

SIMATIC RF300

RFID system in the HF range

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SIMATIC Sensors

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RFID system in the HF range

Thanks to data acquisition at high speed, the SIMATIC RF300 RFID system raises productivity by reducing cycle times. With its high levels of flexibility and performance the system facilitates the economic manufacture of configurable products. As a part of our seamless range of sensor systems, SIMATIC RF300 offers you an RFID system for the reliable control of production and material flow – scalable, maintenance-free and rugged for all production tasks.

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

- A particularly cost-effective solution with a link to SIMATIC S7-300/ET 200M via IQ-Sense interface for low requirements in terms of speed and data volume
- The low-cost ISO 15693 transponders can be used to fulfill average requirements.
- Read/write devices for high demands in terms of speed and data volume for connection to SIMATIC, PROFIBUS, PROFINET, or PCs or non-Siemens controllers

RFID system	SIMATIC RF300
Write/read distance	Up to 0.2 m
Frequency	13.56 MHz
Standards	ISO 15693

Highlights

- For both simple and demanding identification tasks
- Rugged, compact components to a high degree of protection (up to IP68)
- Extremely fault-tolerant data communication with a high degree of data security
- Maintenance-free data carriers with up to 64 KB of user memory with additional one time programmable (OTP) data area up to 20 bytes; the use of low-cost ISO 15693 transponders is also possible
- Extremely high-speed data transmission between read/write devices and mobile data memories (typically 3 KB/s)
- Extensive test and diagnostics functions
- Simple integration in SIMATIC, PROFIBUS, and PROFINET

Performance range RF300	Simple requirements (speed)	Average requirements (speed, data volume)	High requirements (speed, data volume)
Communication modules	8 x IQ-Sense for ET 200M (PROFIBUS) and for direct connection to an SIMATIC S7-300	<ul style="list-style-type: none"> ■ ASM 475 (S7 300/ET 200M) ■ RF170C (ET 200pro) ■ ASM 456 (PROFIBUS) ■ RF180C (PROFINET) 	<ul style="list-style-type: none"> ■ ASM 475 (S7 300/ET 200M) ■ RF170C (ET 200pro) ■ ASM 456 (PROFIBUS) ■ RF180C (PROFINET)
Reader	<ul style="list-style-type: none"> ■ RF310R with IQ-Sense interface ■ RF310M 	<ul style="list-style-type: none"> ■ RF310R with RS422 interface ■ RF340R ■ RF350R ■ RF380R ■ RF310M 	<ul style="list-style-type: none"> ■ RF310R with RS422 interface ■ RF340R ■ RF350R ■ RF380R ■ RF310M
Transponder	<ul style="list-style-type: none"> ■ RF320T ■ RF340T ■ RF350T ■ RF360T 	<ul style="list-style-type: none"> ■ MDS D100 ■ MDS D124 ■ MDS D139 ■ MDS D160 ■ MDS D324 	<ul style="list-style-type: none"> ■ RF320T ■ RF340T ■ RF350T ■ RF360T ■ RF370T ■ RF380T

Fast identification, reliable production

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 write/read devices, SIMATIC RF300 is also suitable for (small) assembly lines where space is at a premium.

Automatic yet flexible:

Production control

- Integrated solutions through the use of standards
- Increased productivity through shorter cycle times thanks to extremely fast data acquisition
- Direct identification on the product



The right part in the right place at the right time:

Material handling control

- Optimized inventory management
- Minimization of storage quantities
- Automatic, synchronous feeding of parts or components



100% traceability:

Tracking & tracing

- Improved product quality
- Focused after-sales support (e.g. product recalls)
- Observation of legal regulations



Read/write devices, antennas

Technology overview

Write/read devices	SIMATIC RF310R	SIMATIC RF310R	SIMATIC RF340R	SIMATIC RF350R	SIMATIC RF380R	
Performance range	Simple requirements	Average to high requirements				
						
Connection to the automation system						
<ul style="list-style-type: none"> ■ SIMATIC S7-300 ■ SIMATIC S7-400 ■ Serial to PC (RS232/RS422) 	<ul style="list-style-type: none"> ■ Via IQ-Sense interface module — —/— 	<ul style="list-style-type: none"> ■ ASM 475 communication module or over distributed I/O or PROFINET or PROFIBUS communication modules ■ Over distributed I/O or PROFINET or PROFIBUS communication modules 	—/1	—/1	—/1	1/1
Distributed I/O	<ul style="list-style-type: none"> ■ ET 200pro ■ ET 200M 	<ul style="list-style-type: none"> — ■ Via IQ-Sense interface module 	<ul style="list-style-type: none"> ■ SIMATIC RF170C communication module ■ ASM 475 communication module 			
Fieldbus	<ul style="list-style-type: none"> ■ PROFINET ■ PROFIBUS 	<ul style="list-style-type: none"> — — 	<ul style="list-style-type: none"> ■ SIMATIC RF170C, RF180C communication modules ■ ASM 456, SIMATIC RF170C communication modules 			
IT integration						
PC interfacing	—	RF-MANAGER 2008, Service Pack 1				
Additional characteristics						
Read/write distance, max.						
<ul style="list-style-type: none"> ■ RF300 mode ■ ISO mode 	30 mm —	30 mm 90 mm	60 mm 140 mm	60 mm 140 mm	125 mm 210 mm	
Distance between two write/read devices	≥ 100 mm	≥ 100 mm	≥ 200 mm	Depends on antenna	≥ 400 mm	
Data transmission rate, typ.						
<ul style="list-style-type: none"> ■ RF300 mode ■ ISO mode 	50 bytes/s —	3 KB/s 0.5 KB/s	3 KB/s 0.5 KB/s	3 KB/s 0.5 KB/s	3 KB/s 0.5 KB/s	
Antenna	Integrated	integrated	integrated	External MOBY E antennas ANT1, 18, 30	integrated	
Operating temperature	-25 °C ... +70 °C	-25 °C ... +70 °C	-25 °C ... +70 °C	-25 °C ... +70 °C	-10 °C ... +70 °C	
Degree of protection	IP67	IP67	IP67	IP65	IP67	
Dimensions (L x W x H) in mm	55 x 75 x 30	55 x 75 x 30	75 x 75 x 40	75 x 75 x 40	160 x 80 x 40	
Standard	—	ISO 15693	ISO 15693	ISO 15693	ISO 15693	
Approvals						

Technology overview

Write/read devices	SIMATIC RF310M mobile handheld terminal
Performance range	Simple to high requirements
	
Description	Ready-for-use mobile write/read device with installed system software
Display	TFT color display with backlighting
Size	3.6" (9.14 cm) screen diagonal
VGA resolution (H x W in pixels)	640 x 480
Operator controls	
Display	Touch screen
Keyboard	Alphanumeric
Memory	
Flash/RAM/SD card	128 MB/128 MB/optional
Operating system	Microsoft Windows Embedded CE 5.0
Interfaces	
Wireless	Bluetooth Class II, WLAN (optional)
USB	1 (USB 1.1 Host)
Operating temperature	-10 °C ... +50 °C
Degree of protection	IP65
Power supply	Lithium-ion battery, 3000 mAh
RFID reader	
Frequency	13.56 MHz
Write/read distance	Max. 80 mm
Standard	ISO 15693
Approvals	EN 300 330, EN 301489, CE, FCC

SIMATIC RF-MANAGER software

Technology overview

With our SIMATIC RF-MANAGER, we are offering a totally integrated software solution for all read/write devices of SIMATIC RF600 and SIMATIC RF300 RFID systems, from the acquisition level through to the ERP and MES level.

Compatible with the EPCglobal standards, SIMATIC RF-MANAGER stands for efficient engineering and smooth operation. This means that readers can be commissioned quickly and easily, RFID data can be efficiently preprocessed, individual devices can be managed and a great deal of time and effort can be saved.



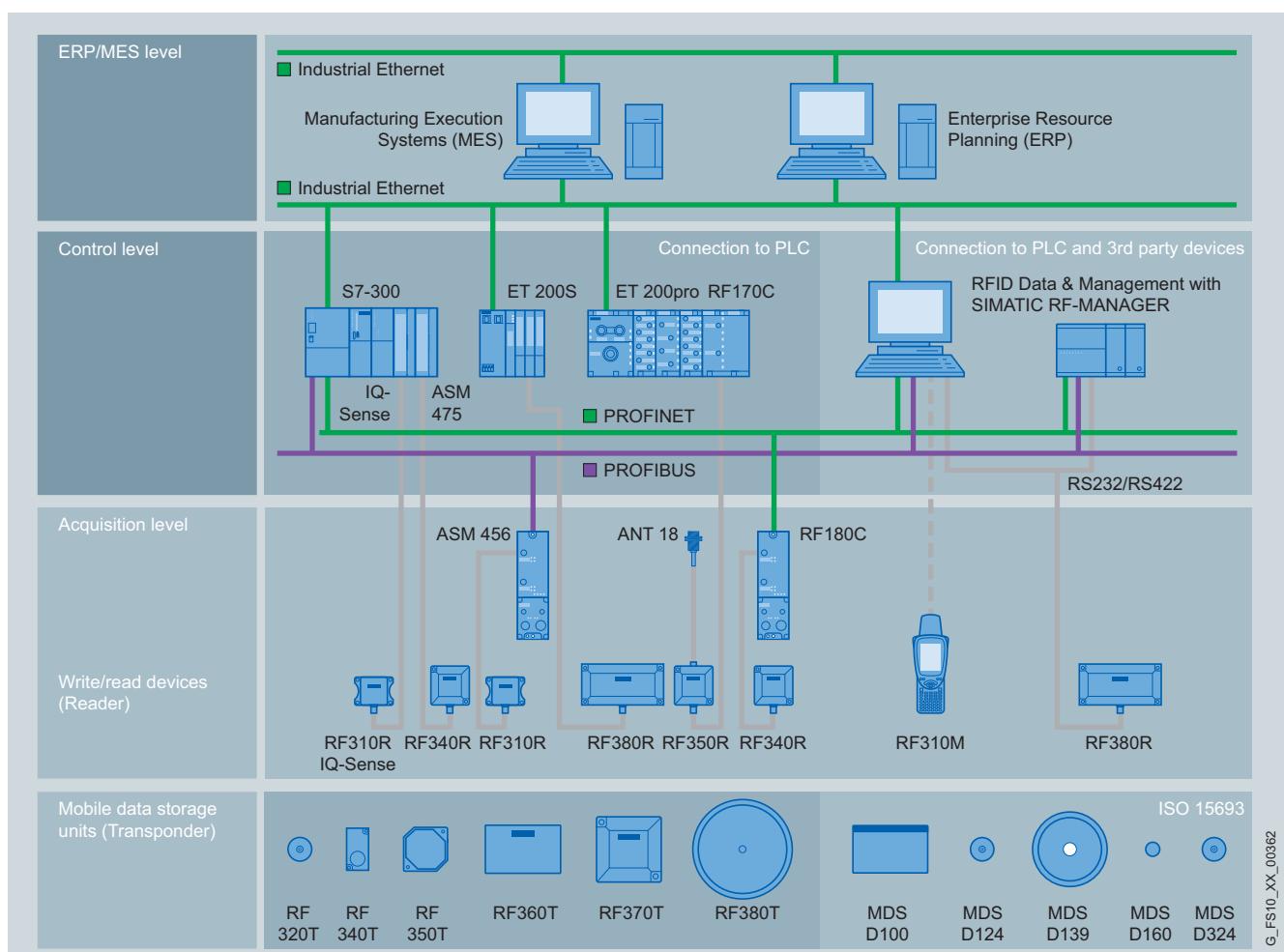
	RF-MANAGER Engineering system	RF-MANAGER Runtime
General data		
Current version	2008, Service Pack 1	
Supported devices	All SIMATIC RF600 and SIMATIC RF300 read/write devices	
Target systems	Standard PC	Standard PC, SIMATIC Microbox PC 420, SIMATIC Microbox PC 427B
Languages		
Documentation/configuration software/ runtime software	English, German	
Hardware and software requirements		
Operating system	Windows XP Professional/SP2	Windows XP Professional/SP2 (standard PC) Windows XP Embedded/SP2 (SIMATIC Microbox)
Processor	At least Pentium 4 with 1.6 GHz processor	At least Pentium 3 with 933 MHz processor
Graphics		
Resolution	At least 1024 x 768; recommended: 1280 x 1024	At least 640 x 480
Colors, at least	256	256
RAM	At least 1.0 GB; recommended: 2.0 GB	At least 512 MB; recommended: 1.0 GB
Available memory space/hard disk	At least 1.5 GB	At least 512 MB (standard PC), CF card with at least 512 MB (SIMATIC Microbox)
Additional hardware	CD-ROM drive (for software installation)	
Internet browser	Microsoft Internet Explorer V6.0 SP1 / SP2	

SIMATIC RF300

Simple and low-cost integration

Commissioning and error diagnostics are quite easy with the comprehensive diagnostic functions of the SIMATIC RF300 system. Thanks to the M12 connector concept, all the connections match other automation components such as ECOFAST and SIMATIC. Integration into communication networks such as PROFIBUS, PROFINET, Ethernet, as well as PC environments is also possible.

A wide range of communication modules, function blocks, as well as powerful drivers and function libraries make integration into the application a quick and easy affair. And the best thing is, SIMATIC RF300 is part of Totally Integrated Automation and can be integrated easily and cost-effectively into the SIMATIC world.



Mobile data storage units

Technology overview

Mobile data storage units	SIMATIC RF320T	SIMATIC RF340T	SIMATIC RF350T
Performance range	High requirements		
			
Mounting	Recommended distance from metal ≥ 10 mm	direct on metal	direct on metal
Memory size	20 byte EEPROM (r/w), 4 byte UID	8 KB FRAM (r/w), 20 byte EEPROM (one time programmable), 4 byte UID	32 KB FRAM (r/w), 20 byte EEPROM (one time programmable), 4 byte UID
Data retention	> 10 years	> 10 years	> 10 years
Read/write distance, max.	55 mm	100 mm	130 mm
Read cycles	unlimited	unlimited	unlimited
Write cycles, min.	50000	10 ¹⁰	10 ¹⁰
Operating temperature	-25 °C ... +125 °C	-25 °C ... +85 °C	-25 °C ... +85 °C
Degree of protection	IP67/IPX9K	IP68/IPX9K	IP68
Dimensions (LxWxH) in mm	Ø 27 x 4	48 x 25 x 15	50 x 50 x 20

Mobile data storage units	SIMATIC RF360T	SIMATIC RF370T	SIMATIC RF380T
Performance range	High requirements		
			
Mounting	Recommended distance from metal > 20 mm	direct on metal	direct on metal
Memory size	8 KB FRAM (r/w), 20 byte EEPROM (one time programmable), 4 byte UID	32 KB/64 KB FRAM (r/w), 20 byte EEPROM (one time programmable), 4 byte UID	32 KB FRAM (r/w), 20 byte EEPROM (one time programmable), 4 byte UID
Data retention	> 10 years	> 10 years	> 10 years
Read/write distance, max.	150 mm	135 mm	140 mm
Read cycles	unlimited	unlimited	unlimited
Write cycles, min.	10 ¹⁰	10 ¹⁰	10 ¹⁰
Operating temperature	-25 °C ... +75 °C	-10 °C ... +85 °C	-25 °C ... +110 °C (permanent) -25 °C ... +220 °C (cyclic)
Degree of protection	IP67	IP68	IP68
Dimensions (LxWxH) in mm	85.8 x 54.8 x 2.5	75 x 75 x 40	Ø 114 x 83

Mobile data storage units	MDS D100	MDS D124	MDS D139
Performance range	Average requirements (ISO 15693)		
			
Mounting	Minimum distance from metal 20 mm	Recommended distance from metal > 25 mm	Recommended distance from metal > 30 mm
Memory size	112 bytes EEPROM available 8 byte serial number (read-only code)	112 bytes EEPROM available 8 byte serial number	112 bytes EEPROM available 8 byte serial number
Data retention	10 years (at < +40 °C)	10 years (at < +40 °C)	10 years (at < +40 °C)
Read/write distance, max.	210 mm	90 mm	200 mm
Read cycles	unlimited	unlimited	unlimited
Write cycles, typical	1000000	1000000	1000000
Operating temperature	-25 °C ... +80 °C	-25 °C ... +125 °C	-25 °C ... +140 °C (-25 °C ... +220 °C)
Degree of protection	IP68	IP67/IPX9K	IP68/IPX9K
Dimensions (LxWxH) in mm	85.6 x 54 x 0.9	Ø 27 x 4	Ø 85 x 15

Mobile data storage units	MDS D160	MDS D324
Performance range	Average requirements (ISO 15693)	
		
Mounting	Recommended distance from metal > 25 mm	Recommended distance from metal > 25 mm
Memory size	112 bytes EEPROM available 8 byte serial number	992 bytes EEPROM available 8 byte serial number
Data retention	> 10 years (at < +40 °C)	> 10 years (at < +40 °C)
Read/write distance, max.	80 mm	120 mm
Read cycles	unlimited	unlimited
Write cycles, typical	1000000	1000000
Operating temperature	-25 °C ... +85 °C	-25 °C ... +125 °C
Degree of protection	IP68	IP67/IPX9K
Dimensions (LxWxH) in mm	Ø 16 x 3	Ø 27 x 4

Further information

SIMATIC Sensors RFID:

www.siemens.com/simatic-sensors/rf

3D data on SIMATIC RF:

www.siemens.com/simatic-sensors/rf-cad

References for SIMATIC Sensors:

www.siemens.com/simatic-sensors/references

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www.siemens.com/automation/partner

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Newsletter for SIMATIC Sensors and Totally Integrated Automation:

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