8 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁴
Number of write cycles at ambient temperature < 40 °C, maximum	10 ⁵
Data retention time at ambient temperature < 40°C at least	10 a

Order No.	6GT2810-2HG80
Product-type designation	RF680T transponder
Property of memory	Lock, unlock, write protection, password protection
Mechanical data	
Material	PPS
Color	Black
Mounting distance for metal surfaces recommended minimum	0 mm
Permitted ambient conditions	
Ambient temperature	
• during operating	-40 ... +220 °C
• during storage	-40 ... +100 °C
• during transport	-40 ... +100 °C
Ambient condition for (standard) operation mode	Operating temperature permanent up to 140 °C, for 5000 hours or 3000 cycles up to 200 °C, for 2000 hours or 1500 cycles up to 220 °C
Protection class IP	IP68 / IPx9K
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	1000 m/s ²
Resistance against vibration	200 m/s ²
Mechanical stress resistance	Torsion and bending stress not permissible
Design, dimensions and weight	
Width	32 mm
Height	15 mm
Depth	130 mm
Net weight	50 g
Type of mounting	2 screws M6
Product properties, functions, components general	
Product feature silicon-free	Yes
Product property suitable for printing	No

Selection and ordering data

	Order No.
High-temperature transponder SIMATIC RF680T	6GT2810-2HG80
Frequency 865 to 928 MHz (ETSI, FCC)	
Ordering quantity 10 units or a multiple thereof.	

Dimensional drawings



High-temperature SIMATIC RF680T transponder

G-FS10_XX_90438

RFID systems for the UHF frequency range

SIMATIC RF600 readers

Readers

Overview



Reader	Features
SIMATIC RF620R	<p>The SIMATIC RF620R reader features an integrated antenna and can be linked to SIMATIC automation systems via the SIMATIC RF communication modules.</p> <ul style="list-style-type: none"> • IP65 degree of protection • Operating temperature range -25 °C to +55 °C • Dimensions L x W x H (mm): 260 x 193 x 52 • Interface RS422 • Programmable
SIMATIC RF630R	<p>In the case of the SIMATIC RF630R reader, one or two external antennas can be connected. SIMATIC RF communication modules can be used to connect the reader to SIMATIC automation systems.</p> <ul style="list-style-type: none"> • IP65 degree of protection • Operating temperature range -25 °C to +55 °C • Dimensions L x W x H (mm): 260 x 193 x 52 • Interface RS422 • Programmable
SIMATIC RF640R	<p>The SIMATIC RF640R has an integrated antenna. An Ethernet interface (XML protocol via TCP/IP) is available for the connection to the IT level.</p> <ul style="list-style-type: none"> • IP65 degree of protection • Operating temperature range -25 °C to +55 °C • Dimensions L x W x H (mm): 252 x 193 x 52 • Ethernet interface (XML protocol) • Programmable
SIMATIC RF670R	<p>SIMATIC RF670R is a powerful RFID reader and supports as many as four independent read stations. An Ethernet interface (XML protocol via TCP/IP) is available for the connection to the IT level.</p> <ul style="list-style-type: none"> • IP65 degree of protection • Operating temperature range -25 °C to +55 °C • Dimensions L x W x H (mm): 260 x 193 x 52 • Ethernet interface (XML protocol) • Programmable

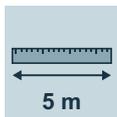
Reader	Features
SIMATIC RF680M	<p>The mobile handheld terminal has an integrated UHF module. Transponder data can be displayed and edited using a preinstalled application. Furthermore, own Windows applications can be developed for the device.</p> <p>The mobile handheld terminal forwards the transponder data to the downstream systems via either WLAN or the interface of the docking station.</p> <ul style="list-style-type: none"> • IP65 degree of protection • Operating temperature range -25 °C to +55 °C • Dimensions L x W x H (mm): 265 x 100 x 42 (without barcode scanner) • LIF interface (LIF: low insertion force) for battery charging and communication with the PC over a USB interface; additional CF slot for expansion cards (e.g. WLAN) • Programmable

RFID systems for the UHF frequency range

SIMATIC RF600 readers

SIMATIC RF620R

Overview



The UHF RFID reader SIMATIC RF620R has been specially designed for the requirements in production. The reader has an integral antenna and thus reduces the installation requirements compared to devices with an external antenna connection. The device is integrated into automation systems via the RS422 system interface. Connection to PROFIBUS, PROFINET, and Industrial Ethernet or directly to SIMATIC S7-300 is supported (via communication modules SIMATIC RF170C/180C/182C or ASM 456/475).

Special functions are available for the difficult environmental conditions encountered in production environments, such as reflections and dead zones resulting from metal or superimposed radio fields due to a high reader density. In this manner, process stability is substantially increased by automatic adaptation of the transmit power and intelligent filtering of the reading results.

The SIMATIC RF-DIAG software is available for fast and simple commissioning and diagnostics.

The reader is easily configured by selecting pre-defined profiles and using the well-known FB45 and FB55 function blocks. These can also be found on the DVD "RFID Systems Software & Documentation" which can be ordered separately. Further information on configuration, runtime response of the SIMATIC RF620R, and integration with SIMATIC PLCs can be found in the associated documentation.

Application

The stationary reader SIMATIC RF620R is ideal for use in production as well as in logistics scenarios close to the production process. Thanks to the IP65 degree of protection, the high degree of noise immunity and special algorithms, the reader is specially prepared for industrial use in metallic environments.

Mounting and integration are particularly easy using the SIMATIC RF communication modules. The device supports the established EPCglobal Class 1, Gen 2 standard and is offered in three versions: compliant with ETSI for Europe, compliant with FCC for USA/Canada, and compliant with CMIIT for China.

Technical specifications

Order No.	6GT2 811-5BA00-0AA0	6GT2 811-5BA00-1AA0	6GT2 811-5BA00-2AA1
Product-type designation	RF620R ETSI reader	RF620R FCC reader	RF620R reader CMIIT
Suitability for installation	RF600 transponder, for connecting to communication modules	RF600 transponder, for connecting to communication modules	RF600 transponder, for connecting to communication modules
Wireless frequencies			
Operating frequency	865 ... 868 MHz	902 ... 928 MHz	902 ... 928 MHz
Effective radiant power			
• minimum	65 mW	-	65 mW
• maximum	800 mW	-	800 mW
Equivalent isotropic radiant power			
• minimum	-	105 mW	-
• maximum	-	1250 mW	-
Electrical data			
Range maximum	5 m	5 m	5 m
Range note	Refer to RF600 system manual, overrange is possible	Refer to RF600 system manual, overrange is possible	Refer to RF600 system manual, overrange is possible
Protocol for radio transmission	EPCglobal Class 1 Gen 2 / ISO 18000-6C	EPCglobal Class 1 Gen 2 / ISO 18000-6C	EPCglobal Class 1 Gen 2 / ISO 18000-6C
Transfer rate with radio transmission, maximum	320 kbit/s	320 kbit/s	320 kbit/s
Product property multitag-capable	Yes	Yes	Yes
Polarization	Circular	Circular	Circular
Transmission rate at point-to-point connection, serial, maximum	115.2 kbit/s	115.2 kbit/s	115.2 kbit/s

RFID systems for the UHF frequency range

SIMATIC RF600 readers

SIMATIC RF620R

Order No.	6GT2 811-5BA00-0AA0	6GT2 811-5BA00-1AA0	6GT2 811-5BA00-2AA1
Product-type designation	RF620R ETSI reader	RF620R FCC reader	RF620R reader CMIIT
Transmission time for user data			
• for write access per byte typical	6.3 ms	6.3 ms	6.3 ms
• for read access per byte typical	1 ms	1 ms	1 ms
Interfaces			
Design of the electrical connection	M12, 8-pin	M12, 8-pin	M12, 8-pin
Standard for interfaces for communication	RS422	RS422	RS422
Mechanical data			
Material	Aluminum, ABS (GF20)	Aluminum, ABS (GF20)	Aluminum, ABS (GF20)
Color	Silver/pastel turquoise	Silver/pastel turquoise	Silver/pastel turquoise
Mounting distance for metal surfaces recommended minimum	0 mm	0 mm	0 mm
Supply voltage, current consumption, power loss			
Supply voltage for DC rated value	24 V	24 V	24 V
Supply voltage			
• for DC	21.6 ... 30 V	21.6 ... 30 V	21.6 ... 30 V
Consumed current at 24 V DC			
• typical	0.395 A	0.395 A	0.395 A
• maximum	0.47 A	0.47 A	0.47 A
Permitted ambient conditions			
Ambient temperature			
• during operating	-25 ... +55 °C	-25 ... +55 °C	-25 ... +55 °C
• during storage	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
• during transport	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
Protection class IP	IP65	IP65	IP65
Resistance against shock	EN 60068-2-27, EN 60068-2-6	EN 60068-2-27, EN 60068-2-6	EN 60068-2-27, EN 60068-2-6
Resistance against shock	500 m/s ²	500 m/s ²	500 m/s ²
Resistance against vibration	200 m/s ²	200 m/s ²	200 m/s ²
Design, dimensions and weight			
Width	193 mm	193 mm	193 mm
Height	252 mm	252 mm	252 mm
Depth	52 mm	52 mm	52 mm
Net weight	1.85 kg	1.85 kg	1.91 kg
Type of mounting	4 x M6 screws, Vesa 100 with 4 x M4 screws	4 x M6 screws, Vesa 100 with 4 x M4 screws	4 x M6 screws, Vesa 100 with 4 x M4 screws
Cable length for RS 422 interface, maximum	100 m	100 m	100 m
Product properties, functions, components general			
Type of display	3-color LED	3-color LED	3-color LED
Product feature silicon-free	Yes	Yes	Yes
Standards, specifications, approvals			
Verification of suitability	Wireless according to R&TTE guideline, CE, FCC, IC (Canada), cULus, IEC 60950	Wireless according to R&TTE guideline, CE, FCC, IC (Canada), cULus, IEC 60950	Wireless according to R&TTE guideline, CE, FCC, IC (Canada), cULus, IEC 60950

RFID systems for the UHF frequency range

SIMATIC RF600 readers

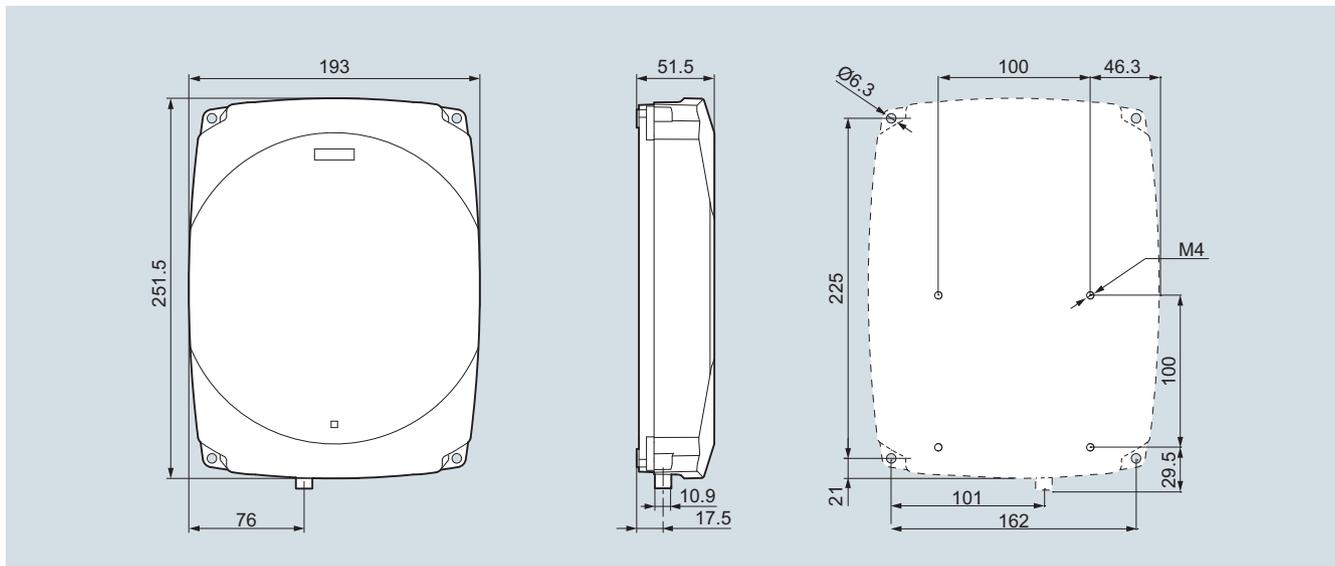
SIMATIC RF620R

Selection and ordering data

	Order No.		Order No.
SIMATIC RF620R reader (ETSI) UHF RFID reader for frequencies from 865 to 868 MHz with integrated antenna, suitable for inclusion in PLC systems via PROFIBUS, PROFINET, Ethernet/IP or TCP/IP/XML.	6GT2811-5BA00-0AA0	Accessories Note: All connection options can be found in Chapter 6 "Communication Modules".	
SIMATIC RF620R reader (FCC) UHF RFID reader for frequencies from 902 to 928 MHz with integrated antenna, suitable for inclusion in PLC systems via PROFIBUS, PROFINET, Ethernet/IP or TCP/IP/XML.	6GT2811-5BA00-1AA0	Antenna mounting kit For flexible mounting of the SIMATIC RF620R, with articulated bracket.	6GT2890-0AA00
SIMATIC RF620R reader (CMIIT) UHF RFID reader for frequencies from 920 to 925 MHz with integrated antenna, suitable for inclusion in PLC systems via PROFIBUS, PROFINET, Ethernet/IP or TCP/IP/XML.	6GT2811-5BA00-2AA1	DVD "RFID Systems Software & Documentation"	6GT2080-2AA20

3

Dimensional drawings



SIMATIC RF620R

More information

All current approvals can be found on the Internet at:
<http://www.siemens.com/rfid-approvals>

RFID systems for the UHF frequency range

SIMATIC RF600 readers

SIMATIC RF630R

Overview



The UHF RFID reader SIMATIC RF630R has been specially designed for the requirements in production. The reader can be used with one or two external antennas (SIMATIC RF620A/640A/642A/660A). The device is integrated into automation systems via the RS422 system interface. Connection to PROFIBUS, PROFINET, and Industrial Ethernet or directly to SIMATIC S7-300 is supported (via communication modules SIMATIC RF170C/180C/182C or ASM 456/475).

Special functions are available for the difficult environmental conditions encountered in production environments, such as reflections and dead zones resulting from metal or superimposed radio fields due to a high reader density. In this manner, process stability is substantially increased by automatic adaptation of the transmit power and intelligent filtering of the reading results.

The SIMATIC RF-DIAG software is available for fast and simple commissioning and diagnostics.

The reader is easily configured by selecting pre-defined profiles and using the well-known FB45 and FB55 function blocks. These can also be found on the DVD "RFID Systems Software & Documentation" which can be ordered separately. Further information on configuration, runtime response of the SIMATIC RF630R, and integration with SIMATIC PLCs can be found in the associated documentation.



Application

The stationary reader SIMATIC RF630R is ideal for use in production as well as in logistics scenarios close to the production process. Thanks to the IP65 degree of protection, the high degree of noise immunity and special algorithms, the reader is specially prepared for industrial use in metallic environments.

Mounting and integration are particularly easy using the SIMATIC RF communication modules. The device supports the established EPCglobal Class 1, Gen 2 standard and is offered in three versions: compliant with ETSI for Europe, compliant with FCC for USA/Canada, and compliant with CMIIT for China.

Technical specifications

Order No.	6GT2 811-4AA00-0AA1	6GT2 811-4AA00-1AA1	6GT2 811-4AA00-2AA1
Product-type designation	RF630R reader ETSI	RF630R FCC reader	RF630R reader CMIIT
Suitability for installation	RF600 transponder, for connecting to communication modules	RF600 transponder, for connecting to communication modules	RF600 transponder, for connecting to communication modules
Wireless frequencies			
Operating frequency	865 ... 868 MHz	902 ... 928 MHz	902 ... 928 MHz
Transmit power	65 ... 500 mW	65 ... 500 mW	65 ... 500 mW
Effective radiant power for each external antenna maximum	1200 mW	-	1200 mW
Equivalent isotropic radiant power for each external antenna maximum	-	2000 mW	-
Electrical data			
Range maximum	6 m	6 m	6 m
Range note	Refer to RF600 system manual, overrange is possible	Refer to RF600 system manual, overrange is possible	Refer to RF600 system manual, overrange is possible
Protocol for radio transmission	EPCglobal Class 1 Gen 2 / ISO 18000-6C	EPCglobal Class 1 Gen 2 / ISO 18000-6C	EPCglobal Class 1 Gen 2 / ISO 18000-6C
Transfer rate with radio transmission maximum	320 kbit/s	320 kbit/s	320 kbit/s
Product property multitag-capable	Yes	Yes	Yes
Transmission rate at point-to-point connection serial maximum	115.2 kbit/s	115.2 kbit/s	115.2 kbit/s
Transmission time for user data			
• for write access per byte typical	6.3 ms	6.3 ms	6.3 ms
• for read access per byte typical	1 ms	1 ms	1 ms

RFID systems for the UHF frequency range

SIMATIC RF600 readers

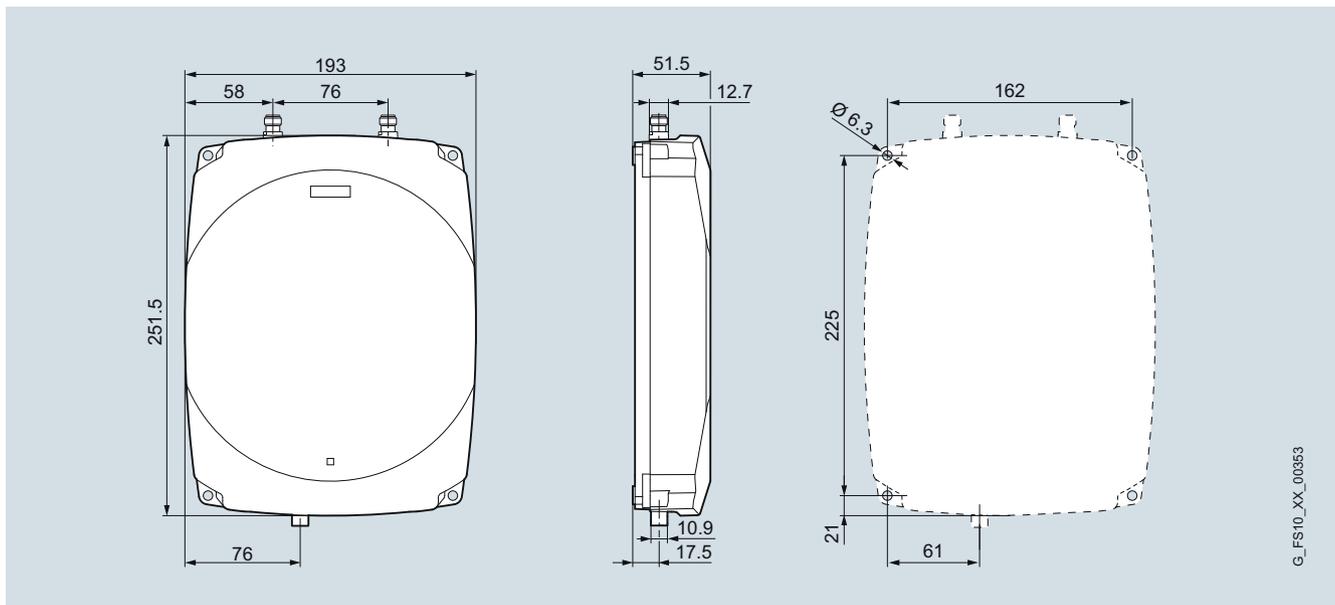
SIMATIC RF630R

Order No.	6GT2 811-4AA00-0AA1	6GT2 811-4AA00-1AA1	6GT2 811-4AA00-2AA1
Product-type designation	RF630R reader ETSI	RF630R FCC reader	RF630R reader CMIIT
Interfaces			
Design of the electrical connection for external antenna(s)	Reverse TNC	Reverse TNC	Reverse TNC
Number of external antennas	2	2	2
Standard for interfaces for communication	RS422	RS422	RS422
Mechanical data			
Material	Aluminum, ABS (GF20)	Aluminum, ABS (GF20)	Aluminum, ABS (GF20)
Color	Silver/anthracite	Silver/anthracite	Silver/anthracite
Supply voltage, current consumption, power loss			
Supply voltage for DC			
• rated value	24 V	24 V	24 V
• minimum	21.6 V	21.6 V	21.6 V
• maximum	30 V	30 V	30 V
Consumed current at 24 V DC			
• typical	0.395 A	0.395 A	0.395 A
• maximum	0.47 A	0.47 A	0.47 A
Permitted ambient conditions			
Ambient temperature			
• during operating	-25 ... +55 °C	-25 ... +55 °C	-25 ... +55 °C
• during storage	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
• during transport	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
Protection class IP	IP65	IP65	IP65
Resistance against shock	EN 60068-2-27, EN 60068-2-6	EN 60068-2-27, EN 60068-2-6	EN 60068-2-27, EN 60068-2-6
Resistance against shock	500 m/s ²	500 m/s ²	500 m/s ²
Resistance against vibration	200 m/s ²	200 m/s ²	200 m/s ²
Design, dimensions and weight			
Width	193 mm	193 mm	193 mm
Height	252 mm	252 mm	252 mm
Depth	52 mm	52 mm	52 mm
Net weight	1.64 kg	1.64 kg	1.75 kg
Type of mounting	4 x M6 screws, Vesa 100 with 4 x M4 screws	4 x M6 screws, Vesa 100 with 4 x M4 screws	4 x M6 screws, Vesa 100 with 4 x M4 screws
Cable length of antenna cable			
• minimum	3 m	3 m	3 m
• maximum	20 m	20 m	20 m
Cable length for RS 422 interface, maximum	100 m	100 m	100 m
Product properties, functions, components general			
Type of display	3-color LED	3-color LED	3-color LED
Product feature silicon-free	Yes	Yes	Yes
Standards, specifications, approvals			
Verification of suitability	Wireless according to R&TTE guideline, CE, FCC, IC (Canada), cULus, IEC 60950	Wireless according to R&TTE guideline, CE, FCC, IC (Canada), cULus, IEC 60950	Wireless according to R&TTE guideline, CE, FCC, IC (Canada), cULus, IEC 60950
Accessories			
Accessories	One or 2 external antennas	One or 2 external antennas	One or 2 external antennas

Selection and ordering data

	Order No.
SIMATIC RF630R reader (ETSI) UHF RFID reader for frequencies from 865 to 868 MHz for connecting up to two external antennas, suitable for inclusion in PLC systems via PROFIBUS, PROFINET, Ethernet/IP or TCP/IP/XML.	6GT2811-4AA00-0AA1
SIMATIC RF630R reader (FCC) UHF RFID reader for frequencies from 902 to 928 MHz for connecting up to two external antennas, suitable for inclusion in PLC systems via PROFIBUS, PROFINET, Ethernet/IP or TCP/IP/XML.	6GT2811-4AA00-1AA1
SIMATIC RF630R reader (CMIIT) UHF RFID reader for frequencies from 920 to 925 MHz for connecting up to two external antennas, suitable for inclusion in PLC systems via PROFIBUS, PROFINET, Ethernet/IP or TCP/IP/XML.	6GT2811-4AA00-2AA1
Accessories Note: All connection options can be found in Chapter 6 "Communication Modules". For proper functioning of the SIMATIC RF630R reader, we recommend using the SIMATIC RF620A / 640A / 642A / 660A antennas.	
Antenna mounting kit For flexible mounting of the SIMATIC RF630R and the antennas, with articulated bracket.	6GT2890-0AA00
DVD "RFID Systems Software & Documentation"	6GT2080-2AA20

Dimensional drawings



SIMATIC RF630R

More information

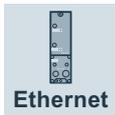
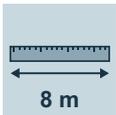
All current approvals can be found on the Internet at:
<http://www.siemens.com/rfid-approvals>

RFID systems for the UHF frequency range

SIMATIC RF600 readers

SIMATIC RF640R

Overview



SIMATIC RF640R is a powerful UHF reader with integral antenna that is suitable for applications at single recording stations, in conveyor systems or production plants. Due to its high maximum transmission power of up to 2 W ERP (ETSI) / 4 W EIRP (FCC), longer ranges can also be achieved. The high degree of protection of the overall system is a guarantee for problem-free use, even under the most difficult environmental conditions. Instead of the integral antenna, an external antenna of the RF600 series (SIMATIC RF620A, RF640A, RF642A, RF660A) can be used. The reader offers 2 digital inputs (24 V) and 2 digital outputs (typ. 24 V/0.5 A) that have protection circuits for industrial use.

The integrated processing logic of the reader enables numerous functions to be executed in the device itself. For example, the reader offers extensive, intelligent filter functions, a parameterizable state machine for forwarding the data, the automatic control of the digital outputs for signaling functions, and the extensive configuration of response message frames. The advantage: Thanks to its intelligence, this considerably reduces the cost for additional software modules (RFID middleware). The reader is configured by means of the easy-to-use SIMATIC RF-MANAGER Basic software, which is provided on a free CD supplied with each reader.

Data communication takes place via an XML protocol with TCP/IP; the reader provides an Ethernet interface for this purpose. The protocol is compatible with the SIMATIC RF670R.

Application

The stationary SIMATIC RF640R UHF reader with its integral antenna is suitable for applications in production (with PC/IT interface), production-level logistics, distribution, supply chain management, asset management, service processes or material flow control.

The digital inputs and outputs (DI/DO) are used for simple process interfacing (sensors, actuators).

The SIMATIC RF640R supports the established EPCglobal Class 1, Gen 2 standard and is offered in three versions: compliant with ETSI for Europe, compliant with FCC for USA/Canada, and compliant with CMIIT for China.

Technical specifications

Order No.	6GT2 811-3BA00-0AA0	6GT2 811-3BA00-1AA0	6GT2 811-3BA00-2AA0
Product-type designation	RF640R ETSI reader	RF640R FCC reader	RF640R reader CMIIT
Suitability for installation	RF600 transponder, for connecting to Ethernet networks	RF600 transponder, for connecting to Ethernet networks	RF600 transponder, for connecting to Ethernet networks
Wireless frequencies			
Operating frequency	865 ... 868 MHz	902 ... 928 MHz	920 ... 925 MHz
Transmit power	50 ... 1 000 mW	50 ... 1 250 mW	50 ... 1 000 mW
Effective radiant power for each external antenna maximum	2 000 mW	-	2 000 mW
Equivalent isotropic radiant power for each external antenna maximum	-	4 000 mW	-
Electrical data			
Range maximum	8 m	8 m	8 m
Range note	Refer to RF600 system manual, overrange is possible	Refer to RF600 system manual, overrange is possible	Refer to RF600 system manual, overrange is possible
Protocol for radio transmission	EPCglobal Class 1 Gen 2 / ISO 18000-6C	EPCglobal Class 1 Gen 2 / ISO 18000-6C	EPCglobal Class 1 Gen 2 / ISO 18000-6C
Transfer rate with radio transmission maximum	320 kbit/s	320 kbit/s	320 kbit/s
Product property multitag-capable	Yes	Yes	Yes
Polarization	Internal: circular, external: according to antenna	Internal: circular, external: according to antenna	Internal: circular, external: according to antenna

RFID systems for the UHF frequency range

SIMATIC RF600 readers

SIMATIC RF640R

Order No.	6GT2 811-3BA00-0AA0	6GT2 811-3BA00-1AA0	6GT2 811-3BA00-2AA0
Product-type designation	RF640R ETSI reader	RF640R FCC reader	RF640R reader CMIIT
Transmission time for user data			
• for write access per byte typical	6.3 ms	6.3 ms	6.3 ms
• for read access per byte typical	1 ms	1 ms	1 ms
Interfaces			
Number of external antennas	1	1	1
Design of electrical connection			
• for external antenna(s)	Reverse TNC	Reverse TNC	Reverse TNC
• for supply voltage	M12, 4-pin, female connector	M12, 4-pin, female connector	M12, 4-pin, female connector
Standard for interfaces for communication	Ethernet	Ethernet	Ethernet
Design of electrical connection			
• for communications interface	Push-pull RJ45	Push-pull RJ45	Push-pull RJ45
• at the digital inputs/outputs	M12, 8-pin, female connector	M12, 8-pin, female connector	M12, 8-pin, female connector
Number of digital inputs	2	2	2
Number of digital outputs	2	2	2
Mechanical data			
Material	Aluminum, ABS (GF20)	Aluminum, ABS (GF20)	Aluminum, ABS (GF20)
Color	Silver/anthracite	Silver/anthracite	Silver/anthracite
Mounting distance for metal surfaces recommended minimum	0 mm	0 mm	0 mm
Supply voltage, current consumption, power loss			
Supply voltage for DC			
• rated value	24 V	24 V	24 V
• minimum	20 V	20 V	20 V
• maximum	30 V	30 V	30 V
Consumed current at 24 V DC			
• typical	0.45 A	0.45 A	0.45 A
• maximum	1.5 A	1.5 A	1.5 A
Permitted ambient conditions			
Ambient temperature			
• during operating	-25 ... +55 °C	-25 ... +55 °C	-25 ... +55 °C
• during storage	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
• during transport	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
Ambient condition for (standard) operation mode	With operating temperature below -20 °C: Warming-up time at least 10 minutes	With operating temperature below -20 °C: Warming-up time at least 10 minutes	With operating temperature below -20 °C: Warming-up time at least 10 minutes
Protection class IP	IP65	IP65	IP65
Resistance against shock	EN 60068-2-27, EN 60068-2-6	EN 60068-2-27, EN 60068-2-6	EN 60068-2-27, EN 60068-2-6
Resistance against shock	500 m/s ²	500 m/s ²	500 m/s ²
Resistance against vibration	200 m/s ²	200 m/s ²	200 m/s ²
Design, dimensions and weight			
Width	193 mm	193 mm	193 mm
Height	252 mm	252 mm	252 mm
Depth	52 mm	52 mm	52 mm
Net weight	2.02 kg	2.01 kg	1.99 kg
Type of mounting	4 x M6 screws, Vesa 100 with 4 x M4 screws	4 x M6 screws, Vesa 100 with 4 x M4 screws	4 x M6 screws, Vesa 100 with 4 x M4 screws
Cable length of antenna cable			
• minimum	3 m	3 m	3 m
• maximum	20 m	20 m	20 m
Product properties, functions, components general			
Type of display	3-color LED	3-color LED	3-color LED
Product feature silicon-free	Yes	Yes	Yes

RFID systems for the UHF frequency range

SIMATIC RF600 readers

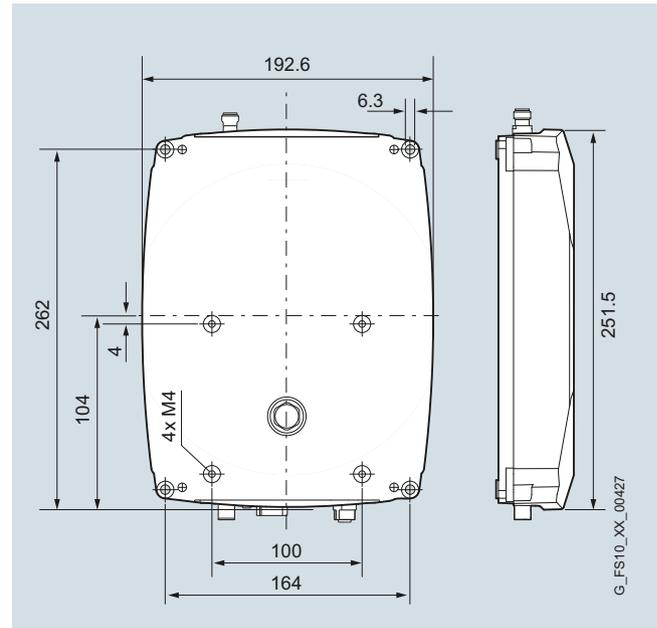
SIMATIC RF640R

Order No.	6GT2 811-3BA00-0AA0	6GT2 811-3BA00-1AA0	6GT2 811-3BA00-2AA0
Product-type designation	RF640R ETSI reader	RF640R FCC reader	RF640R reader CMIIT
Standards, specifications, approvals	Verification of suitability		
	Wireless acc. to R&TTE guideline, CE, IEC 60950	Wireless according to FCC, IC (Canada), cULus	Wireless according to CMIIT
Accessories	Optional: External antenna	Optional: External antenna	Optional: External antenna

Selection and ordering data

	Order No.
SIMATIC RF640R reader (ETSI) UHF RFID reader for frequencies from 865 to 868 MHz with integrated antenna, suitable for inclusion in PC systems via Ethernet with TCP/IP and XML protocol.	6GT2811-3BA00-0AA0
SIMATIC RF640R reader (FCC) UHF RFID reader for frequencies from 902 to 928 MHz with integrated antenna, suitable for inclusion in PC systems via Ethernet with TCP/IP and XML protocol.	6GT2811-3BA00-1AA0
SIMATIC RF640R reader (CMIIT) UHF RFID reader for frequencies from 920 to 925 MHz with integrated antenna, suitable for inclusion in PC systems via Ethernet with TCP/IP and XML protocol.	6GT2811-3BA00-2AA0
Accessories	
DI/DO cable For the connection of digital sensors and actuators to SIMATIC RF640R. M12 connector on reader side, open stranded wires on the sensor side. DI/DO cable, PUR material, black, shielded, M12, 8 x 0.14 mm ² , length 5 m.	6GT2891-0DH50
Set of protective caps For achieving IP65 degree of protection if not all connections on the reader are assigned. Content: 3x protective caps for antenna connection, 1x protective cap for DI/DO connection; design: Metal.	6GT2898-4AA00
Wide-range power supply Primary side: 100 ... 240 V AC, 120 ... 353 V DC, secondary side: 24 V DC, 3 A, with no-load protection and continuous short-circuit protection. • EU connector version • UK connector version • US connector version	6GT2898-0AA00 6GT2898-0AA10 6GT2898-0AA20
Cable for wide-range power supply 24 V DC, material: PUR, length 5 m Note: This cable is not suitable for SIMATIC RF660R.	6GT2891-0NH50
Ethernet connection • Twisted connecting cable, IP65 on reader side, length 10 m. • Push-pull cable connector for RJ45, not pre-assembled. • Covers for push-pull sockets, RJ45, 5 units per pack. Price per pack.	6GT2891-1HN10 6GK1901-1BB10-6AA0 6ES7194-4JD50-0AA0

Dimensional drawings



SIMATIC RF640R reader

More information

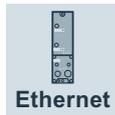
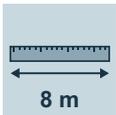
All current approvals can be found on the Internet at:
<http://www.siemens.com/rfid-approvals>

RFID systems for the UHF frequency range

SIMATIC RF600 readers

SIMATIC RF670R

Overview



SIMATIC RF670R is a high-performance RFID reader with four antenna connections which can be configured as required for individual read stations, detecting at conveyor systems, or as gates. The high transmit power of up to 2 W ERP / 4 W EIRP (dependent on antenna and cable) permits large ranges of up to 10 m in gate applications. The high degree of protection of the overall system is a guarantee for problem-free use, even under the most difficult environmental conditions.

Due to the monostatic antenna principle, as many as four independent read stations can be implemented. All antennas of the RF600 series are supported (SIMATIC RF620A, RF640A, RF642A, RF660A). The reader offers 4 digital inputs (24 V) and 4 digital outputs (typ. 24 V/0.5 A) that have protection circuits for industrial use.

The integrated processing logic of the reader enables numerous functions of the higher-level software layers to be executed in the device itself. For example, the reader offers extensive, intelligent filter functions, a parameterizable state machine for forwarding the data, the automatic control of the digital outputs for signaling functions, and the extensive configuration of response message frames. The advantage: Thanks to its intelligence, this considerably reduces the cost for additional software modules (RFID middleware). The reader is configured by means of the easy-to-use SIMATIC RF-MANAGER Basic software, which is provided on a free CD supplied with each reader.

Data communication for the RF670R is performed by means of an XML protocol with TCP/IP; the reader provides an Ethernet interface for this purpose.

3

Application

With up to four antennas, the stationary SIMATIC RF670R UHF portal reader is suitable for applications in production (with PC/IT interface), production-level logistics, distribution, supply chain management, asset management, service processes, or material flow control.

The digital inputs and outputs (DI/DO) are used for simple process interfacing (sensors, actuators).

The SIMATIC RF670R supports the established EPCglobal Class 1, Gen 2 standard and is offered in three versions: compliant with ETSI for Europe, compliant with FCC for USA/Canada, and compliant with CMIIT for China.

Technical specifications

Order No.	6GT2 811-0AB00-0AA0	6GT2 811-0AB00-1AA0	6GT2 811-0AB00-2AA0
Product-type designation	RF670R ETSI reader	RF670R FCC reader	RF670R CMIIT reader
Suitability for installation	RF600 transponder, for connecting to Ethernet networks	RF600 transponder, for connecting to Ethernet networks	RF600 transponder, for connecting to Ethernet networks
Wireless frequencies			
Operating frequency	865 ... 868 MHz	902 ... 928 MHz	920 ... 925 MHz
Transmit power	50 ... 1000 mW	50 ... 1250 mW	50 ... 1000 mW
Effective radiant power for each external antenna maximum	2000 mW	-	2000 mW
Equivalent isotropic radiant power for each external antenna maximum	-	4000 mW	-
Electrical data			
Range maximum	8 m	8 m	8 m
Range note	Refer to RF600 system manual, over-range is possible	Refer to RF600 system manual, over-range is possible	Refer to RF600 system manual, over-range is possible
Protocol for radio transmission	EPCglobal Class 1 Gen 2 / ISO 18000-6C	EPCglobal Class 1 Gen 2 / ISO 18000-6C	EPCglobal Class 1 Gen 2 / ISO 18000-6C
Transfer rate with radio transmission maximum	320 kbit/s	320 kbit/s	320 kbit/s
Product property multitag-capable	Yes	Yes	Yes

RFID systems for the UHF frequency range

SIMATIC RF600 readers

SIMATIC RF670R

Order No.	6GT2 811-0AB00-0AA0	6GT2 811-0AB00-1AA0	6GT2 811-0AB00-2AA0
Product-type designation	RF670R ETSI reader	RF670R FCC reader	RF670R CMIIT reader
Transmission time for user data			
• for write access per byte typical	6.3 ms	6.3 ms	6.3 ms
• for read access per byte typical	1 ms	1 ms	1 ms
Interfaces			
Design of the electrical connection for external antenna(s)	Reverse TNC	Reverse TNC	Reverse TNC
Number of external antennas	4	4	4
Design of electrical connection			
• for supply voltage	M12, 4-pin, female connector	M12, 4-pin, female connector	M12, 4-pin, female connector
Standard for interfaces for communication	Ethernet	Ethernet	Ethernet
• for communications interface	Push-pull RJ45	Push-pull RJ45	Push-pull RJ45
• at the digital inputs/outputs	M12, 12-pin, female connector	M12, 12-pin, female connector	M12, 12-pin, female connector
Number of digital inputs	4	4	4
Number of digital outputs	4	4	4
Mechanical data			
Material	Aluminum, ABS (GF20)	Aluminum, ABS (GF20)	Aluminum, ABS (GF20)
Color	Silver/anthracite	Silver/anthracite	Silver/anthracite
Supply voltage, current consumption, power loss			
Supply voltage for DC			
• rated value	24 V	24 V	24 V
• minimum	20 V	20 V	20 V
• maximum	30 V	30 V	30 V
Consumed current at 24 V DC			
• typical	0.45 A	0.45 A	0.45 A
• maximum	2 A	2 A	2 A
Permitted ambient conditions			
Ambient temperature			
• during operating	-25 ... +55 °C	-25 ... +55 °C	-25 ... +55 °C
• during storage	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
• during transport	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
Protection class IP	IP65	IP65	IP65
Resistance against shock	EN 60068-2-27, EN 60068-2-6	EN 60068-2-27, EN 60068-2-6	EN 60068-2-27, EN 60068-2-6
Resistance against shock	500 m/s ²	500 m/s ²	500 m/s ²
Resistance against vibration	200 m/s ²	200 m/s ²	200 m/s ²
Design, dimensions and weight			
Width	193 mm	193 mm	193 mm
Height	252 mm	252 mm	252 mm
Depth	52 mm	52 mm	52 mm
Net weight	1.8 kg	1.8 kg	1.8 kg
Type of mounting	4 x M6 screws, Vesa 100 with 4 x M4 screws	4 x M6 screws, Vesa 100 with 4 x M4 screws	4 x M6 screws, Vesa 100 with 4 x M4 screws
Cable length of antenna cable			
• minimum	3 m	3 m	3 m
• maximum	20 m	20 m	20 m
Product properties, functions, components general			
Type of display	3-color LED	3-color LED	3-color LED
Product feature silicon-free	Yes	Yes	Yes
Standards, specifications, approvals			
Verification of suitability	Wireless acc. to R&TTE guideline, CE, IEC 60950	Wireless according to FCC, IC (Canada), cULus	Wireless according to CMIIT
Accessories			
	Up to 4 external antennas	Up to 4 external antennas	Up to 4 external antennas

RFID systems for the UHF frequency range

SIMATIC RF600 readers

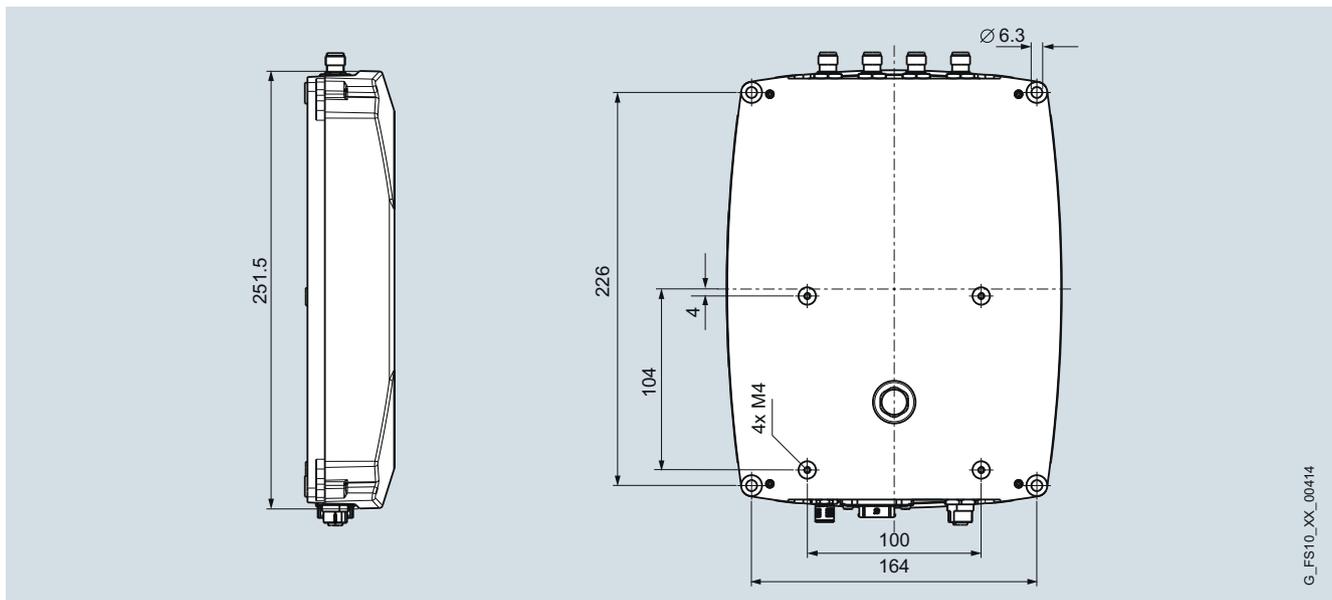
SIMATIC RF670R

Selection and ordering data

	Order No.		Order No.
SIMATIC RF670R reader (ETSI) UHF RFID reader for frequencies from 865 to 868 MHz for connecting up to four external antennas, suitable for inclusion in PC systems via Ethernet with TCP/IP and XML protocol.	6GT2811-0AB00-0AA0	Wide-range power supply Primary side: 100 ... 240 V AC, 120 ... 353 V DC, secondary side: 24 V DC, 3 A, with no-load protection, with continuous short-circuit protection	
SIMATIC RF670R reader (FCC) UHF RFID reader for frequencies from 902 to 928 MHz for connecting up to four external antennas, suitable for inclusion in PC systems via Ethernet with TCP/IP and XML protocol.	6GT2811-0AB00-1AA0	<ul style="list-style-type: none"> EU connector version UK connector version US connector version 	6GT2898-0AA00 6GT2898-0AA10 6GT2898-0AA20
SIMATIC RF670R reader (CMIIT) UHF RFID reader for frequencies from 920 to 925 MHz for connecting up to four external antennas, suitable for inclusion in PC systems via Ethernet with TCP/IP and XML protocol.	6GT2811-0AB00-2AA0	Cable for wide-range power supply 24 V DC, PUR material, length 5 m. Note: This cable is not suitable for SIMATIC RF660R.	6GT2891-0NH50
Accessories Note: For proper functioning of the SIMATIC RF670R reader, we recommend using the SIMATIC RF620A / 640A / 642A / 660A antennas.		Ethernet connection <ul style="list-style-type: none"> Twisted connecting cable, IP65 on reader side, length 10 m. Push-pull cable connector for RJ45, not pre-assembled. Covers for push-pull sockets, RJ45, 5 units per pack. Price per pack. 	6GT2891-1HN10 6GK1901-1BB10-6AA0 6ES7194-4JD50-0AA0
DI/DO cable For the connection of digital sensors and actuators to SIMATIC RF670R. M12 connector on reader side, open stranded wires on the sensor side. DI/DO cable, PUR material, black, shielded, M12, 12 x 0.14 mm ² , length 5 m.	6GT2891-0CH50	Set of protective caps For achieving IP65 degree of protection if not all connections on the reader are assigned. Content: 3x protective caps for antenna connection, 1x protective cap for DI/DO connection; design: metal.	6GT2898-4AA00

3

Dimensional drawings



SIMATIC RF670R reader

More information

All current approvals can be found on the Internet at:
<http://www.siemens.com/rfid-approvals>

RFID systems for the UHF frequency range

SIMATIC RF600 readers

SIMATIC RF680M mobile handheld terminal

Overview



SIMATIC RF680M is a powerful, mobile RFID reader for applications in the field of production logistics, warehouse management, inventories and service. The device is also an important tool for commissioning and testing of RFID systems. Thanks to the high transmit power, the RFID transponders can even be reliably detected at large distances.

Design

The mobile reader SIMATIC RF680M consists of one basic unit (based on PSION Workabout PRO 3) and one RFID unit for SIMATIC RF600 transponders and SmartLabels. It has a rugged, splashproof housing, an LCD color display with touch functionality and an alphanumeric keyboard with function keys.

Function

The supplied and pre-installed RF600 software provides service and test functions for reading and writing the RF600 transponders and SmartLabels. Data that have been read can be saved in file structures.

In addition, an already installed API library is included. This allows the customer to program his/her own RFID applications for the mobile handheld terminal. For access to further device functions, a Software Development Kit (SDK) can be ordered from PSION Teklogix.

Based on the operating system and communication standards (WIN CE), the device ensures easy integration in existing or planned IT networks or in the process infrastructure. For this purpose, various optional development tools are available for the PC as well as a wide range of accessories directly from PSION Teklogix and Microsoft.

Technical specifications

Order No.	6GT2 813-0BC00	6GT2 813-0BC10
Product-type designation	RF680M ETSI mobile hand-held terminal	Mobile hand-held terminal RF680M FCC
Suitability for installation	RF600 transponder	RF600 transponder
Wireless frequencies		
Operating frequency	865 ... 868 MHz	902 ... 928 MHz
Effective radiant power, minimum	10 mW	-
Effective radiant power, maximum	500 mW	-
Equivalent isotropic radiant power, minimum	-	16 mW
Equivalent isotropic radiant power, maximum	-	820 mW
Electrical data		
Range, maximum	600 mm	600 mm
Protocol for radio transmission	EPCglobal Class 1 Gen 2 / ISO 18000-6C	EPCglobal Class 1 Gen 2 / ISO 18000-6C
Transfer rate with radio transmission, maximum	400 kbit/s	400 kbit/s
Product property multitag-capable	Yes	Yes
Polarization	Linear	Linear
Supply voltage, current consumption, power loss		
Type of current supply	Battery operation or mains operation via docking station	Battery operation or mains operation via docking station
Type of battery	Lithium ion battery, fast charging capability	Lithium ion battery, fast charging capability
• as back-up battery, integrated	Lithium ion battery, permanently installed, cannot be replaced by customer	Lithium ion battery, permanently installed, cannot be replaced by customer
Battery capacity	3 Ah	3 Ah
Operating period with standard battery, typical	8 h	8 h
Permitted ambient conditions		
Ambient temperature		
• during operating	-20 ... +50 °C ...	-20 ... +50 °C ...
• during storage	-40 ... +60 °C ...	-40 ... +60 °C ...
Protection class IP	IP54	IP54
Height of fall, maximum	1.5 m	1.5 m
Design, dimensions and weight		
Width	92 mm	92 mm
Height	265 mm	265 mm
Depth	42 mm	42 mm

RFID systems for the UHF frequency range

SIMATIC RF600 readers

SIMATIC RF680M mobile handheld terminal

Order No.	6GT2 813-0BC00	6GT2 813-0BC10
Product-type designation	RF680M ETSI mobile hand-held terminal	Mobile hand-held terminal RF680M FCC
Net weight	0.6 kg	0.6 kg
Product properties, functions, components general		
Design of the display	VGA color touch screen 3.6", 480 x 640 pixels	VGA color touch screen 3.6", 480 x 640 pixels
Design of the control elements	Alphanumeric	Alphanumeric
Design of acoustic signaling element	Speakers	Speakers
Design of the interface	Tether port with RS232 and USB 1.1, docking connection with low insertion force (LIF)	Tether port with RS232 and USB 1.1, docking connection with low insertion force (LIF)
Memory capacity		
• of the RAM work memory	256 Mibyte	256 Mibyte
• of data and program memory	1 000 Mibyte	1 000 Mibyte
• of the data memory can be used/available	900 Mibyte	900 Mibyte
Product functions management, configuration		
Operating system pre-installed	Windows Embedded CE 5.0	Windows Embedded CE 5.0
Product function of the software	RF610M.exe for execution of RF600 transponders	RF610M.exe for execution of RF600 transponders
Type of programming	.NET and C++ programming with Microsoft Visual Studio over API 'RFID reader interface'	.NET and C++ programming with Microsoft Visual Studio over API 'RFID reader interface'
Verification of suitability	EMC: EN 55022, EN 301 489, Safety: EN 60950, RF: EN 300 220, FCC Part 15, UL/CSA	EMC: EN 55022, EN 301 489, Safety: EN 60950, RF: EN 300 220, FCC Part 15, UL/CSA
Accessories	Charging/docking station, WLAN module, barcode scanner	Charging/docking station, WLAN module, barcode scanner

Selection and ordering data

	Order No.
Mobile handheld terminal SIMATIC RF680M (ETSI) Basic unit (PSION Workabout Pro 3) with UHF RFID module (EPCglobal Class 1, Gen 2 / ISO 18000-6C), battery, standard software pre-installed, without charging/docking station, frequency 865 to 868 MHz (ETSI).	6GT2813-0BC00
Mobile handheld terminal SIMATIC RF680M (FCC) Basic unit (PSION Workabout Pro 3) with UHF RFID module (EPCglobal Class 1, Gen 2 / ISO 18000-6C), battery, standard software pre-installed, without charging/docking station, frequency 902 to 928 MHz (FCC).	6GT2813-0BC10
Accessories	
Barcode scanner with pistol grip Barcode module for mounting on SIMATIC RF680M with pistol grip and release button.	6GT2898-0DB00
WLAN module WLAN interface for mounting in the CF slot. Communication to IEEE 802.11 b/g.	6GT2898-0DA00

	Order No.
Charging/docking station For a mobile reader as well as for spare batteries. Including a plug-in power supply with a wide-range input of 100 to 240 V AC and country-specific adapters as well as USB interface and USB cable.	6GT2898-0BA00
Replacement battery for SIMATIC RF680M mobile handheld terminal	6GT2898-0CA00
DVD "RFID Systems Software & Documentation"	6GT2080-2AA20

Accessories

For optional components, visit:
<http://www.psiointeklogix.com>

More information

All current approvals can be found on the Internet at:
<http://www.siemens.com/rfid-approvals>

RFID systems for the UHF frequency range

SIMATIC RF600 antennas

Introduction

Overview



SIMATIC RF600 UHF antennas are used in many different applications in production, material handling, and logistics. Thanks to their rugged design and high degree of protection, they are also suitable for harsh industrial environments.

Antenna	Features
SIMATIC RF620A	<p>Particularly compact antenna for applications in production, e.g. assembly lines or conveyor systems.</p> <ul style="list-style-type: none"> • Transmission frequency 865 ... 868 MHz (ETSI); 902 ... 928 MHz (FCC) • Linear polarization • IP67 degree of protection • Temperature range -25 ... +75 °C • Dimensions L x W x H (mm): 75 x 75 x 20
SIMATIC RF640A	<p>Universal and compact standard antenna for wide ranges.</p> <ul style="list-style-type: none"> • Transmission frequency 865 ... 928 MHz (ETSI, FCC) • Circular polarization • IP65 degree of protection • Temperature range -25 ... +75 °C • Dimensions L x W x H (mm): 185 x 185 x 45
SIMATIC RF642A	<p>Compact antenna with linear polarization for strongly reflective environments.</p> <ul style="list-style-type: none"> • Transmission frequency 865 ... 928 MHz (ETSI, FCC) • Linear polarization • IP65 degree of protection • Temperature range -25 ... +75 °C • Dimensions L x W x H (mm): 185 x 185 x 45
SIMATIC RF660A	<p>Antenna with increased degree of protection (IP67).</p> <ul style="list-style-type: none"> • Transmission frequency 865 ... 868 MHz (ETSI); 902 ... 928 MHz (FCC) • Circular polarization • IP67 degree of protection • Temperature range -25 ... +75 °C • Dimensions L x W x H (mm): 313 x 313 x 80

RFID systems for the UHF frequency range

SIMATIC RF600 antennas

SIMATIC RF620A

Overview



The SIMATIC RF620A antenna is characterized by an especially compact enclosure. It is particularly suitable for use in production, e.g. on assembly lines or track-guided conveyor systems. The effects of reflections and overshooting can be reliably reduced thanks to the linear polarization and high degree of signal attenuation.

The antenna can be operated with the UHF readers of the SIMATIC RF600 range.

Technical specifications

Order No.	6GT2 812-1EA00	6GT2 812-1EA01
Product-type designation	Antenna RF620A, ETSI	Antenna RF620A, FCC
Suitability for installation	SIMATIC RF600	SIMATIC RF600
Wireless frequencies		
Transmission frequency	865 ... 868 MHz	902 ... 928 MHz
Electrical data		
Impedance	50 Ω	50 Ω
Polarization	Linear	Linear
Antenna gain compared to spherical radiator with linear radiation	-5 dB	-5 dB
Standing wave ratio VSWR, maximum	2	2
Beam angle of antenna		
• horizontal	100°	130°
• vertical	75°	105°
Design of electrical connection of antenna	R-TNC	R-TNC
Mechanical data		
Material	PA 12	PA 12
Color	Pastel turquoise	Pastel turquoise
Tightening torque of screw for mounting the equipment, maximum	2 Nm	2 Nm
Mounting distance for metal surfaces recommended, minimum	0 m	0 m
Design of the plug-in connection	Male	Male
Permitted ambient conditions		
Ambient temperature		
• during operating	-20 ... +70 °C	-20 ... +70 °C
• during storage	-40 ... +85 °C	-40 ... +85 °C
• during transport	-40 ... +85 °C	-40 ... +85 °C
Protection class IP	IP67	IP67
Resistance against shock	According to EN 60068-2-27	According to EN 60068-2-27
Resistance against shock	500 m/s ²	500 m/s ²
Resistance against vibration	200 m/s ²	200 m/s ²
Design, dimensions and weight		
Width	75 mm	75 mm
Height	75 mm	75 mm
Depth	20 mm	20 mm
Net weight	100 g	100 g
Type of mounting	2 screws M5	2 screws M5

RFID systems for the UHF frequency range

SIMATIC RF600 antennas

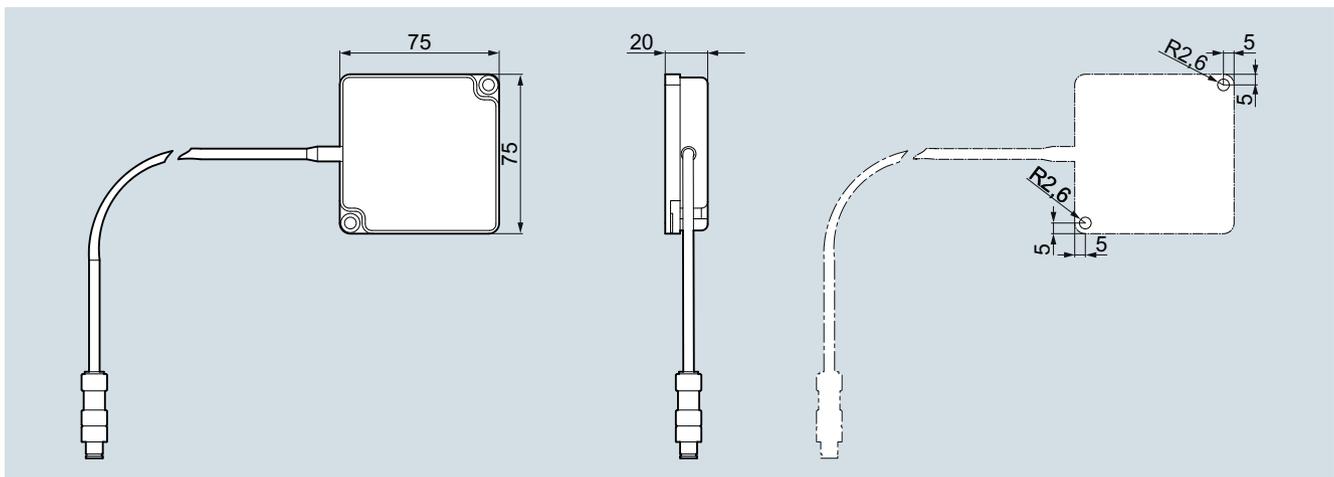
SIMATIC RF620A

Order No.	6GT2 812-1EA00	6GT2 812-1EA01
Product-type designation	Antenna RF620A, ETSI	Antenna RF620A, FCC
Product properties, functions, components general		
Product feature silicon-free	Yes	Yes
Verification of suitability	CE (ETSI EN 302208)	FCC (Title 47, Part 15.247), cULus

Selection and ordering data

	Order No.		Order No.
Compact antenna SIMATIC RF620A (ETSI)	6GT2812-1EA00	<ul style="list-style-type: none"> Length 3 m, Ø 5 mm, attenuation 1 dB Length 10 m, Ø 7.6 mm, attenuation 2 dB 	6GT2815-0BH30
Linear polarized UHF antenna for frequency range 865 to 868 MHz.			6GT2815-1BN10
Compact antenna SIMATIC RF620A (FCC)	6GT2812-1EA01	PVC material, UV-resistant, 50 Ohm (wave) impedance, 5.5 mm cable sheath diameter, reverse TNC, UL-certified. <ul style="list-style-type: none"> 5 m long, 1.5 dB attenuation 15 m long, 4.5 dB attenuation 	6GT2815-2BH50
Linear polarized UHF antenna for frequency range 902 to 928 MHz.			6GT2815-2BN15
Accessories			
Note: To ensure optimal functioning of the antenna, it is recommended that a Siemens antenna cable is used.			
Antenna cable			
PE material, UV-resistant, halogen-free, 50 Ω impedance, reverse TNC, UL-certified.			
<ul style="list-style-type: none"> Length 1 m, Ø 5 mm, attenuation 0.5 dB 	6GT2815-0BH10		

Dimensional drawings



SIMATIC RF620A antenna

More information

All current approvals can be found on the Internet at:

<http://www.siemens.com/rfid-approvals>

RFID systems for the UHF frequency range

SIMATIC RF600 antennas

SIMATIC RF640A, SIMATIC RF642A

Overview



The SIMATIC RF640A/RF642A are rugged and compact antennas for industrial applications in production and logistics.

- The SIMATIC RF640A is a universal antenna for numerous applications.
- The SIMATIC RF642A is, with its linear polarization, particularly suitable for severely metallic environments.

Both antennas can be used in Europe and the USA (broadband) and with the readers of the SIMATIC RF600 range.

Technical specifications

Order No.	6GT2 812-0GA08	6GT2 812-1GA08
Product-type designation	Antenna RF640A	Antenna RF642A
Suitability for installation	SIMATIC RF600	SIMATIC RF600
Wireless frequencies		
Transmission frequency	865 ... 928 MHz	865 ... 928 MHz
Electrical data		
Impedance	50 Ω	50 Ω
Polarization	Circular	Linear
Antenna gain compared to spherical radiator with linear radiation	-	4.3 dB
Antenna gain compared to spherical radiator with circular radiation	4 dB	-
Standing wave ratio VSWR, maximum	1.5	1.5
Beam angle of antenna		
• horizontal	70°	70°
• vertical	70°	70°
Design of electrical connection of antenna	R-TNC	R-TNC
Mechanical data		
Material	PA 12	PA 12
Color	Pastel turquoise	Pastel turquoise
Mounting distance for metal surfaces, recommended, minimum	0 m	0 m
Design of the plug-in connection	Male	Male
Permitted ambient conditions		
Ambient temperature		
• during operating	-25 ... +75 °C	-25 ... +75 °C
• during storage	-40 ... +85 °C	-40 ... +85 °C
• during transport	-40 ... +85 °C	-40 ... +85 °C
Protection class IP	IP65	IP65
Resistance against shock	According to EN 60068-2-27	According to EN 60068-2-27
Resistance against shock	300 m/s ²	500 m/s ²
Resistance against vibration	100 m/s ²	100 m/s ²
Design, dimensions and weight		
Width	185 mm	185 mm
Height	185 mm	185 mm
Depth	45 mm	45 mm
Net weight	600 g	600 g
Type of mounting	4 screws M4 (matching Vesa 100), optionally with swivelling arm provided by Antenna Mounting Kit	4 screws M4 (matching Vesa 100), optionally with swivelling arm provided by Antenna Mounting Kit

RFID systems for the UHF frequency range

SIMATIC RF600 antennas

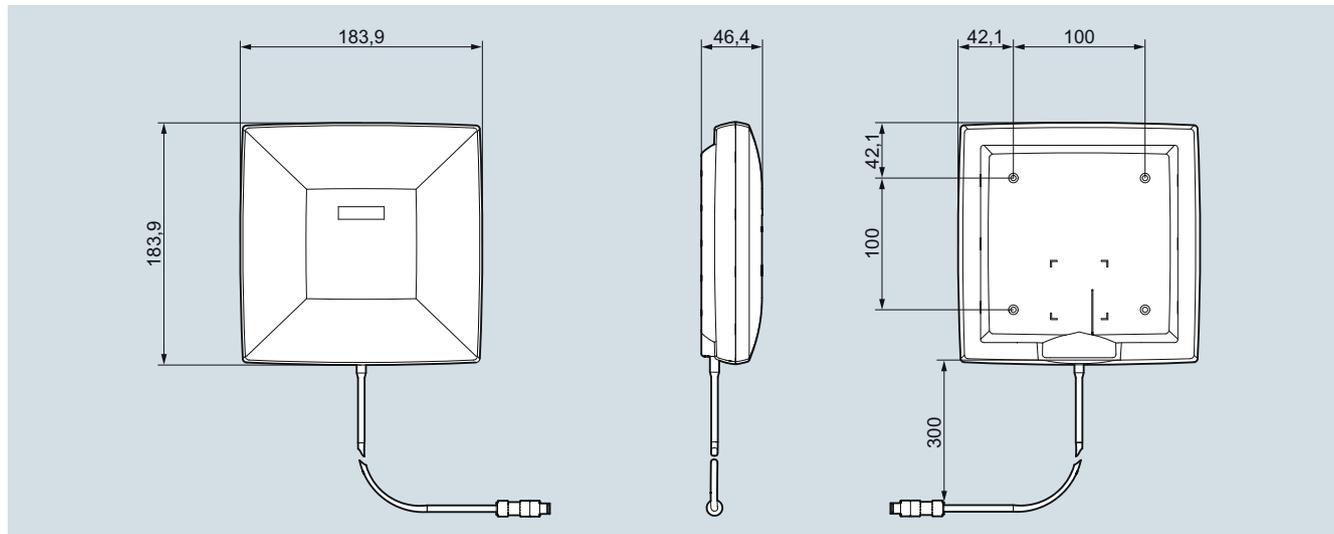
SIMATIC RF640A, SIMATIC RF642A

Order No.	6GT2 812-0GA08	6GT2 812-1GA08
Product-type designation	Antenna RF640A	Antenna RF642A
Product properties, functions, components general		
Product feature silicon-free	Yes	Yes
Verification of suitability	CE (according to R&TTE), FCC (Title 47, Part 15.247), cULus	CE (according to R&TTE), FCC (Title 47, Part 15.247), cULus

Selection and ordering data

	Order No.		Order No.
SIMATIC RF640A Circularly polarized antenna for UHF frequency 865 MHz to 928 MHz (ETSI, FCC).	6GT2812-0GA08	• Length 3 m, Ø 5 mm, attenuation 1 dB	6GT2815-0BH30
SIMATIC RF642A Linearly polarized antenna for UHF frequency 865 MHz to 928 MHz (ETSI, FCC).	6GT2812-1GA08	• Length 10 m, Ø 5 mm, attenuation 4 dB	6GT2815-0BN10
Accessories Note: To ensure proper functioning of the antennas, it is recommended that Siemens antenna cables are used.		• Length 10 m, Ø 7.6 mm, attenuation 2 dB	6GT2815-1BN10
Antenna cable PE material, UV-resistant, halogen-free, 50 Ω impedance, reverse TNC, UL certified. • Length 1 m, Ø 5 mm, attenuation 0.5 dB	6GT2815-0BH10	• Length 20 m, Ø 7.6 mm, attenuation 4 dB	6GT2815-0BN20
		PVC material, UV-resistant, 50 Ohm (wave) impedance, 5.5 mm cable sheath diameter, reverse TNC, UL-certified.	
		• 5 m long, 1.5 dB attenuation	6GT2815-2BH50
		• 15 m long, 4.5 dB attenuation	6GT2815-2BN15
		Antenna mounting kit For flexible mounting, with articulated bracket.	6GT2890-0AA00

Dimensional drawings



SIMATIC RF640A antenna

More information

All current approvals can be found on the Internet at:
<http://www.siemens.com/rfid-approvals>

RFID systems for the UHF frequency range

SIMATIC RF600 antennas

SIMATIC RF660A

Overview



The universal UHF antenna SIMATIC RF660A is suitable for numerous applications in production and logistics that require a greater range. Typical applications are conveyor systems in material handling and logistics systems as well as gates, such as in the incoming goods department.

Thanks to their rugged design and high degree of protection, the SIMATIC RF660A antennas are also suitable for harsh industrial environments. The antenna can be operated with the readers of the SIMATIC RF600 range.

Technical specifications

Order No.	6GT2 812-0AA00	6GT2 812-0AA01
Product-type designation	Antenna RF660A 865-868 EU	Antenna RF660A 902-928 US
Suitability for installation	SIMATIC RF600	SIMATIC RF600
Wireless frequencies		
Transmission frequency	865 ... 868 MHz	902 ... 928 MHz
Electrical data		
Impedance	50 Ω	50 Ω
Polarization	Circular	Circular
Antenna gain compared to spherical radiator with circular radiation	7 dB	6 dB
Standing wave ratio VSWR, maximum	2	2
Beam angle of antenna		
• horizontal	60°	70°
• vertical	60°	70°
Design of electrical connection of antenna		
Mechanical data		
Material		
Color	Pastel turquoise	Pastel turquoise
Mounting distance for metal surfaces recommended minimum	0 m	0 m
Design of the plug-in connection	Male	Male
Permitted ambient conditions		
Ambient temperature		
• during operating	-25 ... +75 °C	-25 ... +75 °C
• during storage	-40 ... +85 °C	-40 ... +85 °C
• during transport	-40 ... +85 °C	-40 ... +85 °C
Protection class IP	IP67	IP67
Resistance against shock	According to EN 60068-2-27	According to EN 60068-2-27
Resistance against shock	300 m/s ²	300 m/s ²
Resistance against vibration	1 m/s ²	1 m/s ²
Design, dimensions and weight		
Width	313 mm	313 mm
Height	313 mm	313 mm
Depth	80 mm	80 mm
Net weight	1.6 kg	1.6 kg
Type of mounting	4 screws M4 (matching Vesa 100), optionally with swivelling arm provided by Antenna Mounting Kit	4 screws M4 (matching Vesa 100), optionally with swivelling arm provided by Antenna Mounting Kit

RFID systems for the UHF frequency range

SIMATIC RF600 antennas

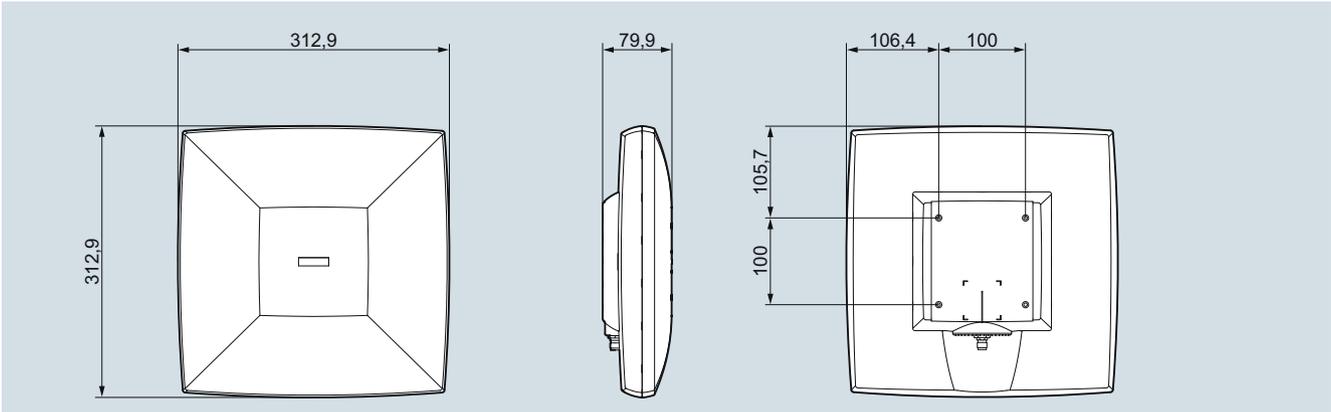
SIMATIC RF660A

Order No.	6GT2 812-0AA00	6GT2 812-0AA01
Product-type designation	Antenna RF660A 865-868 EU	Antenna RF660A 902-928 US
Product properties, functions, components general		
Product feature silicon-free	Yes	Yes
Standards, specifications, approvals		
Verification of suitability	CE (ETSI EN 302208)	FCC (Title 47, Part 15.247), cULus

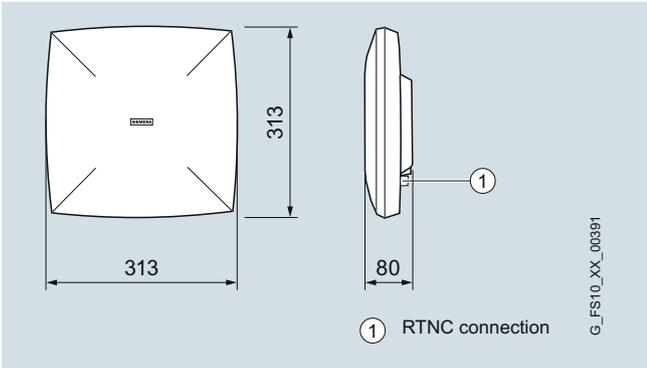
Selection and ordering data

	Order No.
Antenna SIMATIC RF660A (ETSI)	6GT2812-0AA00
Circular polarized UHF antenna for frequency range 865 to 868 MHz.	
Antenna SIMATIC RF660A (FCC)	6GT2812-0AA01
Circular polarized UHF antenna for frequency range 902 to 928 MHz.	
Accessories	
Note:	
To ensure proper functioning of the SIMATIC RF660A antenna, it is recommended that Siemens antenna cables are used.	
Antenna cable	
PE material, UV-resistant, halogen-free, 50 Ω impedance, reverse TNC, UL certified.	
• Length 1 m, Ø 5 mm, attenuation 0.5 dB	6GT2815-0BH10
• Length 3 m, Ø 5 mm, attenuation 1 dB	6GT2815-0BH30
• Length 10 m, Ø 5 mm, attenuation 4 dB	6GT2815-0BN10
• Length 10 m, Ø 7.6 mm, attenuation 2 dB	6GT2815-1BN10
• Length 20 m, Ø 7.6 mm, attenuation 4 dB	6GT2815-0BN20
PVC material, UV-resistant, 50 Ohm (wave) impedance, 5.5 mm cable sheath diameter, reverse TNC, UL-certified.	
• 5 m long, 1.5 dB attenuation	6GT2815-2BH50
• 15 m long, 4.5 dB attenuation	6GT2815-2BN15
Antenna mounting kit	6GT2890-0AA00
For flexible mounting, with articulated bracket.	

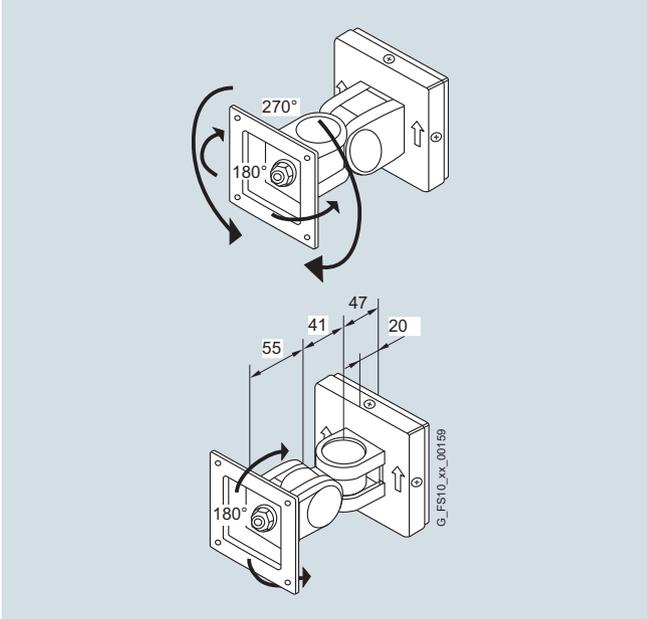
Dimensional drawings



SIMATIC RF660A antenna



SIMATIC RF660A antenna, position of connection



Antenna mounting kit

More information

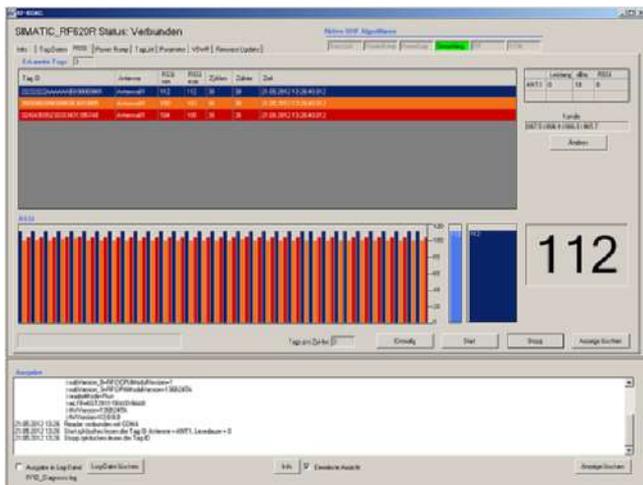
All current approvals can be found on the Internet at:
<http://www.siemens.com/rfid-approvals>

RFID systems for the UHF frequency range

SIMATIC RF600 software

SIMATIC RF-DIAG software

Overview



SIMATIC RF-DIAG is a software product for fast and simple commissioning and diagnostics of RF600 readers with connection to SIMATIC S7.

The scope of delivery includes a PC adapter for RF-DIAG which permits connection of the SIMATIC RF620R and RF630R readers to a PC. If the adapter is used in the communication cable between reader and communication module, it does not influence the function of the read point. As soon as a PC is connected to the adapter using a USB cable, reader communication to the PC is diverted; the reader power supply is still provided via the communication module. Power from an external power supply unit is possible for pure PC operation without communication module.

Application

SIMATIC RF-DIAG can determine the optimum orientation of antennas at the read points extremely quickly by means of the RSSI value (Received Signal Strength Indicator). The functionality of a read point can be verified using simple software functions.

All new functions of SIMATIC RF600 are supported.

Commissioning and diagnostics of the readers is greatly facilitated by the use of RF-DIAG, whatever the specific application.

Technical specifications

SIMATIC RF-DIAG	
General data	
Current version	v1.0
Supported devices	SIMATIC RF620R, RF630R, RF640R, RF670R
Target systems	Standard PC
Functions	Commissioning and diagnostics of RFID devices
Type of delivery	
• Product CD	• Software RF-DIAG
• PC adapter for RF-DIAG	• Documentation as PDF
	• PC adapter box (IP65)
	• Protective cover for USB connector
	• Cable (2 m) between ASM and PC adapter
	• USB cable
Languages	
• Software	• German
	• English
• Documentation	• German
	• English
	• Chinese
Hardware requirements	
Processor	> 1 GHz
Graphics	Minimum resolution 1024 * 786; 1280 * 1024 recommended
Main memory	> 1 GB
Memory requirements on hard disk	50 MB
Additional hardware	CD-ROM drive
Software requirements	
Operating system	• Windows XP Professional (SP3 and higher)
	• Windows 7 Professional 32-bit (SP1 and higher)
	• Windows 7 Professional 64-bit (SP1 and higher)
Additional software	Microsoft .NET Framework 2.0

Selection and ordering data

	Order No.
SIMATIC RF-DIAG	6GT2080-3GA00
Software for commissioning and diagnostics of RF600 readers with connection to SIMATIC S7	
Accessories	
Wide-range power supply	
Primary side: 100 ... 240 V AC, 120 ... 353 V DC, secondary side: 24 V DC, 3 A, with no-load protection and continuous short-circuit protection	
• EU connector version	6GT2898-0AA00
• UK connector version	6GT2898-0AA10
• US connector version	6GT2898-0AA20
Adapter cable for wide-range power supply	6GT2891-0PH50
For power supply of RF620R/RF630R for operation with PC adapter without communication module	

RFID system for the microwave frequency range



4/2	MOBY U
4/4	<u>MOBY U transponders</u>
4/5	MDS U315 / MDS U525
4/7	MDS U589
4/10	<u>MOBY U reader</u>
4/10	SLG U92
4/14	STG U mobile handheld terminal
4/16	<u>MOBY U configuring notes</u>

RFID system for the microwave frequency range

MOBY U

Introduction

Overview



MOBY U is used to implement identification tasks with medium to high performance in the microwave range (2.4 ... 2.4835 GHz) that require particularly high ranges.

MOBY U takes appropriate technical measures to eliminate familiar sources of interference, such as reflections, electromagnetic interference and overreach. Measurement of the distance between reader and transponder as well as active range limiting make the system particularly resistant to interference, even in difficult ambient conditions.

Correspondingly constructed antennas ensure a homogeneous transmission field to guarantee reliable recognition of the transponders (MDS) even from unfavorable locations.

In addition, special coding procedures ensure that data transmission functions perfectly and data integrity is ensured. To achieve this, methods and algorithms that have been tried and tested in mobile radio technology (GSM, UMTS) have been transferred to the identification technology.

The MOBY U UHF identification system features:

- 2.4 GHz identification system with a read/write distance of up to 3 m.
- Designed for the upper and medium performance ranges.
- Extensive range of rugged transponders for a vast range of applications.
- Special heat-resistant transponders for use in the automobile industry (paint shops).
- Very high level of reliability even in the presence of contamination, temperature fluctuations, and electromagnetic interference.
- Simple integration in SIMATIC, PROFIBUS, PROFINET and TCP/IP with the help of tried and tested function blocks (FC/FB 45, FC/FB 55).
- Can be connected via serial interface to any system, e.g. PC with Windows NT/2000/XP.
- Mobile hand-held terminal available.
- High memory capacity.
- Innovative technology (GSM/UMTS technology) guarantees simple installation/migration and maintenance-free operation for many years:
 - Active suppression of overreach.
 - Automatic frequency hopping.
 - Homogeneous transmission field with circular polarization.
 - Multitag-capability, max. 12 transponders.
 - Automatic synchronization of up to 3 readers.
 - Service functions for fast error analysis.
- Extensive range of rugged transponders for a vast range of applications.

Benefits

g e t **get** Designed for Industry

- Rugged transponders with large data memories (up to 32 KB) and high degree of protection (up to IP68) and thermal stability +220 °C with ATEX approval.
- Unlimited write/read cycles for the transponder thanks to RAM technology.
- Powerful read/write devices with high data transmission rates up to 8000 bytes/s.
- Read/write distances of 0.15 to 3 m can be parameterized.
- Active suppression of overshoot; parameterizable write distances of 0.15 to 3 m.
- Parallel operation with WLAN and Bluetooth is possible.
- Simplified engineering, commissioning, diagnostics and maintenance through seamless integration into Totally Integrated Automation:
 - Integrated bus connection to an automation system, such as SIMATIC, SIMOTION or SINUMERIK via communication modules with PROFIBUS and PROFINET.
 - Simple S7 software integration via ready-to-use function blocks
 - Extensive status and diagnostic functions.
- High degree of investment protection thanks to
 - Open standard ISO 18000-4
 - Software compatibility between the RFID systems of Siemens
 - Standardized communication interfaces.
- Openness through connection possibilities to different bus systems from different manufacturers and PC environments via communication modules.
- Worldwide Service and Support.

Application

The MOBY U identification system has been specially designed for applications in automobile production, logistics etc., where considerable demands are made, for example, in terms of immunity to noise, large read/write distances with moving transponders, fast and secure data transmission, simple installation and reliable functioning, even in harsh environments. It uses the globally approved ISM frequency band at 2.4 GHz.

MOBY U covers a transmission range from a few centimeters up to three meters and thus satisfies the requirement for an integrated identification solution, e.g. in automotive production.

Depending on the requirement, various transponders (max. 32 KB RAM) and readers are available for connection to SIMATIC, PROFIBUS, Industrial Ethernet and PCs/PLCs.

The main applications for MOBY U are:

- Main assembly lines in the automotive industry (body in white, surface and assembly).
- Vehicle identification/access control in transport companies, vehicle depots, etc.
- Container/carrier identification in transport logistics and distribution.
- Traffic control systems.
- Assembly lines.

Design

The MOBY U SLG U92 readers have an integrated antenna.

The high IP65 degree of protection of the reader enables it to be used in harsh industrial environments.

Two LEDs indicate the current status (e.g. transponders in the field) and make start-up easier.

The MOBY U readers can be connected to the automation level via communication modules. For quick and easy cabling, pre-assembled cables are available in various lengths.

MOBY U transponders with a rugged casing are used as the mobile data carriers – and are also heat-resistant up to 220 °C. The active transponders are equipped with a battery with a service life of between 3 and 8 years.

The transponders are attached to the object to be identified, e.g. by means of screws or pre-assembled spacers.

Function

The MOBY U readers are suitable for reliable reading and writing tasks with ranges up to 3 m and use the microwave band from 2.4 to 2.4835 GHz for transmission.

By selecting the right transmission frequency, rugged modulation procedure and appropriate test mechanisms, sources of electromagnetic interference can be disregarded, and fault-free data transmission and data integrity can be assured. The technology of MOBY U rules out common interference in UHF transmissions such as reflections, electromagnetic interference and overreach by actively measuring the respective distance between the reader and the transponder.

Appropriately constructed antennas provide a homogeneous transmission field and ensure that all transponders are detected (MDS). There is no need for time-consuming shielding measures and antenna alignment.

The antenna field of the reader can be activated or deactivated for the duration of communication with a transponder by means of a function call or automatically through triggering by proximity switches.

The following two possibilities exist for managing the data on the transponders:

- Byte-oriented addressing via absolute addresses (start address, length)
- Conveniently via a file management system (file handler). In file handler mode, the MOBY U reader always retrieves the required file management information directly from the transponder.

For easy start-up and diagnostics during normal operation, a separate service and diagnostics interface (RS232) is available. This interface can also be used by the service function "Load software in the reader" to integrate future function expansions into existing applications without replacing the reader.

The connection of the SLG U92 readers to the automation level (e.g. SIMATIC S7) via standard fieldbuses (e.g. PROFIBUS or PROFINET) is by means of communication modules, to which the readers can be connected via an RS422 interface.

In addition, there are readers with an RS232 interface option for connection to the PC.

User-friendly function blocks are available for the S7 programming. In the event of an error, the S7 application receives a detailed error message from the communication module via the function block.

Integration

A wide range of communication modules, function blocks, as well as high-performance drivers and function libraries permits easy and quick integration into the application.

And best of all: MOBY U is part of Totally Integrated Automation and can be integrated easily and cost-effectively into the SIMATIC world.

For more details on the connection possibilities, see the section "Communication Modules".

Configuration guide for RFID systems

Here is a compact configuration tool for setting up RFID systems:

<http://support.automation.siemens.com/WW/view/en/67384964>

Technical specifications

Contact-free UHF identification system for the medium to upper performance range	MOBY U
Transmission frequency	2.4 GHz
Range	Max. 3 m
Protocol (air interface)	ISO 18000-4
Approvals ¹⁾	<ul style="list-style-type: none"> • CE • FCC • UL
Memory capacity	Max. 32 KB
Data transfer rate, reader - transponder	
• Read	Max. 4.8 kbyte/s
• Write	Max. 8 kbyte/s
Bulk capability, multitag capability	Yes
Special features	<ul style="list-style-type: none"> • Active range limiting • High memory capacity

¹⁾ All current approvals can be found on the Internet at <http://www.siemens.com/rfid-approvals>

RFID system for the microwave frequency range

MOBY U transponders

Introduction

Overview



MOBY U records the data of objects quickly and reliably.

MOBY U thereby ensures efficient and cost-effective automation.

Type	Features
MDS U315	Universal mobile transponder (2 KB RAM) preferred for transport and logistics applications. <ul style="list-style-type: none"> • Enclosure dimensions (mm) 111 x 67 x 23.5 • IP65 degree of protection • Operating temperature -25 °C to +70 °C • With replaceable battery
MDS U525	Rugged and mobile transponder (32 KB RAM) for universal applications. <ul style="list-style-type: none"> • Enclosure dimensions (mm) 111 x 67 x 23.5 • IP65 degree of protection • Operating temperature -25 °C to +85 °C • With replaceable battery
MDS U589	Heat-resistant and rugged transponder (32 KB RAM) for use in paint shops (automotive industry, priming/finishing coats) or applications with similarly high temperature requirements. <ul style="list-style-type: none"> • Enclosure dimensions (mm) Ø 114 x 83 • IP68 degree of protection • Operating temperature -25 °C to +85 °C, up to +220 °C cyclically • Silicone-free Options: <ul style="list-style-type: none"> • Universal installation kit • Support for attachment to skid • Cover for support • Additional supports available on request

Benefits

get Designed for Industry

Various battery-operated MOBY U transponders with long ranges facilitate the right solution for every requirement in production, logistics and transport:

- Large memory up to 32 KB.
- Heat-resistant transponders for high temperature ranges up to 220 °C and media-resistant with ATEX approval for use in paint shops.
- Rugged, universal transponder for deployment in transport and logistics.

Technical specifications

Field data (all dimensions in mm)

MDS U315, MDS U525, MDS U589 transponders	
Reader SLG U92	Operating/limit distance 150 to 2100 / 3000 mm, adjustable in 500-mm steps.

Note

The listed field data are typical values and valid for a room temperature of +25 °C and a supply voltage of 24 V DC.

RFID system for the microwave frequency range

MOBY U transponders

MDS U315 / MDS U525

Overview

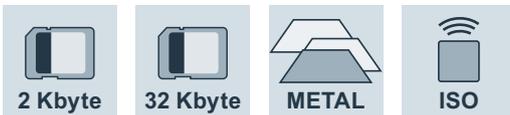


MDS U315

Universal transponder (2 KB RAM) for universal applications, preferably in transport and logistics applications, enclosure dimensions (mm) 111 x 67 x 23.5, IP65 degree of protection, operating temperature -25 °C to +70 °C, with replaceable battery.

MDS U525

Rugged and mobile transponder (32 KB RAM) for universal use, enclosure dimensions 111 mm x 67 mm x 23.5 mm, IP65 degree of protection, operating temperature -25 °C to +85 °C, with replaceable battery.



Design

Field data (all dimensions in mm) MDS U315 / MDS U525 to SLG U92

Ranges (S_G) of the reader can be limited in 500 mm steps up to 3500 mm.

	Minimum	Standard	Maximum
Limit distance (S_G), approx.:	500	2000	3000
Operating distance (S_a)	350	1400	2 100
Transmission window at S_a length / width	700	2400	3000
	700 (with FCC approval)	2000 (with FCC approval)	2100 (with FCC approval)

Technical specifications

Order No.	6GT2 500-3BF10	6GT2 500-5CF10
Product-type designation	MDS U315 transponder	MDS U525 transponder
Suitability for installation	MOBY U	MOBY U
Wireless frequencies		
Operating frequency	2400 ... 2435 MHz	2400 ... 2435 MHz
Electrical data		
Range maximum	3 m	3 m
Range note	Range adjustable in reader in steps of 0.5 m	Range adjustable in reader in steps of 0.5 m
Protocol for radio transmission	ISO 18000-4	ISO 18000-4
Transfer rate with radio transmission, maximum	384 kbit/s	384 kbit/s
Product property multitag-capable	Yes	Yes
Polarization	Circular	Circular
Product component buffer battery	Yes	Yes
Product property replaceable battery	Yes	Yes
Service life of battery, typical	5 a	8 a
Memory		
Type of memory	RAM	RAM
Memory capacity of user memory	2048 byte	32768 byte
Type of memory organization	UID (fixed code) 4 bytes, OTP: 16 bytes, user memory 2048 bytes	UID (fixed code) 4 bytes, OTP: 16 bytes, user memory 32768 bytes
Number of read cycles at ambient temperature < 40 °C, maximum	10 ¹⁴	10 ¹⁴

RFID system for the microwave frequency range

MOBY U transponders

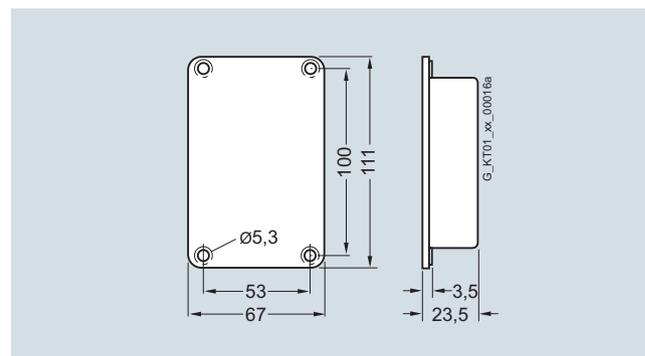
MDS U315 / MDS U525

Order No.	6GT2 500-3BF10	6GT2 500-5CF10
Product-type designation	MDS U315 transponder	MDS U525 transponder
Number of write cycles at ambient temperature < 40 °C, maximum	10 ¹⁴	10 ¹⁴
Data retention time at ambient temperature < 40°C, at least	5 a	8 a
Mechanical data		
Material	PA 12 GF 25	PA 12 GF 25
Color	black	black
Tightening torque of screw for mounting the equipment, maximum	0.8 Nm	0.8 Nm
Mounting distance for metal surfaces, recommended, minimum	0 mm	0 mm
Permitted ambient conditions		
Ambient temperature		
• during operating	-25 ... +70 °C	-25 ... +85 °C
• during storage	-40 ... +85 °C	-40 ... +85 °C
• during transport	-40 ... +85 °C	-40 ... +85 °C
Protection class IP	IP65	IP65
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	500 m/s ²	500 m/s ²
Resistance against vibration	100 m/s ²	100 m/s ²
Mechanical stress resistance	Free fall 1 m	Free fall 1 m
Design, dimensions and weight		
Width	67 mm	67 mm
Height	23.5 mm	23.5 mm
Depth	111 mm	111 mm
Net weight	100 g	100 g
Type of mounting	4 screws M4	4 screws M4
Product properties, functions, components general		
Product feature silicon-free	Yes	Yes
Standards, specifications, approvals		
Verification of suitability	RF: EN 300440-2, SAR: EN 50371, Safety: EN 60950-1, EMC: EN 301489-01, EN 301489-03, ENV 50204, FCC Part 15C (USA), cULus, safe for heart pace-makers	RF: EN 300440-2, SAR: EN 50371, Safety: EN 60950-1, EMC: EN 301489-01, EN 301489-03, ENV 50204, FCC Part 15C (USA), cULus, safe for heart pace-makers

Selection and ordering data

	Order No.
Transponder MDS U315 2 KB RAM, replaceable battery	6GT2500-3BF10
Transponder MDS U525 32 KB RAM, replaceable battery	6GT2500-5CF10

Dimensional drawings



MDS U315 / MDS U525 transponders

RFID system for the microwave frequency range

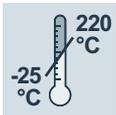
MOBY U transponders

MDS U589

Overview



Heat-resistant, rugged transponder for use in paint shops (auto-mobile industry, primer/top coat) or applications with similar temperature requirements, memory capacity 32 KB RAM, temperature range -25 °C to +85 °C, up to +220 °C cyclically, IP68 degree of protection, enclosure dimensions (mm) Ø 114 x 83.



Design

Field data (all dimensions in mm) MDS U589 to SLG U92

Ranges (S_g) of the reader can be limited in 500 mm steps up to 3500 mm. The field data apply for reading from and writing to the transponder.

	Minimum	Standard	Maximum
Limit distance (S_g), approx.:	500	2000	3000
Operating distance (S_a)	350	1400	2100
Transmission window at S_a length / width	700	2400	3000
	700 (with FCC approval)	2000 (with FCC approval)	2100 (with FCC approval)

Mode of operation

Cyclic operation of the transponder at temperatures > 85 °C

No cyclic operation is required at temperatures up to +85 °C. In other words, the transponder can be operated permanently up to this temperature.

Heating up		Cooling down	
Temperature	Time	Temperature	Time
220 °C	For short periods	25 °C	> 30 min
200 °C	1 h	25 °C	> 4 h
200 °C	0.5 h	25 °C	> 1 h
180 °C	1 h	25 °C	> 3 h

RFID system for the microwave frequency range

MOBY U transponders

MDS U589

Technical specifications

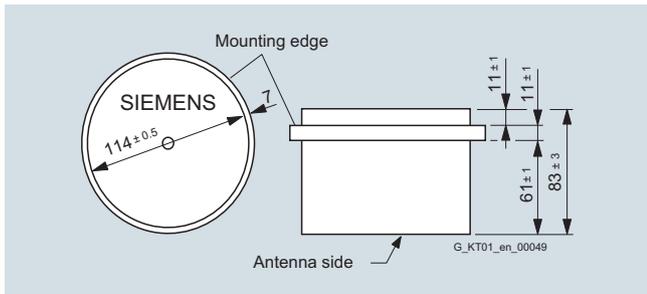
Order No.	6GT2 500-5JK10
Product-type designation	MDS U589 transponder
Suitability for installation	MOBY U
Wireless frequencies	
Operating frequency	2400 ... 2435 MHz
Electrical data	
Range maximum	3 m
Range note	Range adjustable in reader in steps of 0.5 m
Protocol for radio transmission	ISO 18000-4
Transfer rate with radio transmission maximum	384 kbit/s
Product property multitag-capable	Yes
Polarization	Circular
Product component Buffer battery	Yes
Product property replaceable battery	No
Service life of battery typical	3 a
Memory	
Type of memory	RAM
Memory capacity of user memory	32768 byte
Type of memory organization	UID (fixed code) 4 bytes, OTP: 16 bytes, user memory 32768 bytes
Number of read cycles at ambient temperature < 40 °C maximum	10 ¹⁴
Number of write cycles at ambient temperature < 40 °C maximum	10 ¹⁴
Data retention time at ambient temperature < 40°C at least	3 a
Mechanical data	
Material	PPS
Color	Brown
Mounting distance for metal surfaces recommended minimum	0 mm
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +220 °C
• during storage	-40 ... +85 °C
• during transport	-40 ... +85 °C
Ambient condition for (standard) operation mode	Cyclic operation at ambient temperature >85 °C
Protection class IP	IP68
Resistance against shock	According to DIN EN 60721-3-7 Class 7 M3
Resistance against shock	500 m/s ²
Resistance against vibration	50 m/s ²
Mechanical stress resistance	Free fall 1 m

Order No.	6GT2 500-5JK10
Product-type designation	MDS U589 transponder
Design, dimensions and weight	
Height	83 mm
Diameter	114 mm
Net weight	600 g
Type of mounting	Support (see accessories)
Product properties, functions, components general	
Product feature silicon-free	Yes
Standards, specifications, approvals	
Verification of suitability	RF: EN 300440-2, SAR: EN 50371, Safety: EN 60950-1, EMC: EN 301489-01, EN 301489-03, ENV 50204, FCC Part 15C (USA), cULus, safe for heart pacemakers
Accessories	
Accessories	Skid holder, shrouding cover, universal holder

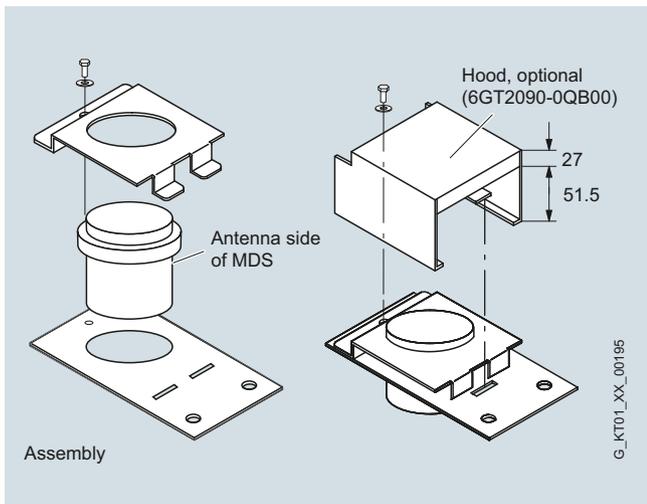
Selection and ordering data

	Order No.
Transponder MDS U589	6GT2500-5JK10
User memory: 32 KB RAM Operating temperature: Up to 220 °C cyclic.	
Accessories	
Skid-support for MDS U589	
Short type.	6GT2090-0QA00
Shrouding cover	
For skid support.	6GT2090-0QB00
Universal support	6GT2590-0QA00
For MDS U589, e.g. for attachment to the body with a customer-specific adapter.	

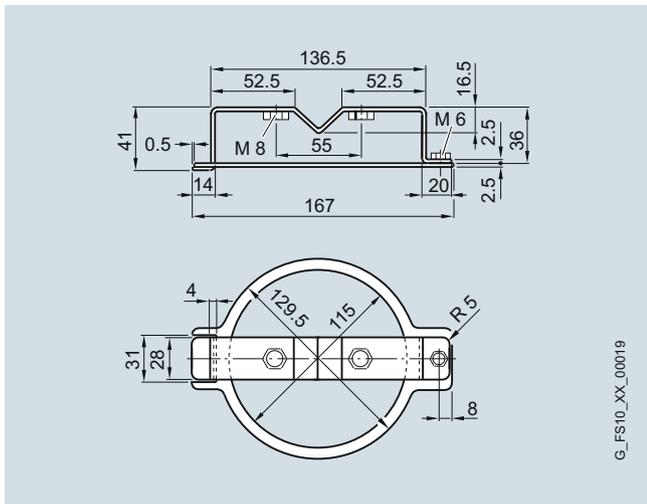
Dimensional drawings



MDS U 589 transponder



Skid support



Universal support

RFID system for the microwave frequency range

MOBY U readers

SLG U92

Overview



The compact and low-cost SLG U92 is a universal reader with integrated antenna for applications in which write/read distances of up to 3000 mm are required. Thanks to the automatic reader synchronization via cable, it is possible to install up to 3 readers in a very small space.

Two different interfaces are available for the connection to a wide variety of systems:

- **RS232**
Serial interface for connection to any system (PC/PLC).
- **RS422**
Serial interface to the PC/PLC or to the communication modules (SIMATIC RF160C, RF182C, RF170C, RF180C, ASM 475, ASM 456) for integration into SIMATIC S7, PROFIBUS, or Industrial Ethernet.

Software tools such as the SIMATIC S7 functions (FB/FC45 / FC46 / FC55 / FC56) and the C library MOBY API for applications under Windows NT/2000/XP allow for easy implementation in the respective application.

The integrated file management system (compatible with the familiar MOBY I file handler and supplemented with multitag-handling commands) ensures simple and user-friendly management of data on the transponder.

Type	Features
SLG U92	Compact and low-cost reader with integral antenna for universal applications, read/write distances of up to 3000 mm (adjustable by software in 500 mm steps to 3500 mm) incl. file handler, degree of protection IP65, enclosure dimensions (mm) 290 x 135 x 42.
SLG U92 with RS232	As above, but with RS232 interface for connection to PC/PLC.
SLG U92 with RS422	As above, but with RS422 interface for connection to communication modules (e.g. ASM 456, ASM 475, SIMATIC RF170C) or PC/PLC.

FCC model of the SLG U92

For use in the USA and Canada, a version with radio approval FCC Part 15C is available.

The FCC model of the SLG U92 functions with a very low transmitting power and has small antenna dimensions. The FCC model may also be used in ETSI countries. However, the ETSI model may not be operated in FCC countries for technical reasons concerning radio communication.

Function

The Reader SLG U92 operates with a transmission frequency in the ISM band between 2.4 and 2.4835 GHz. This supports transmission ranges from a few centimeters up to three meters with an extremely low transmit power of < 10 mW EIRP and high net transmission rates of up to 8 KB/s. Thanks to the selected transmission frequency, rugged modulation techniques and appropriate check mechanisms, sources of electromagnetic interference can be disregarded and fault-free data transmission and data integrity are assured. MOBY U technology blocks the types of fault sources familiar in UHF transmissions such as reflections, interference and overrange. Appropriately constructed antennas provide a homogeneous transmission field and ensure a 100% detection rate for transponders (MDS). There is no need for time-consuming shielding measures and antenna alignment.

The antenna field of the reader can be activated or deactivated for the duration of communication with a transponder by means of a function call or automatically through triggering by proximity switches.

To manage the data on the transponders, there are 2 possibilities:

- Byte-oriented addressing via absolute addresses (start address, length)
- Conveniently via a file management system (compatible with the MOBY I file handler)

In file handler mode, the MOBY U reader always fetches the required file management information directly from the transponder and it can be operated in three steps:

1. For existing system solutions with MOBY I, MOBY U can be operated with the default settings and unmodified file handler functions without the MOVE and LOAD commands that were previously required.
2. The default settings and requests for diagnostic data can be easily changed with just a few additional commands.
3. Utilization of all features including multitag processing. In this step, the commands and/or useful data can also be uniquely assigned to the particular transponder number.

Two LEDs indicate the current status (e.g. transponder in the field) and make start-up easier.

For easy start-up and diagnostics during normal operation, a separate service and diagnostics interface (RS232) is available. This interface can also be used by the service function "Load software in the reader" to integrate future function expansions into existing applications without replacing the reader.

The system interface (RS232 or RS422) can be used for serial connection to any other system (PC/PLC).

RFID system for the microwave frequency range

MOBY U readers

SLG U92

Technical specifications

Order No.	6GT2 501-0CA00	6GT2 501-0BA00	6GT2 501-1CA00	6GT2 501-1BA00
Product-type designation	SLG U92 ETSI reader	SLG U92 FCC reader	SLG U92 ETSI reader	SLG U92 FCC reader
Suitability for installation	MOBY U, for connecting to communication modules	MOBY U, for connecting to communication modules	MOBY U, for connecting to PC systems	MOBY U, for connecting to PC systems
Wireless frequencies				
Operating frequency	2400 ... 2483.5 MHz	2400 ... 2483.5 MHz	2400 ... 2483.5 MHz	2400 ... 2483.5 MHz
Equivalent isotropic radiant power				
• minimum	10 mW	0.7 mW	10 mW	0.7 mW
• maximum	10 mW	0.7 mW	10 mW	0.7 mW
Electrical data				
Range maximum	3 m	3 m	3 m	3 m
Range note	Range adjustable in reader in steps of 0.5 m	Range adjustable in reader in steps of 0.5 m	Range adjustable in reader in steps of 0.5 m	Range adjustable in reader in steps of 0.5 m
Protocol for radio transmission	ISO 18000-4	ISO 18000-4	ISO 18000-4	ISO 18000-4
Transfer rate with radio transmission maximum	384 kbit/s	384 kbit/s	384 kbit/s	384 kbit/s
Product property multitag-capable	Yes	Yes	Yes	Yes
Polarization	Circular	Circular	Circular	Circular
Transmission rate at point-to-point connection, serial, maximum	115.2 kbit/s	115.2 kbit/s	115.2 kbit/s	115.2 kbit/s
Transmission time for user data				
• for write access per byte, typical	0.13 ms	0.13 ms	0.13 ms	0.13 ms
• for read access per byte, typical	0.21 ms	0.21 ms	0.21 ms	0.21 ms
Interfaces				
Design of the electrical connection	6-pin connector compliant with EN 175201-804	6-pin connector compliant with EN 175201-804	6-pin connector compliant with EN 175201-804	6-pin connector compliant with EN 175201-804
Standard for interfaces for communication	RS422	RS422	RS232	RS232
Design of electrical connection at the digital inputs/outputs	11-pin connector compliant with EN 175201-804	11-pin connector compliant with EN 175201-804	11-pin connector compliant with EN 175201-804	11-pin connector compliant with EN 175201-804
Number of digital inputs	2	2	2	2
Number of digital outputs	0	0	0	0
Mechanical data				
Material	PA 12 GF 25	PA 12 GF 25	PA 12 GF 25	PA 12 GF 25
Color	Anthracite	Anthracite	Anthracite	Anthracite
Tightening torque of screw for mounting the equipment maximum	2 Nm	2 Nm	2 Nm	2 Nm
Mounting distance for metal surfaces recommended minimum	0 mm	0 mm	0 mm	0 mm
Supply voltage, current consumption, power loss				
Supply voltage for DC				
• rated value	24 V	24 V	24 V	24 V
• minimum	20 V	20 V	20 V	20 V
• maximum	30 V	30 V	30 V	30 V
Consumed current at 24 V DC				
• typical	0.3 A	0.3 A	0.3 A	0.3 A
• maximum	0.3 A	0.3 A	0.3 A	0.3 A

RFID system for the microwave frequency range

MOBY U readers

SLG U92

Order No.	6GT2 501-0CA00	6GT2 501-0BA00	6GT2 501-1CA00	6GT2 501-1BA00
Product-type designation	SLG U92 ETSI reader	SLG U92 FCC reader	SLG U92 ETSI reader	SLG U92 FCC reader
Permitted ambient conditions				
Ambient temperature				
• during operating	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C
• during storage	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
• during transport	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
Protection class IP	IP65	IP65	IP65	IP65
Resistance against shock	EN 60721-3-7, Class 7 M3	EN 60721-3-7, Class 7 M3	EN 60721-3-7, Class 7 M3	EN 60721-3-7, Class 7 M3
Resistance against shock	300 m/s ²	300 m/s ²	300 m/s ²	300 m/s ²
Resistance against vibration	15 m/s ²	15 m/s ²	15 m/s ²	15 m/s ²
Design, dimensions and weight				
Width	135 mm	135 mm	135 mm	135 mm
Height	42 mm	42 mm	42 mm	42 mm
Depth	290 mm	290 mm	290 mm	290 mm
Net weight	0.9 kg	0.9 kg	0.9 kg	0.9 kg
Type of mounting	4 x M6 screws	4 x M6 screws	4 x M6 screws	4 x M6 screws
Cable length				
• with RS232 interface, maximum	-	-	30 m	30 m
• for RS 422 interface, maximum	1000 m	1000 m	-	-
Product properties, functions, components general				
Type of display	2 LEDs	2 LEDs	2 LEDs	2 LEDs
Product feature silicon-free	Yes	Yes	Yes	Yes
Standards, specifications, approvals				
Verification of suitability	RF: EN 300440-2, SAR: EN 50371, Safety: EN 60950-1, EMC: EN 301489-01, EN 301489-03, ENV 50204, FCC Part 15C (USA), cULus, safe for heart pacemakers	RRF: EN 300440-2, SAR: EN 50371, Safety: EN 60950-1, EMC: EN 301489-01, EN 301489-03, ENV 50204, FCC Part 15C (USA), cULus, safe for heart pacemakers	RF: EN 300440-2, SAR: EN 50371, Safety: EN 60950-1, EMC: EN 301489-01, EN 301489-03, ENV 50204, FCC Part 15C (USA), cULus, safe for heart pacemakers	RF: EN 300440-2, SAR: EN 50371, Safety: EN 60950-1, EMC: EN 301489-01, EN 301489-03, ENV 50204, FCC Part 15C (USA), cULus, safe for heart pacemakers

RFID system for the microwave frequency range

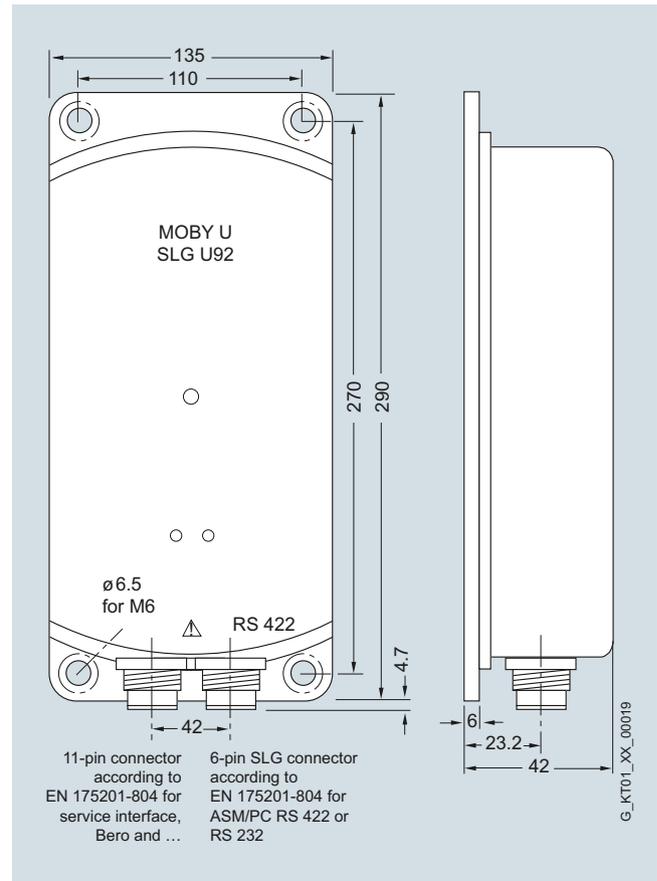
MOBY U readers

SLG U92

Selection and ordering data

	Order No.
SLG U92 reader with RS422	
• Antenna integrated, for Europe.	6GT2501-0CA00
• Antenna integrated, FCC approval, for USA, Europe.	6GT2501-0BA00
SLG U92 reader with RS232	
• Antenna integrated, for Europe.	6GT2501-1CA00
• Antenna integrated, FCC approval, for USA, Europe.	6GT2501-1BA00
Accessories	
RS232 connecting cable	
between the PC and SLG U92, with a connecting cable for a 24 V connector (M12 socket), angled connector, PUR, CMG approval, suitable for cable carriers, in the following lengths:	
5 m	6GT2591-5CH50
20 m	6GT2591-5CN20
RS 232 plug-in cable for service interface	6GT2591-5AH50
between PC and 11-pin service interface connector, PUR, CMG approval, suitable for cable carriers, length 5 m.	
Connector for SLG U92 service interface	6GT2590-0BA00
11-pin, with angled output	
Connector on reader side (MOBY U)	
6-pin DIN 43651 connector with female contacts for crimping:	
• with angled output, 1 piece	6GT2090-0BA00
• with angled output, 10 units	6GT2090-0BA10
• with straight output, 1 piece	6GT2090-0UA00
Reader cable	
without connector, between the communication module and reader; 6 x 0.25 mm ² , PUR, CMG approval, suitable for cable carriers, in the following lengths:	
50 m	6GT2090-4AN50
120 m	6GT2090-4AT12
800 m	6GT2090-4AT80
Wide-range power supply	
Primary side: 100 ... 240 V AC, 120 ... 353 V DC, secondary side: 24 V DC, 3 A, with no-load protection, with continuous short-circuit protection.	
• EU connector version	6GT2898-0AA00
• UK connector version	6GT2898-0AA10
• US connector version	6GT2898-0AA20
Cable for wide-range power supply	6GT2491-1HH50
24 V DC, PUR, length 5 m	
24 V connector (M12 socket)	6GT2390-1AB00
for ASM 424/724/754 communication modules, SLG Ux readers (over PC connecting cable).	
DVD "RFID Systems Software & Documentation"	6GT2080-2AA20

Dimensional drawings



SLG U92 reader

More information

All current approvals can be found on the Internet at:
<http://www.siemens.com/rfid-approvals>

RFID system for the microwave frequency range

MOBY U readers

STG U mobile handheld terminal

Overview



The STG U is a powerful mobile hand-held terminal with integral read/write antenna for applications in the field of production, logistics and service. In addition, it is an indispensable tool for commissioning and testing.

Design

The STG U mobile handheld terminal comprises a basic unit (based on the PSION Workabout^{mx}) and an antenna of the MOBY U type. It has a splash-proof enclosure (IP 54), LCD display with 240 × 100 pixels, alphanumeric keypad and various interfaces (for EEPROM card, charging the battery, RS232/TTL for the MOBY U antenna, battery charger interface incl. RS232 for connecting to the PC, etc.).

Function

The supplied MOBY software (memory card) provides service and test functions for reading, writing, etc. of the MOBY U transponder:

- Reading data from the transponder
- Writing data to the transponder
- Reading and displaying the ID number of the transponder
- Reading MDS status
- Reading data from OTP memory
- Writing data to OTP memory
- Displaying and editing the data in hexadecimal, ASCII, decimal and binary formats
- Activate/deactivate password

Technical specifications

Order No.	6GT2 503-0AA00
Product-type designation	STG U mobile hand-held terminal
Use for	MOBY U transponders
Wireless frequencies	
Operating frequency	2 400 ... 2 483.5 MHz
Equivalent isotropic radiant power	
• minimum	0.7 mW
• maximum	0.7 mW
Electrical data	
Range, maximum	3 000 mm
Protocol for radio transmission	ISO 18000-4
Transfer rate with radio transmission, maximum	384 kbit/s
Product property multitag-capable	Yes

Order No.	6GT2 503-0AA00
Product-type designation	STG U mobile hand-held terminal
Polarization	Circular
Supply voltage, current consumption, power loss	
Type of current supply	Battery operation
Type of battery	Handheld terminal: NiCd battery pack with 2 type AA cells (0.85 Ah), fast-charging, antenna: lithium-ion battery pack 2SIP CGR 18650 HG (1.8 Ah)
• as back-up battery, integrated	CR1620
Battery capacity	1.8 Ah
Operating period with standard battery, typical	20 h
Permitted ambient conditions	
Ambient temperature	
• during operating	-20 ... +60 °C
• during storage	-25 ... +70 °C
Protection class IP	IP54
Height of fall, maximum	0.5 m
Design, dimensions and weight	
Width	235 mm
Height	282 mm
Depth	93 mm
Net weight	1.95 kg
Product properties, functions, components general	
Design of the display	Graphic LCD screen with 240x100 pixels, gray scale, selectable back-lighting
Design of the control elements	Alphanumeric with 57 keys
Design of acoustic signaling element	Piezo signal transmitter
Design of the interface	LIF interface (low insertion force) for battery charging and communication with PC and printer, RS 232 interface for connection of a MOBY U antenna
Memory capacity	
• of the RAM work memory	2 Mibyte
• of data and program memory	2 Mibyte
• of the data memory can be used/available	2 Mibyte
Product functions management, configuration	
Operating system pre-installed	EPOC 16 multitasking
Product function of the software	MOBY service and test program
Type of programming	MOBY C library for SIBO C SDK
Verification of suitability	RF: EN 300440-2, SAR: EN 50371, Safety: EN 60950-1, EMC: EN 301489-01, EN 301489-03, ENV 50204, FCC ID: NXWMOBYU-STGU, UL/CSA, safe for heart pacemakers
Accessories	STG U power supply unit, replacement battery

RFID system for the microwave frequency range

MOBY U readers

STG U mobile handheld terminal

Selection and ordering data

	Order No.
STG U mobile handheld terminal MOBY U handheld terminal STG U, complete (PSION Workabout ^{mx}), antenna STG U, battery, EEPROM card. With MOBY software, operating instructions, without power pack for STG U.	6GT2503-0AA00
<i>Accessories</i>	
STG U antenna For basic unit (PSION Workabout ^{mx}).	6GT2503-1AA00
STG U power supply unit Wide-range power supply unit 90 V to 264 V AC, with cable switch, for the STG U antenna and the STG U mobile handheld terminal, with charging adapter.	6GT2503-1DA00
Spare battery NiMH battery pack Workabout ^{mx} 2.4 V; 1800 mAh.	6GT2094-0AB01
STG software For MOBY D, E, F and U, incl. operating instructions, 1 MB EEPROM card.	6GT2303-1CA00
DVD "RFID Systems Software & Documentation"	6GT2080-2AA20

More information

All current approvals can be found on the Internet at:
<http://www.siemens.com/rfid-approvals>

RFID system for the microwave frequency range

MOBY U

Configuring instructions

Overview

Note

Detailed information (clearance from metal, reader - reader clearance, etc.) can be found in the "MOBY U Manual for Configuration, Assembly and Service".

Field characteristics (battery-saving mode)

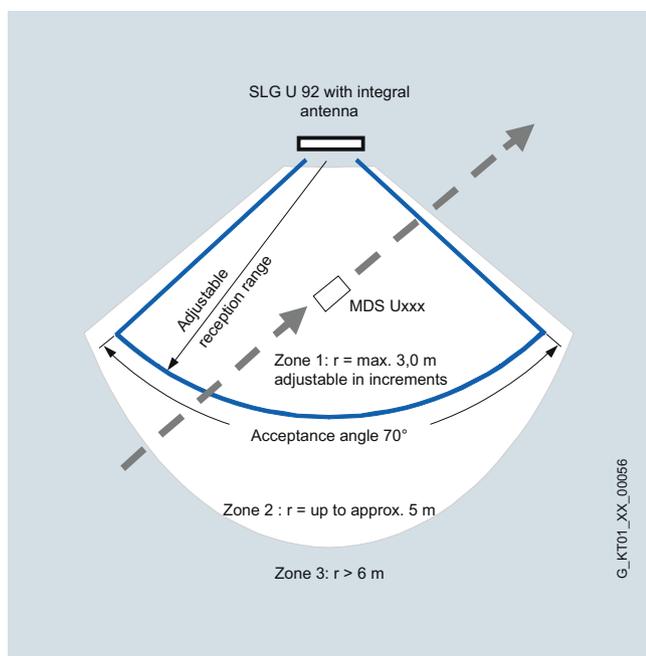
In contrast to the inductive RFID systems, UHF systems exhibit transmission behavior like electromagnetic waves. The wave length is approx. 13 cm. Metal surfaces reflect the waves and cannot be penetrated.

Despite a low radiation output, UHF systems have a relatively long range. The emission field has a directional characteristic which depends, however, on the antenna design. In order to keep the energy requirement low for the transponder and to make the determination of the location comprehensible, MOBY U has various function areas that are dependent on direction and distance. The three different zones of the transmission field are identified by different states and reactions of the components affected.

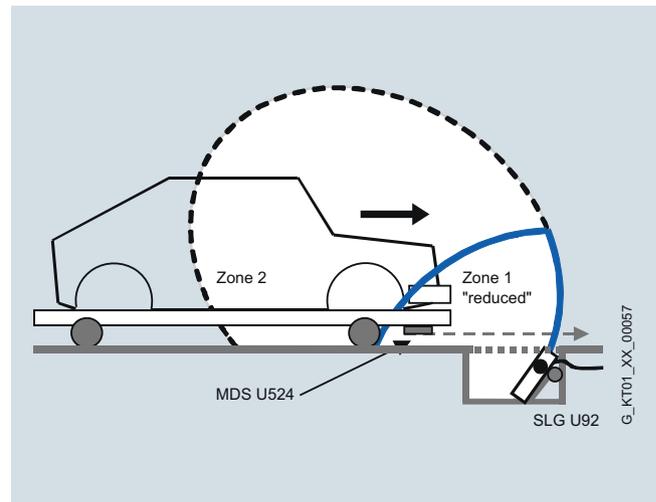
Put simply, Zone 3 is a reader-field-free area. The transponder "sleeps" and only listens momentarily every 0.5 s for a sign of life from a reader. This means that the power consumption is very low. If other UHF users in the vicinity are occupying the same frequency band, it has no effect on the transponder, as the latter requires a special code to wake it up. If the transponder in the vicinity of an active reader then receives this special code, it enters Zone 2 (see Fig.). It immediately accepts the reader and responds briefly with its own identification. The reader however ignores every transponder unless it is in Zone 1, whose radius parameter can be set in stages in the reader. The power consumption in Zone 2 is not significantly higher than in Zone 3.

If the transponder enters Zone 1, it is duly registered by the reader and the data exchange can begin. Now all read and write functions can be performed. However, as the transmission rate at the air interface is very high (80 Kbit/s), the overall communication time is very short. For example, all bytes of the 32 KB memory are read in about 8 seconds. This means that the data exchange imposes hardly any load on the battery.

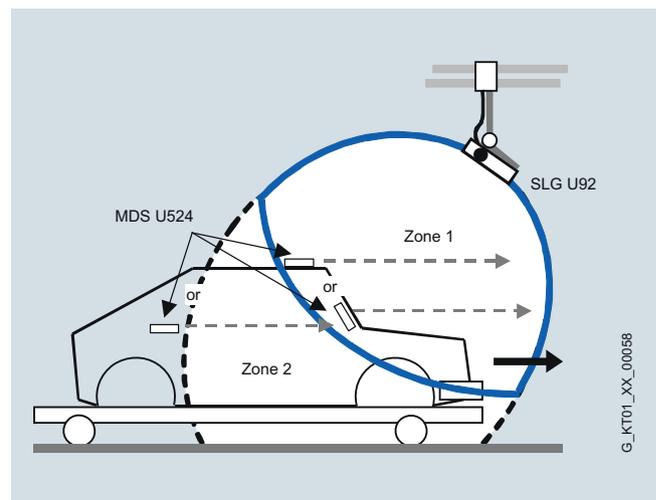
SLG U92 with integral antenna



Example: car body identification



Example: skid identification



Code reading systems



5/2	Code reading systems introduction
5/5	Stationary code reading system
5/10	SIMATIC MV420
5/18	SIMATIC MV440
5/30	Lenses
5/34	Handheld reading systems
5/36	SIMATIC MV320
5/37	SIMATIC MV325
5/38	SIMATIC MV340
5/40	Verification systems
5/40	Veri-Genius for SIMATIC MV440
5/45	Optical character recognition (OCR)
5/45	Text-Genius for SIMATIC MV440
5/49	Object recognition
5/49	Pat-Genius for SIMATIC MV440

Code reading systems

Introduction

Code Reading Systems

Overview



Code reading systems – Reading and verification of 1D/2D codes

For state-of-the-art production systems, tracing products and parts with machine-readable identification is a central requirement. A unique coding system permits the planning of each and every step of production for every part manufactured and changes within the production process or in the materials used. Direct marking of products also allows the implementation of specified legal requirements for tracing production batches throughout the production system.

What is Direct Part Marking (DPM)?

Direct Part Marking (DPM) is the application of a mark directly on the surface of a product without the use of a separate carrier material, such as an adhesive label. This makes it possible to identify products in production and tracing them after delivery as well.

With so-called 2D codes a coding method is available that meets these user requirements. 2D codes consist of easy to implement, point-shaped basic elements. Laser and needle marking technologies are outstanding regarding durability, marking speed and material independence. Despite mechanical deformations, e.g. with metallic workpieces, the 2D codes can still be read using 2D read devices even after multiple processing steps. 2D codes also provide the advantage of being able to encode data in more limited spaces than comparable barcodes or text

Benefits

g e t **get** Designed for Industry

- Unique identification of products or product parts - Direct Part Marking is the key technology for product traceability.
- Flexible and economic solutions thanks to the complete and scalable portfolio of powerful stationary code reading systems.
- Simplified engineering, commissioning, diagnostics and maintenance through seamless integration into Totally Integrated Automation:
 - Integrated bus connection to an automation system, such as SIMATIC, SIMOTION or SINUMERIK via communication modules with PROFIBUS and PROFINET.
 - Simple S7 software integration via ready-to-use function blocks.
 - Extensive status and diagnostic functions.
- Greater security of investment due to support of all standard matrix and bar codes.
- Openness through connection possibilities to various bus systems from different manufacturers and PC environments via communication modules.

Integration

The product range of Siemens code reading systems

Stationary code reading systems



SIMATIC MV440 and MV420 stationary code reading systems

The stationary code reading systems include compact basic and high-performance reading devices. The devices read various two-dimensional (2D) codes as well as one-dimensional (1D) barcodes. Optionally, function packages can be added to all SIMATIC MV440 devices using SIMATIC License Manager licenses. The following licenses are available for function expansion:

- Veri-Genius for measuring the marking quality
- Text-Genius for text recognition and
- Pat-Genius for object recognition

These optional modules can be combined as desired.

The SIMATIC MV440 can also read plain text (Optical Character Recognition: OCR)

Hand-held reading systems



SIMATIC MV320 handheld reading system



MV325 handheld reading system



SIMATIC MV340 handheld reading system

These hand-held reading systems are powerful, high-resolution readers for either two-dimensional (2D) data matrix codes and/or one-dimensional bar codes (1D). The devices can communicate with a host via RS232, USB and Bluetooth, depending on the selected model.

Code reading systems

Introduction

Code Reading Systems

Verification systems



By using verification systems, the readability of marks is guaranteed throughout the entire production process, regardless of any possible contamination or when using different readers. Moreover, the marking can continue to be read after the production process throughout the lifespan of the product.

In addition to reading 1D bar codes and 2D matrix codes, SIMATIC MV440 can be expanded at any time with verification functionality using the "Veri-Genius" verification license. The license is supplied as a "Single License" on a USB stick and can be copied to the SIMATIC MV440 with the SIMATIC Automation License Manager (ALM) using a plug-in. The license is executable on any SIMATIC MV440 as of firmware version 4.0.

Optical character recognition



With the "Text Genius" OCR license, SIMATIC MV440 can also be used for optical character recognition (OCR) in addition to reading 1D bar codes and 2D matrix codes. It is also possible to read and compare plain text and machine-readable code in the same image field.

The license is supplied as a "Single License" on a USB stick and can be copied to the device with the SIMATIC Automation License Manager (ALM) using a plug-in. The license runs on every SIMATIC MV440, firmware version 3.0 or higher.

Object recognition



With the "Pat Genius" object recognition license, SIMATIC MV440 can also be used for object recognition (object classification, position detection, counting, etc.) in addition to reading 1D bar codes and 2D matrix codes. In addition, the functionality is possible in combination with text recognition, for example, thus enabling position control of a label and control of the labeling (reading and comparison) of plain text in an image field.

The license is supplied as a "Single License" on a USB stick and can be copied to the device with the SIMATIC Automation License Manager (ALM) using a plug-in. The license runs on every SIMATIC MV440.

Overview



The stationary code reading systems read various two-dimensional (2D) codes and one-dimensional (1D) barcodes. Some readers also feature functions for measuring the marking quality (verification) for process control purposes, and for text recognition (optical character recognition, OCR). All devices can be easily and flexibly integrated into the automation system thanks to standardized, industry-compatible interfaces and function blocks.

SIMATIC MV420

The SIMATIC MV420 series is particularly suitable for close-up to mid-range reading distances (approx. 10 mm to 400 mm).

SIMATIC MV420 is an optical code reading system that has been specially designed for detecting and evaluating a variety of machine readable codes in the packaging industry (e.g. F&B, pharmaceuticals and tobacco) and industrial production (e.g. automotive, electronics and solar). The list of readable codes includes all standard matrix and bar codes which can be reliably detected - mostly independent of the printing technology and carrier medium used. One key feature of the unit is its ability to read data matrix codes (DMC). The SIMATIC MV420 device family is flexible, reliable and easy to use.

Besides this, two different lenses are available for the SIMATIC MV420 which can be adjusted to the required reading distances. In addition, various powerful integrated illumination systems are available. The models can be ordered as preconfigured or freely combinable. The particularly compact enclosures have a high IP67 degree of protection.

SIMATIC MV440

SIMATIC MV440 is an optical code reading system that has been specially designed for detecting and evaluating a number of machine readable codes in industrial production. The SIMATIC MV440 device family is characterized by very high reading reliability, high-speed reading and flexible process interfacing. The product is also rugged, has a high degree of protection and is easy to use. The professional decoding software is suitable for almost all types of marking, especially for sophisticated "direct part marking", on a wide range of different carrier materials.

With the "Veri-Genius" verification license, MV440 code readers are able to verify the marking quality of codes in accordance with the applicable standards. The device determines the quality of the applied code and helps you ensure the readability using the following process steps. Verification can be performed simultaneously with the other functions, e.g. 1D and 2D code reading.

With the "Text-Genius" text recognition license, MV440 code readers can be used for text recognition (optical character recognition, OCR). Text recognition can be performed simultaneously with the other functions, e.g. 1D and 2D code reading.

The "Pat-Genius" object recognition licence lets you perform object recognition (classification), position detection, presence check, completeness check and text recognition (based on the contour of any character or symbol). The object recognition can also be combined with the other functions.

Code reading systems

Stationary code reading systems

Introduction

Major differences

Code reading system	SIMATIC MV420	SIMATIC MV440
		
Housing	Extremely compact design, IP67	Compact design, IP67
Sensor / resolution	CMOS 640 x 480 pixels 752 x 480 pixels	CCD 640 x 480 pixels 1 024 x 768 pixels 1 600 x 1 200 pixels
Lens system	Freely selectable lenses (M12)	Freely selectable lenses due to C-Mount lens connection
Lighting	Integrated lighting	Integrated or external lighting
Commissioning and operation	<ul style="list-style-type: none"> • Integrated web server • Auto-optimizing of parameters • Languages: German / English / French / Italian / Spanish / Chinese 	<ul style="list-style-type: none"> • Integrated web server • Auto-optimizing of parameters • Languages: German / English / French / Italian / Spanish / Chinese
Communication	<ul style="list-style-type: none"> • PROFIBUS (via communication module; M12) • PROFINET (on-board M12 or via communication module, various interfaces) • Ethernet (onboard, M12) • RS232 (onboard, M16) 	<ul style="list-style-type: none"> • PROFIBUS (via communication module, M12) • PROFINET (on-board M12 or via communication module, various interfaces) • Ethernet (onboard, M12) • RS232 (onboard, M16)
Optical character recognition	–	Polyfont
Verification	–	<ul style="list-style-type: none"> • ISO/IEC 16022:2000 • ISO/IEC 15415:2004 • AS9132 Rev A, 2005 • ISO/IEC 15416:2000 • ANSI X3.182-1990 • Siemens DPM • AIM DPM-1-2006

5

Application

- Automobile industry
 - Needle punched markings on various automotive power train components (cylinder heads, cylinder blocks, manifolds, etc.)
 - Laser markings on various automotive power train components (camshafts, crankshafts, pistons, connecting rods, transmission components, etc.)
 - Laser markings on electronic components, printed circuit boards, or enclosures
- Packaging industry (e.g. pharmaceuticals, F&B, tobacco)
 - Printed or laser markings on folded boxes, plastic containers, etc.
- Aerospace industry
 - Needle punched markings on gas turbine blades
 - Needle punched markings on various aluminium components of propulsion units
- Medical equipment
 - Laser markings on pacemakers and other implantable devices
 - Laser markings on various medical device components and enclosures
- Electronics
 - Laser markings on ESD sensitive hard drive components or even on printed labels
- Semiconductors
 - Laser markings on rigid and flexible circuit boards
 - Laser markings on packaged semiconductor devices, heat sinks or heat dissipators

Integration

The SIMATIC MV420/440 code readers have industry-standard PROFINET and communication module interfaces on the device. In addition, communications interfaces such as Ethernet and RS232 are directly available on the device.

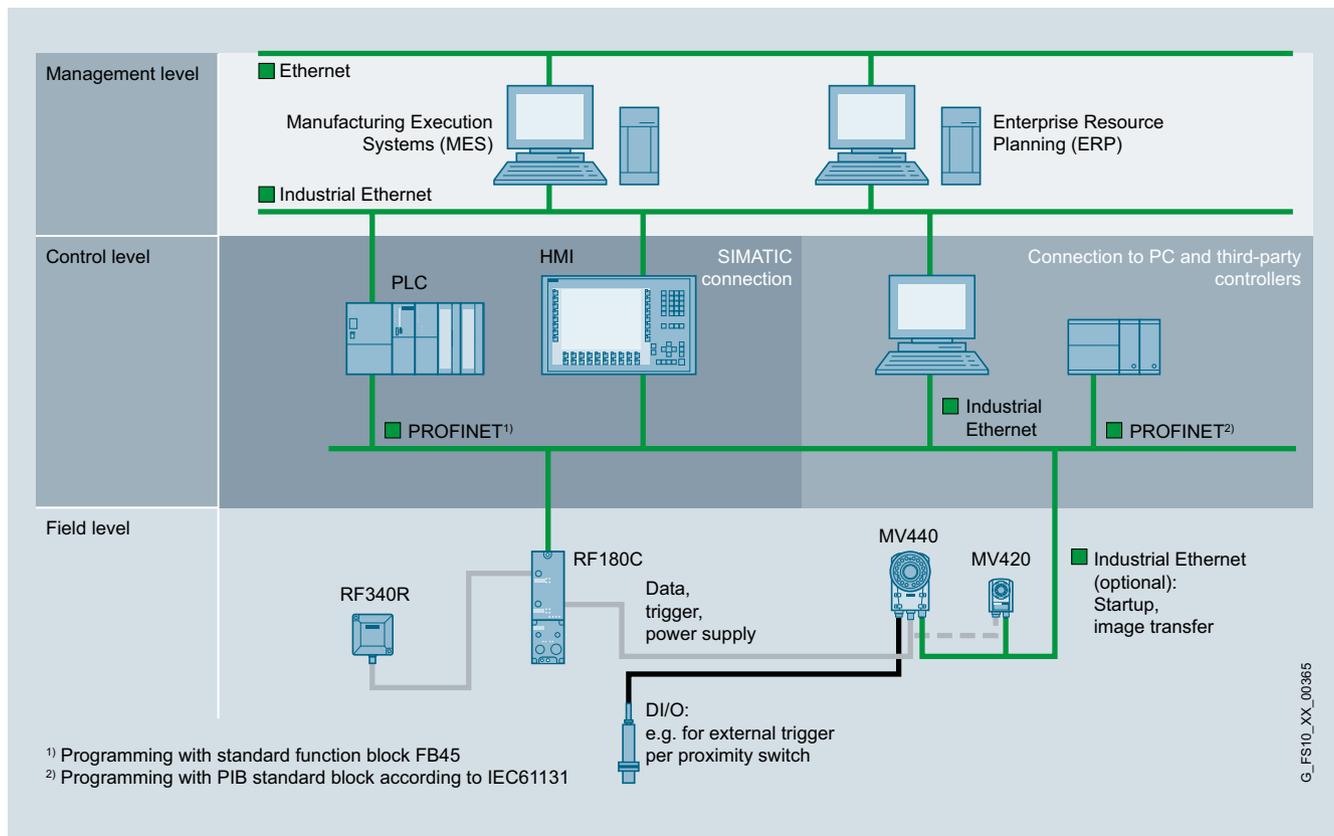
Via the specified interfaces, the following communication services can be used:

Usable communication services	Interface
PROFINET IO (FB79)	Onboard MV440 PROFINET interface.
PROFINET IO (FB101, Ident profile)	Onboard MV440 PROFINET interface.
PROFINET IO (FB45, FB101, Ident profile)	Via communication module interface using the RF180C communication module
PROFIBUS DP V0/1 (FB45, Ident profile)	Via communication module interface using the ASM 456 communication module
TCP/IP native	Onboard MV440 PROFINET interface.
RS-232 (ASCII)	Onboard MV440 RS232 interface.

Via the communication module interface, all communication modules can be used, e.g. for the PROFIBUS connection. The communication module interface is compatible with all available communication modules both electrically and with regard to protocol. Connection via a communication module makes it easy to switch between optical code reading with SIMATIC MV420/440 and RFID readers, simply by reconnection. The PLC programming is performed with the aid of function blocks that are available for SIMATIC and SIMOTION.

The advantage of connecting SIMATIC MV420/440 to a communication module is that a uniform programming interface is available for a wide variety of PLC types and fieldbus systems. In addition, the complete cable portfolio for the communication module interface is available.

At the same time as being connected via a communication module to the process (transmission of read result), the PROFINET interface on the device can also be used for a separate interface to HMI or a control desk.

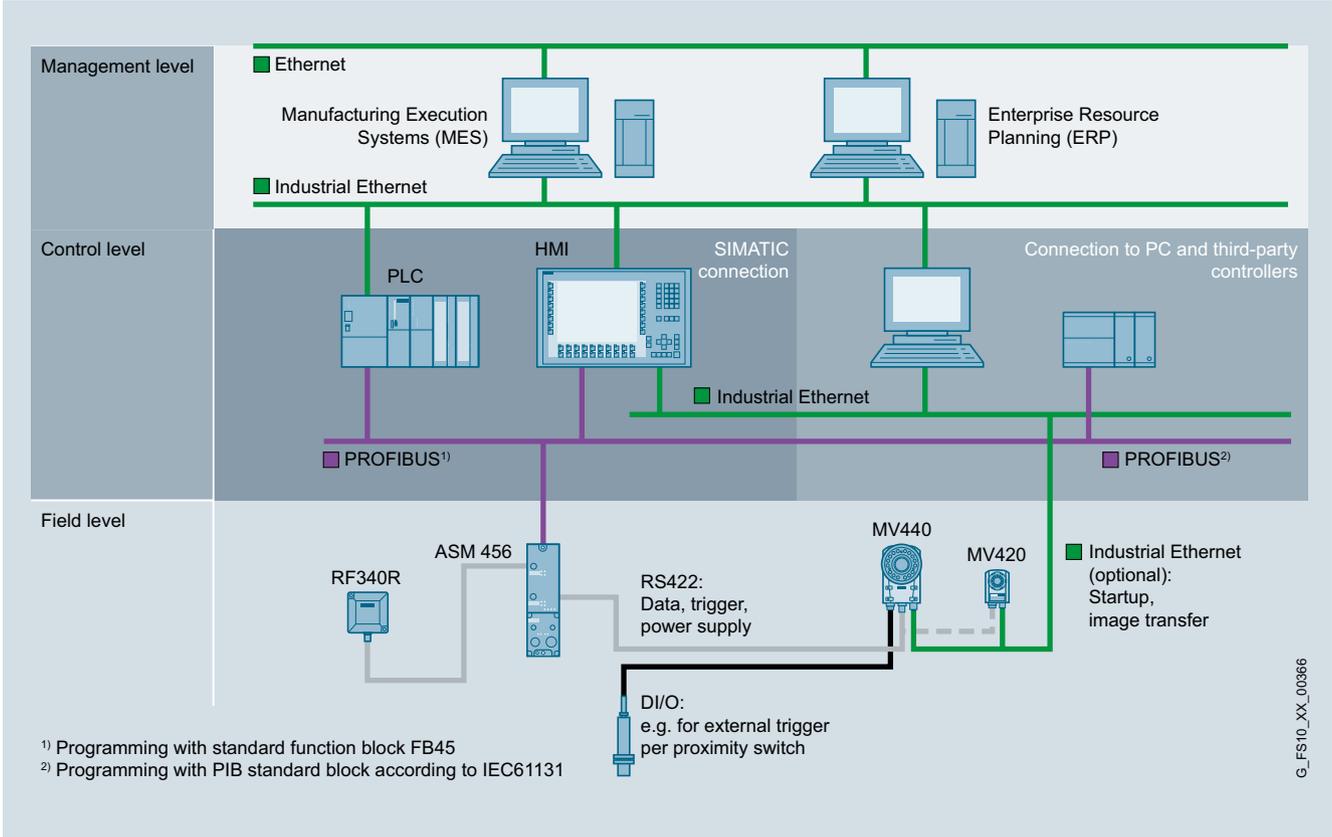


Integration of SIMATIC MV420/MV440 by means of the SIMATIC RF180C communication module

Code reading systems

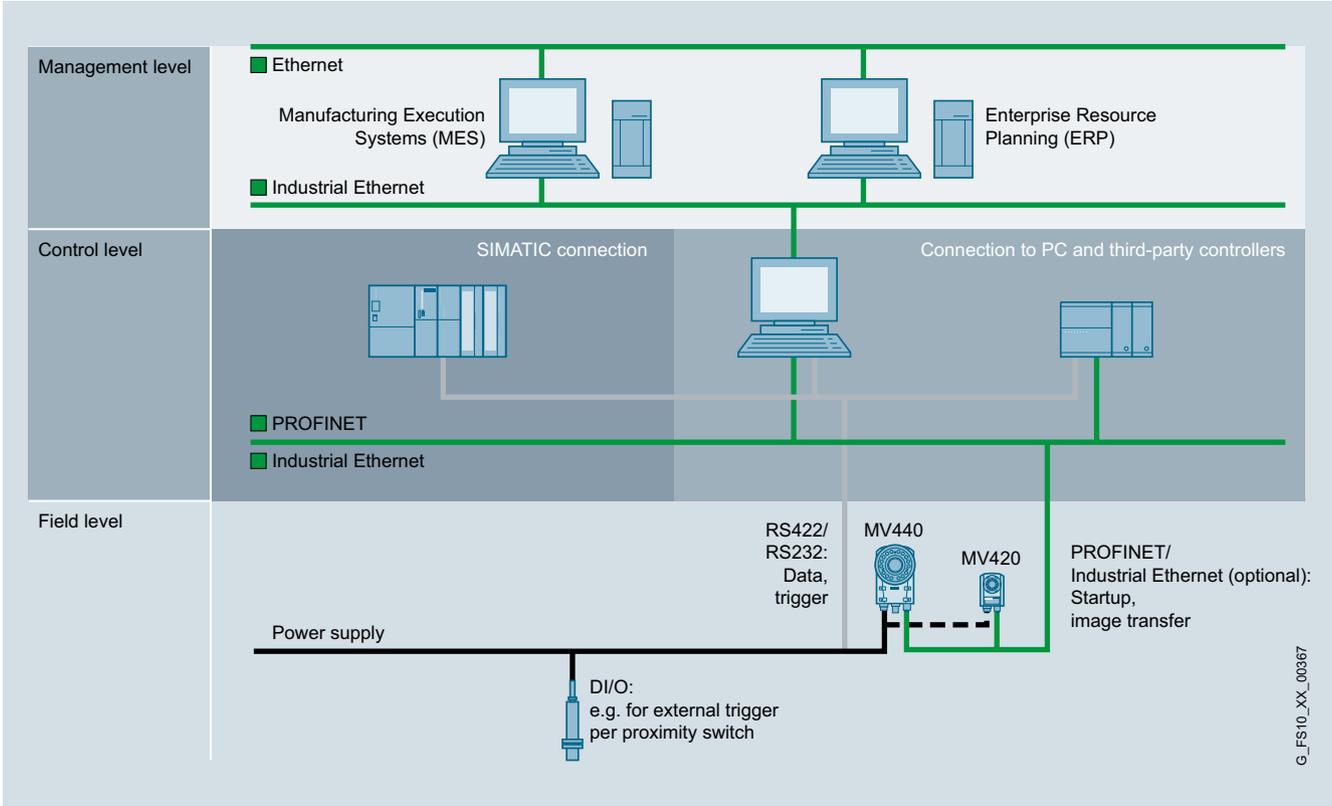
Stationary code reading systems

Introduction



Integration of SIMATIC MV420/MV440 by means of the ASM 456 communication module

5

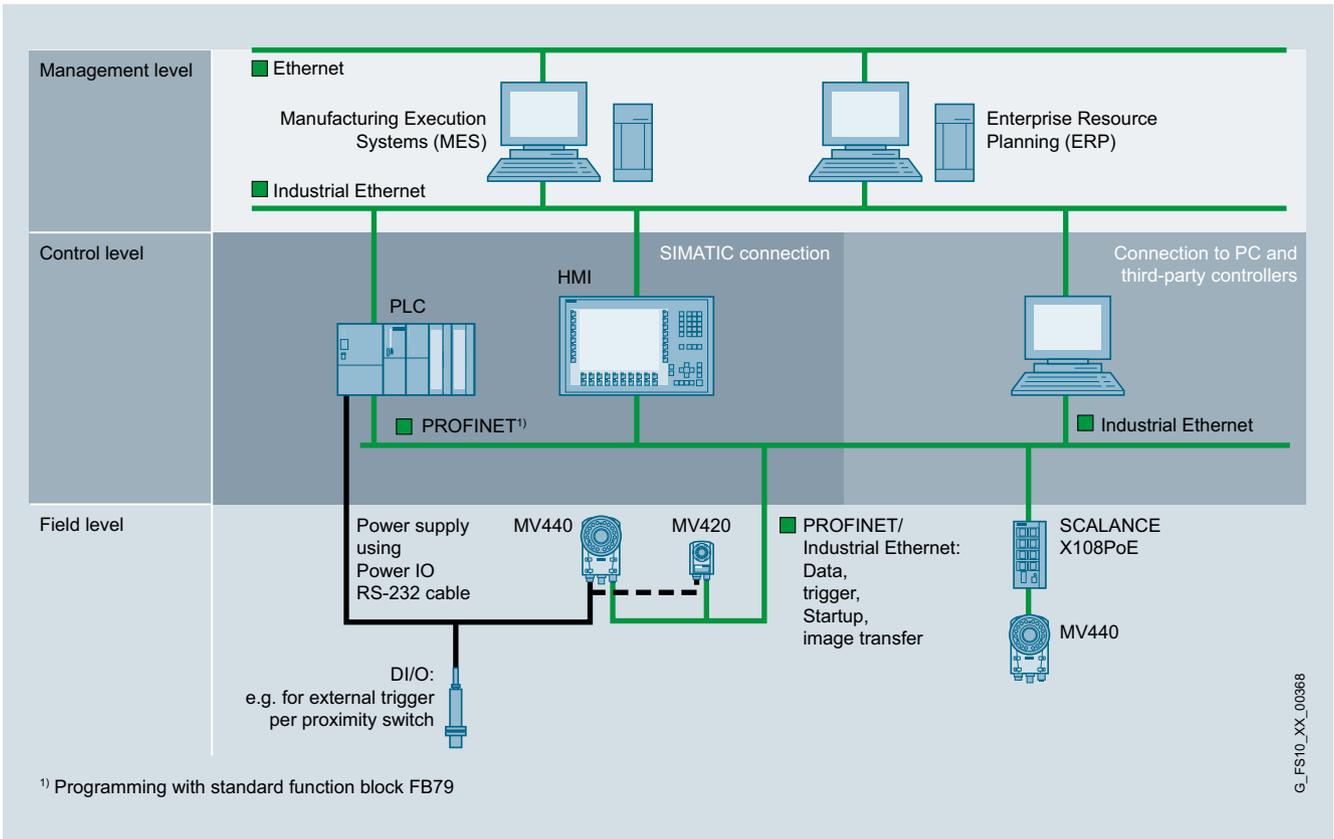


Integration of SIMATIC MV420/MV440 with connection via RS232

Code reading systems

Stationary code reading systems

Introduction



Integration of SIMATIC MV420/MV440 with a direct connection to PROFINET or Ethernet

Code reading systems

Stationary code reading systems

SIMATIC MV420

Overview



The SIMATIC MV420 is a particularly compact code reading system suitable for close-up to mid-range reading distances (approx. 10 mm to 400 mm).

SIMATIC MV420 has been specifically designed for detecting and evaluating a variety of machine readable codes in the packaging industry (e.g. F&B, pharmaceuticals, and tobacco) and industrial production (e.g. automotive, electronics, and solar). The list of readable codes includes all standard matrix codes and bar codes which can be reliably detected - mostly independent of the printing technology applied and carrier medium used. One key feature of the unit is its ability to read data matrix codes (DMC). The SIMATIC MV420 device family is flexible, reliable and easy to use.

Highlights at a glance:

- Compact design with IP67 degree of protection.
- Variety of lenses with variable reading distances.
- Integrated high-performance lighting.
- Web server technology: Parameterizable with regular Web browser.
- Interfaces: Ethernet, PROFINET, RS232, DI/DO, and direct connection to RFID communication modules (ASM).
- Exceptionally high reading speeds, depending on the model.

Further important product characteristics are:

- Excellent read algorithms based on the SIMATIC MV440 and VS130-2 code reading systems and many years of experience in industrial applications.
- No special knowledge required for reliable parameterization of reading features. Parameterization usually unnecessary, and is only required for difficult to read codes. "Setup" is performed automatically by presenting a readable code pattern.
- Code quality evaluation: displays the key quality parameters of the code to be read.
- Customized user interface can be easily generated with SIMATIC WinCC flexible/WinCC.
- Web-based user interface; can run on a variety of platforms meeting the following requirements: Internet browser (IE 6.0 or higher), JAVA-VM (MS, SUN).
- Password protected user interface with integrated access rights administration.

- Web-based user interface available for easy integration with an HMI device. The browser and JAVA VM requirements previously mentioned also apply in this case.
- 6 language versions (operator interface, manual and online help are each available in German, English, French, Spanish, Italian, and Chinese).

In addition, SIMATIC MV420 SR-P offers the following highlights:

- Autotrigger mode: Automatic detection of a code without an external trigger signal
 - Saving of sensor technology and cabling
 - Reduced potential for error as there are fewer components
 - Solution for applications where proximity switches and light barriers cannot be used
- Open web API interface for comfortable creation of customized applications and PC based camera remote control
- Multicode: reads multiple codes in one step within the same field of view.
 - ID-Genius: a high-performance code reading algorithm for poorly legible directly marked data matrix codes (DPM: Direct Part Marking)

Application

Key features of the SIMATIC MV420:

- Code reading
- Comparing the read result with a preset value
- Formatting of read results for further use

The range of application for the SIMATIC MV420 product family extends to practically all areas of industrial production. The possibilities for use range from identification of stationary parts to fast moving parts on conveyor systems. The high-performance integrated lighting allows for an extremely compact design. The unit is protected from environmental influences with a degree of protection IP67. The SIMATIC MV420 code readers are therefore suitable for all industrial applications, also for direct marking (Direct Part Marking - DPM). In addition to industrial production, thanks to its small size and flexibility, the SIMATIC MV420 code reader is also ideally suited to the packaging industry (e.g. F&B, pharmaceuticals and tobacco).

The MV420 code readers include all common communication interfaces, such as Ethernet or PROFINET, and can therefore be connected to a wide variety of systems. An integrated RS422 interface makes it possible to use all of the RFID communication modules, such those required for the PROFIBUS connection. In this case, the combination of code reader and RFID reader is also possible on one communication module.

The reading devices are particularly easy to use and commission despite the wide variety of options for use. Parameters are automatically configured for most applications. If reconfiguration is required, however, parameterization can be carried out without the need for pre-installed software via the integrated Web server using an Internet browser.

Code reading systems

Stationary code reading systems

SIMATIC MV420

Due to the properties and functions described, the emphasis for MV420 is on the following sectors and applications:

- Automobile industry:
 - Needle markings on various drive components (DPM), e.g. cylinder heads, cylinder blocks, manifolds.
 - Laser markings on various power train components (DPM), e.g. camshafts, crankshafts, cylinder piston, connecting rods, gearbox components.
 - Laser markings on electronic components, printed circuit boards, or enclosures.
- Pharmaceutical industry, food industry (F&B), tobacco industry:
 - Print or laser markings on medicines (DPM, OCR).
 - Recording the contents of cartons (up to 150 codes).
 - Read portal by linking several cameras.
- Aerospace industry:
 - Needle or laser markings on gas turbine blades (DPM).
 - Needle or laser markings on jet engine components (DPM).
- Medical equipment:
 - Laser markings on heart pacemakers and other implants (DPM).
 - Laser markings on medical devices (DPM).
- Electronics:
 - Needle or laser markings on hard disk components.
 - Lasered or etched markings on hard disk components (DPM).
- Semiconductors:
 - Laser markings on rigid and flexible circuit boards (DPM).
 - Laser markings on enclosed semiconductor components, heat sinks or heat exchangers (DPM).

More information is available in the accompanying manual.

Design

SIMATIC MV420 is a particularly compact code reading system. The device can be assembled from individual components or ordered as a ready-assembled unit. The MV420 is available in two versions:

- Basic model: SIMATIC MV420 SR-B
- Performance model: SIMATIC MV420 SR-P

For the individually configurable models the following individual components are available in addition to the basic units (body):

- Lenses
- Ring lights

The basic units include the protective barrel for the lens.

The preconfigured models include an integrated lens (6 mm, aperture 5.6) and a red ring light including protective barrel.

The following accessories are available for the connection and installation:

- Flexible mounting angle
- Power DIO RS232 cable (M16 connector on open end)
- M12 Ethernet cable (varying lengths)
- Ethernet cable (M12 to RJ45) for commissioning/lab operation; 2 m in length
- Special communication module cable for M16 connector (M16 to M12) for connecting to RFID communication modules (ASM). Can be expanded using standard communication module cables, if required.
- Plug-in power supply for demonstration and lab operation (for office environment only)
- CD with installation/operating instructions (supplied with unit)

Further information can be found in the supplied manual.

Code reading systems

Stationary code reading systems

SIMATIC MV420

Function

Key features of the SIMATIC MV420:

- Code reading (refer to "Overview" and "Application")
- Formatting of read results for further use and/or comparison
- Comparing the read result with a preset value
 - Specification of a comparison string via one of the serial ports (PROFINET (ASM and onboard), PROFIBUS (ASM), RS232)
 - Comparison of the formatted read results with the comparison string

The functions can be used individually or they can be combined.

The SIMATIC MV420 reads the following codes:

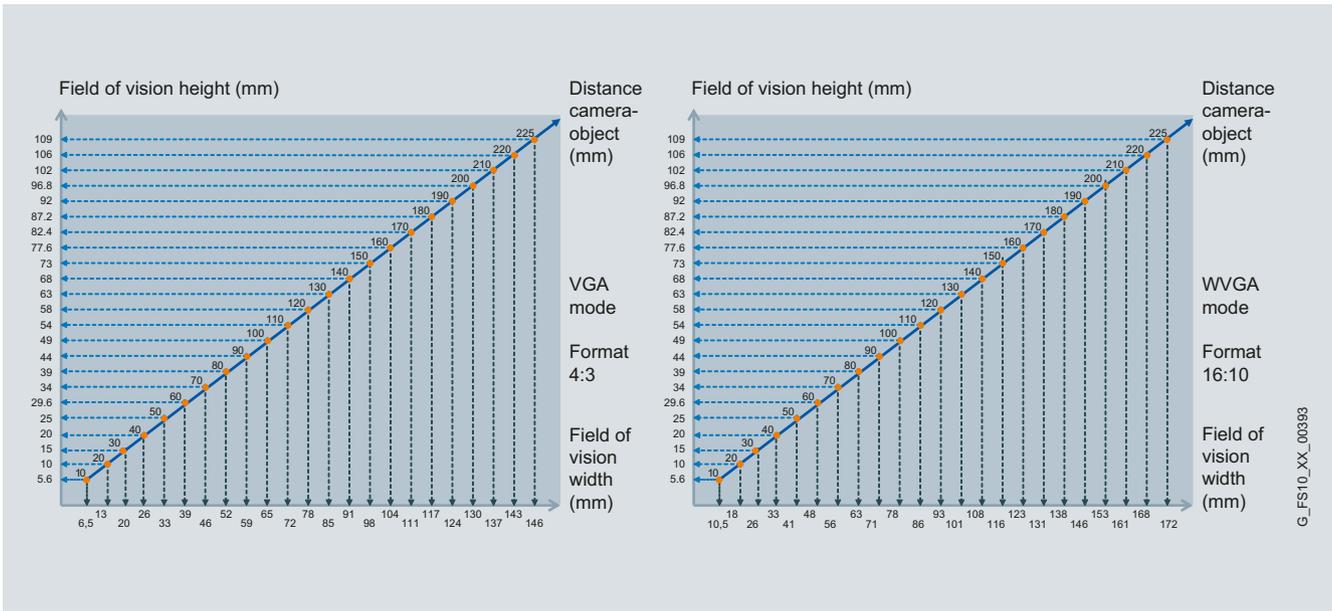
- 1D codes (barcodes):
 - Int. 2/5 (no checksum)
 - Int. 2/5+CS (checksum included)
 - Code 128
 - Code 39 (no checksum)
 - Code 39+CS (checksum included)
 - EAN 13
 - EAN 8
 - UPC-A
 - UPC-E
 - GS1 Databar 14
 - GS1 Databar Stacked
 - GS1 Databar Limited
 - GS1 Databar Expanded
- 2D codes:
 - DMC
 - PDF417
 - QR
 - DotCode
 - Vericode

The SIMATIC MV420 reads the codes found on a wide variety of components and surfaces, including:

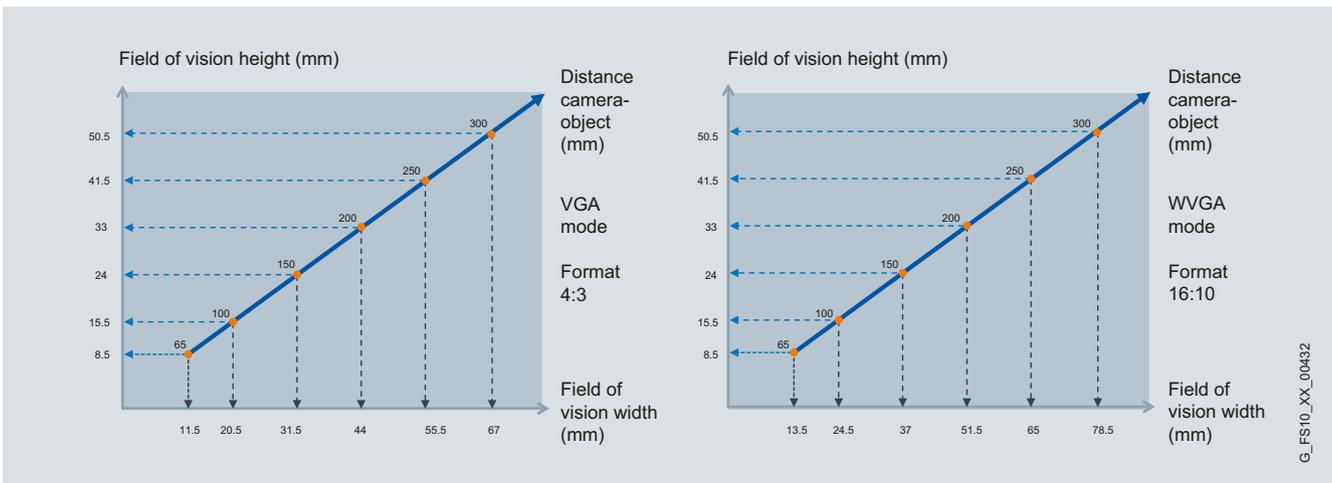
- Paper or plastic labels
- Plastic parts
- Circuit boards
- Metallic objects

The SIMATIC MV420 reads codes of a wide variety of marking types, such as:

- Printed
- Dot peened
- Laser
- Stamped
- Bored



SIMATIC MV420 field of view dimensions for the 6 mm lens



SIMATIC MV420 field of view dimensions for the 16 mm lens
Further information can be found in the supplied manual.

Integration

Various onboard connection options and convenient function blocks are available for the integration into the automation level.

In the case of SIMATIC MV420, direct connection via PROFINET, Ethernet or RS232 is possible.

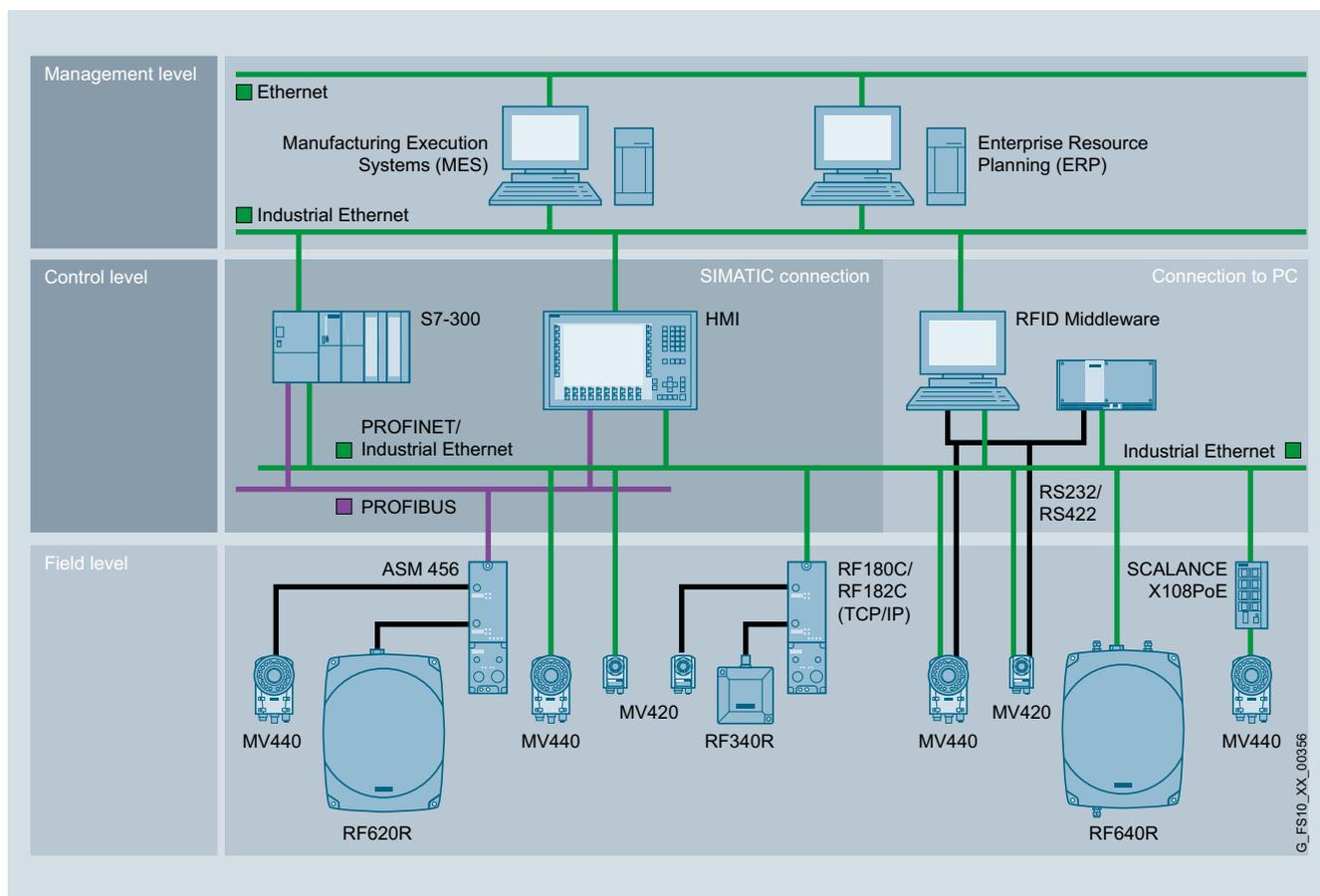
In addition, communication modules are available for connection to other bus systems or the shared interface with RFID readers.

For further details on the communication modules, see the section 6, "Communication modules".

Code reading systems

Stationary code reading systems

SIMATIC MV420



Integration of the SIMATIC MV420 in the automation environment

5

Technical specifications

Order No.	6GF3 420-0AA20	6GF3 420-0AA40
Product-type designation	MV420 SR-B code reader	MV420 SR-P code reader
Suitability for installation	1D codes: Int. 2/5, Code 128, Code 39, EAN 13, EAN 8, UPC-A, UPC-E, GS1, 2D codes: DMC, PDF417 (without: Truncated, Micro and Macro), QR (without: Micro and Macro), Vericode	1D codes: Int. 2/5, Code 128, Code 39, EAN 13, EAN 8, UPC-A, UPC-E, GS1, 2D codes: DMC, PDF417 (without: Truncated, Micro and Macro), QR (without: Micro and Macro), Vericode
Interfaces		
Design of the electrical connection the Industrial Ethernet Interface	M12, d-coded	M12, d-coded
Design of the electrical connection of the PROFIBUS interface	-	-
Design of electrical connection of RS 422 interface	M16, 12-pin	M16, 12-pin
Design of electrical connection of RS 232 interface	M16, 12-pin	M16, 12-pin
Design of electrical connection for supply voltage	M16, 12-pin	M16, 12-pin
Design of electrical connection at the digital inputs/outputs	M16, 12-pin	M16, 12-pin
Number of digital inputs	1	1
Number of digital outputs	3	3
Design of digital inputs	One high-speed trigger input	One high-speed trigger input
Design of digital outputs	<ul style="list-style-type: none"> • 2 isolated outputs 50 mA, • 1 high-speed trigger input for external lighting 	<ul style="list-style-type: none"> • 2 isolated outputs 50 mA, • 1 high-speed trigger input for external lighting

Code reading systems

Stationary code reading systems

SIMATIC MV420

Order No.	6GF3 420-0AA20	6GF3 420-0AA40
Product-type designation	MV420 SR-B code reader	MV420 SR-P code reader
Optical data		
Design of image sensor of camera	CMOS chip, VGA (640 x 480), WVGA (752 x 480)	CMOS chip, VGA (640 x 480), WVGA (752 x 480)
Type of image capture	Global shutter	Global shutter
Range	10 ... 400 mm	10 ... 400 mm
• Note	Adjustable within the range	Adjustable within the range
Mounting type of lens	Fixed (M12)	Fixed (M12)
Nature of fluorescent material	Integrated lighting or external lighting according to accessories list	Integrated lighting or external lighting according to accessories list
Image acquisition frequency, maximum	50 Hz	80 Hz
Code reading rate, maximum	29 1/s	50 1/s
Type of focusing	Manual adjustment on the lens cover	Manual adjustment on the lens cover
Supply voltage, current consumption, power loss		
Supply voltage for DC, rated value	24 V	24 V
Supply voltage		
• for DC	19.2 ... 28.8 V	19.2 ... 28.8 V
Consumed current at 24 V DC		
• typical	0.17 A	0.17 A
• maximum	2 A	2 A
Stored energy time supply voltage failure, minimum	0.01 s	0.01 s
Mechanical data		
Material	Die-cast aluminum	Die-cast aluminum
Color	Petrol blue	Petrol blue
Permitted ambient conditions		
Ambient temperature		
• during operating	0 ... 50 °C	0 ... 50 °C
• during storage	-30 ... +70 °C	-30 ... +70 °C
• during transport	-30 ... +70 °C	-30 ... +70 °C
Relative humidity at 25 °C without condensation during operating, maximum	95 %	95 %
Protection class IP	IP67	IP67
Resistance against shock	According to IEC 60068-2	According to IEC 60068-2
Resistance against shock	150 m/s ²	150 m/s ²
Resistance against vibration	10 m/s ²	10 m/s ²
Design, dimensions and weight		
Width	52.5 mm	52.5 mm
Height	70.7 mm	70.7 mm
Depth	39.5 mm	39.5 mm
Net weight	0.25 kg	0.25 kg
Type of mounting	2 x M4 screws	2 x M4 screws
Product properties, functions, components general		
Product feature silicon-free	Yes	Yes
Type of display	4 LEDs	4 LEDs
Standards, specifications, approvals		
Verification of suitability	CE, KCC, F&B suitable, UL	CE, KCC, F&B suitable, UL
Accessories		
Accessories	Mounting brackets, built-in ring lamps, M12 lenses	Mounting brackets, built-in ring lamps, M12 lenses

Code reading systems

Stationary code reading systems

SIMATIC MV420

Selection and ordering data

	Order No.		Order No.
SIMATIC MV420 SR-B Pre-configured basic model: Including lens (6 mm, aperture 5.6) and a red ring light, without multicode and ID-Genius algorithm	6GF3420-0AA20	15 m	6XV1870-8AN15
SIMATIC MV420 SR-P Preconfigured performance model Including lens (6 mm, aperture 5.6) and a red ring light, for very fast read rates, with multicode and ID-Genius algorithm	6GF3420-0AA40	Industrial Ethernet FastConnect plug connector, 2x2, 180° cable outlet RJ45 plug connector (10/100 Mbit/s) with rugged metal enclosure and FastConnect technology, for Industrial Ethernet FastConnect cable 2x2. For further cables, see Catalog IK PI under "Passive network components".	6GK1901-1BB10-2AA0
SIMATIC MV420 SR-B Basic model body: Does not include multicode or the ID-Genius algorithm	6GF3420-0AX20	Cable 24 V power supply Power cable, M16 pre-assembled, push-pull. Various lengths:	
SIMATIC MV420 SR-P Performance model body: For very high read rates; includes multicode reading and the ID-Genius algorithm	6GF3420-0AX40	1.5 m	6GF3400-0BH15
Lens accessories		2 m	6GF3400-1BH20
Lens kit 6 mm Lens 6 mm, aperture 5.6, including protective barrel	6GF3420-0AC00-0LK0	Power supply cable DIO-RS232 Power IO RS232 cable, M16 assembled on one end, open on other end. Various lengths:	
Lens kit 16 mm Lens 16 mm, aperture 4, including protective barrel	6GF3420-0AC00-1LK0	10 m	6GF3440-8BA2
Protective barrels for lenses		30 m	6GF3440-8BA4
Protective barrel replacement set Contains: 2x protective barrel, 3x O-rings, 8x mounting screws, offset screw-driver	6GF3420-0AC00-2AA0	Adapter cable for RFID communication modules (ASM) M16 connector (MV420) to M12 connector (communication module); length: 2 m; expandable to any length with standard communication module cables.	6GF3420-0AC00-2CB0
Built-in ring lights		Cable for communication module interface Standard communication module cable for installation, pre-assembled connecting cable for ASM 456, RF160C, RF170C, RF180C, and RF182C. Various lengths:	
Built-in ring lamp, red	6GF3420-0AC00-1LT0	2 m	6GT2891-4FH20
Built-in ring lamp, white	6GF3420-0AC00-2LT0	5 m	6GT2891-4FH50
Built-in ring lamp, infrared	6GF3420-0AC00-3LT0	10 m	6GT2891-4FN10
Cables		20 m	6GT2891-4FN20
IE connecting cable M12-180/IE FC RJ45 plug-145 for commissioning, service and installation Pre-assembled IE FC TP trailing cable GP 2 x 2 (PROFINET type C) with M12 plug (D-coded) and IE FC RJ45 plug, IP65/IP67 degree of protection, length: 2 m	6XV1871-5TH20	50 m	6GT2891-4FN50
IE Connecting Cable M12-180/M12-180 Pre-assembled IE FC TP Trailing Cable GP 2 x 2 (PROFINET Type C) with two 4-pin M12 plugs (D-coded) up to 85 m, IP65/IP67 degree of protection. Lengths:		Supports	
0.3 m	6XV1870-8AE30	Mounting bracket for SIMATIC MV420	6GF3420-0AC00-1AA0
0.5 m	6XV1870-8AE50		
1 m	6XV1870-8AH10		
1.5 m	6XV1870-8AH15		
2 m	6XV1870-8AH20		
3 m	6XV1870-8AH30		
5 m	6XV1870-8AH50		
10 m	6XV1870-8AN10		

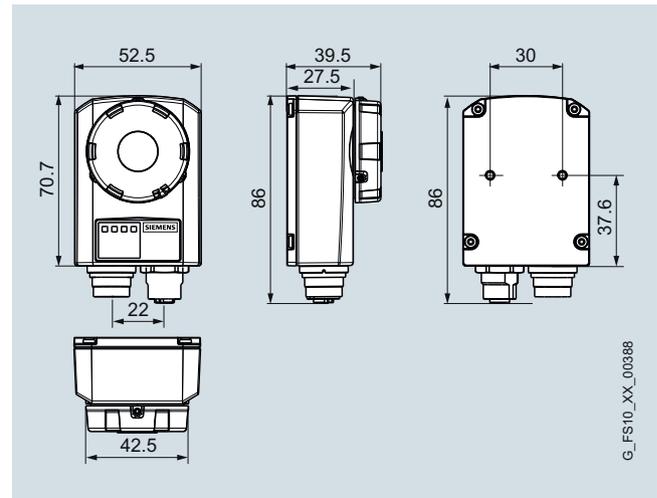
Code reading systems

Stationary code reading systems

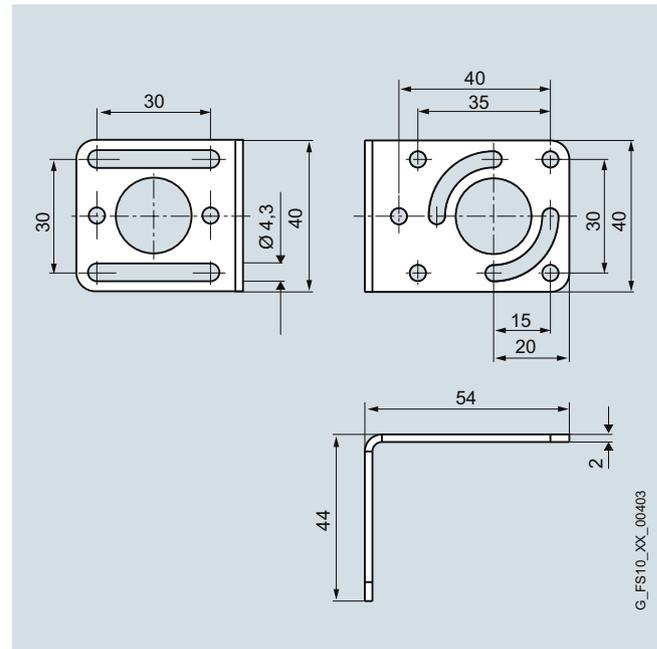
SIMATIC MV420

	Order No.
<p>Additional accessories</p> <p>SCALANCE X204-2 Industrial Ethernet Switch</p> <p>Industrial Ethernet switches with integral SNMP access, Web diagnostics, copper cable diagnostics, and PROFINET diagnostics for configuring line, star and ring topologies; with integrated redundancy manager (Exception: SCALANCE X208PRO); including operating instructions, Industrial Ethernet network manual and configuration software on CD-ROM.</p> <p>With electrical and optical ports for glass multimode FOC up to max. 5 km:</p> <p>Four 10/100 Mbit/s RJ45 ports and two fiber-optic cable ports</p>	6GK5204-2BB10-2AA3
<p>Plug-in power supply (EU, US)</p> <p>For demo and lab operation (for office environment only)</p>	6GF3420-0AC00-1PS0

Dimensional drawings



Code reading system SIMATIC MV420



Mounting bracket for code reading system SIMATIC MV420

Code reading systems

Stationary code reading systems

SIMATIC MV440

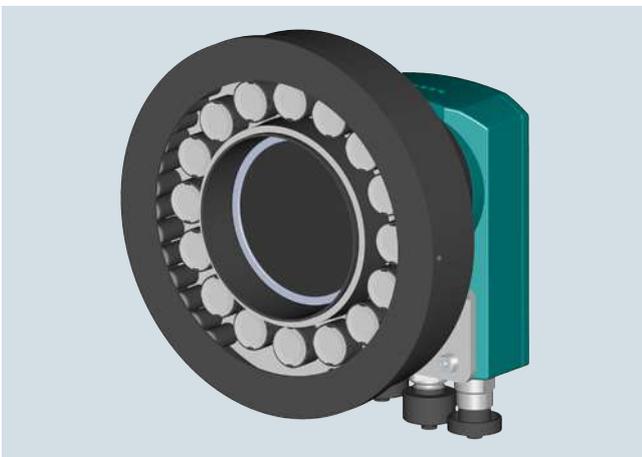
Overview



SIMATIC MV440 with built-in ring light and D65 protective barrel in plastic (included in the scope of supply)



SIMATIC MV440 with built-in ring light and D65 protective barrel (protective barrel available as accessory)



SIMATIC MV440 with external ring light and D65 protective barrel

The SIMATIC MV440 readers have been specially developed for use in industrial production. The devices offer professional decoding algorithms for machine-readable codes and text recognition in one device for production and logistics. The SIMATIC MV440 device family is characterized by flexibility, reliability and ease of use.

The list of readable codes includes all common matrix and barcodes which, regardless of the printing technology and the carrier medium used, are recognized reliably. A special feature of this device is its ability to read data matrix code (DMC) which is frequently used, especially in production, for direct part marking (DPM) and places the highest demands on the readers.

The operating range of the devices extends from close range 70 mm to distant range 3000 mm. Due to the freely selectable lenses and lighting, the working range as well as implementation in applications with special requirements is almost unrestricted. Integration in industrial automation environments is via standardized fieldbus technology, but open interfaces are also supported.

Code reading systems

Stationary code reading systems

SIMATIC MV440

Benefits



Highlights at a glance:

- Compact design with IP67 degree of protection.
- Very high reading reliability and read rates thanks to Siemens decoding algorithms.
- Different screen resolutions can be selected specific to the application.
- Flexible adaptation to the application by means of freely selectable lenses and lighting.
- Option of integrated or external high-performance lighting
- Variety of interfaces: Ethernet (PoE), PROFINET (PoE), RS232, DI/DO, communication module interface.
- Wide range of connector technology can be used by means of communication modules.
- Function block for PROFINET/PROFIBUS can be used with SIMATIC and SIMOTION.
- Web-based user interface can be used for parameter assignment and monitoring, without the need for installation.

Further important product characteristics are:

- No special knowledge required for reliable parameterization of reading features. Automatic "setup" by presenting a readable code pattern.
- Autotrigger mode: automatic detection of a code without an external trigger signal
 - Savings in sensor technology and cabling.
 - Reduced potential for error as there are fewer components.
 - Solution for applications in which proximity switches and light barriers cannot be used.
- Multicode: Reads multiple codes in one step within the same field of view.
- ID-Genius: a high-performance code reading algorithm for poorly legible directly marked data matrix codes (DPM: Direct Part Marking).
- Code quality evaluation: Displays the key quality parameters of the code to be read.
- Customized user interface can be generated with SIMATIC WinCC flexible/WinCC.
- Open web API interface for comfortable creation of customized applications and PC based camera remote control
- Web-based user interface; can run on a variety of platforms meeting the following requirements: Internet browser (IE 6.0 or higher), JAVA-VM (MS, SUN).
- Extensive diagnostics functions ensure operation at the maximum read rate.
- User/password-protected operator interface with integrated management of access rights.
- 6 language versions (operator interface, manual and online help are each available in English, German, French, Spanish, Italian and Chinese).

Application

The main functions of SIMATIC MV440 are:

- Reading 1D and 2D codes.
- Optical character recognition (OCR).
- Verification (measuring the code quality).
- Comparing the read result with a preset value.
- Formatting of read results for further use.

The application range of the SIMATIC MV440 product family covers all sectors and areas of industrial production and logistics. The possible applications include the identification of stationary parts through to extremely fast moving parts on a conveyor belt. The powerful integrated lighting allows a very compact design. The device has IP67 degree of protection and is therefore equipped for harsh industrial environments.

Due to its particularly powerful lighting, lenses and sensor technology, MV440 specializes in direct part marking (DPM) applications. Due to the high picture quality, MV440 recommends itself for measuring the marking quality (verification) in the area of DPM.

Due to the properties and functions described, the emphasis for MV440 is on the following sectors and applications:

- Automobile industry:
 - Needle markings on various drive components (DPM), e.g. cylinder heads, cylinder blocks, manifolds.
 - Laser markings on various power train components (DPM), e.g. camshafts, crankshafts, cylinder piston, connecting rods, gearbox components.
 - Laser markings on electronic components, printed circuit boards, or enclosures.
- Pharmaceutical industry, food industry (F&B), tobacco industry:
 - Print or laser markings on medicines (DPM, OCR).
 - Recording the contents of cartons (up to 150 codes).
 - Read portal by linking several cameras.
- Aerospace industry:
 - Needle or laser markings on gas turbine blades (DPM).
 - Needle or laser markings on jet engine components (DPM).
- Medical equipment:
 - Laser markings on heart pacemakers and other implants (DPM).
 - Laser markings on medical devices (DPM).
- Electronics:
 - Needle or laser markings on hard disk components.
 - Lasered or etched markings on hard disk components (DPM).
- Semiconductors:
 - Laser markings on rigid and flexible circuit boards (DPM).
 - Laser markings on enclosed semiconductor components, heat sinks or heat exchangers (DPM).

Further information can be found in the supplied manual.

Code reading systems

Stationary code reading systems

SIMATIC MV440

Design

SIMATIC MV440 is a compact, stationary code reading system. It consists of one basic unit, which can be configured with other individual components (lens, ring light and protective barrel). This allows the MV440 to be optimally adapted to the application conditions.

The SIMATIC MV440 basic unit is available in three versions that differ only with regard to the resolution of the CCD sensor and the associated recording speed mode and read rate. All three versions of the basic unit have identical functionality:

- SIMATIC MV440 SR
640 pixels x 480 pixels, 50 full screens/s
- SIMATIC MV440 HR
1024 pixels x 768 pixels, 20 full screens/s
- SIMATIC MV440 UR
1600 pixels x 1200 pixels, 15 full screens/s

Using the following accessories, the SIMATIC MV440 basic units can be tailored to the requirements of the application. For a detailed listing of the individual accessories, please refer to the section entitled "Accessories":

- Lenses
- Protective barrel for lens
- Ring lights

The following accessories are available for the connection and installation:

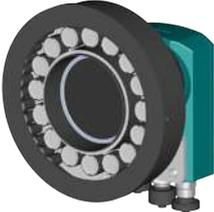
- Flexible mounting plate
- Power DIO RS232 cable (M16 connector on open end)
- M12 Ethernet cable (varying lengths)
- Ethernet cable (M12 to RJ45) for commissioning/lab operation; 2 m in length
- Special communication module cable for M16 connector (M16 to M12) for connecting to RFID communication modules (ASM). Can be expanded using standard communication module cables if required.
- Plug-in power supply for demonstration and lab operation (for office environment only)
- CD with installation/operating instructions (supplied with unit)

Code reading systems

Stationary code reading systems

SIMATIC MV440

The following configurations are recommended for the close or distant ranges:

Configuration for close range	Lenses	Ring lights	Protective barrel for lens
	Mini lens 8.5 mm	The built-in ring light cannot be used (alternative: external mounting of a ring light).	D65 protective barrels for lenses can be used.
	Mini lens 6 mm	Built-in ring lights can be used.	
	Mini lens 12 mm		
	Mini lens 16 mm		
	Mini lens 25 mm		
	Mini lens 35 mm		
	Mini lens 50 mm		Use of the protective barrel extender required (on request).
Mini lens 75 mm			
Configuration for distant range	Lenses	Ring lights	Protective barrel for lens
	Mini lens 6 mm	External ring lights can be used.	D65 protective barrels for lenses can be used.
	Mini lens 8.5 mm		
	Mini lens 12 mm		
	Mini lens 16 mm		
	Mini lens 25 mm		
	Mini lens 35 mm		
	Mini lens 50 mm		
	Mini lens 75 mm		

Function

The main functions of SIMATIC MV440 are:

- **Reading** 1D and 2D codes
- **Verification** (requires license "Veri-Genius")
- **Text recognition** (requires license "Text-Genius")
- **Comparison** of the read result with a default value
- **Object recognition** (requires license "Pat-Genius")
- **Formatting** the read result for forwarding

The functions can be used individually or they can be combined.

Read

The SIMATIC MV440 reads the following 1D and 2D codes (detailed information can be found in the manual):

- 1D codes (barcodes):
 - Int. 2/5 (with/without checksum)
 - Code 128
 - Code 93
 - Code 39 (with/without checksum)
 - Code 32
 - EAN 13
 - EAN 8
 - UPC-A
 - UPC-E
 - CodaBar
 - GS1 DataBar (Omnidirectional, Stacked, Limited, Expanded)
 - Pharmacode (0° and 180°)
 - Postnet

- 2D codes:
 - Data Matrix Code (ECC 0 - 200)
 - PDF417 (without: Truncated, Micro and Macro)
 - QR (without: Micro and Macro)
 - DotCode
 - Vericode (demo mode/VeriCode license)

Verification

Code verification is the term used for measuring the marking quality of 1D and 2D codes. This additional functionality is subject to license and is available for every SIMATIC MV440 by installing the "Veri-Genius license". The following verification methods are supported:

- ISO/IEC TR29158 (previously AIM DPM-1-2006)
- Siemens DPM
- ISO/IEC 15415
- AS9132 Rev. A (previously IAQG)
- ISO/IEC 15416 (previously ANSI X3.182-1990)

For more detailed information, refer to the chapter "Verification systems".

Code reading systems

Stationary code reading systems

SIMATIC MV440

Optical character recognition

Text recognition is used to detect plain text (Optical Character Recognition: OCR). This additional functionality is subject to license and is available for every SIMATIC MV440 by installing the "Text-Genius license" or the "Text-Genius-Plus License". Text recognition with the "Text-Genius-Plus license" is able to recognize many fonts without training immediately after installation. Particularly suitable fonts are:

- OCR-A
- Semifont M13
- and similar fonts

With training ("Text-Genius-Plus license"), text recognition is able to recognize just about all fonts even with distortion and other influences resulting in varied representation. By contrast, this version requires training overhead but offers almost unlimited potential in expanding the characters to be recognized. For more detailed information, refer to the chapter "Text recognition".

Object recognition

Object recognition is used for finding and recognizing trained patterns in the picture. This functionality can be used in stand-alone mode or in combination with all the other named functions, and therefore has different application areas. Shape recognition offers the following functionality:

- Object recognition (classification)
- Position detection (position, orientation, scaling)
- Presence check (object recognition and position check with setpoint specification)
- Completeness check (multiple presence check with setpoint specification)
- Text recognition (based on the contour of any character or symbol. However, shape recognition can also be used in combination with text recognition, for example. In this case, the text recognition read area can track the current position of an object or label.

For more detailed information, refer to the section on "Object recognition", page 5/49.

Note: In demo mode, the full functionality of the devices is available. Testing of a licensed function is therefore possible at any time. However, the output result is unusable, because one or more characters of the result will be randomly replaced by the character '?'. Binary results are completely suppressed.

Code reading systems

Stationary code reading systems

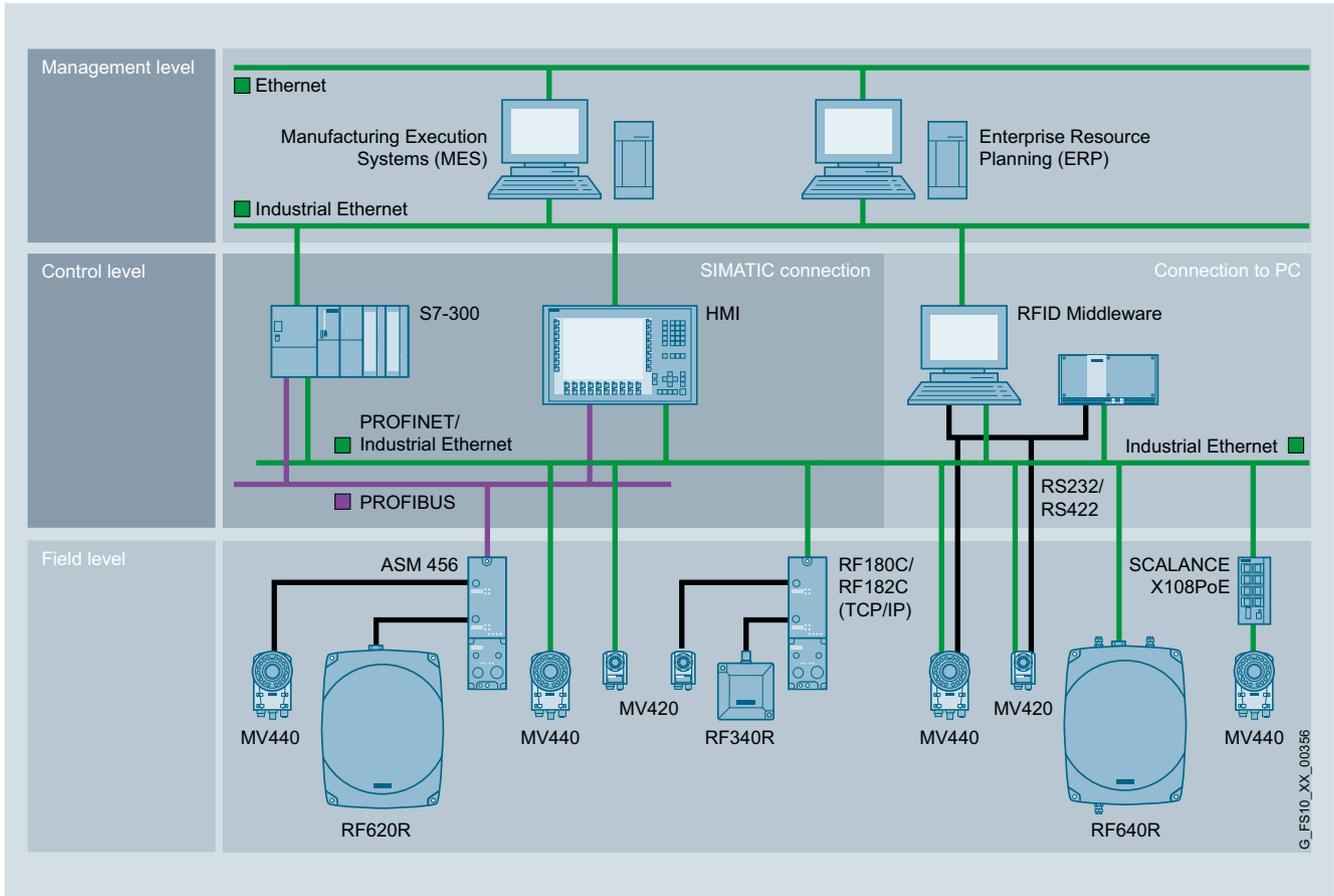
SIMATIC MV440

Integration

Various onboard connection options and convenient function blocks are available for the integration into the automation level. In the case of SIMATIC MV440, for example, direct connection via PROFINET, Ethernet or RS232 is possible.

In addition, communication modules are available for connection to other bus systems or the shared interface with RFID readers.

Further information is included in Chapter 6 "Communication modules".



Code reading systems

Stationary code reading systems

SIMATIC MV440

Technical specifications

Order No.	6GF3 440-1CD10	6GF3 440-1GE10	6GF3 440-1LE10
Product-type designation	Code reader MV440 SR	MV440 HR code reader	Code reader MV440 UR
Suitability for installation	1D codes: Int. 2/5, Code 128, Code 93, Code 39, Code 32, EAN 13, EAN 8, UPC-A, UPC-E, GS1, Pharmacode, Postnet 2D codes: DMC, PDF417 (without: Truncated, Micro and Macro), QR (without: Micro and Macro), Vericode Text recognition: OCR-A, Semifont M13, similar fonts Code verification: AIM DPM-1-2006, Siemens DPM, ISO/IEC 15415, AS9132 Rev. A, ISO/IEC 16416	1D codes: Int. 2/5, Code 128, Code 93, Code 39, Code 32, EAN 13, EAN 8, UPC-A, UPC-E, GS1, Pharmacode, Postnet 2D codes: DMC, PDF417 (without: Truncated, Micro and Macro), QR (without: Micro and Macro), Vericode Text recognition: OCR-A, Semifont M13, similar fonts Code verification: AIM DPM-1-2006, Siemens DPM, ISO/IEC 15415, AS9132 Rev. A, ISO/IEC 16416	1D codes: Int. 2/5, Code 128, Code 93, Code 39, Code 32, EAN 13, EAN 8, UPC-A, UPC-E, GS1, Pharmacode, Postnet 2D codes: DMC, PDF417 (without: Truncated, Micro and Macro), QR (without: Micro and Macro), Vericode Text recognition: OCR-A, Semifont M13, similar fonts Code verification: AIM DPM-1-2006, Siemens DPM, ISO/IEC 15415, AS9132 Rev. A, ISO/IEC 16416
Interfaces			
Design of the electrical connection the Industrial Ethernet Interface	M12, d-coded, PoE	M12, d-coded, PoE	M12, d-coded, PoE
Design of the electrical connection of the PROFIBUS interface	-	-	-
Design of electrical connection of RS 422 interface	M12, 8-pin	M12, 8-pin	M12, 8-pin
Design of electrical connection of RS 232 interface	M16, 12-pin	M16, 12-pin	M16, 12-pin
Design of electrical connection for supply voltage	M16, 12-pin	M16, 12-pin	M16, 12-pin
Design of electrical connection at the digital inputs/outputs	M16, 12-pin	M16, 12-pin	M16, 12-pin
Number of digital inputs	5	5	5
Number of digital outputs	5	5	5
Design of digital inputs	4 opto isolated inputs (NPN, PNP capability) optionally as output, one high-speed trigger input	4 opto isolated inputs (NPN, PNP capability) optionally as output, one high-speed trigger input	4 opto isolated inputs (NPN, PNP capability) optionally as output, one high-speed trigger input
Design of digital outputs	4 isolated outputs optionally as input, short-circuit-proof, max. 50 mA, 1 high-speed trigger input for external lighting	4 isolated outputs optionally as input, short-circuit-proof, max. 50 mA, 1 high-speed trigger input for external lighting	4 isolated outputs optionally as input, short-circuit-proof, max. 50 mA, 1 high-speed trigger input for external lighting
Optical data			
Design of image sensor of camera	CCD chip 1/3", 640 x 480	CCD chip 1/3", 1024 x 769	CCD chip 1/1.8", 1600 x 1200
Type of image capture	Global shutter with manual or automatic exposure time	Global shutter with manual or automatic exposure time	Global shutter with manual or automatic exposure time
Range	0.07 ... 3 m	0.07 ... 3 m	0.07 ... 3 m
Range note	Using C-mount lenses and lens accessories, the range can be exactly matched to the application	Using C-mount lenses and lens accessories, the range can be exactly matched to the application	Using C-mount lenses and lens accessories, the range can be exactly matched to the application
Mounting type of lens	C mount lens connection with Plexiglas lens protection, 65 mm diameter	C mount lens connection with Plexiglas lens protection, 65 mm diameter	C mount lens connection with Plexiglas lens protection, 65 mm diameter
Nature of fluorescent material	Integrated lighting or external lighting according to accessories list	Integrated lighting or external lighting according to accessories list	Integrated lighting or external lighting according to accessories list
Image acquisition frequency, maximum	80 Hz	30 Hz	25 Hz
Code reading rate, maximum	80 1/s	30 1/s	25 1/s
Type of focusing	Manual adjustment on the lens	Manual adjustment on the lens	Manual adjustment on the lens
Supply voltage, current consumption, power loss			
Supply voltage for DC, rated value	24 V	24 V	24 V
Supply voltage			
• for DC	19.2 ... 28.8 V	19.2 ... 28.8 V	19.2 ... 28.8 V
Consumed current at 24 V DC			
• typical	0.27 A	0.27 A	0.27 A
• maximum	2 A	2 A	2 A
Stored energy time supply voltage failure, minimum	0.01 s	0.01 s	0.01 s
Mechanical data			
Material	Die-cast aluminum	Die-cast aluminum	Die-cast aluminum
Color	Petrol blue	Petrol blue	Petrol blue

Code reading systems

Stationary code reading systems

SIMATIC MV440

Order No.	6GF3 440-1CD10	6GF3 440-1GE10	6GF3 440-1LE10
Product-type designation	Code reader MV440 SR	MV440 HR code reader	Code reader MV440 UR
Permitted ambient conditions			
Ambient temperature			
• during operating	0 ... 50 °C	0 ... 50 °C	0 ... 50 °C
• during storage	-30 ... +70 °C	-30 ... +70 °C	-30 ... +70 °C
• during transport	-30 ... +70 °C	-30 ... +70 °C	-30 ... +70 °C
Relative humidity at 25 °C without condensation during operating, maximum	95 %	95 %	95 %
Protection class IP	IP67	IP67	IP67
Resistance against shock	According to IEC 60068-2	According to IEC 60068-2	According to IEC 60068-2
Resistance against shock	100 m/s ²	100 m/s ²	100 m/s ²
Resistance against vibration	10 m/s ²	10 m/s ²	10 m/s ²
Design, dimensions and weight			
Width	68 mm	68 mm	68 mm
Height	122 mm	122 mm	122 mm
Depth	45 mm	45 mm	45 mm
Net weight	0.55 kg	0.55 kg	0.55 kg
Type of mounting	4 x M4 screws	4 x M4 screws	4 x M4 screws
Product properties, functions, components general			
Product feature silicon-free	Yes	Yes	Yes
Type of display	5 LEDs	5 LEDs	5 LEDs
Standards, specifications, approvals			
Verification of suitability	CE, KCC, F&B suitable, UL	CE, KCC, F&B suitable, UL	CE, KCC, F&B suitable, UL
Accessories			
Accessories	Licenses (verification and text recognition and object recognition), mounting brackets, built-in ring lights, external ring lights, C-mount lenses, protective barrels for lenses	Licenses (verification and text recognition and object recognition), mounting brackets, built-in ring lights, external ring lights, C-mount lenses, protective barrels for lenses	Licenses (verification and text recognition and object recognition), mounting brackets, built-in ring lights, external ring lights, C-mount lenses, protective barrels for lenses

Code reading systems

Stationary code reading systems

SIMATIC MV440

Selection and ordering data

	Order No.		Order No.
SIMATIC MV440 SR For one-dimensional and two-dimensional codes. Optional: Text recognition (OCR), object recognition and verification of barcodes and data matrix codes. Variable image field and distance. Resolution: 640 x 480 pixels. PoE; IP67 using protective barrel for lens and sealing caps, otherwise IP40; package comprises reader, CD and plastic protective barrel for lens.	6GF3440-1CD10	Accessories Lens accessories Mini lenses with fixed focal length, adjustable aperture and focus (see also "Lenses" section on page 5/30).	
SIMATIC MV440 HR For one-dimensional and two-dimensional codes. Optional: Text recognition (OCR), object recognition and verification of barcodes and data matrix codes. Variable image field and distance. Resolution: 1024 x 768 pixels. PoE; IP67 using protective barrel for lens and sealing caps, otherwise IP40; package comprises reader, CD and plastic protective barrel for lens.	6GF3440-1GE10	 <ul style="list-style-type: none"> Mini lens 6 mm, 1: 1.4 D = 32 mm, L = 37.5 mm Mini lens 8.5 mm, 1:1.5 D = 42 mm, L = 47 mm, not suitable in combination with built-in ring lights Mini lens 12 mm, 1:1.4 D = 29.5 mm, L = 35.7 mm Mini lens 16 mm, 1:1.4 D = 29.5 mm, L = 37.2 mm Mini lens 25 mm, 1:1.4 D = 29.5 mm, L = 38.9 mm Mini lens 35 mm, 1:1.6 D = 29.5 mm, L = 41.4 mm Mini lens 50 mm, 1:2.8 D = 29.5 mm, L = 38 mm Mini lens 75 mm, 1:2.8 D = 34 mm, L = 63.6 mm, an extension piece is required when using the D65 lens protective barrel (on request) 	6GF9001-1BB01 6GF9001-1BE01 6GF9001-1BL01 6GF9001-1BF01 6GF9001-1BG01 6GF9001-1BH01 6GF9001-1BJ01 6GF9001-1BK01
SIMATIC MV440 UR For one-dimensional and two-dimensional codes. Optional: Text recognition (OCR), object recognition and verification of barcodes and data matrix codes. Variable image field and distance. Resolution: 1600 x 1200 pixels PoE; IP67 using protective barrel for lens and sealing caps, otherwise IP40; package comprises reader, CD and plastic protective barrel for lens.	6GF3440-1LE10	Accessories for utilizing mini lenses at close range Set of intermediate rings with 0.5 mm, 1.0 mm, 5.0 mm, 10.0 mm, 20.0 mm and 40 mm rings with 31 mm diameter C thread, to be screwed in between the lens and the camera body for image capture in the macro range.	6GF9001-1BU
Optional software modules Text recognition module "Text-Genius" License for the module "Text-Genius", supplied on USB flash drive; executable on SIMATIC MV440 firmware V3.0 and higher (MV440 not included in the scope of supply). Description see page 5/45.	6GF3400-0SL01	Set of intermediate rings with 0.5 mm and 2 x 1.0 mm rings with 31 mm diameter C thread, to be screwed in between the lens and the camera body for image capture in the close range.	6GF9001-1BU01
Text recognition module "Text-Genius Plus" License for the module "Text-Genius Plus", supplied on USB flash drive; executable on SIMATIC MV440 firmware V5.0 and higher (MV440 not included in the scope of supply). Description see page 5/45.	6GF3400-1SL01		
Verification module "Veri-Genius" License for the module "Veri-Genius", supplied on USB flash drive; executable on SIMATIC MV440 firmware V4.0 and higher (MV440 not included in the scope of supply). Description see page 5/40.	6GF3400-0SL02		
Object recognition module "Pat-Genius" License for the module "Pat-Genius", supplied on USB flash drive; executable on SIMATIC MV440 firmware V6.0 and higher (MV440 not included in the scope of supply). Description see page 5/49.	6GF3400-0SL03		

Code reading systems

Stationary code reading systems

SIMATIC MV440

	Order No.		Order No.
<p>Protective barrels for lenses</p> <p>Protective barrel for lens D65 made of metal, for built-in ring lights, internal diameter 57 mm, max. lens length 57 mm, IP67 degree of protection.</p> <ul style="list-style-type: none"> • Glass front pane • Plastic front pane 	<p>6GF3440-8AC11</p> <p>6GF3440-8AC21</p>	<p>External ring lights</p>  <p>SIMATIC MV400 ring light</p> <ul style="list-style-type: none"> • Ring light, metal, infrared, clear light source LED infrared, light source 850 nm, light source 500 mm to 23 m, suitable for D65 lens protective barrel, supply voltage: 24 V (18 V ... 30 V), dimensions B x H x T (mm): 142 x 142 x 42.4, degree of protection IP67. • Ring light, metal, red, clear light source LED infrared, light source 500 mm to 3 000 mm, suitable for D65 lens protective barrel, supply voltage: 24 V (18 V ... 30 V) dimensions W x H x D (mm) 142 x 142 x 42.4, degree of protection IP67. 	<p>6GF3400-0LT01-7BA1</p> <p>6GF3400-0LT01-8BA1</p>
<p>Protective barrel for lens D65 made of plastic; to achieve IP67 degree of protection; suitable for all variants of MV440 and for use with built-in ring lights; max. internal diameter 55 mm, max. lens length 48 mm.</p> 	<p>6GF3440-8AC12</p>	<p>Cable</p> <p>IE connecting cable M12-180/IE FC RJ45 plug-145 for commissioning, service and installation</p> <p>Pre-assembled IE FC TP trailing cable GP 2 x 2 (PROFINET type C) with M12 plug (D-coded) and IE FC RJ45 plug, IP65/IP67 degree of protection. Length: 2 m</p>	<p>6XV1871-5TH20</p>
<p>Built-in ring lights</p> <ul style="list-style-type: none"> • Built-in ring light, red Light source: LED red (630 nm) Flash duration 20 µs to 10 ms, range of illumination 800 mm, mounting materials included, IP67 degree of protection when using protective barrel for lens. • Built-in white ring light Light source: White LED (440 nm to 650 nm) Flash duration 20 µs to 10 ms, range of illumination 800 mm, mounting materials included, IP67 degree of protection when using protective barrel for lens. • Built-in ring light, green Light source: Green LED (500 nm to 570 nm) Flash duration 20 µs to 10 ms, range of illumination 800 mm, mounting materials included, IP67 degree of protection when using protective barrel for lens. • Built-in ring lamp, infrared Light source: Infrared LED (850 nm to 880 nm) Flash duration 20 µs to 10 ms, range of illumination 800 mm, mounting materials included, IP67 degree of protection when using protective barrel for lens. 	<p>6GF3440-8DA11</p> <p>6GF3440-8DA21</p> <p>6GF3440-8DA31</p> <p>6GF3440-8DA41</p>	<p>IE M12-180/M12-180 connecting cable</p> <p>Pre-assembled IE FC TP trailing cable GP 2 x 2 (PROFINET type C) with two 4-pin M12 connectors (D-coded) up to max. 85 m, IP65/IP67 degree of protection, RJ45 assembly possible with plug-in connector 6GK1901-1BB10-2AA0 (see below). Lengths:</p> <p>0.3 m</p> <p>0.5 m</p> <p>1 m</p> <p>1.5 m</p> <p>2 m</p> <p>3 m</p> <p>5 m</p> <p>10 m</p> <p>15 m</p>	<p>6XV1870-8AE30</p> <p>6XV1870-8AE50</p> <p>6XV1870-8AH10</p> <p>6XV1870-8AH15</p> <p>6XV1870-8AH20</p> <p>6XV1870-8AH30</p> <p>6XV1870-8AH50</p> <p>6XV1870-8AN10</p> <p>6XV1870-8AN15</p>

5

Code reading systems

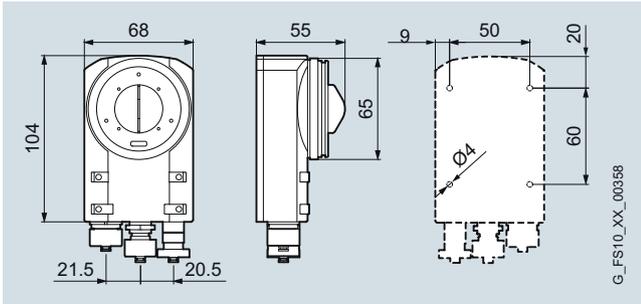
Stationary code reading systems

SIMATIC MV440

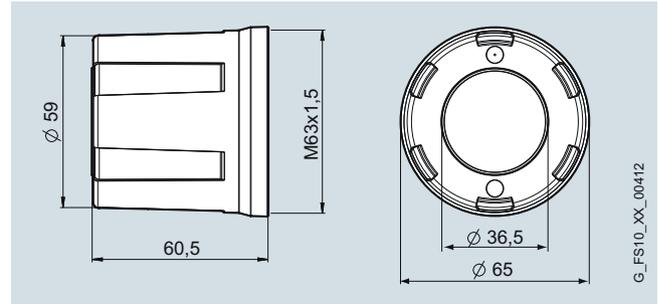
	Order No.
Industrial Ethernet FastConnect plug connector, 2x2, 180° cable outlet RJ45 plug connector (10/100 Mbit/s) with rugged metal enclosure and FastConnect connection method. For Industrial Ethernet FastConnect cable 2x2. For further cables, see Catalog IK PI under "Passive network components".	6GK1901-1BB10-2AA0
Cable for communication module interface Communication module cable for connection to communication modules, e.g. ASM 456, RF160C, RF170C, RF180C, and RF182C. Plug-in cable pre-assembled for SIMATIC MV440. Available in the following lengths:	
2 m	6GT2891-4FH20
5 m	6GT2891-4FH50
10 m	6GT2891-4FN10
20 m	6GT2891-4FN20
50 m	6GT2891-4FN50
Cable 24 V power supply Power cable, M16 pre-assembled, push-pull. Various lengths:	
1.5 m	6GF3400-0BH15
2 m	6GF3400-1BH20
Cable power supply DIO RS232 Power IO RS232 cable, M16 pre-assembled at one end, other end unconnected. Various lengths:	
10 m	6GF3440-8BA2
30 m	6GF3440-8BA4
Cable for external ring lights suitable for 6GF3400-0LTO-7DA1, 6GF3400-0LTO-8DA1, M12, open end, 4-pole, not suitable for drag cables, cable connects external ring lights with the control cabinet (24 V, Gnd, strobe), length 10 m.	6GF3440-8BC4
Adapter cable for external ring lights Suitable for 6GF3400-0LTO-7DA1, 6GF3400-0LTO-8DA1 enables direct connection of external ring lights to MV420 and MV440 when using the power supply cable DIO-RS232 (see above) M16, 12-pole socket; M16, 12-pole connector; M12, 4-pole socket, length 25 cm.	6GF3440-8BD1

	Order No.
Mounting accessories Reader mounting plate Dimensions W x H x D (mm) 80 x 80 x 60, plate thickness: 4 mm	6GF3440-8CA
	
Mounting plate for external ring lights Dimensions W x H x D (mm) 96 x 76 x 46, plate thickness: 4 mm.	6GF3440-8CD01
	
Support system, tri-plate Dimensions W x H x D (mm) 80 x 80 x 60, plate thickness: 4 mm	6GF9002-7AD
	
Further accessories SCALANCE X108PoE Industrial Ethernet Switch Industrial Ethernet Switch for 10/100 Mbit/s, including operating instructions, Industrial Ethernet network manual and configuration software on CD-ROM; 6 x 10/100 Mbit/s RJ45 ports, electrical 2 x 10/100 Mbit/s RJ45 PoE ports, electrical. For more information about SCALANCE switches for PoE see Catalog IK PI.	6GK5108-0PA00-2AA3

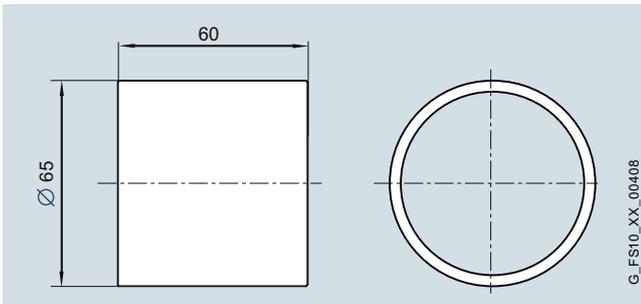
Dimensional drawings



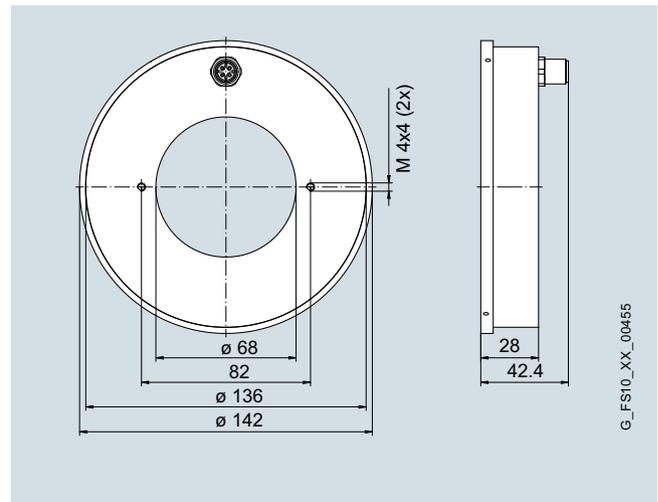
Stationary SIMATIC MV440 code reading system



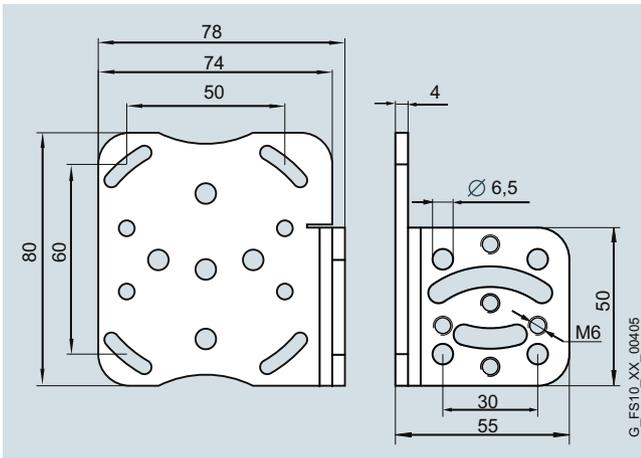
Plexiglas protective barrel



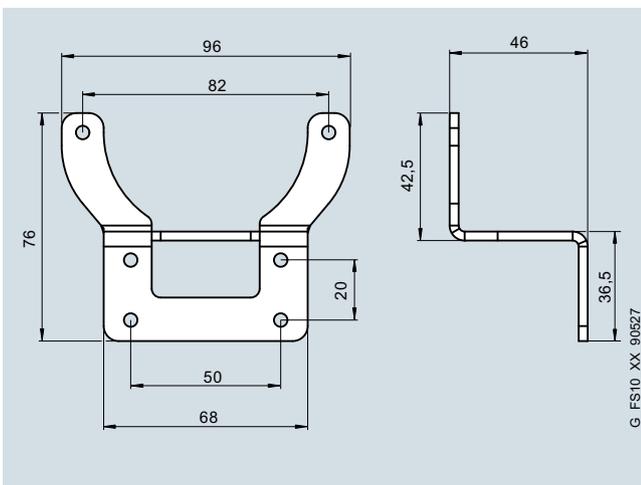
Protective barrel for lens D65



MV400 ring light



Mounting bracket for code reading system SIMATIC MV440



Mounting plate for external ring light

Code reading systems

Stationary code reading systems

Lenses

Overview



With a lens suitable for the respective image evaluation task, the size of the image field is determined for the camera image for the required operating distance.

High light intensity and the geometry of the image are extremely important for image evaluation (code reading, form recognition and position detection). High light intensity permits short shutter speeds and consequently a reduction of the blurring due to motion as well as maximizing the range.

Fault-free image geometry optimizes the fault tolerance of image analysis with regard to perspective and unevenness of the surface of the depicted object.

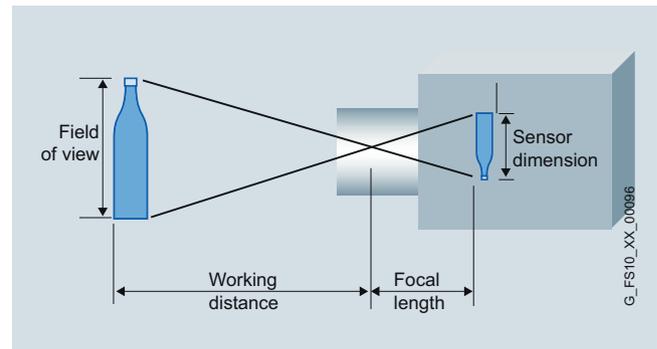
Lenses with fixed focal length and a settable aperture and focus are ideal for this purpose and are therefore preferred.

Function

Image types

The optical path of the lens is defined by its construction.

For **spherical lenses** the solid angle depends on the focal length, focus adjustment and aperture; all rays run through the focal point of the lens (central projection). Objects that are further away from the lens are depicted smaller; objects that are closer to the lens are depicted larger:



The required image field size (height and width of the image), the size of the sensor chip and the focal length of the lens determine the operating distance:

$$d = (f \times IS) / b$$

d = Operating distance (i.e. distance from lens to test object) in mm

f = Focal length of the lens in mm

IS = Size of image in the plane of the test object in mm

b = effective dimensions of the sensor in mm

In the case of lenses used in image processing systems, the focal length is fixed, the aperture and focus settings can be fixed. The focal length, the maximum focal aperture and the focusing range are normally specified on the lenses.

Focal distance

The focal length makes a statement about the angle of the image field or magnification of the lens.

The focal length of the lens is determined by the size of the required image field and the size of the camera chip when a specific distance has to be maintained. The most common chip sizes in cameras today are 1/2", 1/3" and 1/4". If the distance to the object lies below the adjustable focusing range of the lens, i.e. at close range, the focus can be adjusted using intermediate rings.

If the back focal length for this camera is dimensioned for CS-Mount lenses, as for VS 130-2, a C-Mount lens can also be focused if a 5 mm extension tube is used.

Aperture

Reduction of the light intensity by interrupting the optical path.

Focus

Setting the focus of the lens to a specific distance.

Depth of field

Depth of field is the area within which (in front of and behind the object) that is displayed with sufficient sharpness of focus. The larger the aperture (the smaller the aperture number), the smaller the depth of field.

Lenses with a larger focal length have a smaller depth of field, the effect is considerable for images at close range.

5

Application

Code and text recognition

The algorithms of code and text recognition tolerate variations in form and size of the marking. In many applications, code readers must tolerate the influence of perspective distortion. Geometric errors resulting from the imaging often reduce the reading performance of the overall system.

Important selection criteria for the lenses of code readers are fast shutter speeds which guard against blurring due to motion, as well as maximization of the reading distance.

All lenses in this accessories list meet the requirements for code reading and text recognition. In addition, lens accessories (e.g. filters) are available which in conjunction with the accessories of the readers support project-specific configurations.

Form recognition and position location

For form recognition with high reproducibility, a format-filling high-resolution image is required. Geometric errors resulting from the imaging often reduce the reading performance of the overall system.

Important selection criteria for the lenses of code readers are a fast shutter speed which guards against blurring due to motion, as well as maximization of the range. It is particularly important to maximize the range, since the stability of image analysis rises as the angle of the image field reduces. This is why a large distance from the test object is advantageous.

All lenses in this accessories list meet the requirements for shape recognition. In addition, lens accessories (e.g. filters) are available that in conjunction with the accessories of the readers support project-specific configurations.

Lens types

Lenses with smaller focal length are called wide-angle lenses, they can also be used at short operating distances, but produce intense distortion of the image. At a suitable distance, they have a large image field.

Lenses with a long focal length are called telephoto lenses; they have a large magnification but cannot be focused at close range, so macro lenses are used that can be focused by means of large telescopic extensions or intermediate rings. At a suitable distance, they have a small image field.

In the case of telecentric lenses, at least the optical path at the object end is almost parallel (i.e. parallel projection). This means

that objects at different distances are depicted in the same size. Objects can, however, only be displayed that are smaller than the diameter of the lens. It is not possible to adjust the range of focus with these lenses.

The optical characteristics can be restricted by means of optical filter glasses to counteract distortion in the image. Colored filters limit the spectral range, gray filters limit the light intensity and polarization filters restrict the transmission plane. Filters of this type can be attached either by using the internal thread or the flange on the front of the lens. The holder for the filter glass is designed to fit the lens.

Selection and ordering data

	Order No.
Lenses for SIMATIC MV440 and VS130-2, for reading code and plain text and for object recognition with fixed focal length, adjustable aperture and focus, with locking screw.	
<ul style="list-style-type: none"> • Mini lens 6 mm, 1:1.4 D = 32 mm, L = 37.5 mm; MOD = 0.1 mm¹⁾ 	6GF9001-1BB01
<ul style="list-style-type: none"> • Mini lens 8.5 mm, 1:1.5 D = 42 mm, L = 47 mm; successor type for 6GF9001-1BE; MOD = 0.2 m¹⁾ 	6GF9001-1BE01
<ul style="list-style-type: none"> • Mini lens 12 mm, 1:1.4 D = 29.5 mm, L = 35.7 mm; MOD = 0.25 m¹⁾ 	6GF9001-1BL01
<ul style="list-style-type: none"> • Mini lens 16 mm, 1:1.4 D = 29.5 mm, L = 37.2 mm; successor type for 6GF9001-1BF; MOD = 0.25 m¹⁾ 	6GF9001-1BF01
<ul style="list-style-type: none"> • Mini lens 25 mm, 1:1.4 D = 29.5 mm, L = 38.9 mm; successor type for 6GF9001-1BG; MOD = 0.25 m¹⁾ 	6GF9001-1BG01
<ul style="list-style-type: none"> • Mini lens 35 mm, 1:1.6 D = 29.5 mm, L = 41.4 mm; MOD = 0.4 m¹⁾ 	6GF9001-1BH01
<ul style="list-style-type: none"> • Mini lens 50 mm, 1:2.8 D = 29.5 mm, L = 38.0 mm; successor type for 6GF9001-1AH; MOD = 0.9 m¹⁾ 	6GF9001-1BJ01
<ul style="list-style-type: none"> • Mini lens 75 mm, 1:2.8 D = 34.0 mm, L = 63.6 mm; MOD = 0.7 m¹⁾ Not for use in combination with internal ring lights. 	6GF9001-1BK01
CS-Mount for C-Mount adapter ring 5 mm	6GF9001-1AP02
Accessories for utilizing mini lenses at close range	
Set of intermediate rings with 0.5 mm, 1.0 mm, 5.0 mm, 10.0 mm, 20.0 mm and 40 mm rings with 31 mm diameter C thread, to be screwed in between the lens and the camera body for image capture in the macro range.	6GF9001-1BU
Set of intermediate rings with 0.5 mm and 2 x 1.0 mm rings with 31 mm diameter C thread, to be screwed in between the lens and the camera body for image capture in the close range.	6GF9001-1BU01
Accessories for utilizing mini lenses in the telephoto range	
Focal length doubler D = 30.5 mm, L = 17.9 mm, with C-thread to be screwed in between the lens and camera to extend the focal length by a factor of 2. Suitable lenses: 6GF9001-1BE01, ...-1BL01, ...-1BF01, ...-1BG01, ...-1BH01, ...-1BJ01, ...-1BK01	6GF9001-1BV
Filter for utilizing the mini lenses in the limited field of view	
Infrared filter Function: Visible light is largely or completely filtered out, infrared light can pass through. Application: When used with infrared lamps, it is possible to achieve independence from daylight. Suitable lenses: 6GF9001-1BL01, ...-1BF01, ...-1BG01, ...-1BH01, ...-1BJ01	6GF9001-2AD
Blue filter Function: Blue light can pass through. Application: e.g. to improve the visualization of structures. Suitable lenses: 6GF9001-1BL01, ...-1BF01, ...-1BG01, ...-1BH01, ...-1BJ01	6GF9001-2AE
Polarization filter Function: Filters out light which is directed at right angles to the polarization direction of the filter. Application: e.g. to reduce reflections from metal. Suitable lenses: 6GF9001-1BL01, ...-1BF01, ...-1BG01, ...-1BH01, ...-1BJ01	6GF9001-2AF
Daylight filter Function: Visible light can pass largely undiminished, and frequencies above and below (infrared light and ultraviolet light) are filtered out. Application: The filter is used to protect the image sensor in the camera from laser light to the extent that this is outside the visible spectrum. Suitable lenses: 6GF9001-1BL01, ...-1BF01, ...-1BG01, ...-1BH01, ...-1BJ01	6GF3440-8EA1

¹⁾ MOD = Minimum object distance

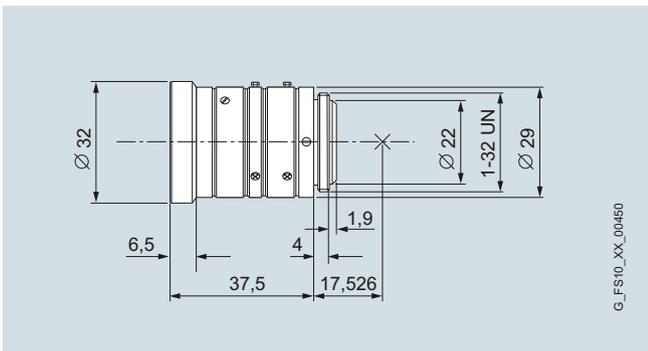
Code reading systems

Stationary code reading systems

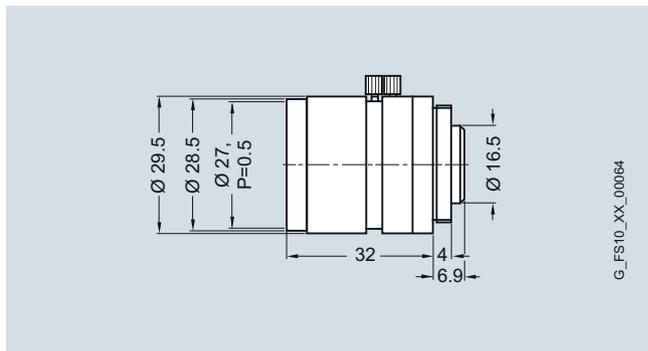
Lenses

Dimensional drawings

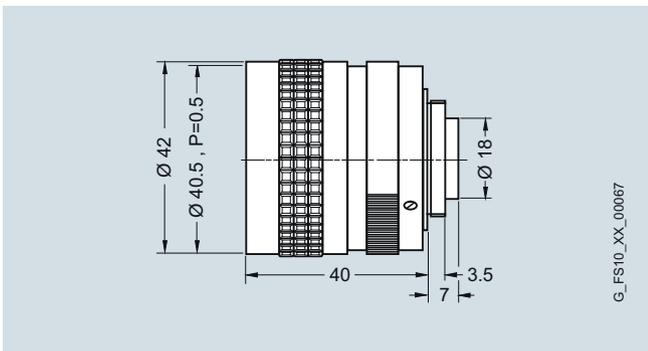
Lenses for reading code and plain text and parts recognition



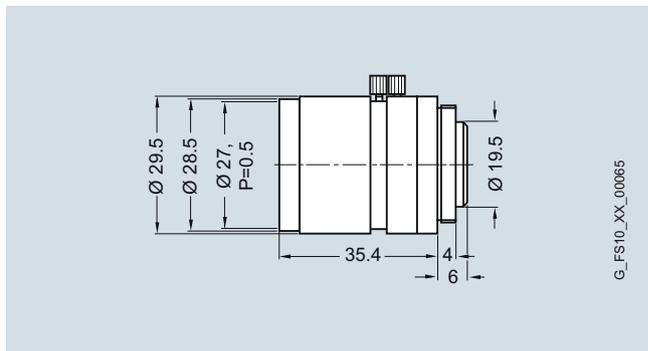
Lens 6GF9 001-1BB01



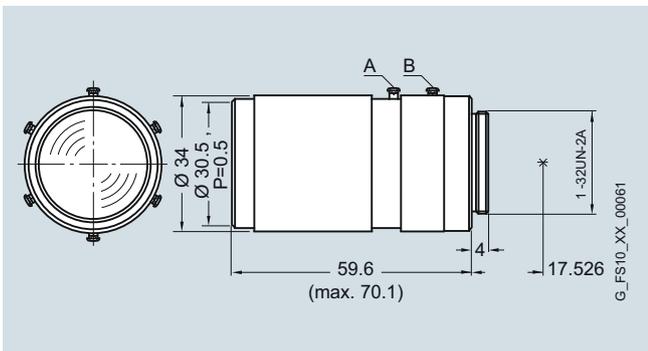
Lens 6GF9 001-1BG01



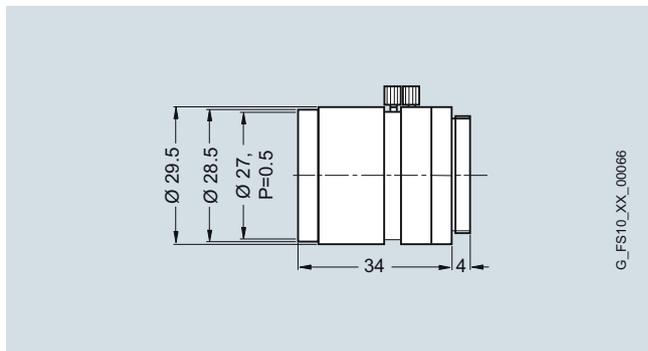
Lens 6GF9 001-1BE01



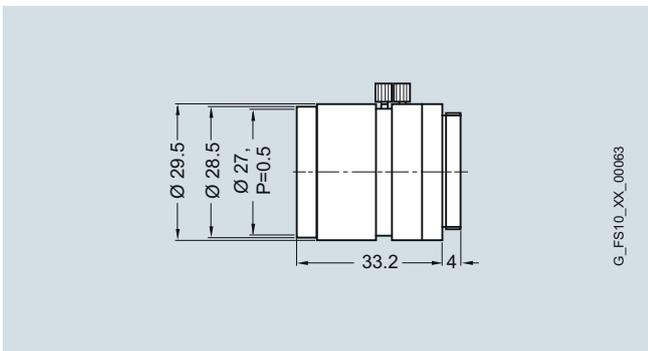
Lens 6GF9 001-1BH01



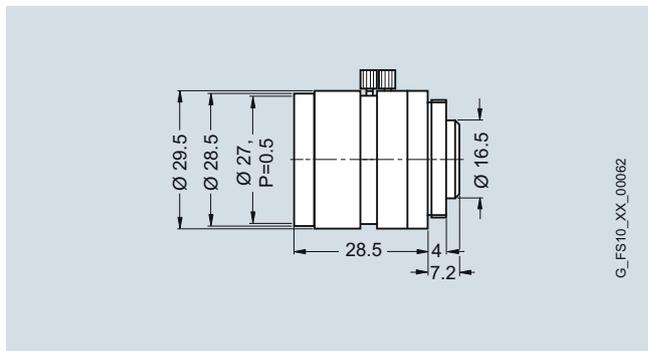
Lens 6GF9 001-1BK01



Lens 6GF9 001-1BJ01

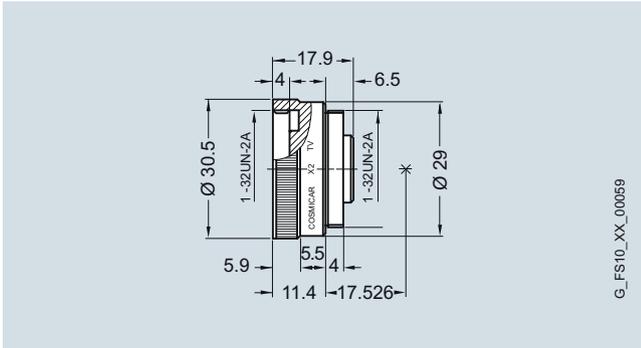


Lens 6GF9 001-1BF01

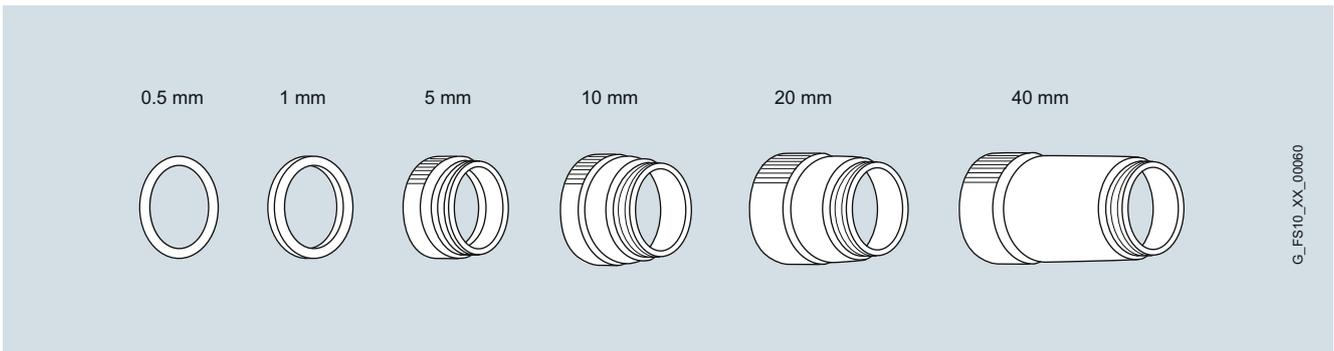


Lens 6GF9 001-1BL01

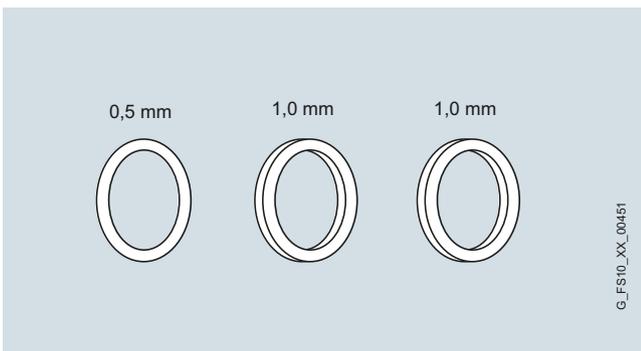
Accessories for lenses



Focal range doubler 6GF9 001-1BV



Intermediate ring set 6GF9 001-1BU



Intermediate ring set 6GF9 001-1BU01

Code reading systems

Hand-held reading systems

Introduction

Overview



SIMATIC MV320 handheld reading system



SIMATIC MV325 handheld reading system



SIMATIC MV340 handheld reading system

Handheld reading systems are suitable for portable reading of two-dimensional (2D) data matrix codes and one-dimensional (1D) barcodes. The integrated complex image processing functions and illumination technologies permit codes to be read on different surfaces. Code readers of different performance classes are available for this purpose. The range extends from devices for simple reading tasks such as printed barcodes up to models for demanding, weak-contrast markings such as dot-peened or lasered codes.

SIMATIC MV320

The SIMATIC MV320 is the entry level device. The entry level device is suitable for labels with higher contrasts, but it can also be used application-specifically for labels with lower contrasts. The SIMATIC MV320 is available as cabled versions (RS232, USB). The reader is designed for a distance of up to 375 mm.

SIMATIC MV325

The SIMATIC MV325 handheld readers are powerful readers with Bluetooth wireless communication. The readers are suitable for labels with higher contrasts, but they can also be used application-specifically for labels with lower contrasts. The SIMATIC MV325 readers are supplied with a charging station containing the respective access point of the wireless interface and a cabled connection to the host (USB). The readers are designed for a distance of up to 375 mm.

SIMATIC MV340

The SIMATIC MV340 is the most powerful device and is particularly suitable for demanding applications such as low-contrast and damaged codes. It has a high reading rate when decoding data matrix symbols. The special integrated lighting works equally well on smooth, reflective or wavy surfaces. The MV340 can be connected via RS232 or USB. The device is designed for close ranges and records codes at a distance of up to 50 mm.

Major differences

Type	SIMATIC MV320	SIMATIC MV325	SIMATIC MV340
Graphic display	–	–	–
Read quality of low-contrast codes	+	+	+++
Operating distance			
• Minimum (code-dependent)	50 mm (1.9")	50 mm (1.9")	0 mm (0.0")
• Maximum (code-dependent)	375 mm (14.8")	375 mm (14.8")	50 mm (2.0")
Field of view			
• Near	25 mm x 15 mm (0.98" x 0.6") at 50 mm (1.9") distance	25 mm x 15 mm (0.98" x 0.6") at 50 mm (1.9") distance	36 mm x 29 mm (1.4" x 1.1") at distance of 0 mm (0.0")
• Distant	150 mm x 90 mm (5.9" x 3.5") at 50 mm (1.9") distance	150 mm x 90 mm (5.9" x 3.5") at 375 mm (14.8") distance	71 mm x 57 mm (2.8" x 2.2") at distance of 51 mm (2.0")
Decoding capability	1D: Codabar, Code 11, Code 32, Code 39, Code 93, Code 128, Interleaved 2 of 5, GS1 DataBar (RSS), Maxtrix 2 of 5, MSI Plessey, Plessey, Straight 2 of 5, Trioptic, UPC/EAN/JAN Stacked 1D: GS1 Composite (CC-A/CC-B/CC-C), MicroPDF, PDF417 2D: Aztec Code, Data Matrix, Micro QR Code, QR Code, Han Xin	1D: Codabar, Code 11, Code 32, Code 39, Code 93, Code 128, Interleaved 2 of 5, GS1 DataBar (RSS), Maxtrix 2 of 5, MSI Plessey, Plessey, Straight 2 of 5, Trioptic, UPC/EAN/JAN Stacked 1D: GS1 Composite (CC-A/CC-B/CC-C), MicroPDF, PDF417 2D: Aztec Code, Data Matrix, Micro QR Code, QR Code, Han Xin	1D: Code 39, Code 93, Code 128, I2of5, Codabar, UPC/EAN, Pharmacode, BC 412 2D: Data Matrix, QR Code, MicroQR Code, PDF417, GS1 Databar, Aztec
Department of Defense Unique Identifier String Validator	–	–	•
Code creation	Print, laser	Print, laser	Laser, print, dot peen
Radio interfaces	–	Bluetooth	–
Ports	USB, RS232	USB	USB, RS232

Benefits



- Industry leading reading performance for Data Matrix codes, also for hard-to-read DPMs.
- Rugged design, for production environment.
- Supports multiple communication protocols: RS232 / USB or Bluetooth.
- Can read barcodes, data matrix codes, and other symbols.
- Can be used as a replacement device for existing barcode readers.

Application

The hand-held reader systems are suitable for optical identification of objects using 1D or 2D codes in the production, logistics, quality control, and maintenance and servicing fields. Application examples:

- Automotive industry
 - Markings on various drive components (cylinder heads, cylinder blocks, elbow joints, etc.)
 - Laser markings on various drive components (cam shafts, crankshafts, pistons, piston rods, gearbox components, etc.)
 - Laser markings on electronic components, PCBs or enclosures
- Mechanical engineering
 - Markings on different types of component
- Tobacco industry
 - Printed or laser markings on boxes
- Food industry
 - Printed or laser markings on cartons
 - Laser markings on production machines

Design

All handheld readers are equipped with a handle. The handles are equally suitable for right-handed or left-handed persons. The read process is triggered by a switch on the handle. The handle can be removed. On cabled connections via RS232 or USB, data and power are transmitted direct via the shared cable.

Code reading systems

Hand-held reading systems

SIMATIC MV320

Overview



SIMATIC MV320 is a rugged, powerful industrial barcode and data matrix reader suitable for high resolutions. The handheld reader reads two-dimensional (2D) data matrix codes and one-dimensional barcodes. It can read medium to high contrast data matrix codes. The cell size should be larger than 0.13 mm. Barcodes can be read if the width of a bar is larger than 0.12 mm.

The reader possesses complex image processing functions and illumination technology in order to read codes on many different surfaces.

The SIMATIC MV320 handheld reader is suitable for wired communication. Thanks to the varied interface technology (USB, RS232), simple integration into your application is possible with the device.

The SIMATIC MV320 handheld reader is supplied as a package including USB cable. A separate package comprising cable and power supply is available for use as an RS232 version.

Design

Rugged ergonomic handle with integral strain relief

The SIMATIC MV320 handheld reader has a monolithic product and thus extremely rugged. The only replaceable component is the cable that is connected to the reader with protected strain relief but can nevertheless be easily replaced for the purpose of changing the interface technology.

Integration

The SIMATIC MV320 handheld readers can communicate with the host computer by means of RS232 and USB. No special software is required for this purpose. The SIMATIC MV320 is configured by reading supplied data matrix codes.

The handheld reader can only be operated via RS232 and USB for direct transfer of the codes to the host computer. Batch mode is not possible.

Selection and ordering data

	Order No.
SIMATIC MV320 Rugged industrial barcode and data matrix reader with 1.8 m USB cable	6GF3320-0HT01
Accessories	
USB cable 1.8 m long, not spiraled	6GF3320-0AC02
RS232 cable 2.4 m long, spiraled	6GF3320-0AC03
Power supply unit • For the USA • For Europe	6GF3020-0AC40-0AP1 6GF3020-0AC40-0AP2
Metal stand	6GF3320-0AC07

Overview



SIMATIC MV325 is a rugged, powerful industrial barcode and data matrix reader suitable for high resolutions. It reads two-dimensional (2D) data matrix codes and one-dimensional barcodes.

Medium to high contrast data matrix codes can be read. The cell size should be larger than 0.13 mm. Barcodes can be read if the width of a bar is larger than 0.12 mm.

The reader possesses complex image processing functions and illumination technology in order to read codes on many different surfaces.

The SIMATIC MV325 handheld reader is suitable for wireless communication. Thanks to Bluetooth interface technology, simple integration into your application is possible with the device.

The handheld reader is supplied as a package including charging station and USB cable.

Design

The SIMATIC MV325 handheld reader has a replaceable battery pack and is extremely rugged. The only replaceable component is the battery that can be charged together with the reader or individually in the charging station.

Integration

The charging station of the SIMATIC MV325 handheld reader can communicate with the host computer by means of USB. No special software is required for this purpose. The SIMATIC MV325 is configured by reading supplied data matrix codes.

The SIMATIC MV325 handheld reader itself communicates via Bluetooth with the base station. No special software is required for connecting a handheld reader with a specific charging station since the SIMATIC MV325 is connected with the charging station by reading a unique code on the charging station.

The code contents read are automatically transferred to the charging station as soon as a wireless connection is established. If the connection to the charging station is not established, the read results are buffered in the mobile section (if this function is activated). This operating mode is referred to as batch mode. As soon as the connection to the charging station is restored, the read results are automatically transferred.

Selection and ordering data

	Order No.
SIMATIC MV325 Rugged industrial 1D and 2D code reader (e.g. barcode and data matrix), with charging station and USB cable. With Bluetooth wireless interface and charging station with USB host interface	6GF3325-0HT01
<i>Accessories</i>	
Charging station Charging station with USB host interface and Bluetooth wireless interface. With USB cable (0.9 m).	6GF3325-0AC03
Battery Lithium ions (1300 mAh; 50,000 charging cycles)	6GF3325-0AC07

Code reading systems

Hand-held reading systems

SIMATIC MV340

Overview



SIMATIC MV340 is one of the most powerful handheld readers in the world and is thus particularly suitable for demanding applications. It reads a wide range of direct part markings (DPM), from linear barcodes up to 2D symbols. Different codes can be read without having to reconfigure the device.

The device is designed for close ranges and records codes at a distance of up to 50 mm. The optimum reading distance is 6 mm. The special integrated lighting is ideal for a wide variety of surfaces and increases the contrast with stamped codes. Reading despite fluctuating lighting conditions, low contrast, and twisted or damaged codes are the strengths of the MV340.

The MV340 is connected via a USB or RS232 interface to the IT system. The USB cable is included in the delivery as standard, the RS232 cable can be ordered separately as an accessory.

Design

The MV340 is a fully integrated device that combines a powerful reader unit and lighting in a rugged housing with an ergonomically shaped handle. The read process is triggered by a switch on the handle. Feedback from the read process can be optical via a multi-color LED, acoustic, or by means of a vibrating alarm.

The special integrated lighting unit can switch automatically between different lighting types to always provide optimal lighting conditions for a wide range of code and surface types. Even low-contrast codes or dot peen markings are therefore no longer a problem.

The device is supplied with a USB cable as standard. An RS232 cable can be ordered separately as an accessory.

Integration

The SIMATIC MV340 is connected via USB or RS232. Free ESP software is available for user-friendly set-up of the device. As an alternative, the device can be installed and operated without special software since it can also be configured by reading supplied data matrix codes.

The power supply is solely via cable. If the device is connected via USB to the host computer, the supply voltage is applied directly via the USB port. If the connection is via RS232, an additional power supply unit is required which is coupled to the RS232 connector via Y-cable. The power supply unit is available in three variants: EU, UK, and USA.

Technical specifications

Order No.	6GF3 340-0HT01
Product-type designation	MV340 hand-held reader
Suitability for installation	1D codes: Int. 2/5, Code 128, Code 93, Code 39, EAN/UPC, Codabar, BC 412, 2D codes: DMC, PDF417, QR, GS1 Databar
Design of the interface	USB, RS232
Optical data	
Design of image sensor of camera	CMOS 1280 x 1024
Range	0 ... 50 mm
Range note	Code-dependent
Mounting type of lens	Integrated
Nature of fluorescent material	Lighting system comprising diffuse incident light (red, blue) and dark field (red)
Image acquisition frequency, maximum	10 Hz
Type of focusing	Fixed focus, optimum focal point at 6.3 mm
Supply voltage, current consumption, power loss	
Type of current supply	Via USB or external plug-type power supply unit (RS232), 5 V, 410 mA
Permitted ambient conditions	
Ambient temperature	
• during operating	0 ... 50 °C
• during storage	-20 ... +65 °C
Relative humidity at 25 °C without condensation during operating, maximum	95 %
Height of fall, maximum	1.8 m
Design, dimensions and weight	
Width	180 mm
Height	63 mm
Depth	114 mm
Net weight	0.2 kg
Product properties, functions, components general	
Design of the display	Multi-color LED
Design of the control elements	Trigger in handle
Product functions management, configuration	
Product function of the software	Read, display, save, transfer codes
Type of programming	Optical parameter assignment or with configuration software
Accessories	
Accessories	RS232 cable with power supply

Selection and ordering data

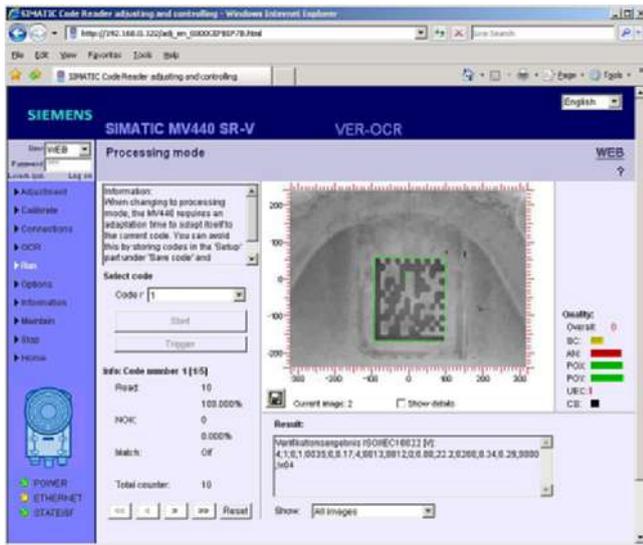
	Order No.
SIMATIC MV340 Rugged industrial barcode and data matrix handheld reader with USB cable.	6GF3340-0HT01
Accessories	
RS232 cable	
• 2.4 m long, spiraled.	6GF3020-0AC40-0AC1
• 2.4 m long, spiraled, with power supply for USA.	6GF3020-0AC40-0AC3
• 2.4 m long, spiraled, with power supply for Europe.	6GF3020-0AC40-0AC4
• 2.4 m long, spiraled, with power supply for UK.	6GF3020-0AC40-0AC5
• 5 m long, spiraled.	6GF3020-0AC40-0AC7
• 5 m long, spiraled, with power supply for Europe.	6GF3020-0AC40-0AC8
USB cable	
1.8 m long, not spiraled.	6GF3020-0AC40-0AC0
Power supplies	
• For USA.	6GF3020-0AC40-0AP1
• For Europe.	6GF3020-0AC40-0AP2

Code reading systems

Verification systems

Veri-Genius for MV440

Overview



Marking a product is normally done very early on in the production process so that all following steps can be controlled using the product identity.

By using verification systems, the readability of marks is guaranteed throughout the entire production process regardless of any possible contamination or when using different read devices. Moreover, the marking can continue to be read after the production process throughout the lifespan of the product.

With the verification license "Veri-Genius", devices of the SIMATIC MV440 family can be used for checking the marking quality of codes (verification) in addition to reading 1D barcodes and 2D matrix codes.

The license is supplied as a "Single License" on a USB flash drive and can be installed via the SIMATIC Automation License Manager (ALM) on any reader of the SIMATIC MV440 series. The license is executable on a SIMATIC MV440 as of firmware version 4.0.

Benefits

get Designed for Industry

Support for all important sectors and code types through the following verification standards:

- ISO TR 29158 (previously AIM DPM-1-2006)
 - Code type: Data Matrix Code
 - Type of marking: All - focus on DPM, e.g. dot-peened and lasered markings
 - Industries: All - focus on DPM, e.g. dot-peened and lasered markings
- Siemens DPM
 - Code type: Data Matrix Code
 - Type of marking: All - focus on DPM, e.g. dot-peened and lasered markings
 - Industries: All
- ISO/IEC 15415
 - Code type: Data Matrix Code
 - Type of marking: Printed
 - Sectors: All – focus: Pharmaceutical industry
- AS9132 Rev. A (previously IAQG)
 - Code type: Data Matrix Code
 - Type of marking: Printed
 - Sectors: All – focus: Aerospace
- ISO/IEC 15416 (previously ANSI X3.182-1990)
 - Code type: Barcode
 - Type of marking: Printed
 - Sectors: All - printed labels

Further highlights

- Different resolutions are available (640 x 480 pixels, 1024 x 768 pixels and 1600 x 1200 pixels)
- License includes calibration card
- Simultaneous reading and verifying in one image field
- Flexible retrofitting of the license to each device of the SIMATIC MV440 series via the Automation License Manager of SIMATIC – advantage: Savings in stocking of spare parts
- Simple integration of verification in the automation environment via SIMATIC MV440 using a function block (FB79 and FB45)

Application

Applications for verification span across almost all sectors. To maximize read rates in production and logistics and to make them predictable, it is essential to measure the marking quality.

The following sectors and applications are a particular focus for MV440 verification systems:

Automobile industry

- Needle marking (DPM): e.g. cylinder heads, cylinder blocks, etc.
- Laser marking (DPM): Cylinder pistons, gearbox components, etc.
- Laser markings on electronic components, printed circuit boards, or enclosures

Pharmaceutical industry

- Print or laser markings on medicines (DPM, OCR)
- Aerospace industry
- Needle or laser markings on gas turbine blades (DPM)
- Needle or laser markings on jet engine components (DPM)

Medical equipment

- Laser markings on implants (DPM)
- Laser markings on medical devices (DPM).

Electronics

- Needle or laser markings on hard disk components
- Lasered or etched markings on hard disk components (DPM)

Semiconductors

- Laser markings on rigid and flexible circuit boards (DPM)
- Laser markings on enclosed semiconductor components, heat sinks or heat exchangers (DPM)

"Veri-Genius" can be used anywhere where environmental conditions permit the use of MV440 code readers - for details, see SIMATIC MV440. Standard ring lights and lenses are designed to achieve IP67 degree of protection by means of the protective barrel, and for glass-free use in the food and beverages industry. If light sources or lenses are used outside the protective barrel, they must be used in compliance with their specification.

Any host and HMI systems required must be selected sector-specifically and project-specifically. The range of application of the selected test method is defined in the specification of the test method and compliance is essential if universally valid results are to be obtained.

Design

All SIMATIC MV440 stationary code readers are basic units under the terms of the license. The verification functionality is enabled by transferring the license key from the USB flash drive on which it is supplied to the MV440 code reader by means of SIMATIC License Manager.

Verification with MV440 verification systems is suitable for both inline and offline measurements. In both cases, the specification of the verification standard used must be observed to ensure a robust measurement result. This means, for example, that the lighting and alignment of the light source, camera and test object must be in accordance with the definitions of the respective standard.

If only one light source is used, the MV440 can control an external light source using the existing image-synchronized digital output, or the external light source can be operated continuously.

If more lighting directions are required, an external controller can be used to activate the desired lighting and to start each individual measurement by means of triggering. The result from the quality measurement or the relevant partial measurement is output directly by the MV440 after completion of the measurement. In the case of more than one measurement, it is the task of the external controller to combine the partial results into an overall result and to visualize this.

If the test method requires calibration, the calibration card included in the scope of supply can be used in most cases. In cases with extreme imaging requirements (e.g. with very small or very large codes), the task of calibration must be resolved application-specifically.

Code reading systems

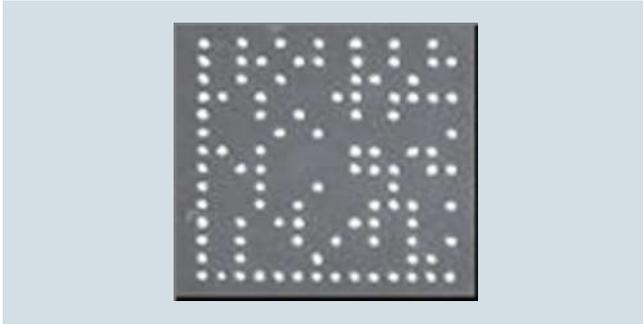
Verification systems

Veri-Genius for MV440

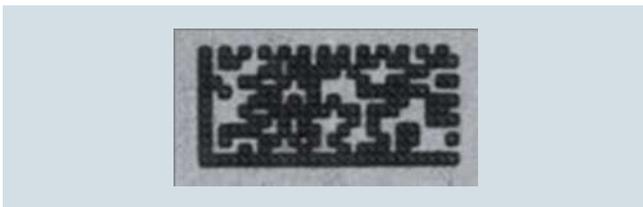
Function

Verification of code quality is an additional function subject to a license that can be activated on any SIMATIC MV440 by installing the "Veri-Genius license". The functionality is available without a license in demo mode.

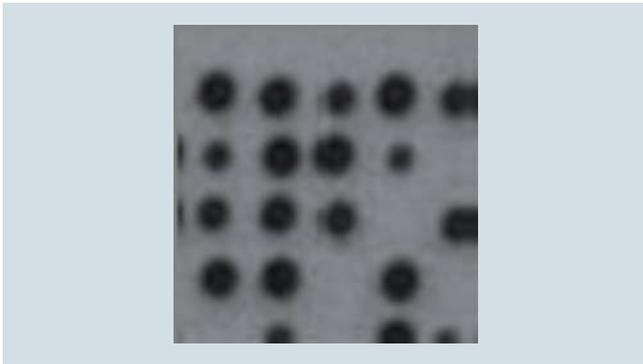
The following typical types of fault can be detected by measuring the marking quality - the following pictures show examples of correct code and faults in the marking quality:



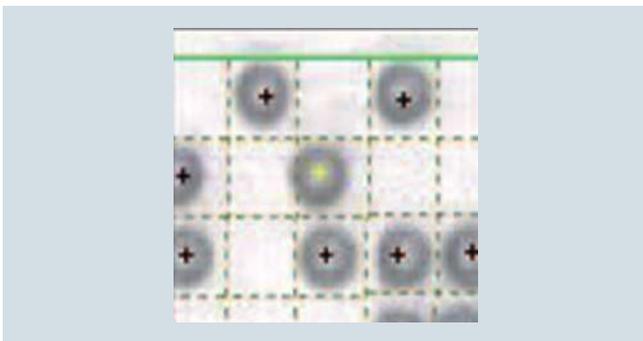
Correct code



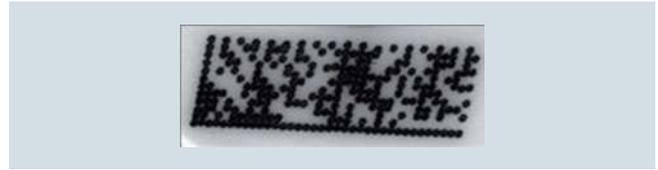
Incorrect or non-uniform cell size in the marking



Incorrect or non-uniform cell size in the marking



Incorrect or non-uniform cell position in the marking



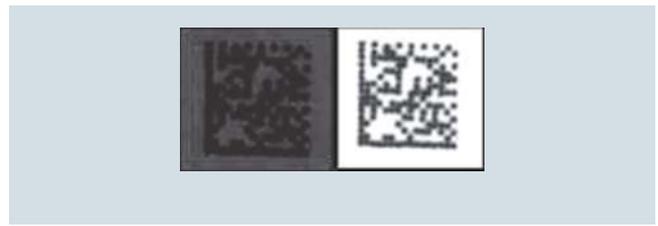
Incorrect overall geometry of the marking



Damaged surface of the marking or part



Very little or non-uniform contrast in the marking



Very little or non-uniform contrast in the marking

The following measuring procedures/standards are available for the purposes of inspection:

- ISO TR 29158 (previously AIM DPM-1-2006)
- Siemens DPM
- ISO/IEC 15415
- AS9132 Rev. A (previously IAQG)
- ISO/IEC 15416 (previously ANSI X3.182-1990)

The measurement result is output as an overall result in 5 stages, which are named using letters or numbers:

Overall result as a digit	Overall result as letters	Overall result as text
4	A	Top quality
3	B	Good quality
2	C	Satisfactory quality
1	D	Adequate quality
	E	(not used)
0	Error	Marking quality inadequate

The components of a measurement result and calculation of the overall result are dependent on the test method used.

The overall result and the components of a measurement result can be output after a test, and are then available for further processing on an external system, e.g. for archiving or creating a test report.

Code reading systems

Verification systems

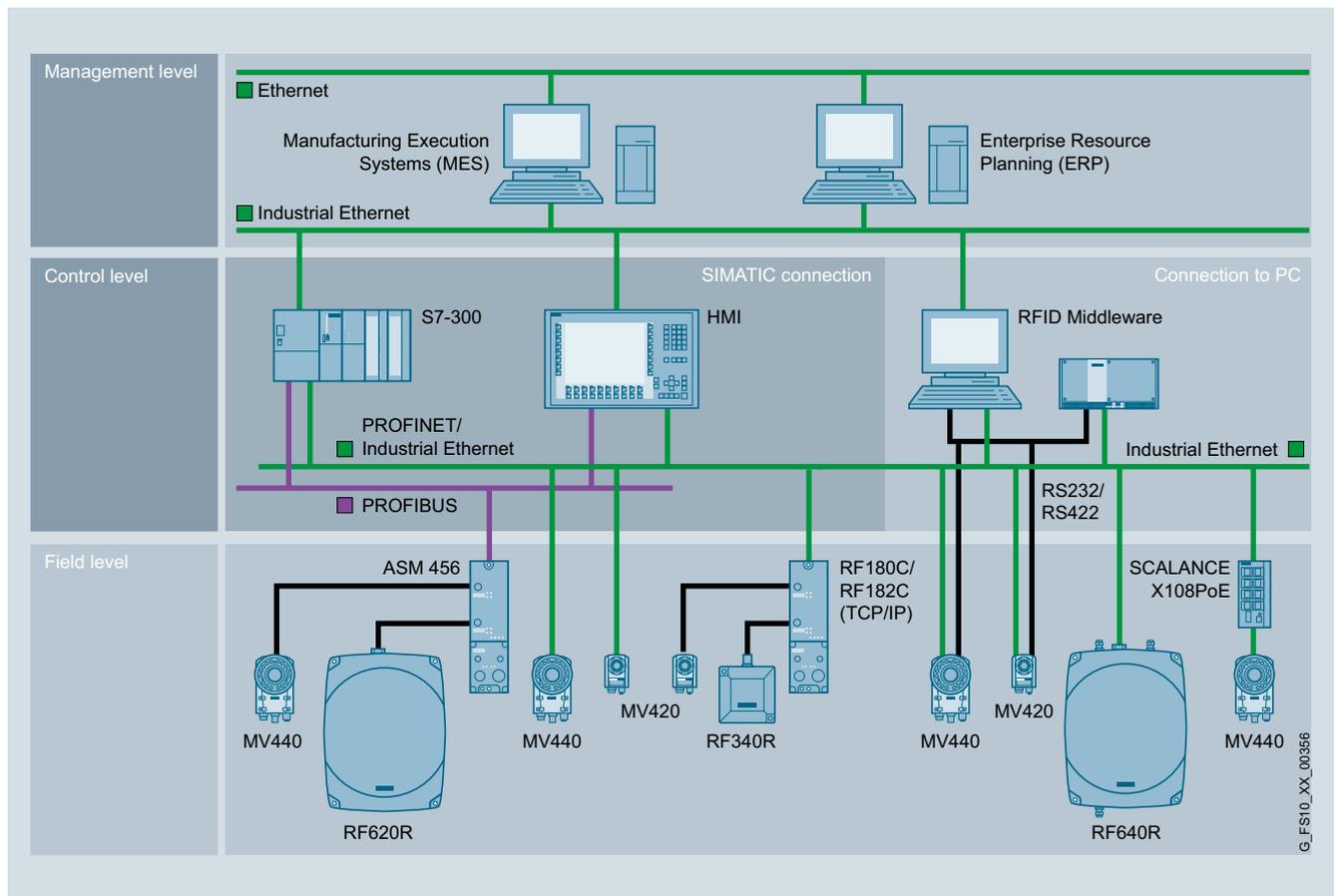
Veri-Genius for MV440

Integration

The MV440 verification systems can use all communication services that the basic units of the SIMATIC MV440 family offer:

Usable communication services	
PROFINET IO (FB79)	Onboard MV440 PROFINET interface.
PROFINET IO (FB101, Ident profile)	Onboard MV440 PROFINET interface.
PROFINET IO (FB45, FB101, Ident profile)	Via the MV440 ASM interface, using the communication module RF180C
PROFIBUS DP V0/1 (FB45, Ident profile)	Via MV440 ASM interface, using the ASM 456 communication module.
TCP/IP native	Onboard MV440 PROFINET interface.
RS-232 (ASCII)	Onboard MV440 RS232 interface.

The most important types of interface in the automation environment are shown in the overview below. For further details, refer to the section on SIMATIC MV440.



Selection and ordering data

	Order No.
Verification module Veri-Genius	6GF3400-0SL02
Software license for verification of machine-readable 1D bar codes and Data Matrix Codes. The license is supplied on a USB flash drive; executable on all SIMATIC MV440 code reading systems as of firmware V4.0 (SIMATIC MV440 not included in the scope of delivery). The scope of supply includes the calibration card.	
Calibration card	6GF3440-8CE
Spare part	

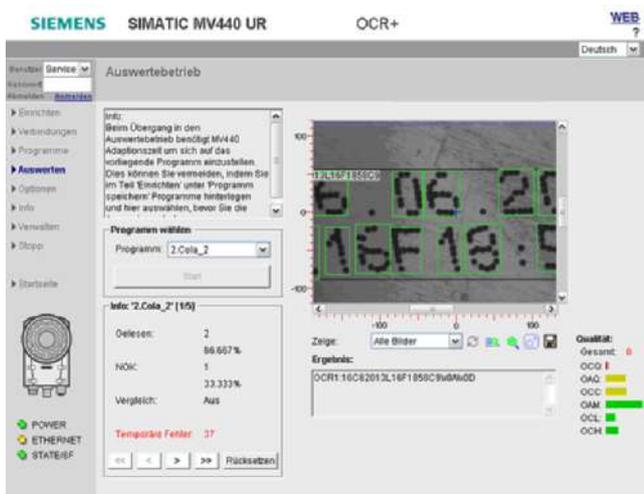
G_F510_XX_00356

Code reading systems

Optical character recognition (OCR)

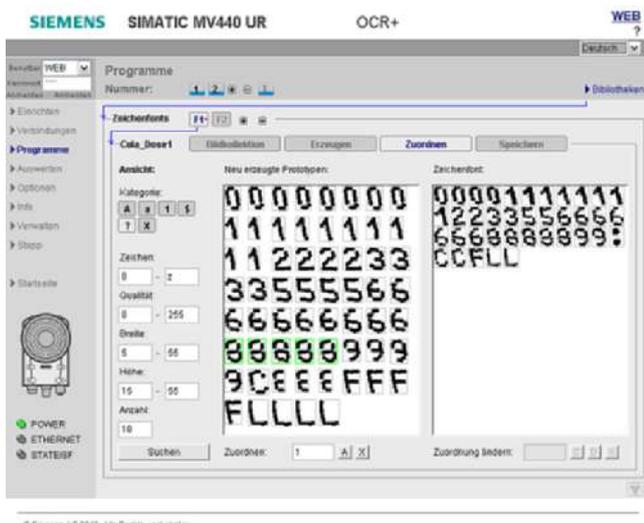
Text Genius for MV440

Overview



With the "Text-Genius" and "Text-Genius Plus" licenses, SIMATIC MV440 can be used for text recognition (in addition to reading 1D bar codes and 2D matrix codes). Text recognition is also referred to as OCR (Optical Character Recognition). Simultaneous reading and comparing of plain text and reading of machine-readable codes in the same image field is thus possible.

"Text-Genius" allows text recognition without training for a number of character sets by using generic algorithms, and thus reading without a preparatory phase.



Text-Genius Plus

The "Text-Genius Plus" license comprises all functions of the "Text-Genius" license and additionally enables training of further fonts and characters, including special characters and graphic symbols.

Licenses

The licenses are supplied as a "Single License" on a USB flash drive and can be copied to the device with the SIMATIC Automation License Manager (ALM) using a plug-in. The "Text-Genius" license is executable on a SIMATIC MV440 with firmware version 3.0 and higher, the "Text-Genius Plus" license with Firmware version 5.0 and higher.

Benefits



Highlights of Text-Genius and Text-Genius Plus at a glance

- Fast and reliable reading of plain text (up to 1000 reads per minute) for high-speed applications.
- Fast and reliable checking of the readability of plain text (up to 1000 reads per minute) for high-speed applications.
- Flexible reading and swapping between different fonts (e.g. OCR A, OCR B) without complex learning using Polyfont character set.
- High reading rate and reliability through saving of fonts on the camera.
- Reading and comparison of plain text and machine-readable code in the same image field.
- Automatic position tracking of the reading range with the resources of "Pat-Genius".
- Automatic text localization without the use of predefined areas means that text can be read even when its position varies.
- Automatic line detection for max. 12 freely definable image regions with max. 15 lines.
- Automatic character height recognition between 15 and 220 pixels.
- Individual parameterization per image region.
- Reading of mirrored, 90° rotated, and inverted text.
- Numerous filter and comparison functions.
- Comparison of text recognition result with an individually specified text per read operation.
- Flexible retrofitting of the text recognition function via the SIMATIC Automation License Manager.
- Simple integration in the automation environment, e.g. via function block of the SIMATIC MV440 devices.

Additional highlights of Text-Genius Plus:

- Simple training of additional characters and fonts (user fonts).
- Adaptation of text recognition by user fonts to the specific requirements of the application to enable:
 - Expansion of defined fonts by missing characters, e.g. special characters.
 - Optimization of recognition for specific printing procedures (e.g. laser, ink, scribed, needled).
 - Optimization of recognition by using different versions of individual characters, e.g. to compensate distortions.
- Up to five user fonts can be used in the reader.
- Very high read reliability can be achieved with a very good print quality (> 99.5%).

5

Code reading systems

Optical character recognition (OCR)

Text Genius for MV440

Application

Applications for text recognition span across almost all sectors. The application areas can be generally divided in three task areas:

- Text recognition for recording the content of a plain text identification.
- Comparison of the content of a plain text identification with the content of the adjacent machine-readable identification, e.g. Data Matrix Code (DMC).
- Comparison of the content of a plain text identification with individually specified values which are transferred to the reader similar to a printer.

Applications for different sectors are listed below. The list is incomplete and only serves to illustrate the wide range of possible applications.

Automobile industry, aerospace industry

- Detection and checking of plain text identifiers for type identification of components
- Comparison of DMC and plain text
- Acquisition of a unique identification of a product (serialization)
- Acquisition and checking the expiry date

Medical equipment

- Laser markings on implants (DPM)
- Laser markings on medical devices (DPM).

Electronics

- Acquisition of a unique plain text identification for identifying devices, e.g. electricity meters
- Detection and checking of plain text identifiers for type identification of PCBs
- Solar industry (serial numbers on thin-layer modules)
- Acquisition of a unique plain text identifier on thin-layer modules - serialization

Food and beverage industry

- Inspection of expiry date on packaging
- Control of packaging and storage processes

"Text-Genius" and "Text-Genius Plus" can be used anywhere where environmental conditions permit the use of SIMATIC MV440 code readers. For details, see "SIMATIC MV440". Standard ring lights and lenses are designed to achieve IP67 degree of protection by means of the protective barrel, and for glass-free use in the food and beverages industry. If light sources or lenses are used outside the protective barrel, they must be used in compliance with their specification.

The "text recognition" function can be implemented in applications without the need to consider the type of font used for marking (Polyfont) or the marking method. The fonts which enable a maximum read rate to be achieved are listed in the "Function" chapter. Further fonts and additional characters can be added to Text-Genius Plus at any time by training. No marking methods are excluded either. The read rate improves if the font has a stable appearance and when there is a good contrast between the background and marking.

Design

Licenses

All SIMATIC MV440 stationary code readers are basic units under the terms of "Text-Genius" and "Text-Genius Plus" licenses. The text recognition functionality is enabled by transferring the license key from the USB flash drive on which it is supplied to the MV440 code reader by means of SIMATIC License Manager.

Demo mode

The code readers of the MV440 family allow all licensed function packages to be used in demo mode. The function can be used completely. Only output of the results on the communication channels is suppressed. During demo mode, users can then decide which license is required.

Configuration

Various light sources and lenses are available from the accessories portfolio of the SIMATIC MV440 in order to flexibly adapt image recording to a wide range of conditions. The MV440 readers allow configuration in accordance with the desired fieldbus integration, and starting of text recognition by triggering the reader. The measurement result is output immediately after measurement on the predefined process interface. Special sources of light can be used at any time. Interfacing is described in the chapter on SIMATIC MV440.

Function

The outstanding feature of "Text-Genius" and "Text-Genius Plus" is that they are easy to set up. To achieve stable read results for text recognition, it is only necessary to set a few, simple parameters. "Text-Genius" uses a generic approach for text recognition, so no individual training is required for most fonts and the characters (letters and digits) of the ASCII character set. Recognition of several fonts is thus possible with this software without specific training. In particular, no complex settings are required for optimizing recognition performance.

The following fonts are ideal for recognition of the text:

- OCR-A
- Semifont M13
- and similar fonts

Furthermore, Arial, OCR-B and similar fonts also produce good reading results.

"Text-Genius Plus" additionally allows the training of additional characters for any character set. Expansion of the character set is required to allow recognition of characters which are not included or of those which are deformed as a result of the printing process. The character sets of the "Text-Genius" license are available as the basis for text recognition with "Text-Genius Plus" so that text recognition can be started immediately without further training. "Text-Genius Plus" is particularly suitable for applications with a varying print image and unknown fonts.

Code reading systems

Optical character recognition (OCR)

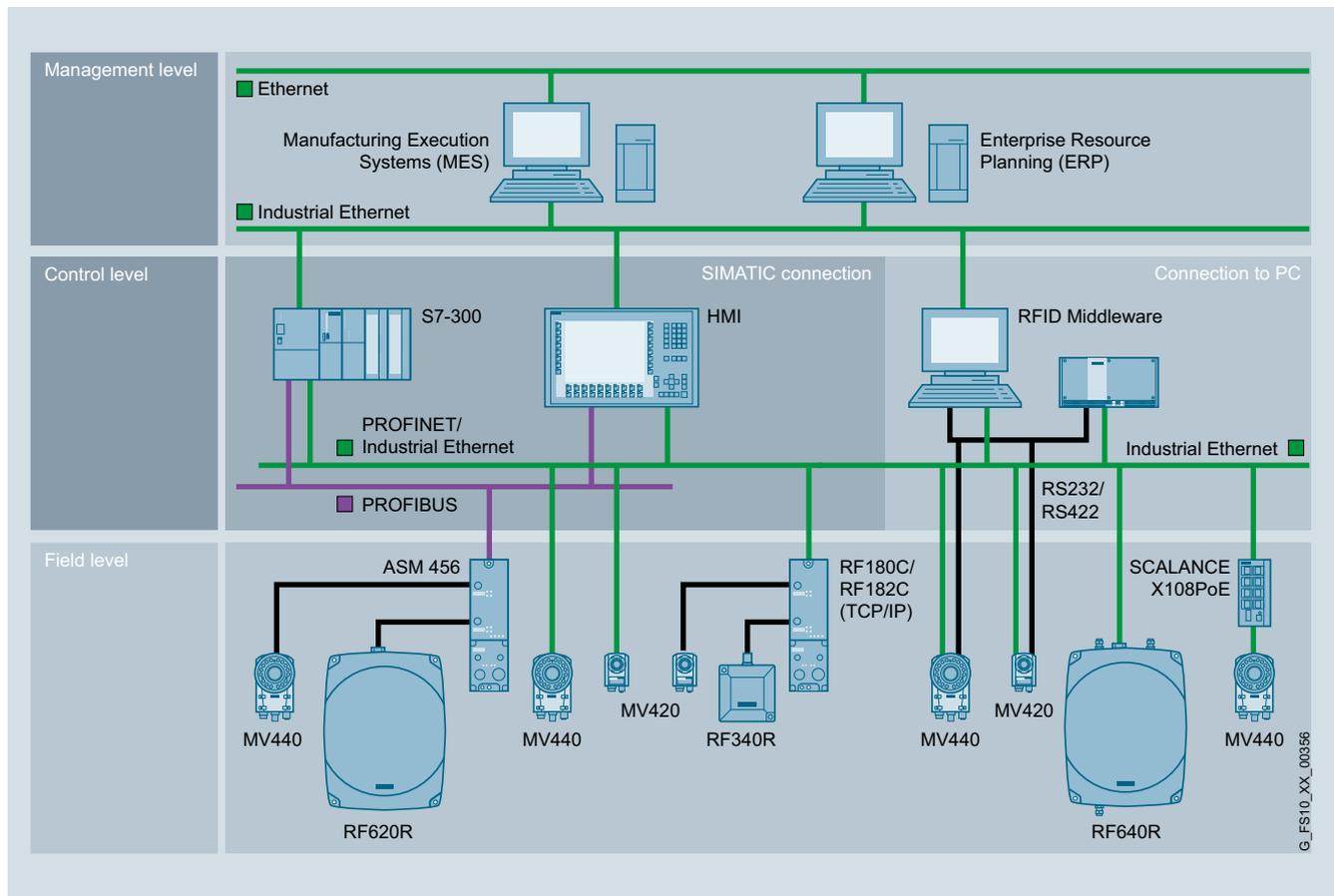
Text Genius for MV440

Integration

The MV440 text recognition systems can use all communication services that the SIMATIC MV440 basic unit offers:

Usable communication services	
PROFINET IO (FB79)	Onboard MV440 PROFINET interface.
PROFINET IO (FB101, Ident profile)	Onboard MV440 PROFINET interface.
PROFINET IO (FB45, FB101, Ident profile)	Via MV440 communication module interface, using the RF180C communication module.
PROFIBUS DP V0/1 (FB45, Ident profile)	Via MV440 communication module interface, using the ASM 456 communication module.
TCP/IP native	Onboard MV440 PROFINET interface.
RS-232 (ASCII)	Onboard MV440 RS232 interface.

The most important types of interface in the automation environment are shown in the overview below. For further details, refer to the section on SIMATIC MV440.



Code reading systems

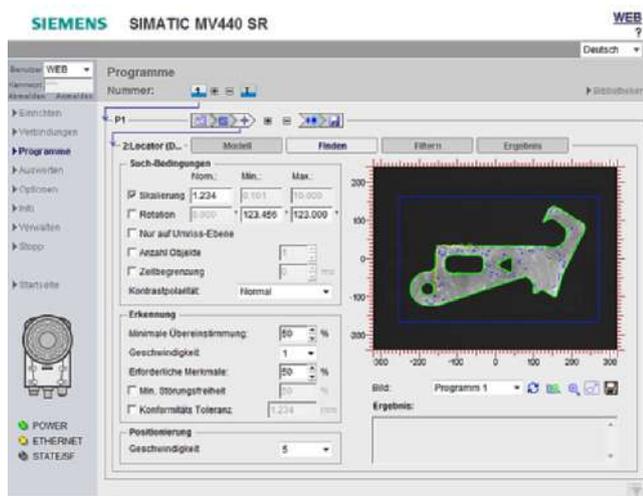
Optical character recognition (OCR)

Text Genius for MV440

Selection and ordering data

	Order No.
<p>OCR module Text-Genius</p> <p>Software license for reading machine-readable 1D bar codes and 2 D matrix codes, as well as for optical character recognition.</p> <p>License is supplied on a USB flash drive; executable on SIMATIC MV440 code reading system as of firmware V3.0 (SIMATIC MV440 not included in the scope of supply).</p>	6GF3400-0SL01
<p>OCR module Text-Genius Plus</p> <p>Software license for machine-readable text recognition (OCR) and for reading 1D bar codes and 2 D matrix codes. Trainable text recognition allows the training of individual characters or even complete character sets. The character sets of Text-Genius are provided as trained, expandable libraries.</p> <p>License is supplied on a USB flash drive; executable on SIMATIC MV440 code reading system with firmware V5.0 and higher (SIMATIC MV440 not included in the scope of supply).</p>	6GF3400-1SL01

Overview



Object recognition with Pat-Genius

With the object recognition license "Pat-Genius", devices of the SIMATIC MV440 family can also be used for checking the specifiable structures in the image (verification) in addition to reading 1D barcodes and 2D matrix codes.

The license is supplied as a "Single License" on a USB flash drive and can be installed via the SIMATIC Automation License Manager (ALM) on any reader of the SIMATIC MV440 series. The license can be installed on a SIMATIC MV440 with firmware version 6.0 or higher.

Benefits



- Pat-Genius shape recognition contains the following different partial tasks:
 - Object recognition (classification)
 - Position detection (position, rotational position, scaling)
 - Presence check (object recognition and position check with setpoint specification)
 - Completeness check (multiple presence check with setpoint specification)
 - Text recognition (based on the contour of any character or symbol)
- Pat-Genius is easy to operate thanks to integration into the uniform operator concept for all packages in the operator interface of the MV440 devices
- Pat-Genius can be used together with all other function packages (Text-Genius and Veri-Genius) of the SIMATIC MV440 devices
- Pat-Genius is available to all resolution versions of the SIMATIC MV440 (640 x 480 pixels, 1024 x 768 pixels and 1600 x 1200 pixels)
- Pat-Genius can be flexibly retrofitted for every device of the SIMATIC MV440 series via the Automation License Manager of SIMATIC – advantage: cost benefits in spare parts inventory
- Pat-Genius licenses are transferrable between all SIMATIC MV440 devices without regard for the resolution capacity
- Pat-Genius supports the proved simple integration of the SIMATIC MV440 devices into the automation environment using a function block (FB79, FB45 and FB101) for SIMATIC S7-1200, S7-1500, S7-300 and S7-400 controllers.

Application

The functionality of object recognition is basically suitable for applications such as:

- Pick-and-place machines
- Quality control in production
- Position detection in infeed systems
- Quantity monitoring in infeed systems and production

Pat-Genius can be used wherever environmental conditions permit the use of MV440 code readers - for details, see SIMATIC MV440. Standard ring lights and lenses are available for IP67 degree of protection by means of the protective barrel, and for glass-free use in the food and beverages industry. If light sources or lenses are used outside the protective barrel, they must be used in compliance with their specification.

Any host and HMI systems required must be selected sector-specifically and project-specifically. The range of application of the selected test method is defined in the specification of the test method and compliance is essential if universally valid results are to be obtained.

The following sectors and applications are a particular focus for MV440 verification systems:

Automotive industry

For example:

- testing the manufacturing process: e.g. assembling the body-in-white, etc.
- Access control for semi-finished products for machining stations in the process: cylinder heads, etc.
- Monitoring the uniformity of the assembly quality in the manufacturing process

Pharmaceutical industry

For example:

- Checking of warning information on medicines (e.g.: Caution poison)
- Checking of the correct arrangement of the content and the closing mechanism in the packaging process
- Checking the filling level of packages

Medical equipment

For example:

- Inline quality control and documentation by means of checking completeness and consistent shape

Electronics

For example:

- Inline quality control and documentation by means of checking completeness and shape consistency

Semiconductors

For example:

- Detecting the alignment of components
- Controlling the dimensional accuracy of components

Code reading systems

Object recognition

Pat-Genius for MV440

Function

Shape detection is an additional function subject to a license that can be activated on any SIMATIC MV440 by installing the Pat-Genius license. The functionality is available without a license in demo mode.

Shape checking detects deviations in the current camera image relative to a learned structure using edge structures

Accordingly, the basic test sequence is as follows:

- Training the object test parameters using one or more good objects
- Testing an object and/or pattern with the features taken from the training
- Testing can be performed on stationary and moving objects
- Checking for a match with the reference provides a good/poor indication after comparison with set-value criteria
- Test results output to three control outputs:
 - OK: Presence of the trained objects and/or pattern found again using the features;
 - OK: Level of agreement greater than setpoint
 - ...
 - N_OK: Presence of the trained object and/or pattern NOT found again using the features;
 - N_OK: Deviation of the level of agreement from the setpoint.
 - ...
- Output of the result information onboard via PROFINET IO, Ethernet, RS232 interface – further interfaces available via communication modules
- "Stand-alone" mode possible using integrated DI/O
- Remote control via PROFIBUS IO, PROFINET DP (via communication module), DI/O or Ethernet
- Platform-independent, web-based interface - Internet-enabled:
 - Monitoring (live image in read mode)
 - Diagnostics (fault image, log information, ...)
 - System administration (software update, ...)
 - Error analysis for troubleshooting for faulty readings
- Triggering of external ring lights

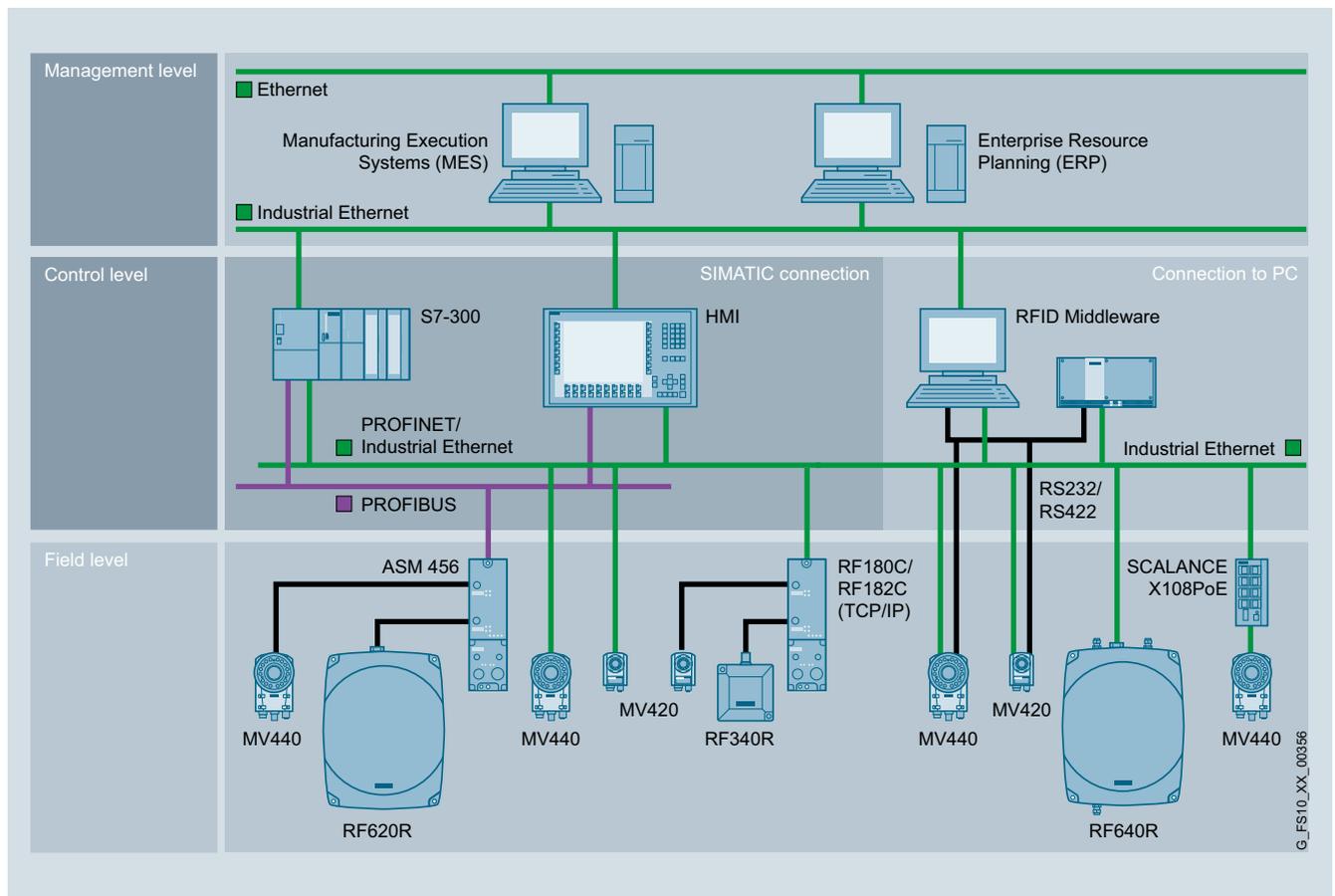
The overall result and the components of a measurement result can be output after a test via different interfaces, and are then available for further processing on an external system, e.g. for archiving or creating a test report.

Integration

Pat-Genius for MV440 can use all communication services that the SIMATIC MV440 basic unit offers:

Usable communication services	
PROFINET IO (FB79)	Onboard MV440 PROFINET interface.
PROFINET IO (FB101, Ident profile)	Onboard MV440 PROFINET interface.
PROFINET IO (FB45, FB101, Ident profile)	Via MV440 communication module interface, using the RF180C communication module.
PROFIBUS DP V0/1 (FB45, Ident profile)	Via MV440 communication module interface, using the ASM 456 communication module.
TCP/IP native	Onboard MV440 PROFINET interface.
RS-232 (ASCII)	Onboard MV440 RS232 interface.

The most important types of interface in the automation environment are shown in the overview below. For further details, refer to the section on SIMATIC MV440.



5

Selection and ordering data

	Order No.
SIMATIC "Pat-Genius" license	6GF3400-0SL03
Software license for object recognition in image information on products of the SIMATIC MV440 family. The license is supplied on a USB flash drive; usable on all SIMATIC MV440 code reading systems as of firmware V6.0 (SIMATIC MV440 not included in the scope of delivery).	

Code reading systems

Notes

5

Communication modules RFID standard cables



6/2

Communication modules for RFID systems and code reading systems

6/4

ASM 456, SIMATIC RF160C

6/9

SIMATIC RF180C / RF182C, RFID 181EIP

6/16

SIMATIC RF170C

6/20

SIMATIC RF120C

6/23

ASM 475

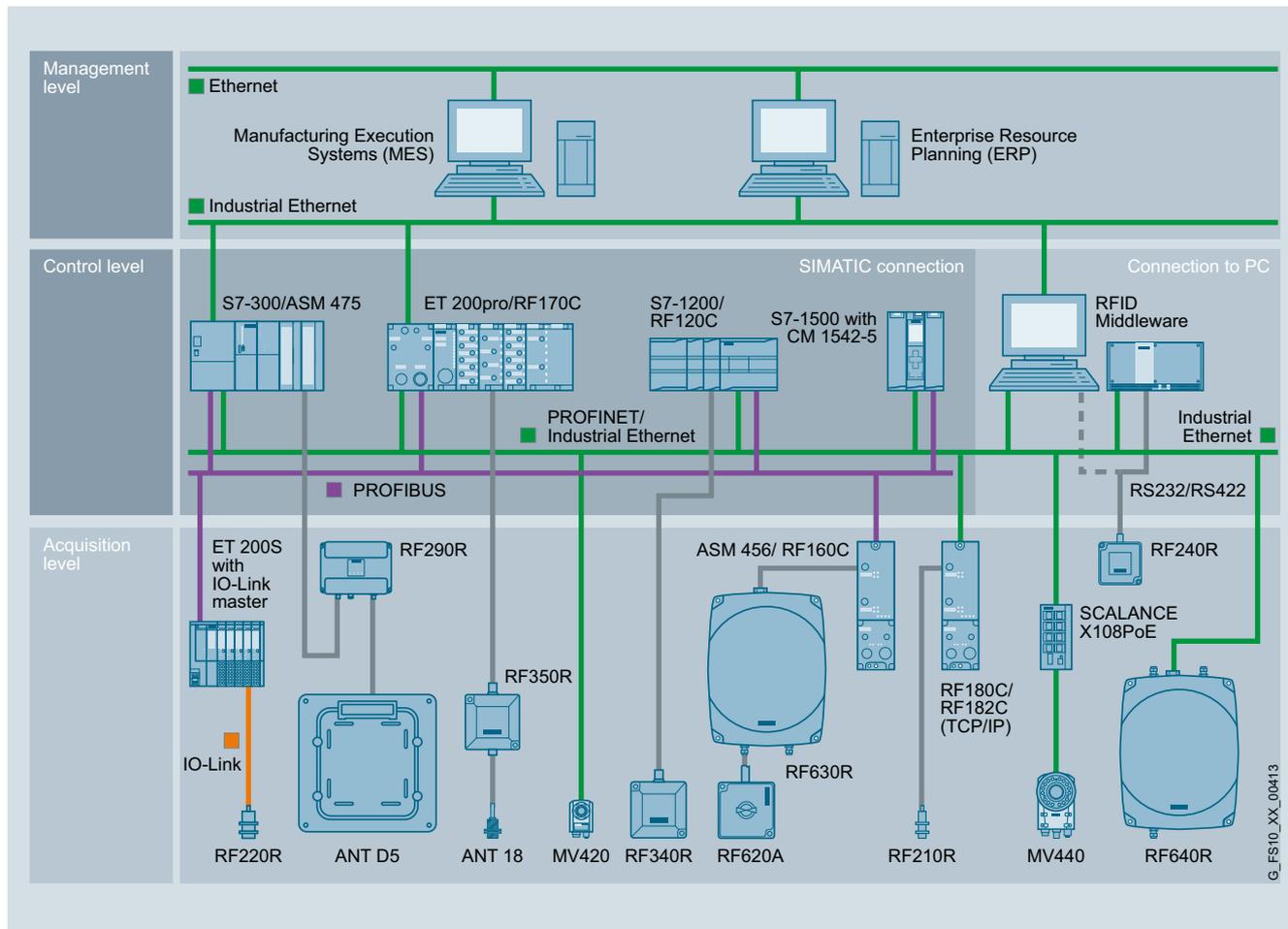
6/25

RFID standard cables

Communication modules

Introduction

Overview



SIMATIC Ident integration graphics

There are various powerful communication modules (ASM) for integrating SIMATIC RFID, SIMATIC MV and MOBY identification systems in SIMATIC, SINUMERIK, SIMOTION, PROFIBUS and PROFINET.

Selection aid for communication modules and software

System	Communication modules without file handler	Identification system	Available software
SIMATIC S7-1200	RF120C	RF200, RF300, RF600, MV400, MOBY U/D	Read, Write, Reset_Reader, Read_EPC-Mem, Writ_EPC-Mem, Set_Ant (based on von FB101)
SIMATIC S7-300 (direct), S7-300/400, PC with SIMATIC WinAC via ET 200M, SINUMERIK 840D/810D	ASM 475	RF200, RF300, RF600, MV400, MOBY U/D	FB45, FB55 (multitag)
Serial link, to PC, PLC or any other system ¹⁾	Direct via SLG Dx,	MOBY D	MOBY D MDWAPI, MOBY API, C library incl. drivers for Windows XP/7
	Direct via SLG U92	MOBY U	
	Direct via RF2xxR, RF3xxR (RS422 / RS232)	RF200, RF300	
PROFIBUS DP (SIMATIC S7, PC, any other system ¹⁾)	RF160C	RF200, RF300, RF600, MOBY U/D	FC44 for S7-300/400, PC with SIMATIC WinAC
SIMATIC S7-300/-400, PC with SIMATIC WinAC, via ET 200pro	RF170C	RF200, RF300, RF600, MV400, MOBY U/D	FB45, FB55 (multitag)
PROFIBUS DP-V1 (SIMATIC S7, SIMOTION SCOUT, PC, any other system ¹⁾)	ASM 456	RF200, RF300, RF600, MV400, MOBY U/D	FB45 for S7-300/400, PC with SIMATIC WinAC, FB55 (multitag), FB101/116/132
PROFINET IO	RF180C	RF200, RF300, RF600, MV400, MOBY U/D	FB45, FB55
Ethernet TCP/IP	RF182C	RF200, RF300, RF600, MOBY U/D	XML application examples
Ethernet/IP	RFID 181EIP	RF200, RF300, RF600, MOBY U/D	Programming via implicit/explicit messages

System	Communication modules with file handler	MOBY system	Available software
SIMATIC S7, PC, any other system, SIMOTION SCOUT	ASM 456	RF300, MOBY U	FC56/ FB101/116/132
SIMATIC S7-300 (direct), SIMATIC S7-300/400, via ET 200M	ASM 475	MOBY U	FC56
Ethernet/IP	RFID 181EIP	RF300, MOBY U	Programming via implicit/explicit messages

Function

Corresponding software blocks (FB, FC, libraries, examples) ensure simple and quick integration into the application.

1 or 2 readers can be connected to a communication module (CM, ASM) with a maximum cable length of 1 000 m (depending on the CM, ASM, reader, etc.). Corresponding procedures guarantee a very high reliability of data transmission.

The following option exists for the serial connection of SIMATIC RFID to any system (PC, PLC, etc.): Directly via a reader with serial interface (SLG Ux, SLG Dx, RF240R, RF260R, RF380R).

Note regarding FC45/55

The FC45/55 can still be used in existing applications. With new applications, however, the FB45/55 blocks are recommended since only these blocks contain all functions.

Notes regarding software and licensing

No software or documentation is supplied when purchasing a communication module (CM) or reader. The DVD "RFID Systems Software & Documentation" contains all the FBs/FCs available for SIMATIC, C libraries for Windows XP/7 operating systems, demo programs, etc. and must be ordered separately. In addition, the DVD contains the complete RFID documentation in all available languages in PDF format.

The purchase of a CM or reader includes a payment for use of the software, including documentation, on the DVD "RFID Systems Software & Documentation". The purchaser acquires the right to make copies (copy license), insofar as they are required as part of the plant project.

The contract pertaining to the use of software products against a one-off payment shall apply.

Integration

Configuration guide for RFID systems

Here is a compact configuration tool for setting up RFID systems:

<http://support.automation.siemens.com/WW/view/en/67384964>

¹⁾ The programming interface is described for connecting to any system

Communication modules

ASM 456, SIMATIC RF160C

Overview



ASM 456 communication module, SIMATIC RF160C

The cost-efficient ASM 456 and SIMATIC RF160C communication modules are stand-alone PROFIBUS DP slaves used to operate the RFID systems MOBY D/U and SIMATIC RF200 / RF300 / RF600 as well as the MV400 code reading systems via PROFIBUS DP:

- SIMATIC S7 (including FB/FC software)
- SINUMERIK
- PC, IPC, non-Siemens PLC
- SIMOTION (with integrated software library)

Thanks to their high degree of protection and ruggedness, they are particularly suitable for machine-level use. The modular structure with different PROFIBUS connection systems allows them to be used in all applications. The uniform plug-in connection system ensures rapid commissioning.

Benefits

get Designed for Industry

- Two parallel MOBY channels ensure real-time mode at dynamic read points.
- Modular design with different bus interfacing possibilities ensures universal implementation.
- Reader connection using an 8-pin M12 connector for quick mounting of all components.
- High-performance hardware ensures fast data exchange with the reader. Consequently, data is available for the application even faster.
- Very easy downloading of firmware via the SIMATIC MANAGER for function expansions and error rectification ensure high availability of the identification system.
- The parameterizable identification-system-specific PROFIBUS diagnostics facilitate start-up and troubleshooting.
- A wide selection of pre-assembled PROFIBUS connecting cables can be ordered for the communication modules. This saves time and money during installation and assures better quality.

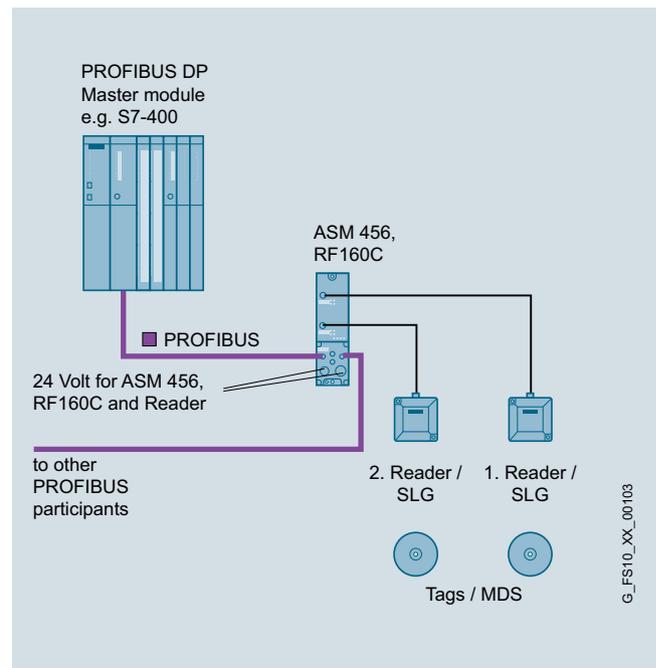
Application

The ASM 456 and SIMATIC RF160C communication modules have been specifically designed for a wide range of applications in industrial automation and logistics. Thanks to the high IP67 degree of protection, the ASM 456 and RF160C can be installed in the process without a control cabinet.

Main application areas for ASM 456 and RF160C:

- Mechanical engineering, automation systems, conveyor systems
- Ancillary assembly lines in the automobile industry/suppliers
- Small assembly lines
- Production, packaging, textile, plastics and printing machines SIMOTION

Design



Function

The ASM 456 and the RF160C comprise a basic module and a connection block that must be ordered separately. When connecting PROFIBUS, the customer can choose between ECOFAST connections and M12, 7/8" connections.

A pre-assembled reader cable is used to connect one or two readers/SLGs to the communication module. The standard length of the cable is 2 m. If other cable lengths to the reader are required, an extension cable measuring between 2 m and 50 m can be used. The cable can also be assembled by the customer as required.

The PROFIBUS DP procedure according to EN 50170 Vol. 2 PROFIBUS for communication between the communication module and SIMATIC S7 (or any PROFIBUS master) and the MOBY-specific procedures for communication between ASM and reader are implemented on the communication modules.

The data in the transponder can be accessed as follows:

- Direct addressing via absolute addresses
- Conveniently via the MOBY file handler (MOBY U, RF300 only) using file names (for ASM 456 only)

On the PROFIBUS DP, the communication module occupies a node address on the bus that is set on the connection block. The communication module is integrated into the hardware configuration by means of a device master (GSD) file. Then the communication module can be configured by means of the software tool HW_Config of the SIMATIC Manager or another PROFIBUS tool.

Error messages and operating states (MDS in the field, transmission, etc.) are indicated additionally by means of LEDs and simplify commissioning and service.

The ASM 456 and RF160C have two reader interfaces which also provides the readers with power. In the communication module, the power supply of the readers has an electronic fuse.

ASM 456

The ASM directly accesses the data in the transponder or in the data matrix code by means of absolute addresses (FB/FC45, FB/FC55) or more conveniently using the MOBY file handler (FC56) and file names. The communication module is operated in non-cyclic mode over PROFIBUS DP V1. Consequently, a very large amount of data can be transferred to/from the communication module without overloading the PROFIBUS cycle. This has advantages when transferring large volumes of data. In addition, the communication module can process concatenated transponder commands very quickly in this mode.

Function blocks FB101/116/132 in the SIMATIC S7 are available for the "RFID standard profile" mode. The data in the transponder can be addressed either via absolute addresses or via the file handler. This mode additionally integrates the communication module in SIMOTION.

SIMATIC RF160C

The data in the transponder is accessed via absolute addresses. The FC44 function block is available for SIMATIC S7 for this purpose. The RF160C is operated in cyclic mode over PROFIBUS DP-V0. This ensures a deterministic response in data communication in every case. Where large volumes of data are transferred in large-scale bus configurations, the data throughput should be tested with a tool which is provided on the DVD "RFID Systems, Software and Documentation". The programming interface to RF160C is extremely easy to use and can be programmed efficiently in any controller. The RF160C is therefore particularly suitable for use with non-Siemens controllers and older PROFIBUS masters.

Technical specifications

Order No.	6GT2002-0ED00	6GT2002-0EF00
Product-type designation	ASM 456 communication module	RF160C communication module
Suitability for installation	PROFIBUS matching DP-V1 in conjunction with RF200/300/600, MOBY D/E/I/U, MV	PROFIBUS matching DP-V0 in conjunction with RF200/300/600, MOBY D/U
Transfer rate with PROFIBUS	9.6 kbit/s ... 12 Mbit/s	9.6 kbit/s ... 12 Mbit/s
Transmission rate at point-to-point connection serial, maximum	115.2 kbit/s	115.2 kbit/s
Interfaces		
Design of interface for point-to-point connection	RS422	RS422
Number of readers connectable	2	2
Design of the electrical connection of the PROFIBUS interface	(according to the connection block)	(according to the connection block)
Design of electrical connection for supply voltage	(according to the connection block)	(according to the connection block)
Version of the interface to the reader for communication	M12, 8-pin	M12, 8-pin
Mechanical data		
Material	Thermoplastic (Valox 467, fiberglass reinforced)	Thermoplastic (Valox 467, fiberglass reinforced)
Color	IP Basic 714	IP Basic 714
Tightening torque of screw for mounting the equipment, maximum	3 Nm	3 Nm

Communication modules

ASM 456, SIMATIC RF160C

Order No.	6GT2002-0ED00	6GT2002-0EF00
Product-type designation	ASM 456 communication module	RF160C communication module
Supply voltage, current consumption, power loss		
Supply voltage for DC		
• rated value	24 V	24 V
• minimum	20 V	20 V
• maximum	30 V	30 V
Current consumed at 24 V DC		
• without connected devices, typical	0.08 A	0.08 A
• including connected devices, maximum	0.8 A	0.8 A
Permitted ambient conditions		
Ambient temperature		
• during operating	0 ... 55 °C	0 ... 55 °C
• during storage	-40 ... +70 °C	-40 ... +70 °C
• during transport	-40 ... +70 °C	-40 ... +70 °C
Protection class IP	IP 67	IP 67
Resistance against shock	According to IEC 61131-2	According to IEC 61131-2
Resistance against shock	300 m/s ²	300 m/s ²
Resistance against vibration	100 m/s ²	100 m/s ²
Design, dimensions and weight		
Width	60 mm	60 mm
Height	30 mm	30 mm
Depth	210 mm	210 mm
Net weight	0.21 kg	0.21 kg
Type of mounting	2 x M5 screws	2 x M5 screws
Cable length for RS 422 interface maximum	1000 m	1000 m
Product properties, functions, components general		
Type of display	4 LEDs per reader connection, 4 LEDs for device status	4 LEDs per reader connection, 4 LEDs for device status
Product function transponder file handler can be addressed	Yes	No
Protocol is supported		
• PROFIBUS DP-V0 protocol	No	Yes
• PROFIBUS DP-V1 protocol	Yes	No
Product functions management, configuration		
Type of parameterization	GSD	GSD
Type of programming	FB 45, FB 55, FC 56, Ident profile (PIB), (FC 45/55 with limited functionality)	FC 44
Type of computer-mediated communication	Acyclic communication	Cyclic communication
Standards, specifications, approvals		
Verification of suitability	CE, FCC, cULus	CE, FCC, cULus
Accessories		
Accessories	Connection block for ECOFAST system or M12, 7/8"	Connection block for ECOFAST system or M12, 7/8"

Selection and ordering data

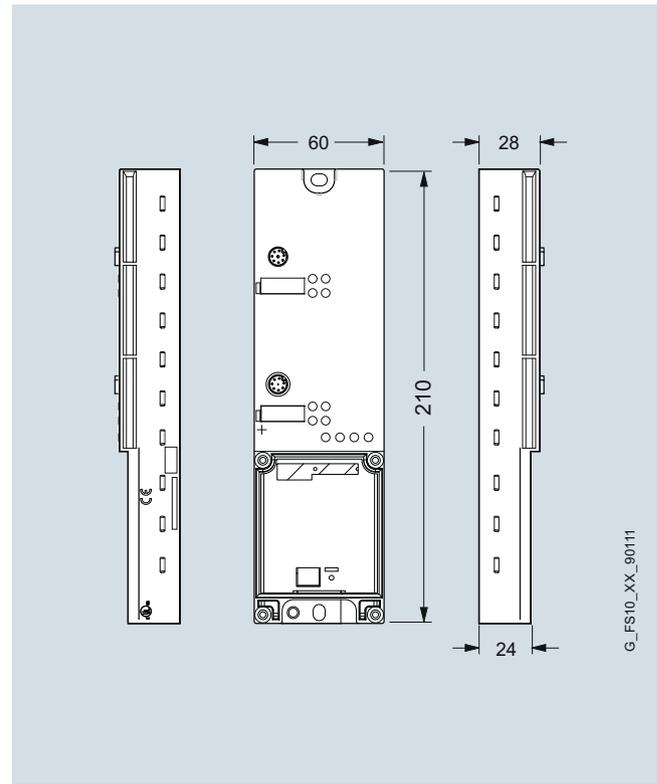
	Order No.		Order No.
ASM 456 communication module For connecting 2 readers to PROFIBUS DP-V1.	6GT2002-0ED00	10 m	6XV1830-3DN10
SIMATIC RF160C communication module For connecting 2 readers to PROFIBUS DP-V0.	6GT2002-0EF00	15 m	6XV1830-3DN15
<i>Accessory: ECOFAST connection</i>		Other special lengths with 90° or 120° cable connection, see http://support.automation.siemens.com/WW/view/en/26999294	
ECOFAST connection block	6ES7194-3AA00-0AA0	7/8" connecting cable	
PROFIBUS ECOFAST HYBRID plug 180		Pre-assembled, with 5-pin 7/8" connector and socket, max. length 50 m.	
• With male insert (5-pack)	6GK1905-0CA00	0.3 m	6XV1822-5BE30
• With female insert (5-pack)	6GK1905-0CB00	0.5 m	6XV1822-5BE50
PROFIBUS ECOFAST termination plug With terminating resistors.	6GK1905-0DA10	1 m	6XV1822-5BH10
PROFIBUS ECOFAST hybrid cable, copper Trailing-type cable (PUR casing) with two shielded copper cables for PROFIBUS DP and four copper cores of 1.5 mm ² each.		1.5 m	6XV1822-5BH15
• Sold by the meter Max. delivery unit 1,000 m, minimum ordering quantity 20 m.	6XV1830-7AH10	2 m	6XV1822-5BH20
• Pre-assembled with ECOFAST male and female connector, fixed length:		3 m	6XV1822-5BH30
- 0.5 m	6XV1830-7BH05	5 m	6XV1822-5BH50
- 1 m	6XV1830-7BH10	10 m	6XV1822-5BN10
- 1.5 m	6XV1830-7BH15	15 m	6XV1822-5BN15
- 3 m	6XV1830-7BH30	Other special lengths with 90° or 120° cable connection, see http://support.automation.siemens.com/WW/view/en/26999294	
- 5 m	6XV1830-7BH50	PROFIBUS FC Standard Cable	
- 10 m	6XV1830-7BN10	Standard type with special design for quick mounting, 2-core, shielded, sold by the meter; maximum ordering quantity unit 1000 m, minimum ordering quantity 20 m.	
- 15 m	6XV1830-7BN15	PROFIBUS M12 cable connector	
- 20 m	6XV1830-7BN20	Pack with 5 units, minimum ordering quantity 1 pack.	
- 25 m	6XV1830-7BN25	• With male insert	6GK1905-0EA00
- 30 m	6XV1830-7BN30	• With female insert	6GK1905-0EB00
- 35 m	6XV1830-7BN35	7/8" cable connector for voltage	
- 40 m	6XV1830-7BN40	Pack with 5 units, minimum ordering quantity 1 pack.	
- 45 m	6XV1830-7BN45	• With male insert	6GK1905-0FA00
- 50 m	6XV1830-7BN50	• With female insert	6GK1905-0FB00
<i>Accessory: M12, 7/8" connection</i>		Sealing caps 7/8"	
M12 connection block, 7/8"	6ES7194-3AA00-0BA0	For unused 24 V cable extension, pack of 10, minimum ordering quantity 1 pack.	
M12 terminating resistor for PROFIBUS Pack with 5 units, minimum ordering quantity 1 pack.	6GK1905-0EC00	Power line	
PROFIBUS M12 connecting cable Pre-assembled, with 5-pin M12 connector and socket, max. length 100 m.		5-core, 5 x 1.5 mm ² , trailing type; sold by the meter; maximum ordering quantity 1000 m, minimum ordering quantity 20 m.	
0.3 m	6XV1830-3DE30	<i>General accessories</i>	
0.5 m	6XV1830-3DE50	Stainless steel screws for connection blocks	
1 m	6XV1830-3DH10	Optional screws made of V4A steel for securing the connection blocks on the basic module. For use in wet areas. Pack with 40 units is sufficient for 10 connection blocks.	
1.5 m	6XV1830-3DH15	6GT2090-0VB00	
2 m	6XV1830-3DH20		
3 m	6XV1830-3DH30		
5 m	6XV1830-3DH50		

Communication modules

ASM 456, SIMATIC RF160C

	Order No.
Accessories for RFID	
MOBY U reader cable	
PUR material, CMG approval, suitable for cable carriers.	
2 m	6GT2091-4FH20
5 m	6GT2091-4FH50
MOBY D reader cable	
6GT2691-4FH20	
PUR material, CMG approval, suitable for cable carriers, 2 m.	
Reader cable for SIMATIC RF200 / RF300 / RF600 / MV400	
or extension cable MOBY U/D and SIMATIC RF200 / RF300 / RF600 / MV400, PUR material, CMG approval, suitable for cable carriers, straight connector	
2 m	6GT2891-4FH20
5 m	6GT2891-4FH50
10 m	6GT2891-4FN10
20 m	6GT2891-4FN20
50 m	6GT2891-4FN50
2 m, plug angled at reader	6GT2891-4JH20
5 m, plug angled at reader	6GT2891-4JH50
Sealing caps M12 for unused reader connections	
3RX9802-0AA00	
Minimum ordering quantity 10 units.	
DVD "RFID Systems Software & Documentation"	
6GT2080-2AA20	

Dimensional drawings



ASM 456 communication module,
SIMATIC RF160C communication module

SIMATIC RF180C/RF182C, RFID 181EIP

Overview



SIMATIC RF180C / RF182C and RFID 181EIP are communication modules for direct connection of SIMATIC identification systems to PROFINET IO/Ethernet and Ethernet/IP. The readers (SLGs) of the RFID systems MOBY D/U, SIMATIC RF200 / RF300 / RF600 as well as the MV400 code reading systems (RF180C and RFID 181EIP only) can be operated on the communication modules.

Due to their high degree of protection and ruggedness, the SIMATIC RF180C / RF182C and RFID 181EIP are ideally suitable for use at the machine level. The uniform plug-in connection system ensures rapid commissioning.

Benefits

get Designed for Industry

- Two parallel reader channels ensure real-time mode at dynamic read points.
- Reader connection using an 8-pin M12 connector for fast installation of all components.
- Different connection systems to suit any application:
 - M12, 7/8", the well-proven round connectors.
 - Push-pull connectors for quick assembly with RJ45 data connectors and 24 V connectors.
- Easy changeover from PROFIBUS applications to PROFINET with SIMATIC RF180C thanks to software compatibility.
- The integrated switch allows several PROFINET/Ethernet modules to be installed in a star or bus topology. Each application can then be set up quickly and inexpensively.
- Powerful hardware ensures rapid data communication with the reader (SLG). Consequently, data is available for the application even faster.
- Simple firmware downloading in the case of function expansions and error rectification ensures high availability of the identification system.
- Adjustable and parameterizable identification-system-specific diagnostics facilitate easy commissioning and troubleshooting.
- A broad selection of pre-assembled connecting cables can be ordered for connecting PROFINET/Ethernet and readers to SIMATIC RF180C/RF182C. This saves time and money during installation and assures better quality.

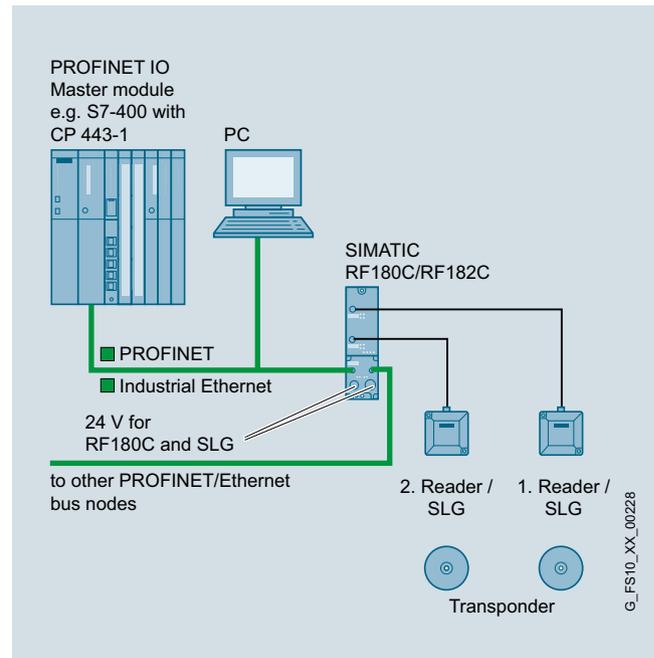
Application

The Ethernet-based communication modules have been specially designed for a wide range of applications in industrial automation and logistics. Due to their high IP67 degree of protection, the SIMATIC RF180C/RF182C and RFID 181EIP can be installed in the process outside the control cabinet.

Main applications for SIMATIC RF180C/RF182C and RFID 181EIP:

- Mechanical engineering, automation systems, conveyor systems
- Ancillary assembly lines in the automotive industry / suppliers
- Small assembly lines

Design



Communication modules

SIMATIC RF180C/RF182C, RFID 181EIP

Function

The SIMATIC RF180C / RF182C and RFID 181EIP communication modules consist of a basic module and a connection block that must be ordered separately.

The connection block is available in three versions:

- M12, 7/8" (5-pole):
PROFINET/Ethernet is connected by means of an M12 connector, the power supply is connected by means of a 5-pole 7/8" connector. There are 2 connections each for PROFINET/Ethernet as well as for the power supply. This ensures that the SIMATIC RF180C/RF182C can be connected to additional bus nodes without the need for external distributors. The removable connection block allows a base module to be replaced without interrupting the supply voltage to other bus stations.
- Push-pull connector (according to IEC 61918):
PROFINET/Ethernet and the power supply are connected by means of a push-pull connector. There are 2 connections each for PROFINET/Ethernet as well as for the power supply. This ensures that the SIMATIC RF180C/RF182C can be connected to additional bus nodes without the need for external distributors. The supply voltage connectors can conduct currents of up to 12 A (1L+ and 2L+). The removable connection block allows a base module to be replaced without interrupting the supply voltage to other bus stations.
- M12, 7/8" (4-pole; not recommended for RF180C):
Ethernet is connected by means of an M12 connector, the power supply is connected by means of a 4-pole 7/8" connector. There are 2 connections for Ethernet and one connection is available for the power supply. This connection block can be used in applications where the 5-pole 7/8" connector is already being used for other functions and therefore cannot be used for the power supply.

A pre-assembled reader cable is used to connect one or two readers to the communication module. The standard cable length is 2 m. If other reader cable lengths are required, an extension cable from 2 to 50 m in length can be used. The cable can also be assembled by the customer as required.

The data in the transponder can be accessed as follows: Direct addressing via absolute addresses.

Error messages and operating states (transponder in the field, transmission, etc.) are indicated additionally by means of LEDs and simplify commissioning and service.

SIMATIC RF180C/RF182C and RFID 181EIP have two reader interfaces from which the readers are also supplied with voltage. In the communication module, the power supply of the readers has an electronic fuse. The maximum permissible current per communication module for the readers is 1 A. It is of no importance here whether the current is drawn by 1 or 2 readers.

SIMATIC RF180C

The SIMATIC RF180C is designed for use in PROFINET networks. SIMATIC RF180C is integrated in SIMATIC STEP 7 via the GSDML file. SIMATIC RF180C can then be configured via the SW tool HW Config of SIMATIC Manager or another PROFINET tool.

The application accesses the tag via FB45. FB45 accesses the tag/Data Matrix Code via absolute addresses. For large volumes of data and complex tag operations, the FB45 can process chained commands.

Data is exchanged between SIMATIC RF180C and the application by means of acyclic data records. This ensures that a large quantity of data can be transferred from/to SIMATIC RF180C without loading the bus cycle. This is advantageous when large volumes of data are being transferred. SIMATIC RF180C can also process chained tag commands in this mode extremely quickly.

SIMATIC RF182C

The SIMATIC RF182C is designed for use in Ethernet networks based on TCP/IP. The IP address of the SIMATIC RF182C is set using the "Primary Setup Tool". The RF182C is then ready for operation. This tool can be downloaded from

<http://support.automation.siemens.com/WWW/view/en/19440762>

Communication with the SIMATIC RF182C is implemented using XML commands. XML commands have a very simple structure. This makes programming of the RF182C under any operating system very easy. The simple command set of the RF182C can also be programmed easily in any Ethernet-capable controller.

RFID 181EIP

The communication module RFID 181EIP is for use in Ethernet/IP networks. A DHCP server automatically assigns an IP address to the RFID 181EIP. Alternatively, the user can assign static IP addresses on the DHCP server. The standard tool for assigning IP addresses is called the BOOTP/DHCP server and is included in the RSLinx software package.

The RFID 181EIP communicates with the reader by means of implicit and explicit messages. Commands and results are transferred with explicit messages. The user sets up the commands directly in the application program.

Technical specifications

Order No.	6GT2002-0JD00	6GT2002-0JD10	6GT2002-0JD20
Product-type designation	RF180C communication module	RF182C communication module	Communication module RFID 181EIP
Suitability for installation	PROFINET in conjunction with RF200/300/600, MOBY D/E//U, MV	Industrial Ethernet in conjunction with RF200/300/600, MOBY D/U	Ethernet/IP in conjunction with RF200/300/600, MOBY D/E//U, MV
Transmission rate			
• with Industrial Ethernet	10 ... 100 Mbit/s	10 ... 100 Mbit/s	10 ... 100 Mbit/s
• at point-to-point connection serial, maximum	115.2 kbit/s	115.2 kbit/s	115.2 kbit/s
Interfaces			
Design of interface for point-to-point connection	RS422	RS422	RS422
Number of readers connectable	2	2	2
Design of the electrical connection the Industrial Ethernet Interface	(according to the connection block)	(according to the connection block)	(according to the connection block)
Design of electrical connection for supply voltage	(according to the connection block)	(according to the connection block)	(according to the connection block)
Version of the interface to the reader for communication	M12, 8-pin	M12, 8-pin	M12, 8-pin
Mechanical data			
Material	Thermoplastic (Valox 467, fiberglass reinforced)	Thermoplastic (Valox 467, fiberglass reinforced)	Thermoplastic (Valox 467, fiberglass reinforced)
Color	IP Basic 714	IP Basic 714	IP Basic 714
Tightening torque of screw for mounting the equipment, maximum	3 Nm	3 Nm	3 Nm
Supply voltage, current consumption, power loss			
Supply voltage for DC			
• rated value	24 V	24 V	24 V
• minimum	20 V	20 V	20 V
• maximum	30 V	30 V	30 V
Current consumed at 24 V DC			
• without connected devices, typical	0.1 A	0.1 A	0.1 A
• including connected devices, maximum	1.1 A	1.1 A	1.1 A
Permitted ambient conditions			
Ambient temperature			
• during operating	0 ... 60 °C	0 ... 60 °C	0 ... 60 °C
• during storage	-40 ... +70 °C	-40 ... +70 °C	-40 ... +70 °C
• during transport	-40 ... +70 °C	-40 ... +70 °C	-40 ... +70 °C
Protection class IP	IP 67	IP 67	IP 67
Resistance against shock	According to IEC 61131-2	According to IEC 61131-2	According to IEC 61131-2
Resistance against shock	300 m/s ²	300 m/s ²	300 m/s ²
Resistance against vibration	100 m/s ²	100 m/s ²	100 m/s ²
Design, dimensions and weight			
Width	60 mm	60 mm	60 mm
Height	30 mm	30 mm	30 mm
Depth	210 mm	210 mm	210 mm
Net weight	0.21 kg	0.21 kg	0.21 kg
Type of mounting	2 x M5 screws	2 x M5 screws	2 x M5 screws
Cable length for RS 422 interface, maximum	1000 m	1000 m	1000 m

Communication modules

SIMATIC RF180C/RF182C, RFID 181EIP

Order No.	6GT2002-0JD00	6GT2002-0JD10	6GT2002-0JD20
Product-type designation	RF180C communication module	RF182C communication module	Communication module RFID 181EIP
Product properties, functions, components general			
Type of display	4 LEDs per reader connection, 4 LEDs for device status	4 LEDs per reader connection, 4 LEDs for device status	4 LEDs per reader connection, 4 LEDs for device status
Product function			
• MRP redundancy protocol	No	No	No
• transponder file handler can be addressed	Yes	No	Yes
Protocol			
• LLDP	Yes	No	No
• PROFINET IO protocol	Yes	No	No
• TCP/IP	No	Yes	No
• EtherNet/IP protocol	No	No	Yes
Product functions management, configuration			
Type of parameterization	GSDML	XML	EDS file
Type of programming	FB 45, FB 55, Ident profile (PIB)	XML commands	Data records via implicit/explicit messages
Type of computer-mediated communication	Acyclic communication	XML	Implicit/explicit messaging
Standards, specifications, approvals			
Verification of suitability	CE, FCC, cULus, PNO: Conformance Class B	CE, FCC, cULus	CE, FCC, cULus
Accessories			
Accessories	Connection block M12 d-coded, 7/8" 5-pin or push-pull	Connection block M12 d-coded, 7/8" 5-pin or push-pull or M12 d-coded, 7/8" 4-pin	Connection block M12 d-coded, 7/8" 5-pin or push-pull or M12 d-coded, 7/8" 4-pin

Order No.	6GT2002-1JD00	6GT2002-2JD00	6GT2002-4JD00
Product-type designation	Connection block for RF18xC, M12, 7/8" 5-pin	Connection block for RF18xC, push-pull	Connection block for RF18xC, M12, 7/8" 4-pin
Suitability for installation			
Transmission rate with Industrial Ethernet	10 ... 100 Mbit/s	10 ... 100 Mbit/s	10 ... 100 Mbit/s
Interfaces			
Design of the electrical connection the Industrial Ethernet Interface	M12, d-coded	push-pull, RJ 45	M12, d-coded
Design of electrical connection for supply voltage	7/8" 5-pin	push-pull, 5-pin	7/8" 4-pin
Mechanical data			
Material	Die-cast zinc	Thermoplastic (Valox 467, fiberglass reinforced)	Die-cast zinc
Color	Silver	IP Basic 714	Silver
Tightening torque of screw for mounting the equipment, maximum	1.3 Nm	1 Nm	1.3 Nm
Supply voltage, current consumption, power loss			
Supply voltage for DC			
• rated value	24 V	24 V	24 V
• minimum	20 V	20 V	20 V
• maximum	30 V	30 V	30 V
Continuous current for loop-through to further bus nodes with DC, maximum	8 A	12 A	8 A

SIMATIC RF180C/RF182C, RFID 181EIP

Order No.	6GT2002-1JD00	6GT2002-2JD00	6GT2002-4JD00
Product-type designation	Connection block for RF18xC, M12, 7/8" 5-pin	Connection block for RF18xC, push-pull	Connection block for RF18xC, M12, 7/8" 4-pin
Permitted ambient conditions			
Ambient temperature			
• during operating	0 ... 60 °C	0 ... 60 °C	0 ... 60 °C
• during storage	-40 ... +70 °C	-40 ... +70 °C	-40 ... +70 °C
• during transport	-40 ... +70 °C	-40 ... +70 °C	-40 ... +70 °C
Protection class IP	IP 67	IP 67	IP 67
Resistance against shock	According to IEC 61131-2	According to IEC 61131-2	According to IEC 61131-2
Resistance against shock	300 m/s ²	300 m/s ²	300 m/s ²
Resistance against vibration	100 m/s ²	100 m/s ²	100 m/s ²
Design, dimensions and weight			
Width	60 mm	60 mm	60 mm
Height	24 mm	70 mm	24 mm
Depth	79 mm	85 mm	79 mm
Net weight	0.23 kg	0.12 kg	0.23 kg
Type of mounting	4 screws included	4 screws included	4 screws included
Product properties, functions, components general			
Type of display	4 LEDs for Ethernet status	4 LEDs for Ethernet status	4 LEDs for Ethernet status

Communication modules

SIMATIC RF180C/RF182C, RFID 181EIP

Selection and ordering data

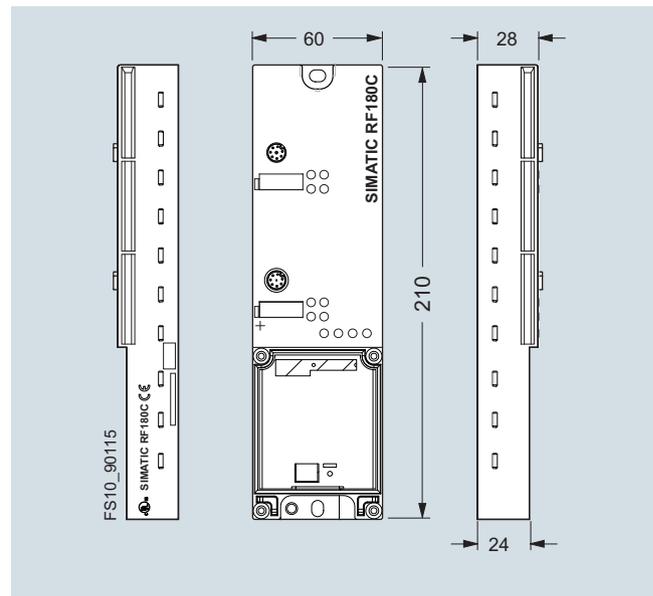
	Order No.		Order No.
SIMATIC RF180C communication module For PROFINET, for connecting 2 readers, without a connection block.	6GT2002-0JD00	PROFINET M12 plug-in connectors Rugged metal housing; axial cable outlet; D-coded.	6GK1901-0DB20-6AA0
SIMATIC RF182C communication module For Ethernet, for connecting 2 readers, without a connection block.	6GT2002-0JD10	7/8" cable connector, for voltage Pack with 5 units, minimum ordering quantity 1 pack. • With male insert • With female insert	6GK1905-0FA00 6GK1905-0FB00
Communication module SIMATIC RFID 181EIP For Ethernet/IP, for connecting 2 readers, without a connection block.	6GT2002-0JD20	IE M12 control cabinet bushing For conversion from M12 (D-coded) to RJ45, pack with 5 units, minimum ordering quantity 1 pack.	6GK1901-0DM20-2AA5
PROFINET connection block For SIMATIC RF180C/RF182C, M12 d-coded, 7/8" (5-pole).	6GT2002-1JD00	IE Connecting Cable M12-180/IE FC RJ45 Plug 145 Pre-assembled IE FC TP trailing cable GP 2 x 2 (PROFINET type C) with M12 plug (D-coded) and IE FC RJ45 plug, IP65/IP67 degree of protection, length 2 m.	6XV1871-5TH20
PROFINET connection block For SIMATIC RF180C/RF182C, push-pull RJ45.	6GT2002-2JD00	IE FC RJ45 PLUG 180 RJ45 plug With rugged metal housing and FC connection system, straight cable outlet.	6GK1901-1BB10-2AA0
PROFINET connection block For SIMATIC RF182C, RFID 181EIP, M12 d-coded, 7/8" (4-pole).	6GT2002-4JD00	Sealing caps 7/8" Pack with 10 units, minimum ordering quantity 1 pack.	6ES7194-3JA00-0AA0
Accessories for network connection M12, 7/8" (5-pole) IE M12-180/M12-180 connecting cable Pre-assembled IE FC TP trailing cable GP 2x2 (PROFINET Type C), with two 4-pin M12 plugs (D-coded), maximum length 85 m, IP65/IP67 degree of protection. Lengths: 0.3 m 0.5 m 1 m 1.5 m 2 m 3 m 5 m 10 m 15 m	6XV1870-8AE30 6XV1870-8AE50 6XV1870-8AH10 6XV1870-8AH15 6XV1870-8AH20 6XV1870-8AH30 6XV1870-8AH50 6XV1870-8AN10 6XV1870-8AN15	Accessories for push pull RJ45 network connection Push-pull cable connector for 1L+/2L+ Unassembled. Push-pull cable connector for RJ45 Unassembled.	6GK1907-0AB10-6AA0 6GK1901-1BB10-6AA0
7/8" connecting cable to power supply Pre-assembled with two 5-pin 7/8" male and female connectors. Lengths: 0.3 m 0.5 m 1 m 1.5 m 2 m 3 m 5 m 10 m 15 m	6XV1822-5BE30 6XV1822-5BE50 6XV1822-5BH10 6XV1822-5BH15 6XV1822-5BH20 6XV1822-5BH30 6XV1822-5BH50 6XV1822-5BN10 6XV1822-5BN15	Cover caps for push-pull female connectors (1L+/ 2L+), pack of 5. Cover caps for push-pull female connectors RJ45, pack of 5. Accessories for network connection M12, 7/8" (4-pole) Network wiring with M12 Accessories as for M12, 7/8" (5-pole) Power supply with 7/8" (4-pole) No cables and connectors from Siemens	6ES7194-4JA50-0AA0 6ES7194-4JD50-0AA0

SIMATIC RF180C/RF182C, RFID 181EIP

	Order No.
Accessories for PROFINET bus components	
SCALANCE X204-2 Industrial Ethernet Switch Industrial Ethernet switches with integral SNMP access, Web diagnostics, copper cable diagnostics, and PROFINET diagnostics for configuring line, star and ring topologies, with integrated redundancy manager (exception: SCALANCE X208PRO), including operating instructions, Industrial Ethernet network manual, and configuration software on CD-ROM. With electrical and optical ports for glass multi-mode fiber-optic cable up to 5 km: four 10/100 Mbit/s RJ45 ports and two fiber-optic ports.	6GK5204-2BB10-2AA3
SCALANCE X204IRT PRO Industrial Ethernet switch Managed Industrial Ethernet switch, isochronous real-time, LED diagnostics, fault signaling contact with SET button, redundant power supply, incl. operating instructions, Industrial Ethernet network manual, and configuration software on CD-ROM. Four 10/100 Mbit/s RJ45 push-pull ports	6GK5204-0JA00-2BA6
IE FC TP standard cable GP 2x2 4-core, shielded TP installation cable for connection to IE, FC outlet RJ45/IE FC RJ45 plug, PROFINET-compatible, with UL approval, sold by the meter, max. delivery unit 1000 m, minimum ordering quantity 20 m.	6XV1840-2AH10
Power line 5-core, 5 x 1.5 mm ² , trailing type, sold by the meter, minimum ordering quantity 20 m, maximum ordering quantity 1000 m.	6XV1830-8AH10
General accessories	
Stainless steel screws for connection blocks Optional screws made of V4A steel for securing the connection blocks on the basic module. For use in wet areas. Pack with 40 units is sufficient for 10 connection blocks.	6GT2090-0VB00
Accessories for RFID	
MOBY U reader cable PUR material, CMG approval, suitable for cable carriers. Lengths: 2 m 5 m	6GT2091-4FH20 6GT2091-4FH50
MOBY D reader cable PUR material, CMG approval, suitable for cable carriers, 2 m.	6GT2691-4FH20
Reader cable for SIMATIC RF200 / RF300 / RF600 / MV420 / MV440 Or extension cable MOBY U/D and SIMATIC RF200 / RF300 / RF600 / MV400, PUR material, CMG approval, suitable for cable carriers, straight connector. Lengths: 2 m 5 m 10 m	6GT2891-4FH20 6GT2891-4FH50 6GT2891-4FN10

	Order No.
20 m	6GT2891-4FN20
50 m	6GT2891-4FN50
2 m, plug angled at reader	6GT2891-4JH20
5 m, plug angled at reader	6GT2891-4JH50
Sealing caps M12 for unused reader connections Minimum ordering quantity 10 units.	3RX9802-0AA00
DVD "RFID Systems Software & Documentation"	6GT2080-2AA20

Dimensional drawings



SIMATIC RF180C communication module

Communication modules

SIMATIC RF170C

Overview



The SIMATIC RF170C is a communication module for connecting the SIMATIC identification systems to the ET 200pro distributed I/O system. The readers (SLGs) of all RFID systems as well as the MV400 code-reading systems can be operated on the SIMATIC RF170C.

Thanks to its high degree of protection and ruggedness, ET 200pro is particularly suitable for machine-level use. The modular structure with PROFIBUS and PROFINET connection systems allows them to be used in all applications. The uniform plug-in connection system ensures rapid commissioning.

Benefits

get Designed for Industry

- Two parallel reader channels ensure real-time mode at dynamic read points.
- By selecting the relevant header module, the RFID systems can be connected via PROFIBUS or PROFINET.
- The modular design with interface modules for PROFIBUS and PROFINET supports universal implementation.
- Reader connection using an 8-pin M12 connector for fast installation of all components.
- Powerful hardware ensures maximum data exchange speed with the SLG (reader) so that data is made available to the application even faster.
- Very easy downloading of firmware via the SIMATIC Manager for function expansions and error rectification ensure high availability of the identification system.
- Adjustable and parameterizable identification-system-specific diagnostics facilitate commissioning and troubleshooting.
- A wide selection of pre-assembled connecting cables can be ordered for ET 200pro and SIMATIC RF170C. This saves time and money during installation and assures better quality.

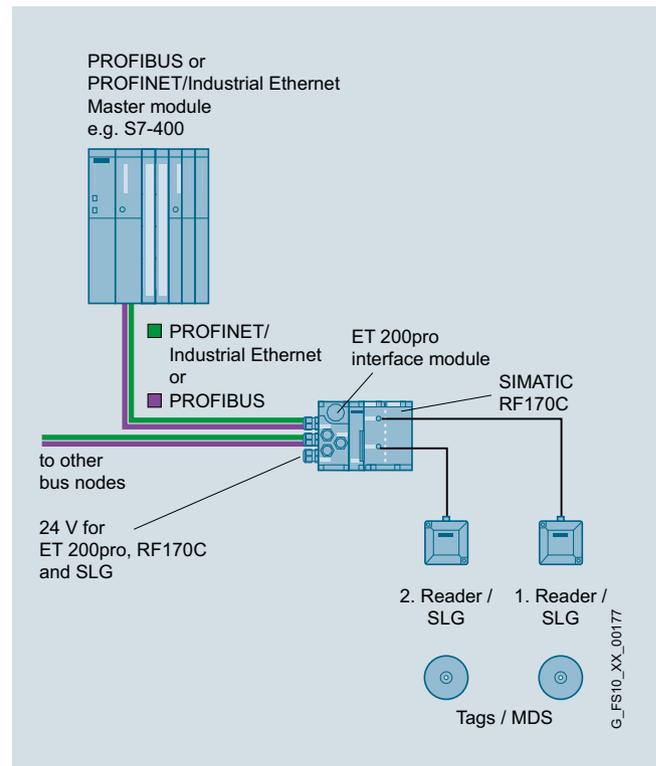
Application

The ET 200pro distributed I/O system with the SIMATIC RF170C communication module has been specially designed for a wide range of applications in industrial automation and logistics. Thanks to the high degree of protection of IP67, the SIMATIC RF170C can be installed without a control cabinet.

Used primarily for the SIMATIC RF170C:

- Mechanical engineering, automation systems, conveyor systems
- Ancillary assembly lines in the automobile industry/suppliers
- Small assembly lines

Design



Function

The SIMATIC RF170C comprises an electronics module and a connection block that must be ordered separately. The interface module is available in the PROFIBUS or PROFINET variants. For the PROFIBUS connection, you can choose from the connection systems of ECOFAST, M12, 7/8", or screwed cable gland. For the PROFINET interface module, M12, 7/8" or push pull connection (RJ45 or SCRJ FO) is available.

Integration of SIMATIC RF170C into SIMATIC STEP 7 is achieved by means of a Hardware Support Package (HSP). The GSD file of the ET 200pro system is available for integration into non-Siemens systems. The SIMATIC RF170C can then be configured via the SW tool HW_Config of SIMATIC Manager or another PROFIBUS/PROFINET tool.

A pre-assembled reader cable is used to connect one or two readers to the communication module. The standard length of the cable is 2 m. If other cable lengths to the reader are required, an extension cable measuring between 2 m and 50 m can be used. The cable can also be assembled by the customer as required.

The data in the transponder can be accessed as follows: Direct addressing via absolute addresses.

Error messages and operating states (transponder in the field, transmission, etc.) are indicated additionally by means of LEDs and simplify commissioning and service.

The SIMATIC RF170C has two reader interfaces from which the readers are also supplied with power. In the SIMATIC RF170C, the power supply for the readers has an electronic fuse. The maximum permissible current per SIMATIC RF170C for the readers is 0.8 A. It is of no importance here whether the current is drawn by one or two readers.

The data in the transponder / on the data matrix code can be accessed direct using absolute addresses (FB/FC45, FB/FC55). When the ET 200pro is operated with a PROFINET interface, use of the FB (FB45, FB55) is mandatory.

Communication between the SIMATIC RF170C and the controller is acyclic. Consequently, a very large amount of data can be transferred to/from the SIMATIC RF170C without overloading the bus cycle. This has advantages when transferring large volumes of data. The SIMATIC RF170C can also process concatenated transponder commands very quickly in this mode.

Notice: When connecting high-speed RFID systems (e.g. RF300), the data throughput can decrease due to the distributed configuration of the ET 200pro. Therefore use the data throughput calculation tool when configuring. You can find the tool on the DVD 6GT2080-2AA20.

Technical specifications

Order No.	6GT2002-0HD00
Product-type designation	RF170C communication module
Suitability for installation	Distributed IO ET 200pro, in conjunction with RF200/300/600, MOBY D/E/I/U, MV
Transmission rate at point-to-point connection, serial, maximum	115.2 kbit/s
Interfaces	
Design of interface for point-to-point connection	RS422 via connection block
Number of connectable readers	2
Design of electrical connection	
• of the backplane bus	ET 200pro backplane bus
• of the PROFIBUS interface	(according to the head module)
• the Industrial Ethernet Interface	(according to the head module)
• for supply voltage	ET 200pro backplane bus
Version of the interface to the reader for communication	Internal plug to the connection block
Mechanical data	
Material	Thermoplastic (Valox 467, fiberglass reinforced)
Color	IP Basic 714
Tightening torque of screw for mounting the equipment, maximum	1.5 Nm
Supply voltage, current consumption, power loss	
Supply voltage for DC	
• rated value	24 V
• minimum	20 V
• maximum	30 V
Current consumed at 24 V DC	
• without connected devices, typical	0.13 A
• including connected devices, maximum	1 A
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +55 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
Protection class IP	IP 67
Resistance against shock	According to IEC 61131-2
Resistance against shock	300 m/s ²
Resistance against vibration	100 m/s ²
Design, dimensions and weight	
Width	90 mm
Height	130 mm
Depth	35 mm
Net weight	0.27 kg
Type of mounting	ET 200pro rack
Cable length for RS 422 interface, maximum	1000 m

Communication modules

SIMATIC RF170C

Order No.	6GT2002-0HD00
Product-type designation	RF170C communication module
Product properties, functions, components general	
Type of display	(see connection block)
Product function transponder file handler can be addressed	No
Protocol is supported S7 communication	Yes
Product functions management, configuration	
Type of parameterization	HSP
Type of programming	FB 45, FB 55 (FC 45/55 with limited functionality)
Type of computer-mediated communication	Acyclic communication
Verification of suitability	CE, FCC, cULus
Accessories	Connection block for RF170C

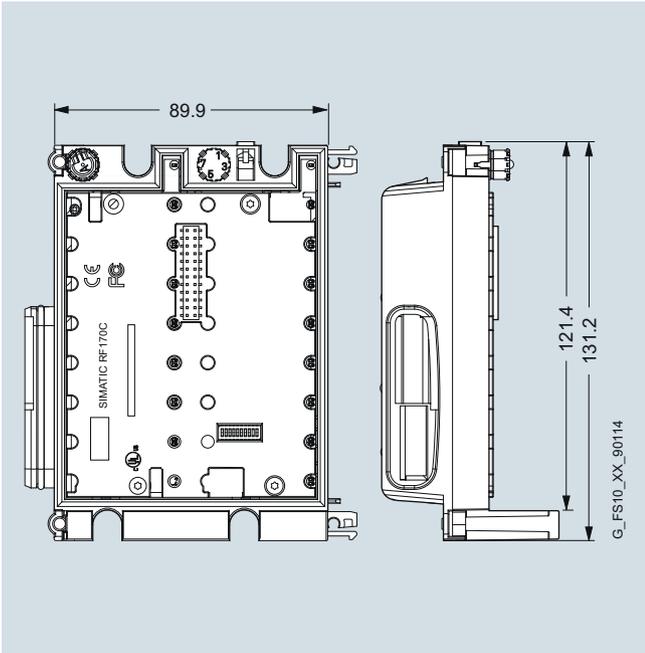
Order No.	6GT2002-1HD00
Product-type designation	Connection block for RF170C
Interfaces	
Design of interface for point-to-point connection	RS422
Number of readers connectable	2
Mechanical data	
Material	Die-cast zinc
Color	Silver
Tightening torque of screw for mounting the equipment maximum	1.5 Nm
Supply voltage, current consumption, power loss	
Supply voltage for DC rated value	24 V
Supply voltage (DC)	20 ... 30 V
Permitted ambient conditions	
Ambient temperature	
• during operating	-25 ... +55 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
Protection class IP	IP 67
Resistance against shock	According to IEC 61131-2
Resistance against shock	300 m/s ²
Resistance against vibration	100 m/s ²
Design, dimensions and weight	
Width	90 mm
Height	130 mm
Depth	25 mm
Net weight	0.5 kg
Type of mounting	4 screws included
Product properties, functions, components general	
Type of display	4 LEDs per reader connection, 1 LEDs for device status

Selection and ordering data

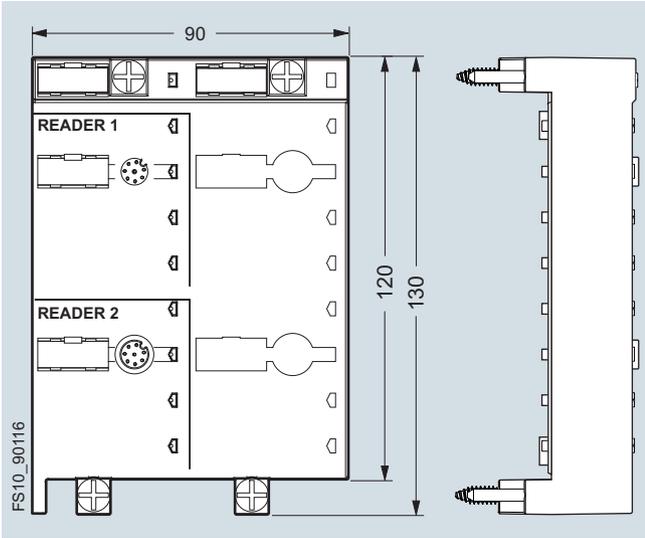
	Order No.
SIMATIC RF170C communication module	6GT2002-0HD00
For connecting to the distributed I/O system ET 200pro	
Accessories	
Connection block for SIMATIC RF170C	6GT2002-1HD00
For connecting 2 readers via an M12 connector	
Reader cable for MOBY U PUR material, CMG approved, suitable for cable carriers	
2 m	6GT2091-4FH20
5 m	6GT2091-4FH50
Reader cable for MOBY D PUR material, CMG approved, suitable for cable carriers, 2 m	6GT2691-4FH20
Reader cable for SIMATIC RF200 / RF300 / RF600 / MV400 Or extension cable MOBY U/D and SIMATIC RF200 / RF300 / RF600 / MV400, PUR material, CMG approved, suitable for cable carriers, straight connector	
2 m	6GT2891-4FH20
5 m	6GT2891-4FH50
10 m	6GT2891-4FN10
20 m	6GT2891-4FN20
50 m	6GT2891-4FN50
2 m, plug angled at reader	6GT2891-4JH20
25 m, plug angled at reader	6GT2891-4JH50
M12 sealing caps for unused reader connections 10 units minimum order quantity, price per 100 units	3RX9802-0AA00
DVD "RFID Systems Software & Documentation"	6GT2080-2AA20

SIMATIC RF170C

Dimensional drawings



SIMATIC RF170C communications module



Connector block for SIMATIC RF170C

Communication modules

SIMATIC RF120C

Overview



SIMATIC RF120C communication module

The SIMATIC RF120C is a communication module for direct connection of SIMATIC identification systems to the SIMATIC S7-1200. The readers of all RFID systems as well as the MV400 code reading systems can be operated on the SIMATIC RF120C.

Integration into the TIA Portal and the uniform plug-in connection systems permit fast and simple commissioning.

Benefits

get Designed for Industry

- Space savings thanks to the extremely compact design of the identification system connected directly to the controller
- Due to the intuitive parameterization of the RF120C and the reader via the SIMATIC device configuration, the manual is mostly no longer required
- A library with newly-developed instructions (function blocks) facilitates simple programming and commissioning
- The library blocks can also be used for the PROFIBUS and Profinet communication modules (ASM 456, RF180C). This enables the user to select the best connection variant in each case without having to change the control program
- Reader connection using a sub D connector on the RF120C for fast installation of all components
- Powerful hardware ensures maximum data exchange speed with the reader so that data is made available to the application even faster.
- Very easy downloading of functional expansion and error rectification firmware for RF120C and readers via the TIA portal ensures high availability of the identification system

Application

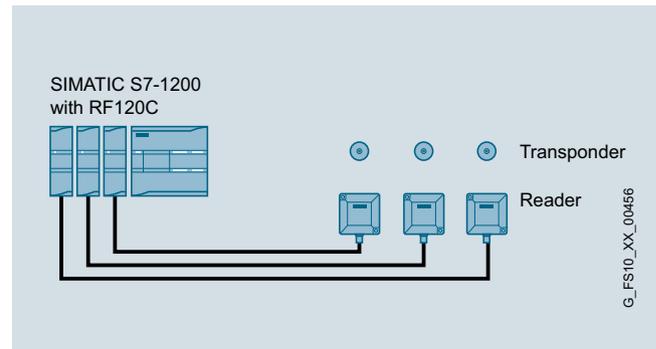
The SIMATIC S7-1200 controller with the RF120C communication module has been developed for all simple control applications including identification tasks.

Due to its technical setup with IP 20 degree of protection, the S7-1200 is designed for use in the control cabinet.

Main applications for SIMATIC RF120C:

- Mechanical engineering, automation systems, conveyor systems
- Ancillary assembly lines in the automobile industry/suppliers
- Small assembly lines

Design



SIMATIC RF120C communication module

Function

The SIMATIC RF120C communication module is positioned to the left of the S7-1200 CPU. This enables a maximum of three RF120Cs to be operated on one S7-1200 CPU.

The reader is powered from the RF120C. The RF120C is provided with voltage via a screw-type terminal connector which is included in the scope of delivery.

The RF120C is integrated in the TIA Portal with a hardware support package (HSP). This allows all parameters of the communications module and of the reader to be adjusted via the device configuration.

For programming in the controller, a library is available with simple instructions such as Read, Write for accessing the transponder data. These statements can also be used for other identification communication modules which are connected to the S7-1200 via PROFIBUS, PROFINET: ASM 456, RF180C. Furthermore, the library blocks can also be used for the S7-1500 in order to operate identification communication modules via PROFIBUS, Profinet.

Error messages and operating states (transponder in the field, transmission, etc.) are indicated additionally by means of LEDs behind the top cover of the RF120C. This makes commissioning and servicing considerably easier.

The RF120C features a sub D socket for connecting the reader. This also supplies the reader with voltage. The power supply of the reader is equipped with an electronic fuse. The maximum permissible current for a reader is 1 A.

The reader is connected to the RF120C with a pre-assembled reader cable which is available in different lengths. This 6GT2091-4Lxxx type cable can easily be extended with a type 6GT2891-4Fxxx cable in order to cover greater distances between the reader and the controller.

Communication between the SIMATIC RF120C and the controller is acyclic. Consequently, a very large amount of data can be transferred to/from the RF120C without overloading the bus cycle. This has advantages when transferring large volumes of data.

Technical specifications

Order No.	6GT2002-0LA00
Product-type designation	RF120C communication module
Suitability for installation	
Transmission rate at point-to-point connection, serial, maximum	115.2 kbit/s
Interfaces	
Design of interface for point-to-point connection	RS422
Number of readers connectable	1
Design of electrical connection	
• of the backplane bus	S7-1200 backplane bus
• for supply voltage	Screw-type terminals
Version of the interface to the reader for communication	Submin-D, 9-pin socket
Mechanical data	
Material	Xantar MX 1094
Color	Ti-Grey 24L01
Supply voltage, current consumption, power loss	
Supply voltage for DC	
• rated value	24 V
• minimum	20 V
• maximum	30 V
Current consumed at 24 V DC	
• without connected devices, typical	0.03 A
• including connected devices, maximum	1 A

Order No.	6GT2002-0LA00
Product-type designation	RF120C communication module
Permitted ambient conditions	
Ambient temperature	
• during operating	0 ... 55 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
Protection class IP	IP20
Resistance against shock	According to IEC 61131-2
Resistance against shock	300 m/s ²
Resistance against vibration	100 m/s ²
Design, dimensions and weight	
Width	30 mm
Height	100 mm
Depth	75 mm
Net weight	0.15 kg
Type of mounting	S7-1200 rack
Cable length for RS 422 interface maximum	1000 m
Product properties, functions, components general	
Type of display	4 LEDs per reader connection, 1 LEDs for device status
Product function transponder file handler can be addressed	No
Protocol is supported S7 communication	Yes
Product functions management, configuration	
Type of parameterization	HSP
Type of programming	Library provides functions
Type of computer-mediated communication	Acyclic communication
Standards, specifications, approvals	
Verification of suitability	CE, FCC, UL/CSA

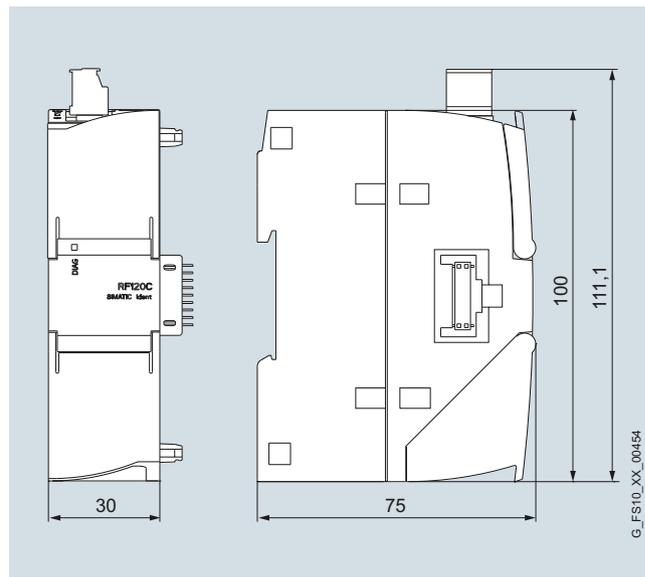
Communication modules

SIMATIC RF120C

Selection and ordering data

	Order No.
SIMATIC RF120C communications module Integrated in the S7-1200 controller for connection of a reader	6GT2002-0LA00
<i>Accessories for extended use</i>	
Extension cable for all readers PUR material, CMG approval, suitable for cable carriers, straight reader connector	
2 m	6GT2891-4FH20
5 m	6GT2891-4FH50
10 m	6GT2891-4FN10
20 m	6GT2891-4FN20
50 m	6GT2891-4FN50
2 m, plug angled at reader	6GT2891-4JH20
5 m, plug angled at reader	6GT2891-4JH50
Reader adapter cable for MOBY U PUR material, CMG approved, suitable for cable carriers. A cable of the type 6GT2091-4L... is also required.	
2 m	6GT2091-4FH20
5 m	6GT2091-4FH50
Reader adapter cable for MOBY D Material PUR, CMG approval, suitable for cable carriers, 2 m. A cable of the type 6GT2091-4L... is also required.	6GT2691-4FH20
<i>Accessories for all readers</i>	
Reader cable for SIMATIC RF200 / RF300 / RF600 / MV400 PUR material, CMG approval, suitable for cable carriers, straight reader connector	
2 m	6GT2091-4LH20
5 m	6GT2091-4LH50
10 m	6GT2091-4LN10
DVD "RFID Systems Software & Documentation"	6GT2080-2AA20

Dimensional drawings



SIMATIC RF120C communication module

Overview



The ASM 475 is a powerful module for connecting the MOBY D, U, SIMATIC RF200, RF300, RF600 and SIMATIC MV400 identification systems to the S7-300 and ET 200M.

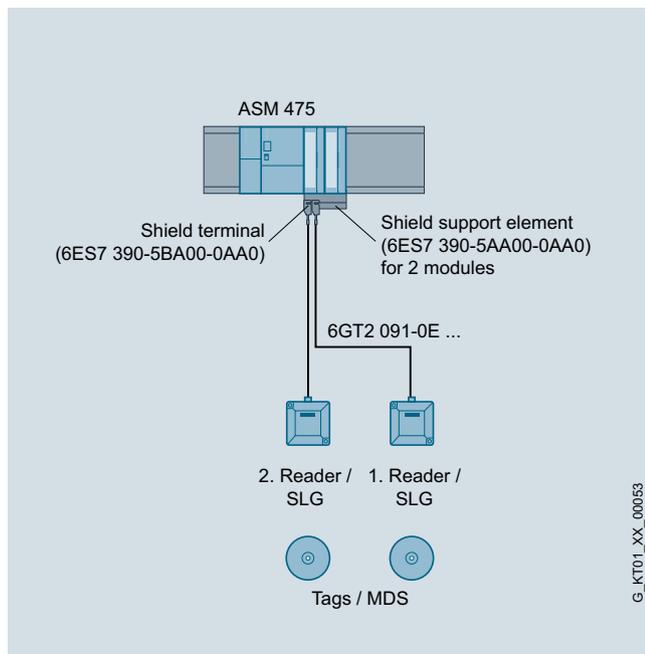
Application

The ASM 475 communication module integrates the identification systems into the following automation systems:

- SIMATIC S7-300
- S7-400, PC (CP5412 (A2)) over ET 200M
- SINUMERIK 840D/810D

A maximum of two readers can be connected in parallel and operated in parallel mode.

Design



Configuration

Function

As many as 8 ASM 475 communication modules can be plugged into one SIMATIC S7-300 rack and operated. In a configuration with several racks (max. 4), the ASM 475s can be plugged into and operated on any rack. This means that as many as 32 ASM 475s can be operated in the maximum configuration of a SIMATIC S7-300. The electrical isolation between the reader and SIMATIC S7-300 bus ensures a noise-resistant setup.

Error messages and operating states (transponder in field, command active, etc.) are indicated using LEDs.

Communication between the ASM 475 and S7-CPU takes place by means of acyclic P-bus message frames so that the useful data (max. 238 bytes) is transmitted very quickly and effectively. The ASM 475 is fully integrated into the diagnostics of the SIMATIC Manager by means of an Object Manager (OM). Depending on the PROFIBUS master, as many as 126 ET 200M modules can be operated on one PROFIBUS line.

The data in the transponder or Data Matrix Code is accessed direct by means of physical addresses using the ASM 475. The data is transferred between FC/FB45, FC/FB55 and ASM 475 at high speed and without placing a great load on the CPU. In the MOBY U mode, the ASM 475 can also be operated with the FC56 (file handler).

Technical specifications

Order No.	6GT2002-0GA10
Product-type designation	ASM 475 communication module
Suitability for installation	SIMATIC S7-300, ET200M in conjunction with RF200/300/600, MOBY D/E/I/U, MV
Transmission rate at point-to-point connection, serial, maximum	115.2 kbit/s
Interfaces	
Design of interface for point-to-point connection	RS422
Number of readers connectable	2
Design of electrical connection	
• of the backplane bus	S7-300 backplane bus
• of the PROFIBUS interface	(according to the head module)
• the Industrial Ethernet Interface	(according to the head module)
• for supply voltage	Screw-type or spring-loaded terminals
Version of the interface to the reader for communication	Screw-type or spring-loaded terminals
Mechanical data	
Material	Noryl
Color	Anthracite
Supply voltage, current consumption, power loss	
Supply voltage for DC	
• rated value	24 V
• minimum	20 V
• maximum	30 V
Current consumed at 24 V DC	
• without connected devices, typical	0.1 A
• including connected devices, maximum	1 A

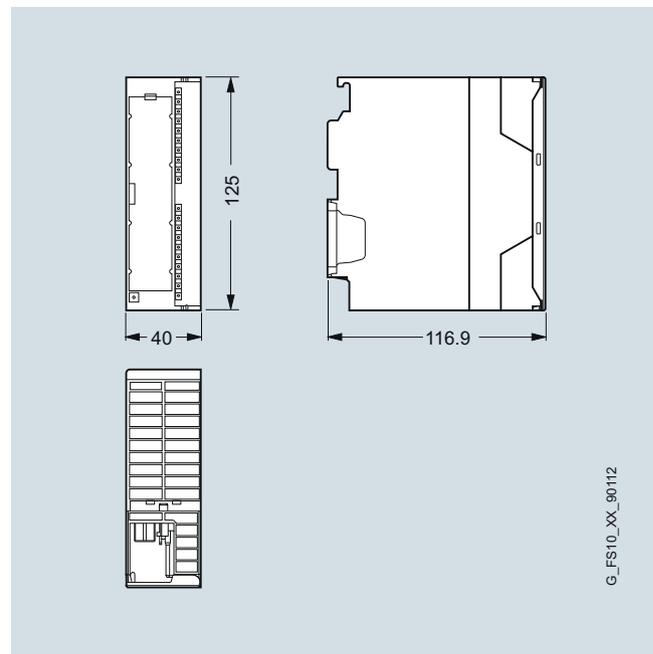
Communication modules

ASM 475

Order No.	6GT2002-0GA10
Product-type designation	ASM 475 communication module
Permitted ambient conditions	
Ambient temperature	
• during operating	0 ... 60 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
Protection class IP	IP 20
Resistance against shock	According to IEC 61131-2
Resistance against shock	150 m/s ²
Resistance against vibration	10 m/s ²
Design, dimensions and weight	
Width	40 mm
Height	125 mm
Depth	120 mm
Net weight	0.2 kg
Type of mounting	S7-300 rack
Cable length for RS 422 interface, maximum	1000 m
Product properties, functions, components general	
Type of display	4 LEDs per reader connection, 2 LEDs for device status
Product function transponder file handler can be addressed	Yes
Protocol is supported S7 communication	Yes
Product functions management, configuration	
Type of parameterization	Object manager, GSD
Type of programming	FB 45, FB 55, FC 56 (FC 45/55 with limited functionality)
Type of computer-mediated communication	Acyclic communication
Verification of suitability	CE, FCC, UL/CSA
Accessories	
Accessories	Front connector with screw-type or spring-loaded terminals

	Order No.
MOBY D connecting cable	
pre-assembled, between ASM 475 and reader D1xS, 9-pole Sub-D plug, PUR material, CMG approved, suitable for cable carriers, in the following lengths:	
5 m	6GT2491-4EH50
20 m	6GT2491-4EN20
50 m	6GT2491-4EN50
SIMATIC RF200 / RF300 / RF600 / MV400 connecting cable	
pre-assembled, between the ASM 475 and RF200 / RF300 / RF600 / MV400, IP65, straight connector, PUR material, suitable for cable carriers, CMG approval, in the following lengths ¹⁾ :	
2 m	6GT2891-4EH20
5 m	6GT2891-4EH50
Extension cable	
SIMATIC RF200 / RF300 / RF600 / MV400, PUR material, CMG approval, suitable for cable carriers, straight connector	
2 m	6GT2891-4FH20
5 m	6GT2891-4FH50
10 m	6GT2891-4FN10
20 m	6GT2891-4FN20
50 m	6GT2891-4FN50
DVD "RFID Systems Software & Documentation"	6GT2080-2AA20

Dimensional drawings



ASM 475 communication module

G_FS10_XX_90112

6

Selection and ordering data

	Order No.
ASM 475 communication module	6GT2002-0GA10
For SIMATIC S7-300 and ET 200M, parameterizable	
Accessories	
Front connector (1 x per ASM 475)	
• with screw terminals	6ES7392-1AJ00-0AA0
• with spring-loaded terminals	6ES7392-1BJ00-0AA0
MOBY U connecting cable	
pre-assembled, between the ASM 475 and reader, angled connector, PUR material, in the following lengths:	
2 m	6GT2091-4EH20
5 m	6GT2091-4EH50
10 m	6GT2091-4EN10
20 m	6GT2091-4EN20
50 m	6GT2091-4EN50

¹⁾ The connecting cables can be extended using RF300 connecting cables of type 6GT2891-4Fxxx. These connecting cables are available in the lengths 2 m, 5 m, 10 m, 20 m and 50 m.

Overview



RFID standard cables that are used with SIMATIC RFID systems preassembled in various lengths.

Benefits



Due to the cETLus certification with CMG test and marking, the cables can also be installed in fire protection critical building parts (e.g. vertical installation in a cable duct).

The SIMATIC RFID standard cables can also be used in dynamic applications such as tow chains with a minimum bending radius of 75 mm.

Application

In addition to the normal areas of application in industry, the cables can also be laid:

- in areas subject to high heat
- for highly flexible applications; e.g. in tow chains
- in oily industrial environments
- in outdoor applications under solar radiation (UV radiation).

Technical specifications

Product type designation	SIMATIC RFID standard cables
Product description	Highly flexible communication line (6-wire)
Also suitable for use	in continuous motion applications, such as with drag chains
Cable designation	L-YC11Y 6x1x0.25 6x24AWG CMG
Electrical data	
Loop resistance per length/maximum	160 Ω/km
Mechanical data	
Number of electrical wires	6
Type of screen	Tin-plated braided shield made of copper wires with 0.13 mm diameter (36 AWG)
Wire diameter of the AWG24 wire	0.70 mm
Outer diameter	
• of the inner conductor	0.70 mm
• of the wire insulation	1.2 mm
• of the cable sheath	5.4 mm
Symmetrical tolerance of the outer diameter/of the cable sheath	0.2 mm
Material	
• of the wire insulation	PVC
• of the cable sheath	PUR

Product type designation	SIMATIC RFID standard cables
Color	
• of the data wire insulation	White / yellow / gray / pink / brown / green
• of the cable sheath	Black
Bending radius	
• for one-off bending / minimum permissible	21.6 mm
• for repeated bending / minimum permissible	43 mm
• with continuous bending	75 mm
Number of bending cycles	3 million
Number of bending cycles / note	Suitable as trailing cable for 3 million bending cycles with a bending radius of 75 mm
Tensile load / maximum	200 N
Permitted ambient conditions	
Ambient temperature	
• during operation	-30 °C ... 80 °C
• during storage	-30 °C ... 80 °C
• during transport	-30 °C ... 80 °C
• during installation	-30 °C ... 80 °C
Ambient temperature / comment	Electrical properties measured at 20 °C
Behavior in fire	Flame-retardant acc. to IEC 60332-1-2
Resistance	
• to mineral oil	Resistant
• to grease	Resistant
• Radiological resistance / to UV radiation	Resistant
Product properties, functions, components / general	
• Halogen-free	No
• Silicon-free	Yes
Standards, specifications, approvals	
• UL listing / at 300 V rating	Yes: CMG
• UL listing / at 600 V rating	No

Selection and ordering data

	Order No.		Order No.
Connecting cable communication module - reader, without connector		2 m	6GT2891-4FH20
50 m	6GT2090-4AN50	5 m	6GT2891-4FH50
120 m	6GT2090-4AT12	10 m	6GT2891-4FN10
800 m	6GT2090-4AT80	20 m	6GT2891-4FN20
		50 m	6GT2891-4FN50
MOBY U, connecting cable 470/475 communication module - reader		RF300, connecting cable PC (RS232) - RF380R	
2 m	6GT2091-4EH20	5 m; 24 V connection with M12 plug	6GT2891-4KH50
5 m	6GT2091-4EH50	5 m; 24 V connection with open ends	6GT2891-4KH50-0AX0
10 m	6GT2091-4EN10		
20 m	6GT2091-4EN20	MOBY U, connecting cable PC (RS232) - SLG U92 and power supply unit	
50 m	6GT2091-4EN50	5 m	6GT2591-5CH50
With straight reader connector, 2 m	6GT2091-6EH20	20 m	6GT2591-5CN20
With straight reader connector, 5 m	6GT2091-6EH50		
With straight reader connector, 10 m	6GT2091-6EN10	MOBY U, connecting cable PC (RS232) - service interface SLG U92	
With straight reader connector, 50 m	6GT2091-6EN50	5 m	6GT2591-5AH50
MOBY U, connecting cable ASM 456, RF160C, RF170C, RF180C, RF182C - reader			
2 m	6GT2091-4FH20		
5 m	6GT2091-4FH50		
MOBY D, connecting cable ASM 475 - SLG D1xS			
5 m	6GT2491-4EH50		
20 m	6GT2491-4EN20		
50 m	6GT2491-4EN50		
MOBY D, connecting cable PC (RS232) - SLG D1x			
5 m	6GT2691-4BH50		
20 m	6GT2691-4BN20		
MOBY D, connecting cable ASM 456, RF160C, RF170C, RF180C, RF182C - SLG D1xS			
2 m	6GT2691-4FH20		
RF200/300/600, connecting cable ASM 475 - reader			
2 m	6GT2891-4EH20		
5 m	6GT2891-4EH50		
RF200/300/600, RF120C connecting cable			
2 m	6GT2091-4LH20		
5 m	6GT2091-4LH50		
10 m	6GT2091-4LN10		
RF200/300/600, M12 connecting cable ASM 456, RF160C, RF170C, RF180C, RF182C - reader; angled reader connector			
2 m	6GT2891-4JH20		
5 m	6GT2891-4JH50		
RF200/300/600, connecting cable ASM 456, RF160C, RF170C, RF180C, RF182C - reader, code reading systems			
Can also be used as RF200/300/600, MOBY D/U extension cable to ASM 456, RF160C, RF170C, RF180C, RF182C, straight connector.			

Appendix



7/2	Training
7/3	Siemens Automation Cooperates with Education
7/6	Partners at Siemens Industry Automation and Drives Technologies
7/6	Solution Partner
7/7	Online Services
7/9	Industry Services
7/14	Software licenses
7/16	Index
7/17	Order number index
7/24	Terms and conditions of sale and delivery

Appendix

Siemens Industry Training

Faster and more applicable know-how: Hands-on training from the manufacturer

Siemens Industry Training provides you with comprehensive support in solving your tasks.

Training by the market leader in the industry enables you to make independent decisions with confidence. Especially where the optimum and efficient use of products and plants are concerned. You can eliminate deficiencies in existing plants, and exclude expensive faulty planning right from the beginning.



First-class know-how directly pays for itself: In shorter startup times, high-quality end products, faster troubleshooting and reduced downtimes. In other words, increased profits and lower costs.

Achieve more with Siemens Industry Training

- Shorter times for startup, maintenance and servicing
- Optimized production operations
- Reliable configuration and startup
- Minimization of plant downtimes
- Flexible plant adaptation to market requirements
- Compliance with quality standards in production
- Increased employee satisfaction and motivation
- Shorter familiarization times following changes in technology and staff

Contact

Visit our site on the Internet at:

www.siemens.com/sitrain

or let us advise you personally.

Siemens Industry Training Customer Support Germany:

Phone: +49 (911) 895-7575

Fax: +49 (911) 895-7576

E-Mail: info@sitrain.com

Highlights Siemens Industry Training

Top trainers

Our trainers are skilled teachers with direct practical experience. Course developers have close contact with product development, and directly pass on their knowledge to the trainers.

Practical experience

The practical experience of our trainers enables them to teach theory effectively. But since theory can be pretty drab, we attach great importance to practical exercises which can comprise up to half of the course time. You can therefore immediately implement your new knowledge in practice. We train you on state-of-the-art methodically/didactically designed training equipment. This training approach will give you all the confidence you need.

Wide variety

With a total of about 300 local attendance courses, we train the complete range of Siemens Industry products as well as interaction of the products in systems.

Tailor-made training

We are only a short distance away. You can find us at more than 50 locations in Germany, and in 62 countries worldwide. You wish to have individual training instead of one of our 300 courses? Our solution: We will provide a program tailored exactly to your personal requirements. Training can be carried out in our Training Centers or at your company.

The right mixture: Blended learning

"Blended learning" is a combination of various training media and sequences. For example, a local attendance course in a Training Center can be optimally supplemented by a teach-yourself program as preparation or follow-up. Additional effect: Reduced traveling costs and periods of absence.



Comprehensive teaching support for educational institutionsCooperates
with Education

Automation

SIEMENS

Siemens Automation Cooperates with Education (SCE)

offers a global system for sustained support of technical skills. SCE supports educational institutions in their teaching assignment in the industrial automation sector and offers added value in the form of partnerships, technical expertise, and know-how. As the technological leader, our comprehensive range of services can support you in the knowledge transfer for Industry 4.0.

Our services at a glance

- Training curriculums for your lessons
- Trainer packages for hands-on learning
- Courses convey up-to-date, specialist knowledge
- Support for your projects/textbooks
- Complete didactic solutions from our partners
- Personal contact for individual support

Training curriculums for your lessons

Use our profound industrial know-how for practice-oriented and individual design of your course. We offer you more than 100 didactically prepared training curriculums on the topics of automation and drives technology free of charge. These materials are perfectly matched to your curricula and syllabuses, and optimally suited for use with our trainer packages. This takes into account all aspects of a modern industrial solution: installation, configuration, programming, and commissioning. All documents, including projects, can be individually matched to your specific requirements.

Particular highlights:

- With the new SIMATIC PCS 7 curriculums and trainer packages, you can pass on basic, practice-oriented PCS 7 knowledge at universities within about 60 hours (= 1 semester), using plant simulation.

- The new TIA Portal training materials for SIMATIC S7-1200 are available in English, German, French, Italian, Spanish and Chinese for download.

www.siemens.com/sce/documents

Trainer packages for hands-on learning

Our SCE trainer packages offer a specific combination of original industrial components which are perfectly matched to your requirements and can be conveniently used in your course. These price reduced bundles available exclusively to schools include innovative and flexible hardware and software packages. SCE can currently offers more than 90 SCE trainer packages including related equipment. These cover both the factory and process automation sectors. You can use them to impart the complete course contents on industrial automation at a very low cost.

Trainer packages are available for:

- Introduction to automation technology with LOGO! logic module and SIMATIC S7-1200 compact controller
- PLC engineering with SIMATIC S7 hardware and STEP 7 software (S7-300, S7-1500 and TIA Portal)
- Operator control and monitoring with SIMATIC HMI
- Industrial networking over bus systems with SIMATIC NET (PROFINET, PROFIBUS, IO-Link)
- Sensor systems with VISION, RFID and SIWAREX
- Process automation with SIMATIC PCS 7
- Power Monitoring Devices SENTRON PAC 4200
- Motor Management SIMOCODE
- Networked drive and motion technologies with SINAMICS/SIMOTION
- CNC programming with SinuTrain

Important ordering notes:

Only the following institutions are authorized to obtain trainer packages: vocational schools, Colleges and Universities, in-house vocational training departments, non commercial research institutions and non commercial training departments.

To purchase a trainer package, you require a specific end-use certificate, which you can obtain from your regional sales office.

www.siemens.com/sce/tp

Appendix

Siemens Automation Cooperates with Education

Applicable practical know-how

Comprehensive teaching support for educational institutions (continued)

Courses convey up-to-date specialist knowledge



Profit from our excellent know-how as the leader in industrial technologies. We offer you specific courses for automation and drive technology worldwide. These support you in the practice-oriented transferring of product and system know-how, are in conformance with curriculums, and derived from the training fields. Compact technical courses especially for use at universities are also available.

Our range of courses comprises a wide variety of training modules based on the principle of Totally Integrated Automation (TIA). The focus is on the same subject areas as with the SCE trainer packages.

Every PLC and drive course is oriented on state-of-the-art technology. Your graduates can thus be prepared optimally for their future professional life.

In some countries we are offering classes based on our training curriculums. Please inquire with your SCE contact partner.

www.siemens.com/sce/contact

Support for your projects/textbooks



Automation and drive technology is characterized by continuous and rapid developments. Service and Support therefore play an important role.

We can provide you with consulting for selected projects and support from your personal SCE contact as well as our web based and regional Customer Support.

As a particular service, SCE supports technical authors with our know-how as well as with intensive technical consulting. Siemens library of special textbooks covering the industrial automation sector provides an additional resource for you and your students. These can be found at the SCE web site.

www.siemens.com/sce/contact
www.siemens.com/sce/books

Complete didactic solutions



Our partners for learning systems offer a wide range of training systems and solutions for use in your courses or laboratory.

These models have been designed based on our trainer packages and thus save you the time and cost of self-construction of individual components. The Partner systems provide you with simple and effective help in the fulfillment of your teaching assignment.

www.siemens.com/sce/partner

Contact for individual support

You can find your personal SCE contact on our Internet site. Your local SCE Promoter will answer all your questions concerning the complete SCE offering, and provide you with timely and competent information about innovations. When you encounter challenges, you can profit from our global team of excellence.

If a direct SCE contact is not listed for your country, please contact your local Siemens office.

www.siemens.com/sce/contact

SCE Support Finder for your Internet request

You are an educator and need support on the topic of industry automation? Send us your request:

www.siemens.com/sce/supportfinder

Scan the QR
code for further
information
(SCE homepage)



Partners at Industry Automation and Drive Technologies



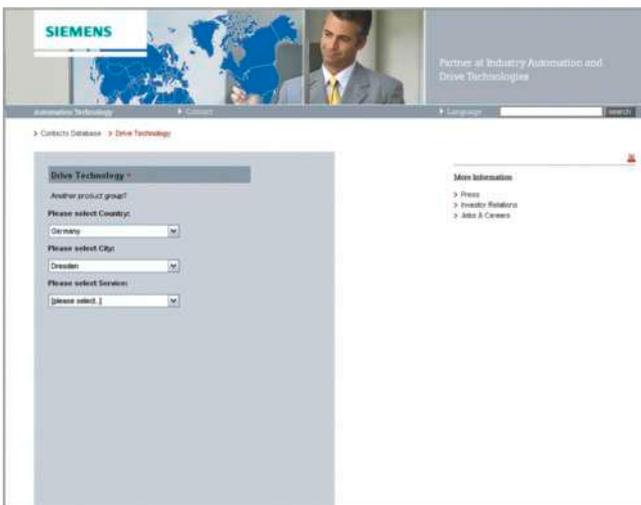
At Siemens Industry Automation and Drive Technologies, more than 85 000 people are resolutely pursuing the same goal: long-term improvement of your competitive ability. We are committed to this goal. Thanks to our commitment, we continue to set new standards in automation and drive technology. In all industries – worldwide.

At your service locally, around the globe for consulting, sales, training, service, support, spare parts ... on the entire Industry Automation and Drive Technologies range.

Your personal contact can be found in our Contacts Database at: www.siemens.com/automation/partner

You start by selecting a

- Product group,
- Country,
- City,
- Service.



Appendix

Partner at Industry Automation and Drive Technologies

Siemens Solution Partner Automation

Overview

Siemens Solution Partner Automation



Solution Partner: Highest quality - guaranteed

The products and systems from Siemens Industry Automation and Drive Technologies offer the ideal platform for all automation applications.

Under the name of Siemens Solution Partner Automation, selected system integrators around the world act as uniformly qualified solution providers for the Siemens range of products and services in the fields of automation and drives. Day after day, they utilize their qualified product and system know-how as well as their excellent industry expertise to your advantage – for all requirements.

The partner emblem is the guarantee and indicator of proven quality. The basis for this are defined quality features that identify Solution Partners as reliable and competent solution providers:

- Solution quality
Always a good result with tried and tested solutions expertise.
- Expert quality
Certified technical competence ensures maximum efficiency.
- Project quality
With proven project experience straight to the target.
- Portfolio quality
Comprehensive portfolio for state-of-the-art solutions from a single source.

Solution Partner Finder

 The screenshot shows the Siemens Solution Partner Finder web interface. At the top, there is a navigation bar with 'Solution Partner', 'Language', and 'Contact'. Below this is a 'Partner Finder' section with a heading 'Solution Partner Finder'. The main content area contains a search form with the following fields: Technology (Please select), Industry (Please select), Service (All), Country (worldwide), Region (Please select a country first), and Company/ZIP code (Search word and Zip code). There are also two trash icons and a 'Find' button. A note on the right states: 'Note: Please note that the search criteria entered are linked with and'. At the bottom of the form, it says 'Partially qualified search possibly with *'.

The Siemens Solution Partner Program helps you to find the optimum partner for your specific requirements.

Support is provided by the Solution Partner Finder, a comprehensive online platform that showcases the profiles of all our solution partners. You can convince yourself of the competence of the respective Solution Partner by means of the references provided. Various search criteria are available for this purpose.

Once you have located a partner, you are only one small step away from contacting them.

Find the right partner here for your specific task and convince yourself of the solution competence provided:

www.siemens.com/automation/partnerfinder

Additional information on the Siemens Solution Partner Program is available online at:

www.siemens.com/automation/solutionpartner

Siemens Industry Automation and Drive Technologies in the WWW



A detailed knowledge of the range of products and services available is essential when planning and configuring automation systems. It goes without saying that this information must always be fully up-to-date.

Siemens Industry Automation and Drive Technologies has therefore built up a comprehensive range of information in the World Wide Web, which offers quick and easy access to all data required.

Under the address

www.siemens.com/industry

you will find everything you need to know about products, systems and services.

Product Selection Using the Interactive Catalog CA 01 of Industry



Detailed information together with convenient interactive functions:

The interactive catalog CA 01 covers more than 80 000 products and thus provides a full summary of the Siemens Industry Automation and Drive Technologies product base.

Here you will find everything that you need to solve tasks in the fields of automation, switchgear, installation and drives. All information is linked into a user interface which is easy to work with and intuitive.

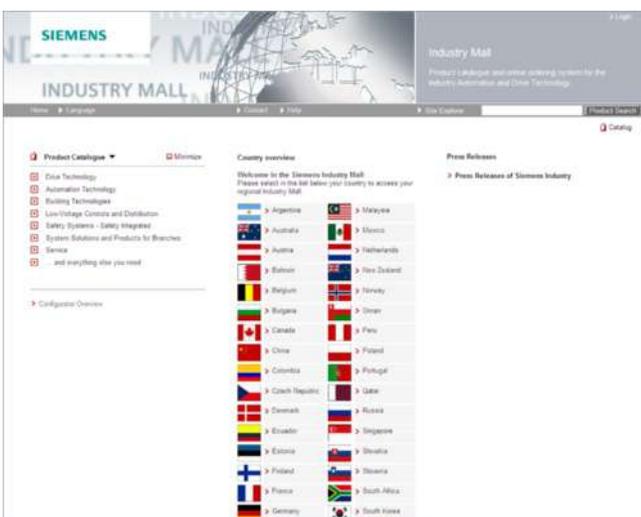
After selecting the product of your choice you can order at the press of a button, by fax or by online link.

Information on the interactive catalog CA 01 can be found in the Internet under

www.siemens.com/automation/ca01

or on DVD.

Easy Shopping with the Industry Mall



The Industry Mall is the virtual department store of Siemens AG on the Internet. Here you have access to a huge range of products presented in electronic catalogs in an informative and attractive way.

Data transfer via EDIFACT allows the whole procedure from selection through ordering to tracking of the order to be carried out online via the Internet.

Numerous functions are available to support you.

For example, powerful search functions make it easy to find the required products, which can be immediately checked for availability. Customer-specific discounts and preparation of quotes can be carried out online as well as order tracking and tracing.

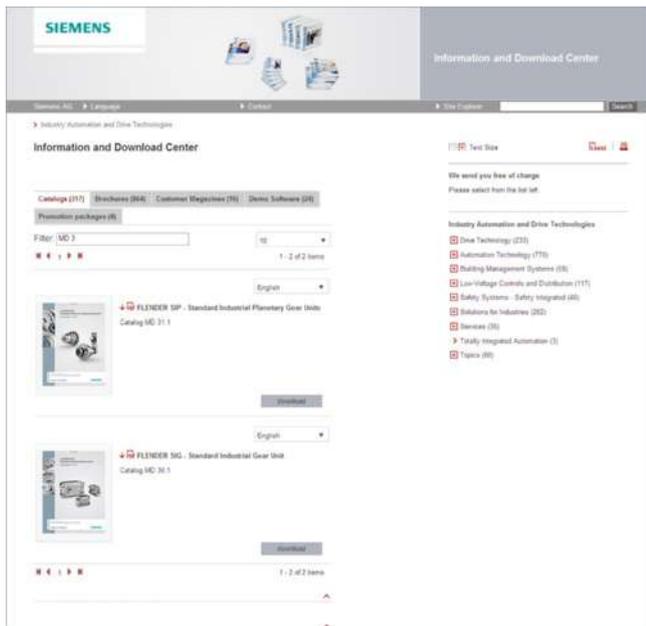
Please visit the Industry Mall on the Internet under:

www.siemens.com/industrymall

Appendix Online Services

Information and Download Center Social Media, Mobile Media

Downloading Catalogs



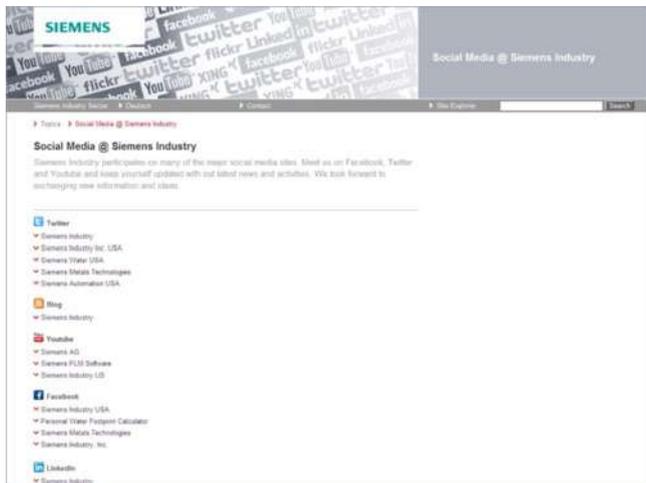
In addition to numerous other useful documents, you can also find the catalogs listed on the back inside cover of this catalog in the Information and Download Center. Without having to register, you can download these catalogs in PDF format or increasingly as digital page-turning e-books.

The filter dialog box above the first catalog displayed makes it possible to carry out targeted searches. If you enter "MD 3" for example, you will find both the MD 30.1 and MD 31.1 catalogs. If you enter "ST 70" both the ST 70 catalog and the associated news or add-ons are displayed.

Visit us on the web at:

www.siemens.com/industry/infocenter

Social Media



Connect with Siemens through social media: visit our social networking sites for a wealth of useful information, demos on products and services, the opportunity to provide feedback, to exchange information and ideas with customers and other Siemens employees, and much, much more. Stay in the know and follow us on the ever-expanding global network of social media.

Connect with Siemens Industry at our central access point:

www.siemens.com/industry/socialmedia

Or via our product pages at:

www.siemens.com/automation

or

www.siemens.com/drives

To find out more about Siemens' current social media activities visit us at:

www.siemens.com/socialmedia

Mobile Media



Discover the world of Siemens.

We are also constantly expanding our offering of cross-platform apps for smartphones and tablets. You will find the current Siemens apps at the app store (iOS) or at Google Play (Android).

The Siemens app, for example, tells you all about the history, latest developments and future plans of the company – with informative pictures, fascinating reports and the most recent press releases.

7

Appendix Industry Services

**Your machines and plant can do more
– with Industry Services.**

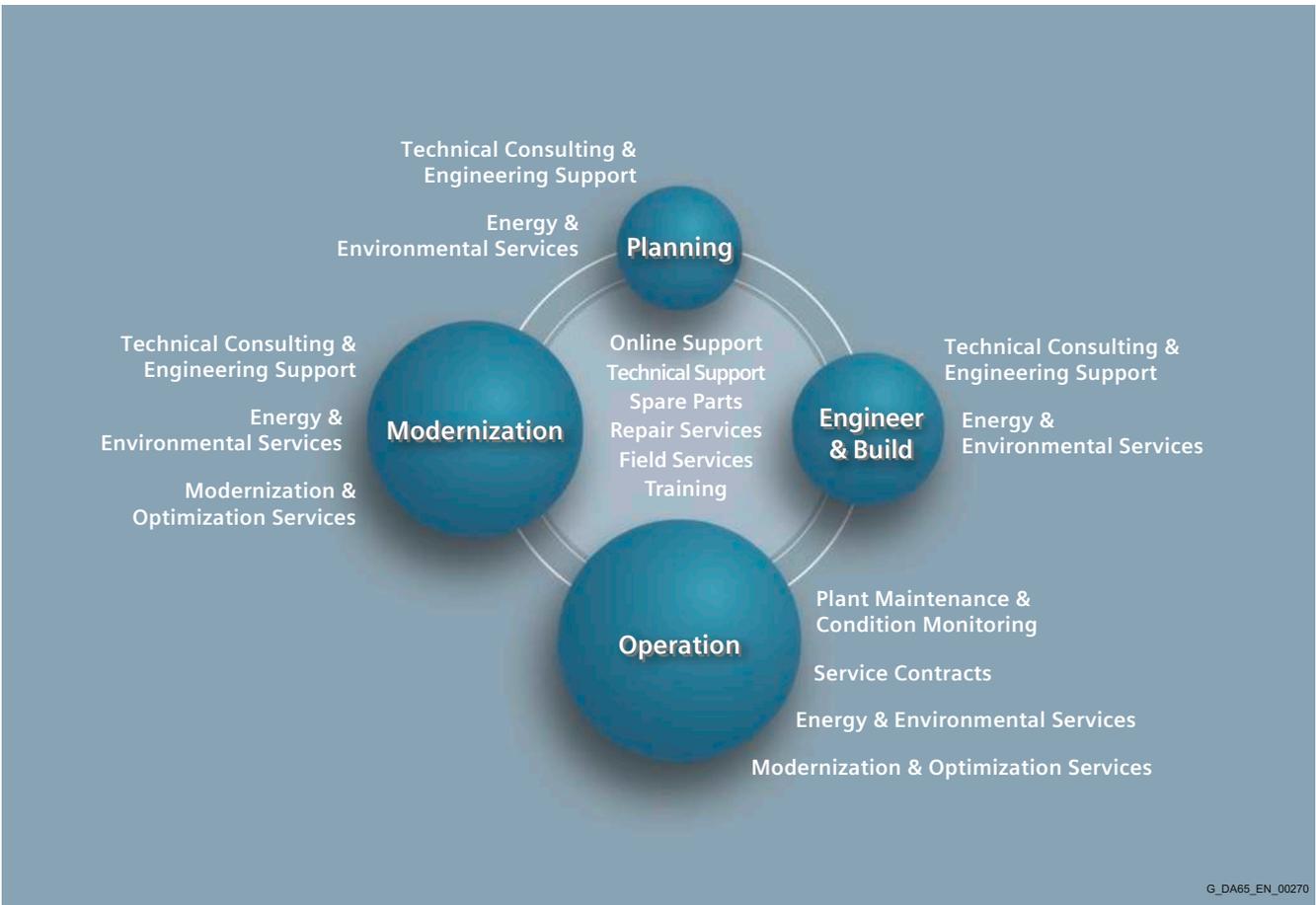


Whether it is production or process industry - in view of rising cost pressure, growing energy costs, and increasingly stringent environmental regulations, services for industry are a crucial competitive factor in manufacturing as well as in process industries.

All over the world Siemens supports its customers with product, system, and application-related services throughout the entire life cycle of a plant. Right from the earliest stages of planning, engineering, and building, all the way to operation and modernization. These services enable customers to benefit from the Siemens experts' unique technological and product knowledge and industry expertise.

Thus downtimes are reduced and the utilization of resources is optimized. The bottom line: increased plant productivity, flexibility, and efficiency, plus reduced overall costs.

Discover all advantages of our service portfolio:
www.siemens.com/industry-services



G_DA65_EN_00270

Siemens supports its clients with technology based Services across a plants entire life cycle.

Appendix

Industry Services

Industry Services for the entire life cycle

Online Support

Online support is a comprehensive information system for all questions relating to products, systems, and solutions that Siemens has developed for industry over time. With more than 300,000 documents, examples and tools, it offers users of automation and drive technology a way to quickly find up-to-date information. The 24-hour service enables direct, central access to detailed product information as well as numerous solution examples for programming, configuration and application.

The content, in six languages, is increasingly multimedia-based – and now also available as a mobile app. Online support's "Technical Forum" offers users the opportunity to share information with each other. The "Support Request" option can be used to contact Siemens' technical support experts. The latest content, software updates, and news via newsletters and Twitter ensure that industry users are always up to date.



www.siemens.com/industry/onlinesupport

Online Support App



Using the Online Support app, you can access over 300,000 documents covering all Siemens industrial products - anywhere, any time. Regardless of whether you need help implementing your project, fault-finding, expanding your system or are planning a new machine.

You have access to FAQs, manuals, certificates, characteristics curves, application examples, product notices (e.g. announcements of new products) and information on successor products in the event that a product is discontinued.

Just scan the product code printed on the product directly using the camera of your mobile device to immediately see all technical information available on this product at a glance. The graphical CAx information (3D model, circuit diagrams or EPLAN macros) is also displayed. You can forward this information to your workplace using the e-mail function.

The search function retrieves product information and articles and supports you with a personalized suggestion list. You can find your favorite pages – articles you need frequently – under "mySupport". You also receive selected news on new functions, important articles or events in the News section.

Scan the QR code
for information on
our Online Support
app.



The app is available free of charge from the Apple App Store (iOS) or from Google Play (Android).

www.siemens.com/industry/onlinesupportapp

Technical Support

The ability to quickly analyze system and error messages and take appropriate action are key factors in ensuring that plants run safely and efficiently. Questions can arise at any time and in any industry, whether it's an individual product or a complete automation solution. Siemens technical support offers individual technical assistance in matters related to functionality, how to operate, applications, and fault clearance in industrial products and systems – at any time and globally, over the phone, by e-mail, or via remote access. Experienced experts from Siemens answer incoming questions promptly. Depending on the requirements, they first consult specialists in the areas of development, on-site services, and sales. Technical support is also available for discontinued products that are no longer available. Using the support request number, any inquiry can be clearly identified and systematically tracked.



Spare Parts

Drive and automation systems must be available at all times. Even a single missing spare part can bring the entire plant to a standstill – and result in substantial financial losses for the operator. The spare parts services from Siemens protects against such losses – with the aid of quickly available, original spare parts that ensure smooth interaction with all other system components. Spare parts are kept on hand for up to ten years; defective parts can be returned. For many products and solutions, individual spare parts packages ensure a preventive stock of spare parts on-site. The spare parts services is available around the world and around the clock. Optimum supply chain logistics ensure that replacement components reach their destination as quickly as possible. Siemens' logistics experts take care of planning and management as well as procurement, transportation, customs handling, warehousing, and complete order management for spare parts.



Repair Services

Reliable electrical and electronic equipment is crucial for operating continuous processes. That is why it is essential that motors and converters always undergo highly specialized repair and maintenance. Siemens offers complete customer and repair services – on site and in repair centers – as well as technical emergency services worldwide. The repair services include all measures necessary to quickly restore the functionality of defective units. In addition, services such as spare parts logistics, spare parts storage and rapid manufacturing are available to plant operators in all verticals. With a global network of certified repair shops operated by Siemens as well as third parties, Siemens handles the maintenance and overhaul of motors, converters, and other devices as an authorized service partner.



Field Services

It's a top priority in all industries: the availability of plants and equipment. Siemens offers specialized maintenance services such as inspection and upkeep as well as rapid fault clearance in industrial plants – worldwide, continuously, and even with emergency services as needed. The services include startup as well as maintenance and fault clearance during operation. The startup service includes checking the installation, function tests, parameterization, integration tests for machines and plants, trial operation, final acceptance, and employee training. All services, including remote maintenance of drives, are also available as elements of customized service contracts.



Appendix

Industry Services

Industry Services for the entire life cycle

Training

Increasingly, up-to-date knowledge is becoming a determining factor in success. One of the key resources of any company is well-trained staff that can make the right decision at the right moment and take full advantage of the potential. With SITRAIN – Training for Industry, Siemens offers comprehensive advanced training programs. The technical training courses convey expertise and practical knowledge directly from the manufacturer. SITRAIN covers Siemens' entire product and system portfolio in the field of automation and drives. Together with the customer, Siemens determines the company's individual training needs and then develops an advanced training program tailored to the desired requirements. Additional services guarantee that the knowledge of all Siemens partners and their employees is always up-to-date.



Technical Consulting & Engineering Support

The efficiency of plants and processes leads to sustainable economic success. Individual services from Siemens help save substantial time and money while also guaranteeing maximum safety. Technical consulting covers the selection of products and systems for efficient industrial plants. The services include planning, consulting, and conceptual design as well as product training, application support, and configuration verification – in all phases of a plant's lifecycle and in all questions related to product safety. Engineering support offers competent assistance throughout the entire project, from developing a precise structure for startup to product-specific preparation for implementation as well as support services in areas such as prototype development, testing and acceptance.



Energy & Environmental Services

Efficient energy use and resource conservation – these top sustainability concerns pay off – both for the environment and for companies. Siemens offers integrated solutions that unlock all technical and organizational potential for successful environmental management. Customized consulting services are aimed at sustainably lowering the cost of energy and environmental protection and thus increasing plant efficiency and availability. The experts provide support in the conceptual design and implementation of systematic solutions in energy and environmental management, enabling maximum energy efficiency and optimized water consumption throughout the entire company. Improved data transparency makes it possible to identify savings potential, reduce emissions, optimize production processes, and thereby noticeably cut costs.



Modernization & Optimization Services

High machine availability, expanded functionality and selective energy savings – in all industries, these are decisive factors for increasing productivity and lowering costs. Whether a company wants to modernize individual machines, optimize drive systems, or upgrade entire plants, Siemens' experts support the projects from planning to commissioning.

Expert consulting and project management with solution responsibility lead to security and make it possible to specifically identify savings potential in production. This secures investments over the long term and increases economic efficiency in operation.



Plant Maintenance & Condition Monitoring

Modern industrial plants are complex and highly automated. They must operate efficiently in order to ensure the company's competitive strength. In addition, the steadily increasing networking of machines and plants require consistent security concepts. Maintenance and status monitoring as well as the implementation of integrated security concepts by Siemens' experts support optimum plant use and avoid downtime. The services include maintenance management as well as consulting on maintenance concepts, including the complete handling and execution of the necessary measures. Complete solutions also cover remote services, including analysis, remote diagnosis, and remote monitoring. These are based on the Siemens Remote Services platform with certified IT security.



Service Contracts

Making maintenance costs calculable, reducing interfaces, speeding up response times, and unburdening the company's resources – the reduced downtimes that these measures achieve increase the productivity of a plant. Service contracts from Siemens make maintenance and repairs more cost-effective and efficient. The service packages include local and remote maintenance for a system or product group in automation and drive technology. Whether you need extended service periods, defined response times, or special maintenance intervals, the services are compiled individually and according to need. They can be adjusted flexibly at any time and used independently of each other. The expertise of Siemens' specialists and the capabilities of remote maintenance thus ensure reliable and fast maintenance processes throughout a plant's entire lifecycle.



Appendix

Industry Services

Software Licenses

Overview

Software types

Software requiring a license is categorized into types. The following software types have been defined:

- Engineering software
- Runtime software

Engineering software

This includes all software products for creating (engineering) user software, e.g. for configuring, programming, parameterizing, testing, commissioning or servicing.

Data generated with engineering software and executable programs can be duplicated for your own use or for use by third-parties free-of-charge.

Runtime software

This includes all software products required for plant/machine operation, e.g. operating system, basic system, system expansions, drivers, etc.

The duplication of the runtime software and executable programs created with the runtime software for your own use or for use by third-parties is subject to a charge.

You can find information about license fees according to use in the ordering data (e.g. in the catalog). Examples of categories of use include per CPU, per installation, per channel, per instance, per axis, per control loop, per variable, etc.

Information about extended rights of use for parameterization/configuration tools supplied as integral components of the scope of delivery can be found in the readme file supplied with the relevant product(s).

License types

Siemens Industry Automation & Drive Technologies offers various types of software license:

- Floating license
- Single license
- Rental license
- Rental floating license
- Trial license
- Demo license
- Demo floating license

Floating license

The software may be installed for internal use on any number of devices by the licensee. Only the concurrent user is licensed. The concurrent user is the person using the program. Use begins when the software is started. A license is required for each concurrent user.

Single license

Unlike the floating license, a single license permits only one installation of the software per license.

The type of use licensed is specified in the ordering data and in the Certificate of License (CoL). Types of use include for example per instance, per axis, per channel, etc.

One single license is required for each type of use defined.

Rental license

A rental license supports the "sporadic use" of engineering software. Once the license key has been installed, the software can be used for a specific period of time (the operating hours do not have to be consecutive).

One license is required for each installation of the software.

Rental floating license

The rental floating license corresponds to the rental license, except that a license is not required for each installation of the software. Rather, one license is required per object (for example, user or device).

Trial license

A trial license supports "short-term use" of the software in a non-productive context, e.g. for testing and evaluation purposes. It can be transferred to another license.

Demo license

The demo license support the "sporadic use" of engineering software in a non-productive context, for example, use for testing and evaluation purposes. It can be transferred to another license. After the installation of the license key, the software can be operated for a specific period of time, whereby usage can be interrupted as often as required.

One license is required per installation of the software.

Demo floating license

The demo floating license corresponds to the demo license, except that a license is not required for each installation of the software. Rather, one license is required per object (for example, user or device).

Certificate of license (CoL)

The CoL is the licensee's proof that the use of the software has been licensed by Siemens. A CoL is required for every type of use and must be kept in a safe place.

Downgrading

The licensee is permitted to use the software or an earlier version/release of the software, provided that the licensee owns such a version/release and its use is technically feasible.

Delivery versions

Software is constantly being updated. The following delivery versions

- PowerPack
- Upgrade

can be used to access updates.

Existing bug fixes are supplied with the ServicePack version.

PowerPack

PowerPacks can be used to upgrade to more powerful software. The licensee receives a new license agreement and CoL (Certificate of License) with the PowerPack. This CoL, together with the CoL for the original product, proves that the new software is licensed.

A separate PowerPack must be purchased for each original license of the software to be replaced.

Upgrade

An upgrade permits the use of a new version of the software on the condition that a license for a previous version of the product is already held.

The licensee receives a new license agreement and CoL with the upgrade. This CoL, together with the CoL for the previous product, proves that the new version is licensed.

A separate upgrade must be purchased for each original license of the software to be upgraded.

Overview**ServicePack**

ServicePacks are used to debug existing products. ServicePacks may be duplicated for use as prescribed according to the number of existing original licenses.

License key

Siemens Industry Automation & Drive Technologies supplies software products with and without license keys.

The license key serves as an electronic license stamp and is also the "switch" for activating the software (floating license, rental license, etc.).

The complete installation of software products requiring license keys includes the program to be licensed (the software) and the license key (which represents the license).

Software Update Service (SUS)

As part of the SUS contract, all software updates for the respective product are made available to you free of charge for a period of one year from the invoice date. The contract will automatically be extended for one year if it is not canceled three months before it expires.

The possession of the current version of the respective software is a basic condition for entering into an SUS contract.

You can download explanations concerning license conditions from www.siemens.com/automation/salesmaterial-as/catalog/en/terms_of_trade_en.pdf

Appendix

Index

A			
Answers for industry	1/3	Microwave frequency range.....	4/2
ANT 1	2/24, 2/96	Mobile Media	7/8
ANT 12	2/24, 2/96, 2/106	Mobile handheld terminal RF310M	2/105
ANT 18	2/24, 2/96, 2/106	Mobile handheld terminal RF680M	3/34
ANT 30	2/24, 2/96, 2/106	Mobile handheld terminal STG U	4/14
ANT 8	2/24, 2/26, 2/106	MOBY D	2/107
ANT D10	2/30, 2/113, 2/126	MOBY D Antennas	2/122
ANT D2	2/116, 2/123	MOBY D configuration	2/127
ANT D5	2/30, 2/113, 2/116, 2/122, 2/124	MOBY D readers	2/112
ANT D6	2/30, 2/113, 2/122, 2/125	MOBY D transponders	2/109
Antenna RF620A	3/37	MOBY U	4/2
Antenna RF640A	3/39	MOBY U configuration	4/16
Antenna RF660A	3/41	MOBY U readers	4/10
Antenna mounting kit	3/24, 3/42	MOBY U Transponder	4/4
Antennas MOBY D	2/122	Modernization & Optimization Services	7/13
Antennas RF600	3/36, 3/37	MV320	5/36
Antenna cable for RF600	3/38	MV325	5/37
Antenna multiplexer	2/30, 2/125, 2/126	MV340	5/38
Antenna switch	2/30, 2/113, 2/115, 2/124	MV420	5/10
ASM 456	6/4	MV440	5/18
ASM 475	6/23	O	
Asset Management	1/3	Object recognition.....	5/4, 5/22
C		OCR	5/45
Communication modules	6/2	Online Support	7/10
Container transponder RF620T	3/12	P	
D		Pat-Genius.....	5/49
Direct Part Marking (DPM).....	5/2	Portal reader RF670R.....	3/31
Disk transponder RF625T	3/14	Production control	1/3
H		PSION Workabout PRO	2/105, 3/35
Handheld reading systems	5/34	R	
Heat resistant transponder MDS D139	2/82	RF 200 reader	2/15
Heat resistant transponder MDS D339	2/84	RF120C	6/20
Heat resistant transponder MDS U589	4/7	RF160C	6/4
Heat resistant transponder RF380T	2/47	RF170C	6/16
Heat resistant transponder RF680T	3/20	RF180C	6/9
I		RF182C	6/9
IO-Link	2/10, 2/16, 2/19	RF200	2/10
IQ-Sense	2/34, 2/91	RF200 transponders.....	2/12
ISO mode transponders	2/50	RF210R	2/16
L		RF220R	2/19
Lenses	5/30	RF240R	2/22
M		RF250R	2/24
MDS D100	2/55	RF260R	2/27
MDS D117	2/79	RF260X	2/125, 2/126
MDS D124	2/67	RF290R	2/30
MDS D126	2/75	RF300	2/33
MDS D127	2/80	RF300 readers	2/90
MDS D139	2/82	RF310M	2/105
MDS D160	2/86	RF310R	2/91
MDS D165	2/53	RF320T	2/37
MDS D200	2/57	RF340R	2/94
MDS D261	2/53	RF340T	2/39
MDS D324	2/69	RF350R	2/96
MDS D400	2/59	RF350T	2/41
MDS D421	2/61	RF360T	2/43
MDS D422	2/63	RF370T	2/45
MDS D423	2/65	RF380R	2/101
MDS D424	2/71	RF380T	2/47
MDS D425	2/73	RF382R	2/103
MDS D426	2/77	RF600 antennas	3/36
MDS D428	2/81	RF600 readers	3/21
MDS D460	2/88	RF610T	3/10
MDS U315	4/5	RF620A	3/37
MDS U589	4/7	RF620R	3/22
		RF620T	3/12
		RF625T	3/14
		RF630L	3/6
		RF630R	3/25
		RF630T	3/16
		RF640A	3/39
		RF640R	3/28
		RF640T	3/18
		RF642A	3/39
		RF660A	3/41
		RF670R	3/31
		RF680L	3/9
		RF680M	3/34
		RF-DIAG	3/44
		RFID 181EIP	6/9
		RFID standard cables	6/25
		S	
		SCALANCE X204-2	5/17
		Scanmode	2/103
		Scanmode readers	2/91
		Screw-Transponder RF630T	3/16
		Shape recognition.....	5/22
		Siemens Automation Cooperates with Education (SCE)	7/3
		Siemens Industry Training	7/2
		SIMATIC Ident	1/2
		SIMATIC MV320	5/36
		SIMATIC MV325	5/37
		SIMATIC MV340	5/38
		SIMATIC MV420	5/10
		SIMATIC MV440	5/18
		SIMATIC RF200	2/10
		SIMATIC RF600	3/2
		SIMATIC RF600 transponders	3/4
		SIMATIC RF-DIAG	3/44
		SLG D10	2/113
		SLG D10S	2/113
		SLG D11	2/116
		SLG D11S	2/116
		SLG D12	2/119
		SLG D12S	2/119
		SLG U92	4/10
		SmartLabel MDS D165 / MDS D261	2/53
		SmartLabel RF680L	3/9
		SmartLabel SIMATIC RF630L	3/6
		Social Media	7/8
		Software RF-DIAG	3/44
		Software licenses	7/14
		Solution Partner Automation	7/6
		Spare Parts	7/11
		Stationary code reading systems	5/5
		STG U	4/14
		Supply Chain Management	1/4
		T	
		Text recognition	5/4, 5/22
		Text-Genius	5/45
		Third party systems	1/5
		Tool transponder RF640T	3/18
		Totally Integrated Automation	1/4, 1/5
		Tracking & Tracing	1/4
		Training	7/2
		Triple sheet metal support	5/28
		U	
		UHF antennas.....	3/36
		V	
		Verification	5/4, 5/21
		Veri-Genius	5/40

3RX9

3RX9802-0AA00 6/8, 6/15, 6/18

6ES7

6ES7138-4GA50-0AB0 2/18, 2/21, 2/29
 6ES7148-6JA00-0AB0 2/18, 2/21, 2/29
 6ES7194-3AA00-0AA0 6/7
 6ES7194-3AA00-0BA0 6/7
 6ES7194-3JA00-0AA0 6/7, 6/14
 6ES7194-4JA50-0AA0 6/14
 6ES7194-4JD50-0AA0 3/30, 3/33, 6/14
 6ES7338-7XF00-0AB0 2/93
 6ES7392-1AJ00-0AA0 6/24
 6ES7392-1BJ00-0AA0 6/24

6GF3

6GF3020-0AC40-0AC0 5/39
 6GF3020-0AC40-0AC1 5/39
 6GF3020-0AC40-0AC3 5/39
 6GF3020-0AC40-0AC4 5/39
 6GF3020-0AC40-0AC5 5/39
 6GF3020-0AC40-0AC7 5/39
 6GF3020-0AC40-0AC8 5/39
 6GF3020-0AC40-0AP1 5/36, 5/39
 6GF3020-0AC40-0AP2 5/36, 5/39
 6GF3320-0AC02 5/36
 6GF3320-0AC03 5/36
 6GF3320-0AC07 5/36
 6GF3320-0HT01 5/36
 6GF3325-0AC03 5/37
 6GF3325-0AC07 5/37
 6GF3325-0HT01 5/37
 6GF3340-0HT01 5/39
 6GF3400-0BH15 5/16, 5/28
 6GF3400-0LT01-7BA1 5/27
 6GF3400-0LT01-8BA1 5/27
 6GF3400-0SL01 5/26, 5/48
 6GF3400-0SL02 5/26, 5/44
 6GF3400-0SL03 5/26, 5/51
 6GF3400-1BH20 5/16, 5/28
 6GF3400-1SL01 5/26, 5/48
 6GF3420-0AA20 5/16
 6GF3420-0AA40 5/16
 6GF3420-0AC00-0LKO 5/16
 6GF3420-0AC00-1AA0 5/16
 6GF3420-0AC00-1LKO 5/16
 6GF3420-0AC00-1LTO 5/16
 6GF3420-0AC00-1PS0 5/17
 6GF3420-0AC00-2AA0 5/16
 6GF3420-0AC00-2CBO 5/16
 6GF3420-0AC00-2LTO 5/16
 6GF3420-0AC00-3LTO 5/16
 6GF3420-0AX20 5/16
 6GF3420-0AX40 5/16
 6GF3440-1CD10 5/26
 6GF3440-1GE10 5/26
 6GF3440-1LE10 5/26
 6GF3440-8AC11 5/27
 6GF3440-8AC12 5/27
 6GF3440-8AC21 5/27
 6GF3440-8BA2 5/16, 5/28
 6GF3440-8BA4 5/16, 5/28
 6GF3440-8BC4 5/28
 6GF3440-8BD1 5/28
 6GF3440-8CA 5/28
 6GF3440-8CD01 5/28
 6GF3440-8CE 5/44
 6GF3440-8DA11 5/27
 6GF3440-8DA21 5/27

6GF3440-8DA31 5/27
 6GF3440-8DA41 5/27
 6GF3440-8EA1 5/31

6GF9

6GF9001-1AP02 5/31
 6GF9001-1BB01 5/26, 5/31
 6GF9001-1BE01 5/26, 5/31
 6GF9001-1BF01 5/26, 5/31
 6GF9001-1BG01 5/26, 5/31
 6GF9001-1BH01 5/26, 5/31
 6GF9001-1BJ01 5/26, 5/31
 6GF9001-1BK01 5/26, 5/31
 6GF9001-1BL01 5/26, 5/31
 6GF9001-1BU 5/26, 5/31
 6GF9001-1BU01 5/26, 5/31
 6GF9001-1BV 5/31
 6GF9001-2AD 5/31
 6GF9001-2AE 5/31
 6GF9001-2AF 5/31
 6GF9002-7AD 5/28

6GK1

6GK1901-0DB20-6AA0 6/14
 6GK1901-0DM20-2AA5 6/14
 6GK1901-1BB10-2AA0 5/16, 5/28, 6/14
 6GK1901-1BB10-6AA0 3/30, 3/33, 6/14
 6GK1905-0CA00 6/7
 6GK1905-0CB00 6/7
 6GK1905-0DA10 6/7
 6GK1905-0EA00 6/7
 6GK1905-0EB00 6/7
 6GK1905-0EC00 6/7
 6GK1905-0FA00 6/7, 6/14
 6GK1905-0FB00 6/7, 6/14
 6GK1907-0AB10-6AA0 6/14

6GK5

6GK5108-0PA00-2AA3 5/28
 6GK5204-0JA00-2BA6 6/15
 6GK5204-2BB10-2AA3 5/17, 6/15

6GT2

6GT2002-0ED00 6/7
 6GT2002-0EF00 6/7
 6GT2002-0GA10 6/24
 6GT2002-0HD00 6/18
 6GT2002-0JD00 6/14
 6GT2002-0JD10 6/14
 6GT2002-0JD20 6/14
 6GT2002-0LA00 6/22
 6GT2002-1HD00 6/18
 6GT2002-1JD00 6/14
 6GT2002-2JD00 6/14
 6GT2002-4JD00 6/14
 6GT2080-2AA20 2/18, 2/21, 2/23, 2/26,
 2/29, 2/32, 2/93, 2/95,
 2/99, 2/102, 2/104, 2/106,
 2/115, 2/118, 2/120, 3/24,
 3/27, 3/35, 4/13, 4/15,
 6/8, 6/15, 6/18, 6/22, 6/24
 6GT2080-3GA00 3/44
 6GT2090-0BA00 4/13
 6GT2090-0BA10 4/13
 6GT2090-0QA00 2/48, 4/8
 6GT2090-0QA00-0AX3 2/48
 6GT2090-0QB00 2/48, 4/8
 6GT2090-0UA00 4/13
 6GT2090-0VB00 6/7, 6/15
 6GT2090-4AN50 2/115, 4/13, 6/26
 6GT2090-4AT12 2/115, 4/13, 6/26
 6GT2090-4AT80 2/115, 4/13, 6/26

6GT2091-4EH20 6/24, 6/26
 6GT2091-4EH50 6/24, 6/26
 6GT2091-4EN10 6/24, 6/26
 6GT2091-4EN20 6/24, 6/26
 6GT2091-4EN50 6/24, 6/26
 6GT2091-4FH20 6/7, 6/15, 6/18, 6/22, 6/26
 6GT2091-4FH50 6/7, 6/15, 6/18, 6/22, 6/26
 6GT2091-4LH20 6/22, 6/26
 6GT2091-4LH50 6/22, 6/26
 6GT2091-4LN10 6/22, 6/26
 6GT2091-6EH20 6/26
 6GT2091-6EH50 6/26
 6GT2091-6EN10 6/26
 6GT2091-6EN50 6/26
 6GT2094-0AB01 4/15
 6GT2190-0AA00 2/44, 2/56, 2/58, 2/60, 3/11
 6GT2190-0AB00 2/44, 2/56, 2/58, 2/60, 3/11
 6GT2303-1CA00 4/15
 6GT2390-0AA00 2/56, 2/58, 2/60
 6GT2390-1AB00 2/115, 2/120, 4/13
 6GT2398-1CA00 2/26, 2/99, 2/106
 6GT2398-1CB00 2/99
 6GT2398-1CC00 2/26, 2/99, 2/106
 6GT2398-1CD00 2/26, 2/99, 2/106
 6GT2398-1CF00 2/26, 2/106
 6GT2490-1AA00 2/115, 2/120
 6GT2491-1HH50 2/115, 2/118, 2/120, 4/13
 6GT2491-4EH50 6/24, 6/26
 6GT2491-4EN20 6/24, 6/26
 6GT2491-4EN50 6/24, 6/26
 6GT2500-3BF10 4/6
 6GT2500-5CF10 4/6
 6GT2500-5JK10 4/8
 6GT2501-0BA00 4/13
 6GT2501-0CA00 4/13
 6GT2501-1BA00 4/13
 6GT2501-1CA00 4/13
 6GT2503-0AA00 4/15
 6GT2503-1AA00 4/15
 6GT2503-1DA00 4/15
 6GT2590-0BA00 4/13
 6GT2590-0QA00 2/48, 4/8
 6GT2591-5AH50 4/13, 6/26
 6GT2591-5CH50 4/13, 6/26
 6GT2591-5CN20 4/13, 6/26
 6GT2600-0AA10 2/83
 6GT2600-0AB10 2/87
 6GT2600-0AC10 2/68
 6GT2600-0AD10 2/56
 6GT2600-0AE00 2/76
 6GT2600-0AF00 2/80
 6GT2600-0AG00 2/79
 6GT2600-1AA01-0AX0 2/54
 6GT2600-1AB00-0AX0 2/54
 6GT2600-1AD00-0AX0 2/58
 6GT2600-3AA10 2/85
 6GT2600-3AC00 2/70
 6GT2600-4AA00 2/66
 6GT2600-4AB00 2/89
 6GT2600-4AC00 2/72
 6GT2600-4AD00 2/60
 6GT2600-4AE00 2/62
 6GT2600-4AF00 2/64
 6GT2600-4AG00 2/74
 6GT2600-4AH00 2/78
 6GT2600-4AK00-0AX0 2/81
 6GT2601-0AB00 2/120
 6GT2602-0AB00 2/120

Appendix

Order number index

6GT2602-0AB10-0AX0	2/120	6GT2812-1EA01	3/38	6XV1	
6GT2690-0AA00	2/83, 2/85	6GT2812-1GA08	3/40	6XV1822-5BE30	6/7, 6/14
6GT2690-0AC00	2/32, 2/115, 2/124, 2/125	6GT2813-0BC00	3/35	6XV1822-5BE50	6/7, 6/14
6GT2690-0AD00	2/32, 2/115, 2/125	6GT2813-0BC10	3/35	6XV1822-5BH10	6/7, 6/14
6GT2690-0AG00	2/87, 2/89	6GT2815-0BH10	3/38, 3/40, 3/42	6XV1822-5BH15	6/7, 6/14
6GT2690-0AH00	2/83, 2/85	6GT2815-0BH30	3/38, 3/40, 3/42	6XV1822-5BH20	6/7, 6/14
6GT2690-0AK00	2/38, 2/68, 2/70, 2/72	6GT2815-0BN10	3/40, 3/42	6XV1822-5BH30	6/7, 6/14
6GT2690-0AL00	2/76, 2/78	6GT2815-0BN20	3/40, 3/42	6XV1822-5BH50	6/7, 6/14
6GT2691-0CH33	2/115	6GT2815-1BN10	3/38, 3/40, 3/42	6XV1822-5BN10	6/7, 6/14
6GT2691-0CN10	2/115	6GT2815-2BH50	3/38, 3/40, 3/42	6XV1822-5BN15	6/7, 6/14
6GT2691-0DH72	2/115	6GT2815-2BN15	3/38, 3/40, 3/42	6XV1830-0EH10	6/7
6GT2691-4BH50	2/115, 2/118, 2/120, 6/26	6GT2821-0AC12	2/32	6XV1830-3DE30	6/7
6GT2691-4BN20	2/115, 2/118, 2/120, 6/26	6GT2821-1AC10	2/18	6XV1830-3DE50	6/7
6GT2691-4FH20	6/8, 6/15, 6/18, 6/22, 6/26	6GT2821-1AC32	2/18	6XV1830-3DH10	6/7
6GT2698-1AA00	2/115	6GT2821-2AC10	2/21	6XV1830-3DH15	6/7
6GT2698-1AC00	2/118	6GT2821-2AC32	2/21	6XV1830-3DH20	6/7
6GT2698-2AA00	2/115	6GT2821-4AC10	2/23	6XV1830-3DH30	6/7
6GT2698-2AC00	2/118	6GT2821-4AC11	2/23	6XV1830-3DH50	6/7
6GT2698-5AA10	2/32, 2/115, 2/118, 2/124	6GT2821-4AC40	2/23	6XV1830-3DN10	6/7
6GT2698-5AB00	2/32, 2/115, 2/125	6GT2821-5AC10	2/26	6XV1830-3DN15	6/7
6GT2698-5AF00	2/32, 2/115, 2/126	6GT2821-5AC40	2/26	6XV1830-7AH10	6/7
6GT2698-5BB00	2/118, 2/123	6GT2821-6AC10	2/29	6XV1830-7BH05	6/7
6GT2800-1CA00	2/38	6GT2821-6AC11	2/29	6XV1830-7BH10	6/7
6GT2800-4AC00	2/44	6GT2821-6AC32	2/29	6XV1830-7BH15	6/7
6GT2800-4BB00	2/40	6GT2821-6AC40	2/29	6XV1830-7BH30	6/7
6GT2800-5BD00	2/42	6GT2890-0AA00	3/24, 3/27, 3/40, 3/42	6XV1830-7BH50	6/7
6GT2800-5BE00	2/46	6GT2891-0CH50	3/33	6XV1830-7BN10	6/7
6GT2800-5DA00	2/48	6GT2891-0DH50	3/30	6XV1830-7BN15	6/7
6GT2800-6BE00	2/46	6GT2891-0LH50	2/93	6XV1830-7BN20	6/7
6GT2801-0AA00	2/93	6GT2891-0LN10	2/93	6XV1830-7BN25	6/7
6GT2801-1AB10	2/93	6GT2891-0MH50	2/18, 2/21, 2/29	6XV1830-7BN30	6/7
6GT2801-1AB20-0AX1	2/93	6GT2891-0MN10	2/18, 2/21, 2/29	6XV1830-7BN35	6/7
6GT2801-2AB10	2/95	6GT2891-0NH50	3/30, 3/33	6XV1830-7BN40	6/7
6GT2801-3AB10	2/102	6GT2891-0PH50	3/44	6XV1830-7BN45	6/7
6GT2801-3AB20-0AX0	2/104	6GT2891-1HN10	3/30, 3/33	6XV1830-7BN50	6/7
6GT2801-4AB10	2/99	6GT2891-4EH20	6/24, 6/26	6XV1830-8AH10	6/7, 6/15
6GT2803-1AC00	2/106	6GT2891-4EH50	6/24, 6/26	6XV1840-2AH10	6/15
6GT2803-1AC10	2/106	6GT2891-4FH20	5/16, 5/28, 6/8, 6/15, 6/18, 6/22, 6/24, 6/26	6XV1870-8AE30	5/16, 5/27, 6/14
6GT2810-2AB00	3/8	6GT2891-4FH50	5/16, 5/28, 6/8, 6/15, 6/18, 6/22, 6/24, 6/26	6XV1870-8AE50	5/16, 5/27, 6/14
6GT2810-2AB01	3/8	6GT2891-4FN10	5/16, 5/28, 6/8, 6/15, 6/18, 6/22, 6/24, 6/26	6XV1870-8AH10	5/16, 5/27, 6/14
6GT2810-2AB02-0AX0	3/8	6GT2891-4FN20	5/16, 5/28, 6/8, 6/15, 6/18, 6/22, 6/24, 6/26	6XV1870-8AH15	5/16, 5/27, 6/14
6GT2810-2AB03	3/8	6GT2891-4FN50	5/16, 5/28, 6/8, 6/15, 6/18, 6/22, 6/24, 6/26	6XV1870-8AH20	5/16, 5/27, 6/14
6GT2810-2AG80	3/9	6GT2891-4JH20	6/8, 6/15, 6/18, 6/22, 6/26	6XV1870-8AH30	5/16, 5/27, 6/14
6GT2810-2BB80	3/11	6GT2891-4JH50	6/8, 6/15, 6/18, 6/22, 6/26	6XV1870-8AH50	5/16, 5/27, 6/14
6GT2810-2DC00	3/19	6GT2891-4KH50	2/23, 2/26, 2/29, 2/32 2/102, 2/104, 6/26	6XV1870-8AN10	5/16, 5/27, 6/14
6GT2810-2DC10	3/19	6GT2891-4KH50-0AX0	2/23, 2/26, 2/29, 2/32 2/102, 2/104, 6/26	6XV1870-8AN15	5/16, 5/27, 6/14
6GT2810-2EC00	3/17	6GT2891-4LH50	2/18, 2/21, 2/29	6XV1871-5TH20	5/16, 5/27, 6/14
6GT2810-2EC10	3/17	6GT2891-4LN10	2/18, 2/21, 2/29		
6GT2810-2EE00	3/15	6GT2894-0EA00	2/32, 2/115, 2/124, 2/125, 2/126		
6GT2810-2EE01	3/15	6GT2898-0AA00	2/115, 2/118, 2/120, 3/30, 3/33, 3/44, 4/13		
6GT2810-2HC81	3/13	6GT2898-0AA10	2/115, 2/118, 2/120, 3/30, 3/33, 3/44, 4/13		
6GT2810-2HG80	3/20	6GT2898-0AA20	2/115, 2/118, 2/120, 3/30, 3/33, 3/44, 4/13		
6GT2811-0AB00-0AA0	3/33	6GT2898-0BA00	2/106, 3/35		
6GT2811-0AB00-1AA0	3/33	6GT2898-0CA00	2/106, 3/35		
6GT2811-0AB00-2AA0	3/33	6GT2898-0DA00	2/106, 3/35		
6GT2811-3BA00-0AA0	3/30	6GT2898-0DB00	3/35		
6GT2811-3BA00-1AA0	3/30	6GT2898-2AA00	3/13		
6GT2811-3BA00-2AA0	3/30	6GT2898-4AA00	3/30, 3/33		
6GT2811-4AA00-0AA1	3/27				
6GT2811-4AA00-1AA1	3/27				
6GT2811-4AA00-2AA1	3/27				
6GT2811-5BA00-0AA0	3/24				
6GT2811-5BA00-1AA0	3/24				
6GT2811-5BA00-2AA1	3/24				
6GT2812-0AA00	3/42				
6GT2812-0AA01	3/42				
6GT2812-0GA08	3/40				
6GT2812-1EA00	3/38				

Appendix

Notes

Appendix

Notes

Appendix

Conditions of sale and delivery

1. General provisions

By using this catalog you can acquire hardware and software products described therein from Siemens AG subject to the following Terms and Conditions of Sale and Delivery (hereinafter referred to as "T&C"). Please note that the scope, the quality and the conditions for supplies and services, including software products, by any Siemens entity having a registered office outside Germany, shall be subject exclusively to the General Terms and Conditions of the respective Siemens entity. The following T&C apply exclusively for orders placed with Siemens Aktiengesellschaft, Germany.

1.1 For customers with a seat or registered office in Germany

For customers with a seat or registered office in Germany, the following applies subordinate to the T&C:

- the "General Terms of Payment"¹⁾ and,
- for software products, the "General License Conditions for Software Products for Automation and Drives for Customers with a Seat or Registered Office in Germany"¹⁾ and,
- for other supplies and services, the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry"¹⁾.

1.2 For customers with a seat or registered office outside Germany

For customers with a seat or registered office outside Germany, the following applies subordinate to the T&C:

- the "General Terms of Payment"¹⁾ and,
- for software products, the "General License Conditions for Software Products for Automation and Drives for Customers with a Seat or Registered Office outside of Germany"¹⁾ and
- for other supplies and/or services, the "General Conditions for Supplies of Siemens Industry for Customers with a Seat or Registered Office outside of Germany"¹⁾.

2. Prices

The prices are in € (Euro) ex point of delivery, exclusive of packaging.

The sales tax (value added tax) is not included in the prices. It shall be charged separately at the respective rate according to the applicable statutory legal regulations.

Prices are subject to change without prior notice. We will charge the prices valid at the time of delivery.

To compensate for variations in the price of raw materials (e.g. silver, copper, aluminum, lead, gold, dysprosium and neodym), surcharges are calculated on a daily basis using the so-called metal factor for products containing these raw materials. A surcharge for the respective raw material is calculated as a supplement to the price of a product if the basic official price of the raw material in question is exceeded.

The metal factor of a product indicates the basic official price (for those raw materials concerned) as of which the surcharges on the price of the product are applied, and with what method of calculation.

An exact explanation of the metal factor can be downloaded at:

www.siemens.com/automation/salesmaterial-as/catalog/en/terms_of_trade_en.pdf

To calculate the surcharge (except in the cases of dysprosium and neodym), the official price from the day prior to that on which the order was received or the release order was effected is used.

To calculate the surcharge applicable to dysprosium and neodym ("rare earths"), the corresponding three-month basic average price in the quarter prior to that in which the order was received or the release order was effected is used with a one-month buffer (details on the calculation can be found in the explanation of the metal factor).

3. Additional Terms and Conditions

The dimensions are in mm. In Germany, according to the German law on units in measuring technology, data in inches apply only to devices for export.

Illustrations are not binding.

Insofar as there are no remarks on the individual pages of this catalog - especially with regard to data, dimensions and weights given - these are subject to change without prior notice.

4. Export regulations

We shall not be obligated to fulfill any agreement if such fulfillment is prevented by any impediments arising out of national or international foreign trade or customs requirements or any embargoes and/or other sanctions.

Export of goods listed in this catalog may be subject to licensing requirements. We will indicate in the delivery details whether licenses are required under German, European and US export lists. Goods labeled with "AL" not equal to "N" are subject to European or German export authorization when being exported out of the EU. Goods labeled with "ECCN" not equal to "N" are subject to US re-export authorization.

The export indications can be viewed in advance in the description of the respective goods on the Industry Mall, our online catalog system. Only the export labels "AL" and "ECCN" indicated on order confirmations, delivery notes and invoices are authoritative.

Even without a label, or with label "AL:N" or "ECCN:N", authorization may be required i .a. due to the final disposition and intended use of goods.

If you transfer goods (hardware and/or software and/or technology as well as corresponding documentation, regardless of the mode of provision) delivered by us or works and services (including all kinds of technical support) performed by us to a third party worldwide, you must comply with all applicable national and international (re-)export control regulations.

If required for the purpose of conducting export control checks, you (upon request by us) shall promptly provide us with all information pertaining to the particular end customer, final disposition and intended use of goods delivered by us respectively works and services provided by us, as well as to any export control restrictions existing in this relation.

The products listed in this catalog may be subject to European/German and/or US export regulations. Any export requiring approval is therefore subject to authorization by the relevant authorities.

Errors excepted and subject to change without prior notice.

1) The text of the Terms and Conditions of Siemens AG can be downloaded at www.siemens.com/automation/salesmaterial-as/catalog/en/terms_of_trade_en.pdf

Industry Automation, Drive Technologies and Low-Voltage Power Distribution

Further information can be obtained from our branch offices listed at www.siemens.com/automation/partner

System Solutions Interactive Catalog on DVD	<i>Catalog</i>		
Products for Automation and Drives and Low Voltage Power Distribution	CA 01		
Building Control			
GAMMA Building Control	ET G1		
Drive Systems			
SINAMICS G130 Drive Converter Chassis Units	D 11		
SINAMICS G150 Drive Converter Cabinet Units			
SINAMICS GM150, SINAMICS SM150 Medium-Voltage Converters	D 12		
ROBICON Perfect Harmony Medium-Voltage Air-Cooled Drives Germany Edition	D 15.1		
<i>Digital: SINAMICS G180 Converters – Compact Units, Cabinet Systems, Cabinet Units Air-Cooled and Liquid-Cooled</i>	D 18.1		
SINAMICS S120 Chassis Format Units and Cabinet Modules	D 21.3		
SINAMICS S150 Converter Cabinet Units			
SINAMICS DCM Converter Units	D 23.1		
SINAMICS DCM Cabinet	D 23.2		
SINAMICS and Motors for Single-Axis Drives	D 31		
Three-Phase Induction Motors SIMOTICS HV, SIMOTICS TN	D 84.1		
• Series H-compact			
• Series H-compact PLUS			
Asynchronous Motors Standardline	D 86.1		
Synchronous Motors with Permanent-Magnet Technology, HT-direct	D 86.2		
DC Motors	DA 12		
SIMOREG DC MASTER 6RA70 Digital Chassis Converters	DA 21.1		
SIMOREG K 6RA22 Analog Chassis Converters	DA 21.2		
<i>Digital: SIMOREG DC MASTER 6RM70 Digital Converter Cabinet Units</i>	DA 22		
SIMOVERT PM Modular Converter Systems	DA 45		
SIEMOSYN Motors	DA 48		
MICROMASTER 420/430/440 Inverters	DA 51.2		
MICROMASTER 411/COMBIMASTER 411	DA 51.3		
SIMOVERT MASTERDRIVES Vector Control	DA 65.10		
SIMOVERT MASTERDRIVES Motion Control	DA 65.11		
Synchronous and asynchronous servomotors for SIMOVERT MASTERDRIVES	DA 65.3		
SIMODRIVE 611 universal and POSMO	DA 65.4		
<i>Note: Additional catalogs on SIMODRIVE or SINAMICS drive systems and SIMOTICS motors with SINUMERIK and SIMOTION can be found under Motion Control</i>			
Low-Voltage Three-Phase-Motors			
SIMOTICS Low-Voltage Motors	D 81.1		
MOTOX Geared Motors	D 87.1		
SIMOGEAR Geared Motors	MD 50.1		
SIMOGEAR Gearboxes with adapter	MD 50.11		
Mechanical Driving Machines			
FLENDER Standard Couplings	MD 10.1		
FLENDER High Performance Couplings	MD 10.2		
FLENDER SIG Standard industrial gear unit	MD 30.1		
FLENDER SIP Standard industrial planetary gear units	MD 31.1		
Process Instrumentation and Analytics			
Field Instruments for Process Automation	FI 01		
<i>Digital: SIPART Controllers and Software</i>	MP 31		
Products for Weighing Technology	WT 10		
<i>Digital: Process Analytical Instruments</i>	PA 01		
<i>Digital: Process Analytics, Components for the System Integration</i>	PA 11		
<i>Digital: These catalogs are only available as a PDF and/or as an e-book.</i>			
Low-Voltage Power Distribution and Electrical Installation Technology	<i>Catalog</i>		
SENTRON Protection, Switching, Measuring and Monitoring Devices	LV 10.1		
SIVACON · ALPHA Switchboards and Distribution Systems	LV 10.2		
Standards-Compliant Components for Photovoltaic Plants	LV 11		
3WT Air Circuit Breakers up to 4000 A	LV 35		
3VT Molded Case Circuit Breakers up to 1600 A	LV 36		
<i>Digital: SIVACON System Cubicles, System Lighting and System Air-Conditioning</i>	LV 50		
<i>Digital: ALPHA Distribution Systems</i>	LV 51		
ALPHA FIX Terminal Blocks	LV 52		
SIVACON S4 Power Distribution Boards	LV 56		
SIVACON 8PS Busbar Trunking Systems	LV 70		
Motion Control			
SINUMERIK & SIMODRIVE Automation Systems for Machine Tools	NC 60		
SINUMERIK & SINAMICS Equipment for Machine Tools	NC 61		
SINUMERIK 840D sl Type 1B Equipment for Machine Tools	NC 62		
SINUMERIK 808 Equipment for Machine Tools	NC 81.1		
SINUMERIK 828 Equipment for Machine Tools	NC 82		
SIMOTION, SINAMICS S120 & SIMOTICS Equipment for Production Machines	PM 21		
Drive and Control Components for Cranes	CR 1		
Power Supply			
Power supply SITOP	KT 10.1		
Safety Integrated			
Safety Technology for Factory Automation	SI 10		
SIMATIC HMI/PC-based Automation			
Human Machine Interface Systems/PC-based Automation	ST 80/ ST PC		
SIMATIC Ident			
Industrial Identification Systems	ID 10		
SIMATIC Industrial Automation Systems			
Products for Totally Integrated Automation	ST 70		
SIMATIC PCS 7 Process Control System	ST PCS 7		
Add-ons for the SIMATIC PCS 7 Process Control System	ST PCS 7 AO		
SIMATIC NET			
Industrial Communication	IK PI		
SINVERT Photovoltaics			
Inverters and Components for Photovoltaic Installations	RE 10		
SIRIUS Industrial Controls			
SIRIUS Industrial Controls	IC 10		
Information and Download Center			
PDF versions of the catalogs are available on the Internet at: www.siemens.com/industry/infocenter			
There you'll find additional catalogs in other languages.			
Please note the section "Downloading catalogs" on page "Online services" in the appendix of this catalog.			

Industrial Security

Siemens provides automation and drive products with industrial security functions that support the secure operation of plants or machines. They are an important component in a holistic industrial security concept. With this in mind, our products undergo continuous development. We therefore recommend that you keep yourself informed with respect to our product updates. Please find further information and newsletters on this subject at:

<http://support.automation.siemens.com>

To ensure the secure operation of a plant or machine it is also necessary to take suitable preventive action (e.g. cell protection concept) and to integrate the automation and drive components into a state-of-the-art holistic industrial security concept for the entire plant or machine. Any third-party products that may be in use must also be taken into account. Please find further information at:

<http://www.siemens.com/industrialsecurity>

Siemens AG
Industry Sector
Sensors and Communication
Postfach 48 48
90026 NÜRNBERG
GERMANY

Subject to change without prior notice
Article No. E86060-K8310-A101-A9-7600
DR.PN.SC.14.XXKG.95.06 / Dispo 26107
KG 1213 1.0 DPG 302 En
Printed in Germany
© Siemens AG 2014

The information provided in this catalog contains merely general descriptions or characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract. Availability and technical specifications are subject to change without notice.

All product designations may be trademarks or product names of Siemens AG or supplier companies whose use by third parties for their own purposes could violate the rights of the owners.