





# System integration

The communication modules (interface modules) are links between the RFID components (reader and transponder) and the higher-level controllers (e.g. SIMATIC S7), or PCs or computers.

## Interfacing to the controller

The readers are connected to the controller via the following interface or communications modules:

- ASM 456
- ASM 475
- SIMATIC RF120C
- SIMATIC RF160C
- SIMATIC RF170C
- SIMATIC RF180C
- SIMATIC RF182C
- RFID 181EIP

## Function blocks, interface modules/communication modules and readers

Function blocks are used for integration into the SIMATIC. They are used to transfer the input parameters to the reader using the "init\_run"(RESET) command.

You will find information on the following blocks on the Internet in "Industry Online Support - RFID (<https://support.industry.siemens.com/cs/ww/en/ps/15105/man>)".

- FB 45 for MOBY U, MOBY D, RF200, RF300
- FB 55
- Ident profile and Ident blocks, standard function for RFID systems
- RFID standard profile; standard functions for RFID systems
- RF160C communications module with FC 44

### Interface modules/communication modules and function blocks

The following table shows the most important features of the interface modules/communication modules, as well as the compatible function blocks.

When assigning parameters (HW Config) to the communications and interface modules, MOBY U, MOBY D, RF200, RF300 or RF600 must be selected.

Table 8- 1 Overview of interface modules/communication modules

ASM/ communications module	Interfaces to the application (PLC)	Interfaces to the reader	Reader con- nections	Dimensions (W x H x D)	Temperature range	Type of protec- tion
ASM 456	PROFIBUS DP-V1	2 x 8-pin connector socket, M12	2 (parallel)	60 x 210 x 54 or 79 mm	0 °C ... +55 °C	IP67
ASM 475	S7-300 (central), ET200M (PROFIBUS)	Via screw terminals in front connector	2	40 x 125 x 120 mm	0 °C ... +60 °C	IP20
SIMATIC RF120C	S7-1200 (central)	9-pin D-sub socket	1	30 x 100 x 75 mm	0 °C ... +55 °C	IP20
SIMATIC RF160C	PROFIBUS DP / DP-V0	2 x 8-pin connector socket, M12	2 (parallel)	60 x 210 x 30 mm	0 °C ... +55 °C	IP67
SIMATIC RF170C	PROFIBUS DP-V1 PROFINET IO	2 x 8-pin connector socket, M12	2 (parallel)	90 x 130 x 60 mm	-25 °C to +55 °C	IP67
SIMATIC RF180C	PROFINET IO	2 x 8-pin connector socket, M12	2 (parallel)	60 x 210 x 54 mm	0 °C to +60° C	IP67
SIMATIC RF182C	TCP/IP	2 x 8-pin connector socket, M12	2 (parallel)	60 x 210 x 30 mm	0 °C to +60 °C	IP67
RFID 181EIP	Ethernet IP	2 x 8-pin connector socket, M12	2 (parallel)	60 x 210 x 54 mm	0 °C to +60° C	IP67

The following table shows the program blocks compatible with the interface modules/communications modules.

Table 8- 2 Compatible program blocks

ASM/ communications mod- ule	Compatible program blocks in conjunction with ...		
	S7-300 / S7-400 and STEP 7 Classic V5.5	S7-300 / S7-400 and STEP 7 Basic/Professional	S7-1200 / S7-1500 and STEP 7 Basic/Professional
ASM 456	FB 45 FB 55 Standard profile V1.19 Ident profile	FB 45 FB 55 Ident profile	Ident profile Ident blocks PIB_1200_UID_001KB PIB_1200_UID_032KB
ASM 475	FB 45 FB 55	FB 45 FB 55	--
SIMATIC RF120C	--	--	Ident profile Ident blocks PIB_1200_UID_001KB PIB_1200_UID_032KB

ASM/ communications mod- ule	Compatible program blocks in conjunction with ...		
	S7-300 / S7-400 and STEP 7 Classic V5.5	S7-300 / S7-400 and STEP 7 Basic/Professional	S7-1200 / S7-1500 and STEP 7 Basic/Professional
<b>SIMATIC RF160C</b>	FC 44 Application blocks for RF160C	FC 44 Application blocks for RF160C	Application blocks for RF160C
<b>SIMATIC RF170C</b>	FB 45 FB 55	FB 45 FB 55	--
<b>SIMATIC RF180C</b>	FB 45 FB 55 Standard profile V1.19 Ident profile	FB 45 FB 55 Ident profile	Ident profile Ident blocks PIB_1200_UID_001KB PIB_1200_UID_032KB



## System diagnostics

### 9.1 Error codes of the RF200 readers

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#### Note

#### Validity of the error codes

The following error codes apply only to RF200 readers with an S-422 interface (CM mode)

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You can determine the error code in two ways:

- directly on the reader/CM by counting the flashing pattern of the red error LED
- via Ident profile with the "Status" output variable

Give consideration to the form of the output variable in the following table ("0xE&FE\$\$00"; "&" = 1 ... 5; "\$\$" = error code).

- Through the FB45 variable "error\_MOBY".

Table 9- 1 Error codes of the RF200 readers

Flashing of red LED on reader	Error code (hexa-decimal)	Description
00	00	no error
02	01	Presence error, possible causes: <ul style="list-style-type: none"> <li>• The active command was not carried out completely</li> <li>• The transponder left the antenna field while the command was being processed - communication disruption between reader and transponder</li> </ul>
05	05	Parameterization error, possible causes: <ul style="list-style-type: none"> <li>• Unknown command</li> <li>• Incorrect parameter</li> <li>• Function not allowed</li> </ul>
06	06	Air interface faulty
12	0C	The transponder memory cannot be written, possible cause: Hardware fault (memory faulty)
13	0D	Error in the specified memory address (access attempted to non-existent or non-accessible memory areas).
19	13	Buffer overflow: Insufficient buffer available in the reader for saving the command
20	14	Major system fault (hardware fault)
21	15	Parameter assignment error: faulty parameter in RESET command

Flashing of red LED on reader	Error code (hexa-decimal)	Description
24	18	Only a RESET command is permitted
25	19	Previous command is still active
28	1C	Antenna is already switched off/Antenna is already switched on
30	1E	Incorrect number of characters in frame

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**Note**

**Error message when memory area is protected**

For transponders with a locked or protected memory area, different error messages can occur following a write command depending on the data carrier type, e.g. MDS D1xx (NXP), D3xx (Infineon), D4xx (Fujitsu): Error 01, 0C

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## 9.2 Diagnostics functions - STEP 7

Further information on RFID diagnostics options can be found in the following function manuals:

- Function manual Ident profile and Ident blocks  
(<https://support.industry.siemens.com/cs/us/en/view/106368029>)
- Function Manual FB 45 (<https://support.industry.siemens.com/cs/ww/en/view/21738808>)

### 9.2.1 Reader diagnostics with "Reader Status" (SLG Status)

With this command you can query the status and diagnostics data of the reader.

Attribute "0x81" (mode 01), corresponds to UDT 110

Name	Type	Possible Values (hexadecimal)	Comment
hardware	char	4D 4E 31 32 33 34 41	Type of hardware = RF280R with RS232 = RF280R with RS422 = RF260R = RF210/220R = RF240R = RF250R = RF290R
hardware_version	word	01 00 00 10; 00 29; 00 2B; 00 2C	HW version (reserved) = RF200 without RF280R = RF280R
loader_version	word	00 ... FF 00 ... FF	Bootstrap loader version: e.g. 3130 (=version 1.0) = Version (high byte) = Version (low byte)
firmware	char	00 ... FF	FW version : 33 (ASCII : 3 = RF2x0R)
firmware_version	word	00 ... FF 00 ... FF	Firmware version: e.g. 3130 (=version 1.0) = Version (high byte) = Version (low byte)
driver	char	31 32 33	Driver version 3964R = 3964R = ASCII = ASCII/ScanMode
driver_version	word	00 ... FF 00 ... FF	Driver version: e.g. 3132 (=version 1.2) = Version (high byte) = Version (low byte)
interface	byte	01 02	Interface type = RS-422 = RS-232

Name	Type	Possible Values (hexadecimal)	Comment
baud	byte	01 03 05	Transmission speed = 19.2 kBd = 57.6 kBd = 115.2 kBd
multitag_SLG	byte	01	Number of transponders (multitag/bulk) that can be processed in the antenna field = Single tag mode
field_ON_time_SLG	byte	01	ISO transponder (non-specific)
status_ant	byte	01 02	Status of the antenna = Antenna is on = antenna is off
MDS_control	byte	00 01	Presence check = Operation without presence check = Operation with presence check (antenna is activated.)

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**Note**

**Completeness of the table**

Be aware that unassigned fields in the UDT are not listed here.

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## 9.2.2 Transponder diagnostics with "Tag Status" (MDS Status)

The command can be used to scan the status data of the transponder that is located within the antenna field.

### Attribute "0x83" (mode 03), corresponds to UDT 230

Name	Type	Possible Values (hexadecimal)	Comment
UID	array[1...8] byte	00000000 0000000 ... FFFFFFFF FFFFFFFF	Unique identifier =8 byte UID, MSB first
MDS_type	byte	--	Transponder type (chip vendor, designation):
		01	= ISO 15693 general
		03	= ISO 15693 (Infineon, MDS D3xx)
		04	= ISO 15693 (Fujitsu - 2 KB, MDS D4xx); ISO 15693 (Fujitsu - 8 KB, MDS D5xx) <sup>1)</sup>
		05	= ISO 15693 (NXP, MDS D1xx)
		06	= ISO 15693 (TI, MDS D2xx)
		07	= ISO 15693 (STM, MDS D261)
IC_version	byte	0 ... FF	Chip version
size	word	0 ... FF	Memory size in bytes Depending on transponder type, e.g. MDS D3xx: 992 bytes
lock_state	byte	0 ... FF	–not used with RF200
block_size	byte	0 ... FF	Block size of the transponder for each transponder type, e.g. MDS D3xx: 4 bytes
nr_of_blocks	byte	0 ... FF	Number of blocks Depending on transponder type, e.g. MDS D3xx: 248 bytes


<sup>1)</sup> Except for RF280R; possible value (hexadecimal) 08



## Appendix

### A.1 Certificates & approvals

All the latest RFID radio approvals are available on the Internet (<http://www.siemens.com/rfid-approvals>).

Labeling	Description
	Conformity acc. to the RED EU directive

#### Notes on CE marking

The following applies to the system described in this documentation:  
The CE marking on a device indicates the corresponding approval:

#### DIN ISO 9001 certificate

The quality assurance system for the entire product process (development, production, and marketing) at Siemens fulfills the requirements of ISO 9001 (corresponds to EN29001: 1987).





This has been certified by DQS (the German society for the certification of quality management systems).










EQ-Net certificate no.: 1323-01

#### Country-specific approvals:

##### Safety

If the device has one of the following markings the corresponding approval has been obtained:


Labeling	Description
	Underwriters Laboratories (UL) per UL 60950 (I.T.E) or per UL 508 (IND.CONT.EQ)
	Underwriters Laboratories (UL) according to Canadian standard C22.2 No. 60950 (I.T.E) or C22.2 No. 142 (IND.CONT.EQ)
	Underwriters Laboratories (UL) according to standard UL 60950, Report E11 5352 and Canadian standard C22.2 No. 60950 (I.T.E) or UL508 and C22.2 No. 142 (IND.CONT.EQ)
	UL recognition mark

Labeling	Description
	Canadian Standard Association (CSA) acc. to standard C22.2. No. 60950 (LR 81690) or acc. to C22.2 No. 142 (LR 63533)
	Canadian Standard Association (CSA) per American Standard UL 60950 (LR 81690) or per UL 508 (LR 63533)
	This product meets the requirements of the AS/NZS 3548 Norm.
	USA (FCC) This device complies with Part 15 of the FCC Rules. FCC ID: NXW-RF...
Canada (IC)	Canada (IC) This device complies with Industry Canada licence-exempt RSS standard(s). IC: 267X-RF...
	Russia, Belarus and Kazakhstan
	Brazil (ANATEL) ANATEL-ID: XXXX-YY-ZZZZ)
Mexico (COFETEL)	Mexico (COFETEL)
	South Africa (ICASA)
China (CMIIT)	China (CMIIT) CMIIT ID: XXXXYZZZZ
	South Korea (KCC)
	Japan (VCCI)

## A.2 Accessories

### A.2.1 Antenna splitter

#### Area of application

Antenna splitter	Characteristics	
	Area of application	Designed for distributed mounting of antennas in warehouses, logistics and distribution
	Readers that can be connected	RF290R
	Number of connectable antennas	max. 4 (by cascading)
	Connectable antennas	<ul style="list-style-type: none"> <li>• ANT D5</li> <li>• ANT D6</li> <li>• ANT D10</li> </ul>
	Degree of protection	IP65

The antenna splitter is a power distributor with electrical isolation between the input (IN) and the two outputs (OUT1, OUT2). At the operating frequency of 13.56 MHz, the impedance at all inputs and outputs is 50 ohms.

The device is used to connect 2 to 4 antennas to a reader. Gate, C and tunnel arrangements are therefore possible (see section "Configuration options").

#### Ordering data

Table A- 1 Ordering data for the antenna splitter

	Article number
Antenna splitter (incl. one antenna connecting cable 3.3 m)	6GT2690-0AC00

Table A- 2 Ordering data - accessories - antenna splitter

		Article number
Antenna cable	Length 3.3 m	6GT2691-0CH33
	Length 10.5 m	6GT2691-0CN10
Antenna cable extension	Length 7.2 m	6GT2691-0DH72

## Technical specifications

Table A- 3 Technical specifications for antenna splitter


<b>Technical specifications</b>	
max. Input power	10 W
Transmission frequency	13.56 MHz
Power supply	None
Housing dimensions (L x W x H)	160 x 80 x 40 mm (without connector)
Color	Anthracite
Material	Plastic PA 12
Connector (inputs and outputs)	TNC connector
Securing	2 x M5 screws
Ambient temperature	
• During operation	• -25 °C ... +65 °C
• During transportation and storage	• -25 °C ... +75 °C
MTBF	3.0 x 10 <sup>5</sup> hours
Degree of protection according to EN 60529	IP65 (UL: for indoor use only)
Shock resistant according to EN 60721-3-7 Class 7M2	30 g
Total shock response spectrum Type II	
Vibration according to EN 60721-3-7 Class 7M2	1 g (9 ... 200 Hz) / 1.5 g (200 ... 500 Hz)
Weight, approx.	400 g
Approval	CE UL



## A.2.2 Antenna multiplexer SIMATIC RF260X

### A.2.2.1 Characteristics

The SIMATIC RF260X antenna multiplexer can be used to operate up to six antennas on one reader.

SIMATIC RF260X antenna multiplexer	Characteristics	
	Area of application	Designed for distributed mounting of antennas in warehouses, logistics and distribution
	Readers that can be connected	RF290R
	Number of antennas that can be connected	maximum of 6
	Connectable antennas	<ul style="list-style-type: none"> <li>• ANT D5</li> <li>• ANT D6</li> <li>• ANT D10</li> </ul>
	Degree of protection	IP65

### A.2.2.2 Ordering data

Table A- 4 SIMATIC RF260X ordering data

	Article number
SIMATIC RF260X Antenna multiplexer incl. antenna connecting cable 0.4 m	6GT2894-0EA00

Table A- 5 SIMATIC RF260X accessories ordering data

	Article number
24 V connecting cable, 5 m	6GT2491-1HH50
RF290R	6GT2821-0AC12
Wide-range power supply unit for SIMATIC RF-systems (100 - 240 V AC / 24 V DC / 3 A) with 2 m connecting cable with country-specific plug	EU: 6GT2898-0AA00 UK: 6GT2898-0AA10 US: 6GT2898-0AA20
RS-232 connecting cable, with 4-pin M12 connector for 24 V for connection to the wide-range power supply unit, 5 m	6GT2891-4KH50
ANT D5 incl. antenna connecting cable (3.3 m)	6GT2698-5AA10
ANT D6 incl. antenna connecting cable (3.3 m)	6GT2698-5AB00
ANT D10 incl. antenna connecting cable (3.3 m)	6GT2698-5AF00

		Article number
Antenna cable	3.3 m	6GT2691-0CH33
	10.5 m	6GT2691-0CN10
Antenna cable extension	7.2 m	6GT2691-0DH72

**A.2.2.3 Description**

	①	24 V DC power supply		
	②	Antenna connections OUT 1 to OUT 6 with LEDs		
		Color	Status LED	
		Yellow	Lit when the corresponding antenna output is active.	
	③	SLG antenna connection "IN"		
	③	LEDs		
		LED	Color	Status LED
COMM / ERR		Red	<ul style="list-style-type: none"> <li>Flashes when the RF260X receives a signal from the SLG. (Only with commands directly to the RF260X)</li> <li>Lit when the multiplexer has detected an error on the output (e.g. non-terminated antenna cable / defective antenna cable / short-circuit)</li> </ul>	
HF - ON		Green	Lit when an HF signal is applied to the "IN" socket ③	
	RUN	Green	Flashes when the RF260X is in the normal operating state.	


**A.2.2.4 Principle of operation**

You can operate up to six antennas on one reader by using the multiplexer RF260X. The data is processed sequentially.

Antenna switchover is performed in time-multiplex mode, so by connecting several antennas together, the processing time / activation time per antenna is lengthened accordingly.

### A.2.2.5 Connectors

- Power supply

Pin	Pin, casing side 4-pin M12	Assignment RF260X
 <p>Plan view</p>	1	Ground (0 V)
	2	+ 24 V
	3	+ 24 V
	4	Ground (0 V)

- Reader connector ③



Figure A-1 Reader connector

If a longer antenna cable is required between the RF290R and SIMATIC RF260X multiplexer, a 7.2 m long cable (e.g. 6GT2691-0DH72) must be used to extend it, see Ordering data (Page 339).

The excess length must then be rolled up bifilar and fastened to minimize interference from external sources.

- Antenna outputs ② (OUT 1 to OUT 3 / OUT 4 to OUT 6)

### A.2.2.6 Configuration

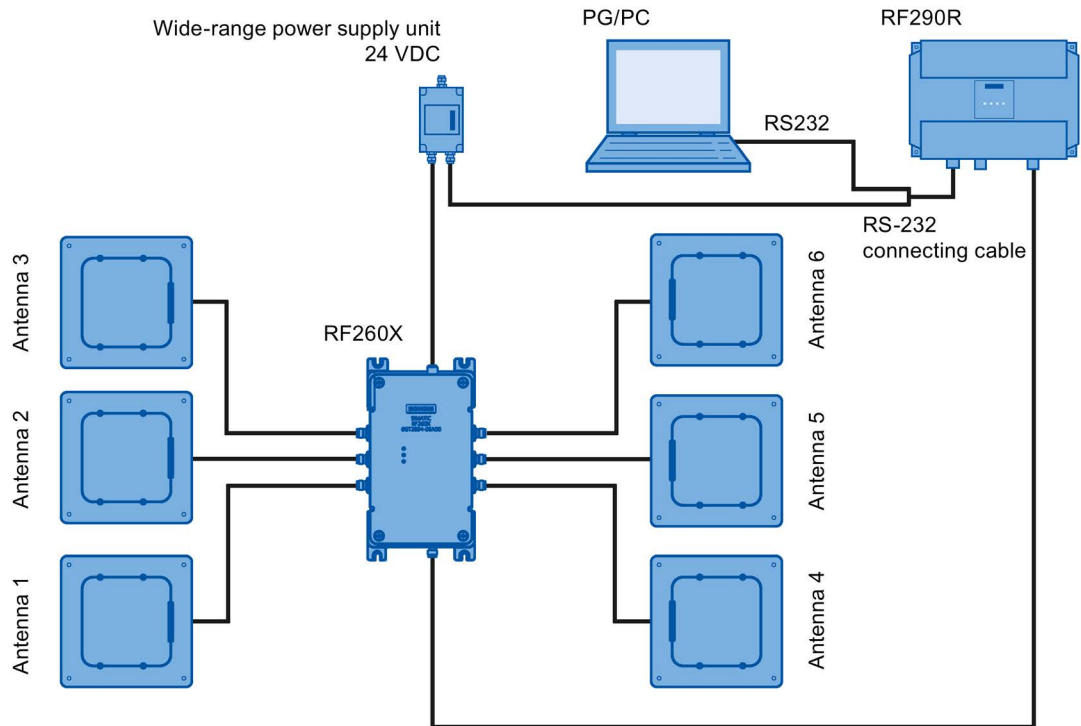


Figure A-2 Configuration example with ANT D5

### A.2.2.7 Parameterization

Parameter settings can be performed using the tool "RF290R-Set" (V9.5.2).

This tool is primarily used for parameterization and commissioning, and is not designed for productive operation.

The relevant parameters of the RF260X can be set in the "Configuration" menu under "SystemParameters > CFG15: Antenna Multiplexing" ①

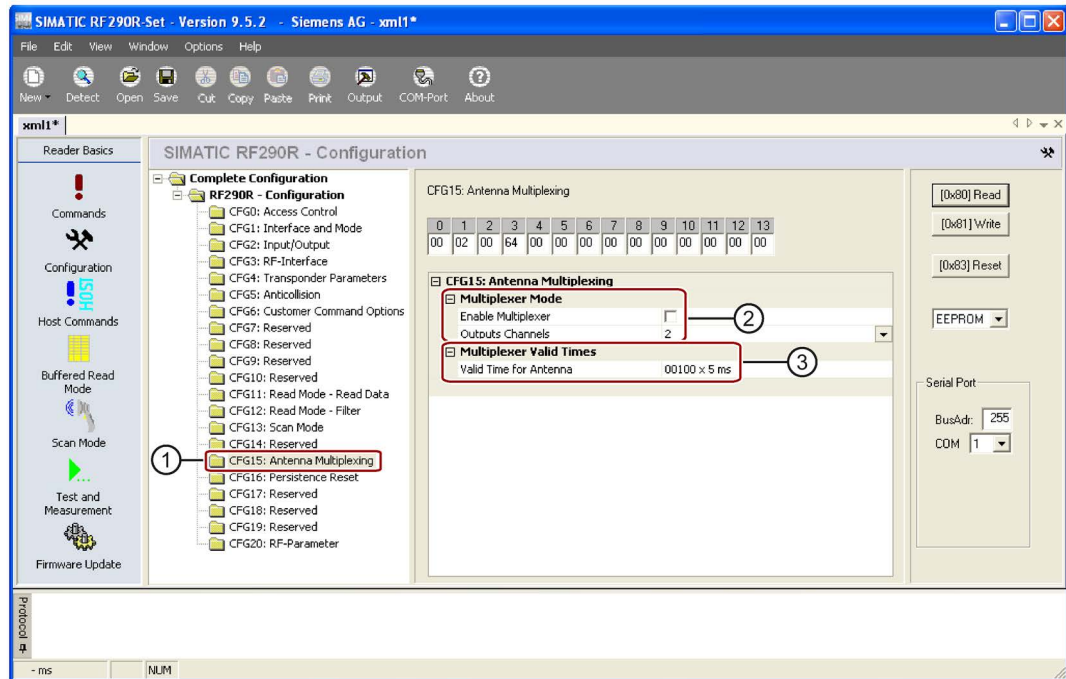


Figure A-3 Menu "Configuration" MOBYDSet"

- For operation with RF260X, you need to activate the "Multiplexing" function ②.
- The number of occupied channels must be specified under "Number of Output Channels" ②.
- In "Multiplexer Valid Times" ③, the maximum time available for the antenna to read a transponder is entered. Following this time, the device switches to the next antenna automatically. If the read was successful, the time may be significantly shorter than specified here.

## Note

### Changing the parameter assignment

- Note that if you change the parameter settings of the reader or the RF260X in scanner mode, this may lead to frame collisions. These collisions result when the frame is sent while a transponder is present.
- The "Transponder response time" (setting: "CFG2: COM interface") during operation of the RF260X must be higher than the total delay time for all the connected antennas (CFG15: MUX-VALD-TIME × Number of Output Channels ≤ Transponder Response Time)

### A.2.2.8 RF260X commands

Using the tool "RF290R-Set" (V9.5.2), certain commands can also be sent to the RF260X. In the "Commands" menu under "RF260X", the following commands can be sent:

- Detect (detection of the RF260X by the reader)
- Channel Select (set to a static channel)
- CPU-Reset (restart the RF260X software)
- Software Version (read out software and hardware versions)

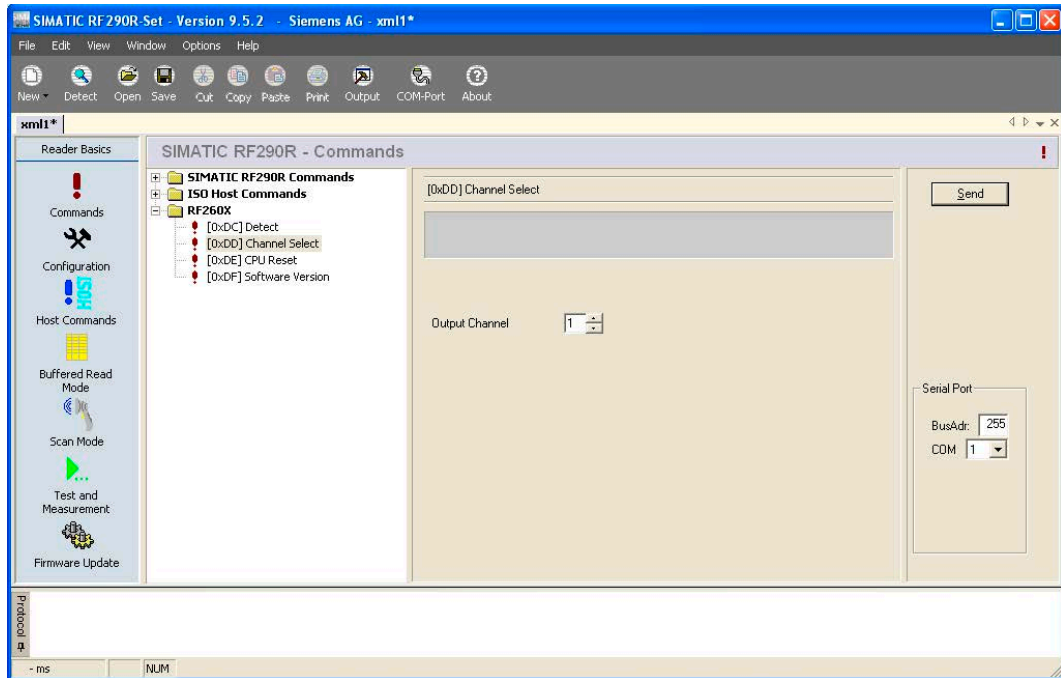


Figure A-4 Sending commands from the "RF290R-Set" tool

### A.2.2.9 Technical specifications

<b>Technical specifications</b>	
Max. write/read distance ANT ↔ Transponder (S <sub>g</sub> )	See manual for the relevant antenna
Number of channels	
<ul style="list-style-type: none"> <li>• Input channels</li> <li>• Output channels</li> </ul>	<ul style="list-style-type: none"> <li>• 1</li> <li>• 6</li> </ul>
Impedance	50 ohm
Power supply	24 V (± 10 %)
Current consumption	max. 200 mA
Dimensions (L x W x H)	240 x 150 x 70 mm
Length of the connecting cable	0.4 m
Color	Anthracite
Material	Aluminum die-casting
Plug-in connections	<ul style="list-style-type: none"> <li>• Power supply: Four-pole M12 / 4 pole round connector</li> <li>• Reader antenna connector: Single-pole TNC socket</li> <li>• Antenna connections: 6 x TNC socket</li> </ul>
Max. power (reader input, or per antenna)	8 W
Shock resistant according to EN 60721-3-7 Class 7M2 Total shock response spectrum Type II	1.5 g
Vibration according to EN 60721-3-7 Class 7M2	1.5 g (5 to 500 Hz)
Securing	4 M5 screws
Tightening torque (at room temperature)	≤ 5 Nm
Ambient temperature	
<ul style="list-style-type: none"> <li>• During operation</li> <li>• During transportation and storage</li> </ul>	<ul style="list-style-type: none"> <li>• -20 °C ... +55 °C</li> <li>• -25 °C ... +70 °C</li> </ul>
MTBF	2.5 x 10 <sup>6</sup> hours
Degree of protection according to EN 60529	IP65
Weight, approx.	1.8 kg
Approvals	CE / FCC / IC

A.2.2.10 Dimensional drawing

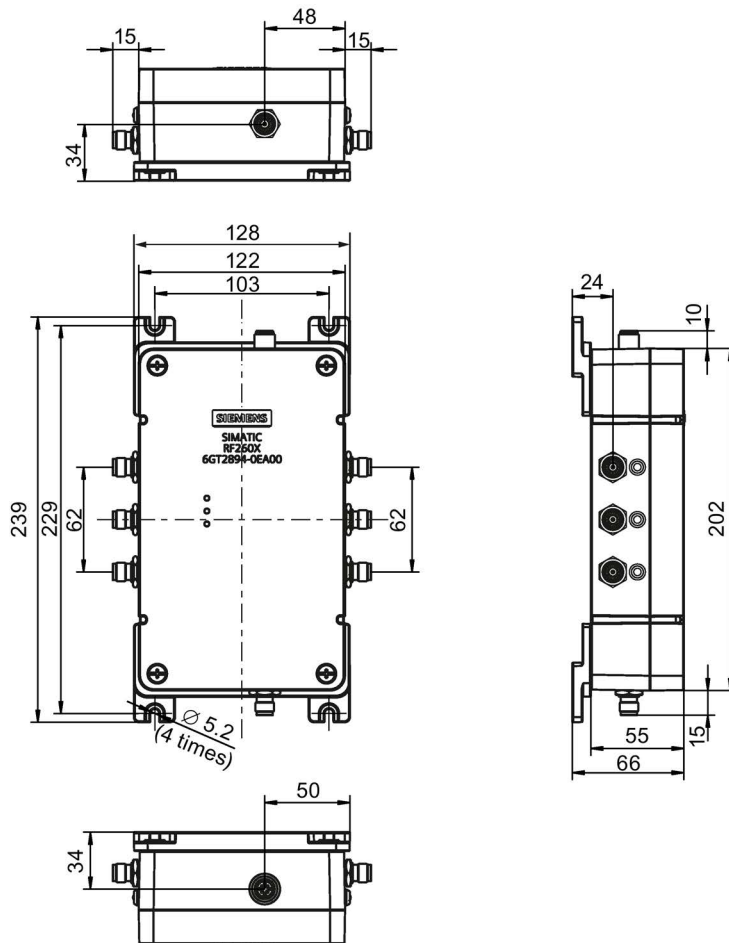



Figure A-5 RF260X dimension drawing



## A.2.3 Wide-range power supply unit for SIMATIC RF systems

### A.2.3.1 Features

<b>Wide-range power supply unit for SIMATIC RF systems</b>	
	<ul style="list-style-type: none"> <li>① DC output 1</li> <li>② DC output 2</li> <li>③ Network connector</li> </ul>
<b>Characteristics</b>	
<ul style="list-style-type: none"> <li>• Wide-range input ③ for use worldwide</li> <li>• Dimensions without mains cable: 175 x 85 x 35 mm</li> <li>• Dimensions including mains cable: 250 x 85 x 35 mm</li> <li>• CE-compliant (EU and UK versions)</li> <li>• UL-certified for US and Canada (US version)</li> <li>• Mechanically and electrically rugged design</li> <li>• Secondary side ①, ②: 24 VDC / 3 A</li> <li>• Short-circuit and no-load stability</li> <li>• Suitable for frame mounting</li> <li>• 3 versions for use in the EU, UK, US</li> </ul>	

### Description

The wide-range power supply unit for SIMATIC RF systems is a universal compact power supply and provides the user with an efficient, cost-saving solution for many different mid-range power supply tasks.

The primary switched power supply is designed for use on single-phase AC systems. The two DC outputs (sockets) are connected in parallel and protected by a built-in current limiting circuit against overload and short-circuits.

The device is vacuum-cast and prepared for Safety Class 2 applications. The EU and UK versions satisfy the low-voltage guideline as well as the current EU standards for CE conformity. Furthermore, the US version has been UL-certified for the US and Canada.

**A.2.3.2 Scope of supply**


- Wide-range power supply unit for SIMATIC RF systems
- 2 m mains cable (country-specific)
- Protective cover for flange outlet
- Operating Instructions

**A.2.3.3 Ordering data**

Table A- 6 Ordering data for wide-range power supply unit


	Article number
Wide-range power supply unit for SIMATIC RF systems (100 - 240 VAC / 24 VDC / 3 A) with 2 m connecting cable with country-specific plug	EU: 6GT2898-0AA00 UK: 6GT2898-0AA10 US: 6GT2898-0AA20
24 V-connecting cable, length 5 m	6GT2491-1HH50

**A.2.3.4 Safety Information**

<p> <b>WARNING</b></p> <p><b>Danger to life</b></p> <p>It is not permitted to open the device or to modify the device.</p> <p>The following must also be taken into account:</p> <ul style="list-style-type: none"> <li>• Failure to observe this requirement shall constitute a revocation of the CE approval, UL certification for the US and Canada as well as the manufacturer's warranty.</li> <li>• For installation of the power supply, compliance with the DIN/VDE requirements or the country-specific regulations is essential.</li> <li>• The field of application of the power supply unit is limited to "Information technology equipment" within the scope of validity of the EN 60950/VDE 0805 standard.</li> <li>• When the equipment is installed, it must be ensured that the mains socket outlet is freely accessible.</li> <li>• The housing can reach a temperature of +25 °C during operation without any adverse consequences. It must, however, be ensured that the power supply is covered in the case of a housing temperature of more than +25°C to protect persons from contact with the hot housing. Adequate ventilation of the power supply must be maintained under these conditions.</li> </ul>
<p><b>NOTICE</b></p> <p><b>Area of application of the wide-range power supply unit</b></p> <p>The wide-range power supply unit may only be used for SIMATIC products in the specifically described area of application and for the documented purpose.</p>

If the wide-range power supply unit for SIMATIC RF systems is used for an end product other than one from the SIMATIC RF family, the following must be taken into account:

- The electric strength test of the end product is to be based upon a maximum working voltage of: Transition from primary to SELV: 353 VDC, 620 Vpk
- The following secondary output circuits are SELV (low voltage; SELV = Safety Extra Low Voltage): all
- The following secondary output circuits are at non-hazardous energy levels: all
- The power supply terminals and/or connectors are suitable for field wiring if terminals are provided.
- The maximum investigated branch circuit rating is: 20 A
- The investigated pollution degree is: 2

 <b>WARNING</b>
<b>Liability</b> If the wide-range power supply unit for SIMATIC RF systems is connected to an end product other than one from the SIMATIC RF family, the end user is responsible and liable for operation of the system or end product that includes the wide-range power supply unit for SIMATIC RF systems.

<b>NOTICE</b>
<b>Restriction to the approval of the wide-range power supply</b> The SIMATIC RF290R reader may only be operated with power supplies that have received KETI approval. There is currently no KETI approval for the wide-range power supply (6GT2898-0AAx0), which is why it may not be operated in South Korea. To be able to operate the SIMATIC RF290 reader in South Korea, use only a power unit that meets the following requirements: 230 VAC, 24 VDC / 3 A; KC safety approved

### A.2.3.5 Connecting

- There are three different (country-specific) mains cables for the EU, UK and US. The appropriate mains cable must be connected to the primary input of the power supply.

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#### Note

It is only permissible to insert or remove the mains cable when the power supply is de-energized.

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- The wide-range power supply unit has total insulation (Safety Class 2), IP65
- It can be mounted using four fixing holes.

## A.2.3.6 Technical specifications

<b>General technical specifications</b>		
Insulation stability (prim./sec.) $U_{ins\ p/s}$		3.3 kV <sub>AC</sub>
Insulation resistance $R_{ins}$		>1 G $\Omega$
Leakage current $I_{leak}$	$U_{in} = 230\ V_{AC}, f = 50\ Hz$	< 200 $\mu A$
Safety class (SELV)	Designed for installation in devices of Safety Class 2	
Mains buffering $t_h$	$U_{in} = 230\ V_{AC}$	$\geq 50\ ms$
Ambient temperature		-25 °C ... +55 °C
Surface temperature	Module top, center	max. 96 °C
Storage temperature		-40 °C ... +85 °C
Self-heating on full-load		max. 45 K
Interference immunity	EN 61000-4-2, 4-3 to 4-6, 4-11	Air discharge: 15 kV 10 V/m symmetrical: 2 symmetrical: 1 10 V <sub>rms</sub>
ESD		
HF fields		
Burst		
Surge		
HF injection		
Mains quality test		
Cooling		Free convection
Dimensions L x W x H		175 mm x 85 mm x 35 mm
Weight		720 g
Housing / casting		UL 94-V0
Power supply class	according to CSA	Level 3
Degree of protection	IP65	
MTBF in years		255
<b>Technical specifications - input</b>		
Rated input voltage $U_{in}$	EN 60950 / UL 60950	100 to 240 V <sub>AC</sub> 120 to 353 V <sub>DC</sub>
Input frequency $f_{in}$		50/60 Hz
Radio interference level		EN 55011/B
Switching frequency $f_{sw}$		approx. 70 kHz typ.
Length of cable		2 m
<b>Technical specifications - output</b>		
Output voltage tolerance $\Delta U_{out}$	$U_{in} = 230\ V_{AC}$	$U_{out\ nom} \leq +2\ \%/ -1\ \%$
Overvoltage protection		$U_{out\ nom} +20\ \%$ typ.
Noise $\Delta U_{LF}$	$U_{in} = \min., BW: 1\ MHz$	$\leq 1\ \%\ U_{out}$
Noise $\Delta U_{HF}$	$U_{in} = \min., BW: 20\ MHz$	$\leq 2\ \%\ U_{out}$

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**Technical specifications - output**

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Regulation		
• Line regulation	• $U_{in} = \text{min./max.}$	• $\leq 1,0 \%$
• Load regulation	• $I_{out} = 10...90...10 \%$	• $\leq 1,0 \%$
Short-circuit current $I_{max}$	$I_{nom} = 4 \text{ A (+50 °C)}$	105 ... 130 % $I_{nom}$
Settling time $t_R$ load variations	$I_{out} = 10 \dots 90 \dots 10 \%$	< 5 ms
Temperature coefficient $\epsilon$	$T_A = -25 \text{ °C to } +70 \text{ °C}$	0.01 %/K
Overload behavior $P_{over}$		Constant current
Short-circuit protection/ No-load response		Continuous/no-load stability
Derating	$T_A > +50 \text{ °C to } +70 \text{ °C}$	max. 2 %/K
Connector type		M12, 4-pin; two sockets

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**Technical specifications - initial configurations**

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Input	Outputs $U1 = U2$	$I_{Load} = I1 + I2$	Efficiency (%)	Remarks
110 VAC	24 VDC	0 A		No-load stability
110 VAC	24 VDC	3 A	$\geq 88$	
220 VAC	24 VDC	0 A		No-load stability
220 VAC	24 VDC	3 A	$\geq 90$	

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**Technical specifications - standards complied with**

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Designation	Standard	Values
Electrical safety	EN 60950 / UL 60950 / CAN/CSA 22.2 950, 3 Edition	
Conducted interference	EN 61000-6-3 EN 55011	Class B
Emission	EN 61000-6-3 EN 55011	Class B

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All values are measured at full-load and at an ambient temperature of +25 °C (unless specified otherwise).

## A.2.3.7 Pin assignment of DC outputs and mains connection

Table A- 7 Pin assignment for DC outputs

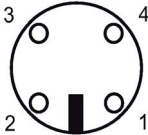
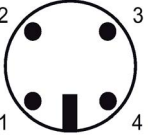
	Assignment
	(1) Ground (0V)
	(2) +24 V DC
	(3) +24 V DC
	(4) Ground (0V)

Table A- 8 Pin assignment mains connector

	Assignment
	(1) 100 to 240 V AC
	(2) n.c.
	(3) 100 to 240 V AC
	(4) n.c.

### A.2.3.8 Dimension drawing

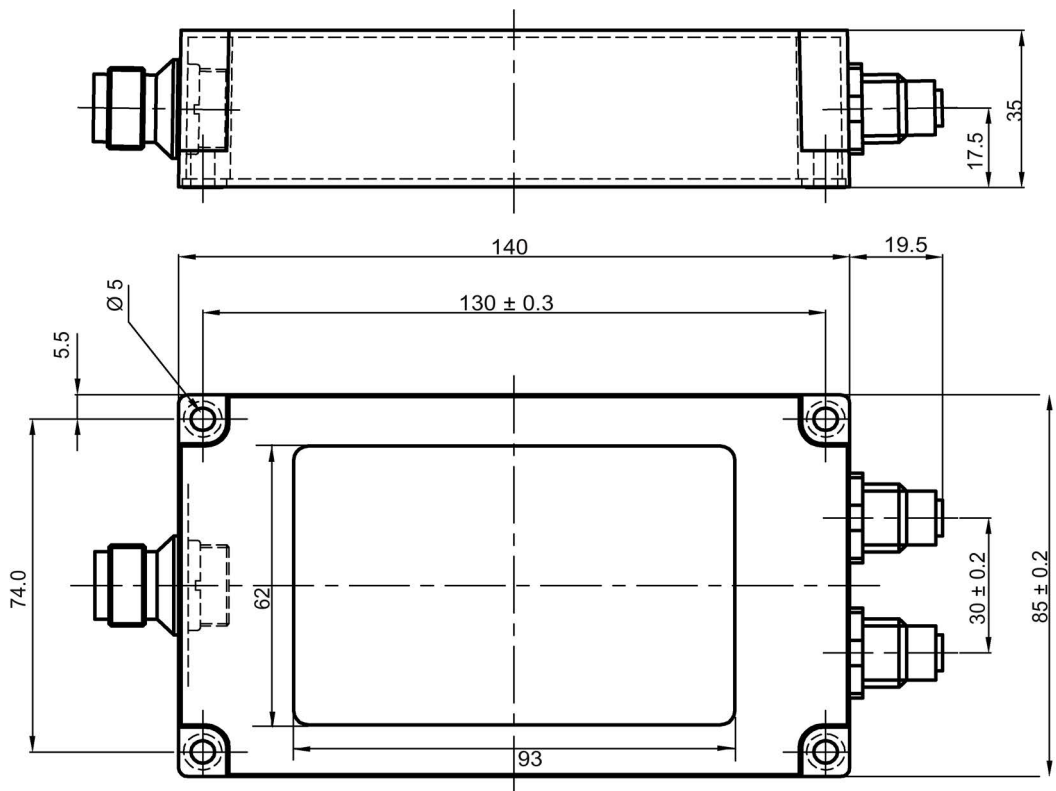


Figure A-6 Dimension drawing wide-range power supply unit for SIMATIC RF systems (all dimensions in mm)

## A.2.3.9 Certificates and approvals

Table A- 9 Wide-range power supply unit for SIMATIC RF systems 6GT2898-0AA00 - Europe, 6GT2898-0AA10 - UK



Certificate	Description
	CE approval to 2004/108/EC EMC 73/23/EEC LVD





Table A- 10 Wide-range power supply unit for SIMATIC RF systems 6GT2898-0AA20 - USA

Standard	
	This product is UL-certified for the US and Canada. It meets the following safety standards: UL 60950-1 - Information Technology Equipment Safety - Part 1: General Requirements CSA C22.2 No. 60950 -1 - Safety of Information Technology Equip- ment UL Report E 205089




## A.2.4 Transponder holders

Table A- 11 Overview of the transponder holders and spacers

Product photo	Usable transponders	Characteristics
 6GT2190-0AA00	<ul style="list-style-type: none"> <li>• MDS D100</li> <li>• MDS D200</li> <li>• MDS D400</li> </ul>	<ul style="list-style-type: none"> <li>• Spacer for mounting on metal, in conjunction with the fixing pocket 6GT2190-0AB00</li> <li>• Distance from transponder to metal: 25 mm</li> <li>• Mounting: 4 x M4 screws</li> <li>• Material: PA6</li> <li>• Weight: 31 g</li> <li>• Dimensions (L x W x H): 110 x 62 x 24 mm</li> </ul>
 6GT2190-0AB00	<ul style="list-style-type: none"> <li>• MDS D100</li> <li>• MDS D200</li> <li>• MDS D400</li> </ul>	<ul style="list-style-type: none"> <li>• Fixing pocket in conjunction with spacer 6GT2190-0AA00</li> <li>• Mounting:               <ul style="list-style-type: none"> <li>– Locks into spacer</li> <li>– 2 x screws/nails</li> <li>– Stapled</li> </ul> </li> <li>• Material: PA6</li> <li>• Weight: 12 g</li> <li>• Dimensions (L x W x H): 121 x 57 x 5 mm</li> </ul>
 6GT2390-0AA00	<ul style="list-style-type: none"> <li>• MDS D100</li> <li>• MDS D200</li> <li>• MDS D400</li> </ul>	<ul style="list-style-type: none"> <li>• Fixing pocket not suitable for mounting directly on metal</li> <li>• Mounting: 2 x M4 countersunk screws</li> <li>• Material: PA6</li> <li>• Weight: 21 g</li> <li>• Dimensions (L x W x H): 110 x 65 x 5 mm</li> </ul>
 6GT2690-0AA00	<ul style="list-style-type: none"> <li>• MDS D139</li> <li>• MDS D339</li> </ul>	<ul style="list-style-type: none"> <li>• Spacer for mounting on metal</li> <li>• Distance from transponder to metal: 30 mm</li> <li>• Mounting: 1 x M5 stainless steel screw</li> <li>• Tightening torque: 1.5 Nm</li> <li>• Material: PPS</li> <li>• Weight: 50 g</li> <li>• Dimensions (Ø x H): 85 x 30 mm</li> </ul>

Product photo	Usable transponders	Characteristics
 <p>6GT2690-0AH00</p>	<ul style="list-style-type: none"> <li>• MDS D139</li> <li>• MDS D339</li> </ul>	<ul style="list-style-type: none"> <li>• Quick change holder for mounting on metal</li> <li>• Distance from transponder to metal: 30 mm</li> <li>• Mounting: Screw-in</li> <li>• Material: Stainless steel VA</li> <li>• Weight: 80 g</li> <li>• Dimensions (Ø x H): 22 x 60 mm</li> </ul>
 <p>6GT2690-0AH10</p>	<ul style="list-style-type: none"> <li>• MDS D139</li> <li>• MDS D339</li> </ul>	<ul style="list-style-type: none"> <li>• Quick change holder for mounting on metal</li> <li>• Distance from transponder to metal: 30 mm</li> <li>• Mounting: Screw-in</li> <li>• Material: Stainless steel VA</li> <li>• Weight: 60 g</li> <li>• Dimensions (Ø x H): 22 x 47 mm</li> </ul>
 <p>6GT2690-0AK00</p>	<ul style="list-style-type: none"> <li>• MDS D124</li> <li>• MDS D324</li> <li>• MDS D424</li> <li>• MDS D524</li> </ul>	<ul style="list-style-type: none"> <li>• Spacer for mounting on metal</li> <li>• Distance from transponder to metal: 15 mm</li> <li>• Mounting: 1 x M4 countersunk screw</li> <li>• Tightening torque: ≤ 1 Nm</li> <li>• Material: PPS</li> <li>• Weight: Approx. 4 g</li> <li>• Remounting cycles: at least 10</li> <li>• Dimensions (Ø x H): 36 x 22 mm</li> </ul>
 <p>6GT2690-0AL00</p>	<ul style="list-style-type: none"> <li>• MDS D126</li> <li>• MDS D426</li> <li>• MDS D526</li> </ul>	<ul style="list-style-type: none"> <li>• Spacer for mounting on metal</li> <li>• Distance from transponder to metal: 25 mm</li> <li>• Mounting: 1 x M4 countersunk screw</li> <li>• Tightening torque: ≤ 1 Nm</li> <li>• Material: PA6</li> <li>• Weight: Approx. 12 g</li> <li>• Remounting cycles: at least 10</li> <li>• Dimensions (Ø x H): 59 x 30 mm</li> </ul>

Product photo	Usable transponders	Characteristics
 <p>6GT2690-0AG00</p>	<ul style="list-style-type: none"> <li>• MDS D160</li> <li>• MDS D460</li> </ul>	<ul style="list-style-type: none"> <li>• Spacer for mounting on metal</li> <li>• Distance from transponder to metal: 10 mm</li> <li>• Mounting: 1 x M3 countersunk screw</li> <li>• Material: PA6</li> <li>• Weight: 2 g</li> <li>• Dimensions (Ø x H): 20 x 14 mm</li> </ul>

**Dimensional drawings**

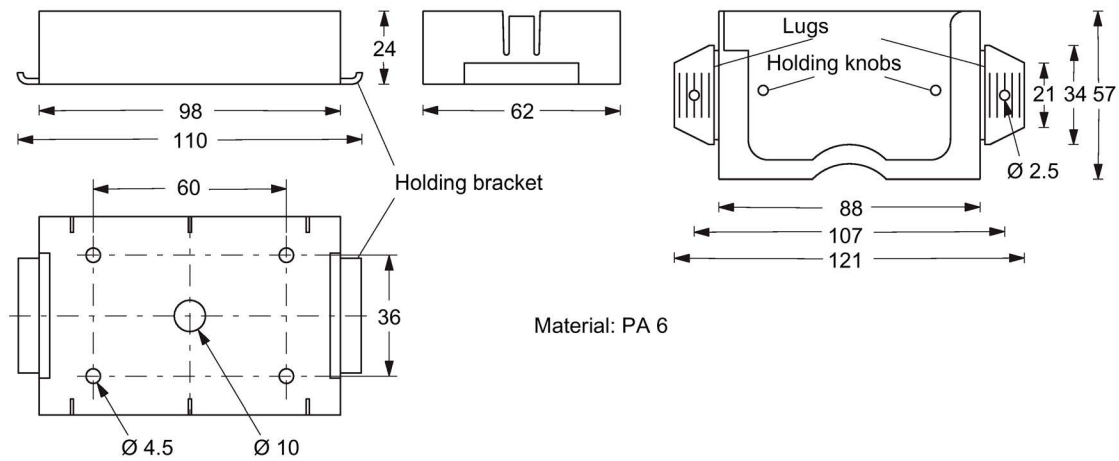


Figure A-7 Dimension drawing of spacer 6GT2190-0AA00 with fixing pocket 6GT2190-0AB00

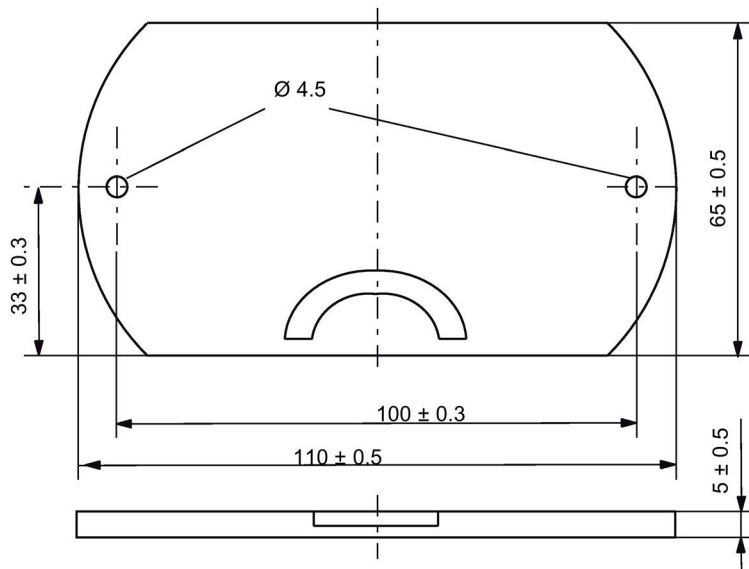


Figure A-8 Dimension drawing of fixing pocket 6GT2390-0AA00

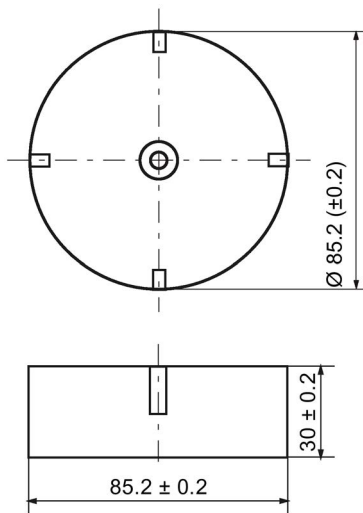


Figure A-9 Dimension drawing of spacer 6GT2690-0AA00

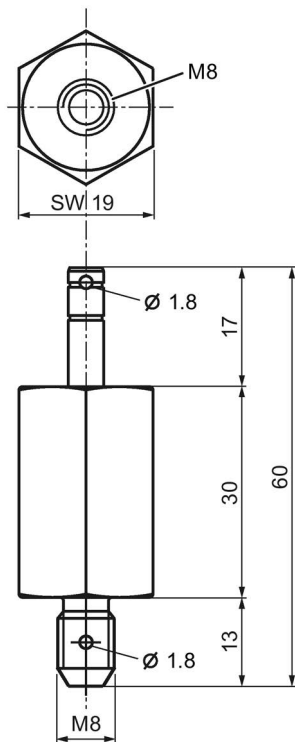


Figure A-10 Dimension drawing of quick change holder 6GT2690-0AH00

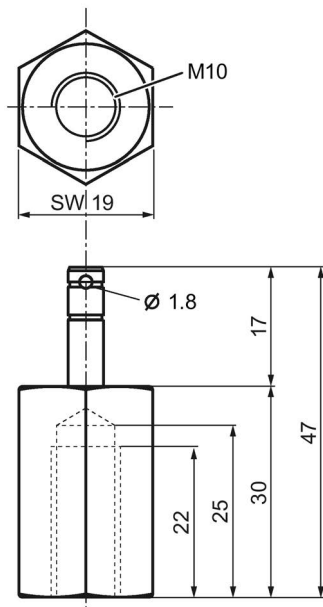


Figure A-11 Dimension drawing of quick change holder 6GT2690-0AH10

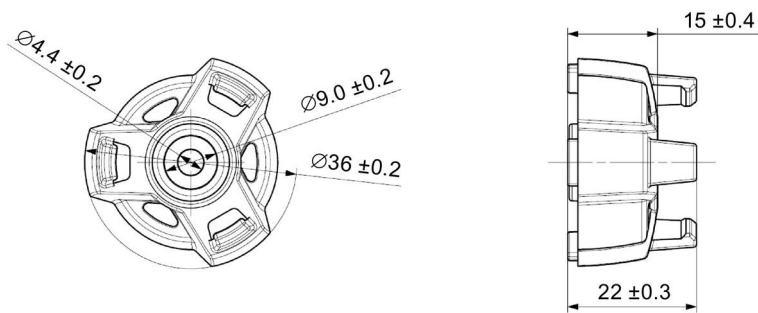


Figure A-12 Dimension drawing of spacer 6GT2690-0AK00

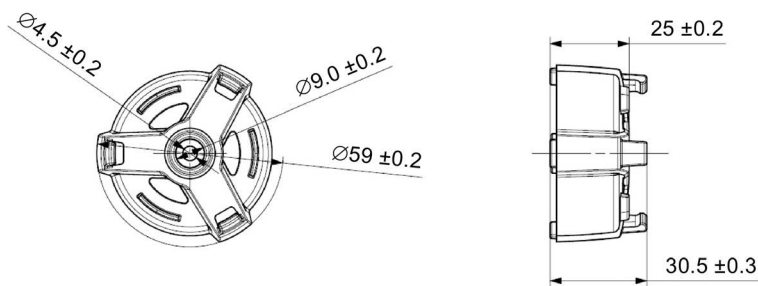


Figure A-13 Dimension drawing of spacer 6GT2690-0AL00

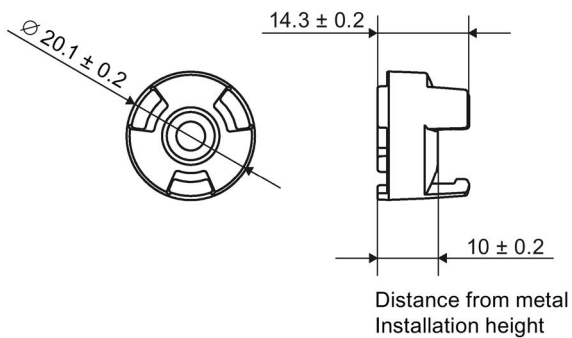


Figure A-14 Dimension drawing of spacer 6GT2690-0AG00

## A.3 Connecting cable

### A.3.1 Reader RF2xxR (RS-422) with ASM 456 / RF160C / RF170C / RF180C / RF182C

#### Connecting cable with straight connector

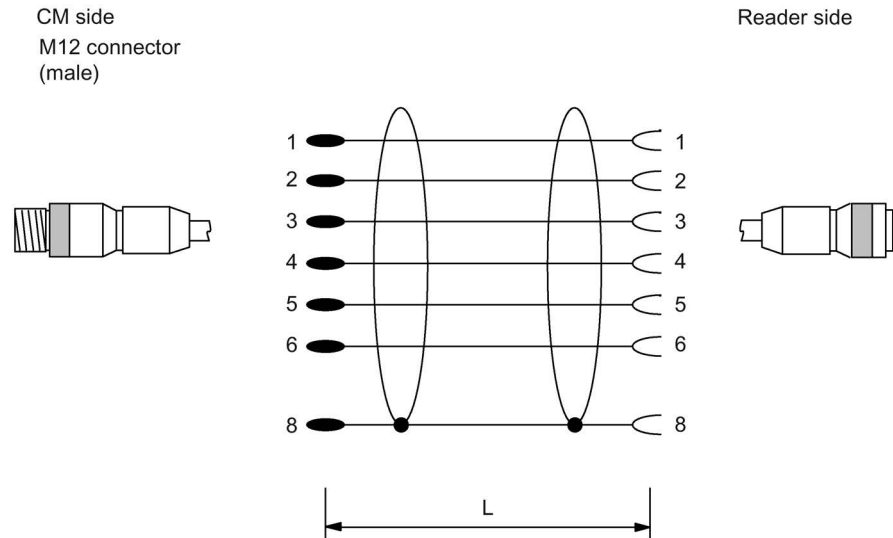


Figure A-15 Connecting cable between ASM 456, RF160C, RF170C, RF180C, RF182C and reader RF2xxR (RS-422)

Table A- 12 Ordering data

Length L	Article number
2 m	6GT2891-4FH20
5 m	6GT2891-4FH50
10 m	6GT2891-4FN10
20 m	6GT2891-4FN20
50 m	6GT2891-4FN50

Connecting cable with angled connector

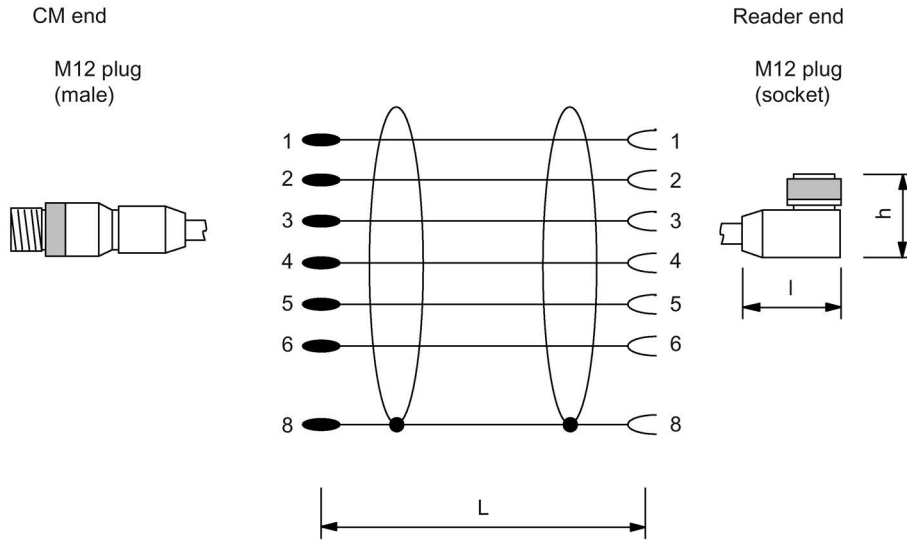


Figure A-16 Connecting cable between ASM 456, RF160C, RF170C, RF180C and RF2xxR reader (RS-422) with angled connector

Table A- 13 Ordering data

Length L	Article number
2 m	6GT2891-4JH20
5 m	6GT2891-4JH50
10 m	6GT2891-4JN10

The angled connector has a height of  $h = 29$  mm and a length of  $l = 38$  mm. Remember that due to the construction, the distance between the edge of the connector and the edge of the reader housing ( $H$ ) is higher.

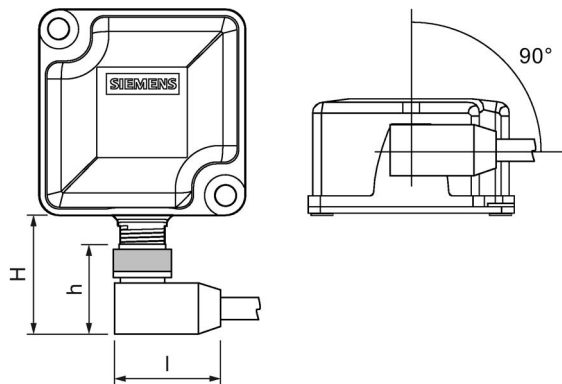


Figure A-17 Distance between connector edge and housing edge

The distance between the edge of the connector and the edge of the reader housing ( $H$ ) is as follows: RF210R/RF220R = 33 mm, RF240R/RF260R = 36 mm and RF290R = 37 mm. If you look at the reader from below, the angled connector points  $90^\circ$  to the right. With the RF290R reader the angle is approximately  $135^\circ$ .



## A.3.2 Reader RF2xxR (RS-422) with ASM 475

### Reader connection system

The connecting cable has a length of 2 m (standard) and 5 m. Extensions up to 1000 m are possible with the 6GT2891-4F... plug-in cables.

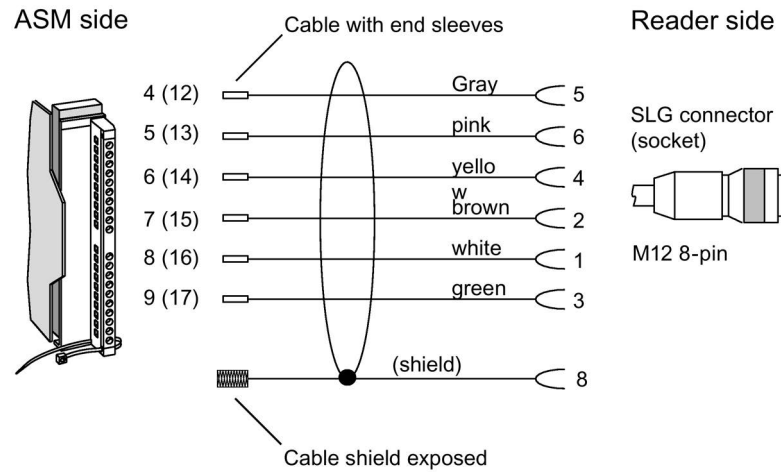


Figure A-18 Connecting cable between the ASM 475 and RF2xx reader (RS-422)

Table A- 14 Ordering data

Length L	Article number
2 m	6GT2891-4EH20
5 m	6GT2891-4EH50

### A.3.3 Reader RF2xxR (RS-422) with RF120C

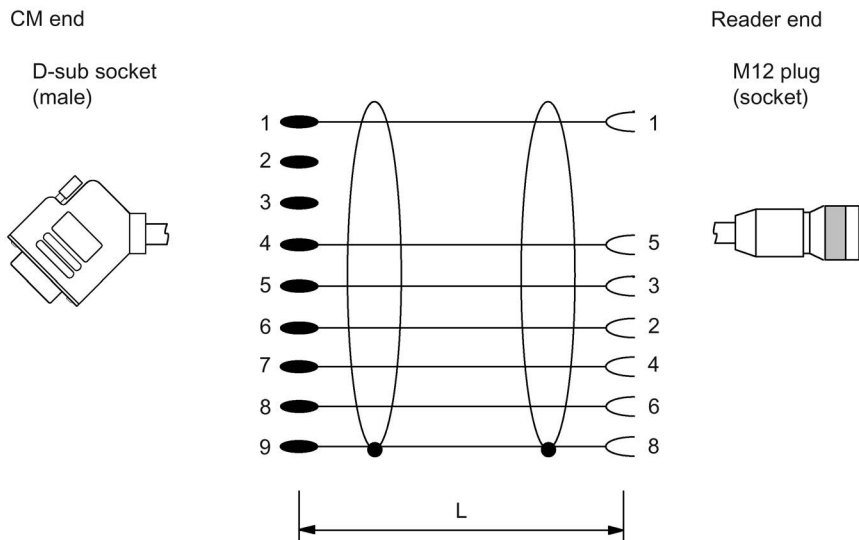


Figure A-19 Connecting cable between RF120C and RF2xxR reader (RS-422)

Table A- 15 Ordering data

Length L	Article number
2 m	6GT2091-4LH20
5 m	6GT2091-4LH50
10 m	6GT2091-4LN10

### A.3.4 Reader RF240R/RF260R/RF290R (RS232) with PC

The connecting cables have a length of 5 m. The outgoing cable for the power supply has a length of 0.5 m.

### With 4-pin power supply connector

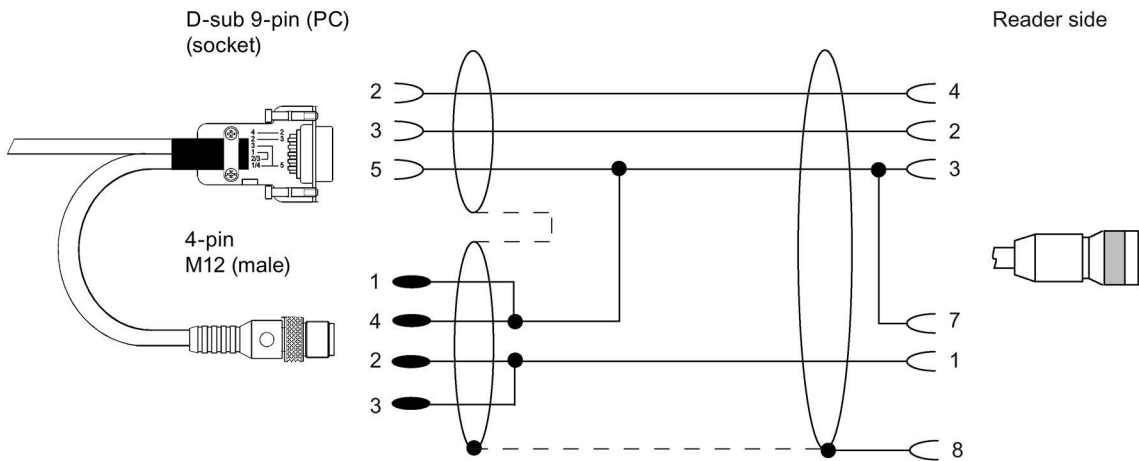


Figure A-20 Connecting cable between PC and RF240R/RF260R/RF290R (RS-232) with 4-pin power supply connector

Suitable power supply unit: e.g. wide-range power supply unit

### With open ends for the power supply

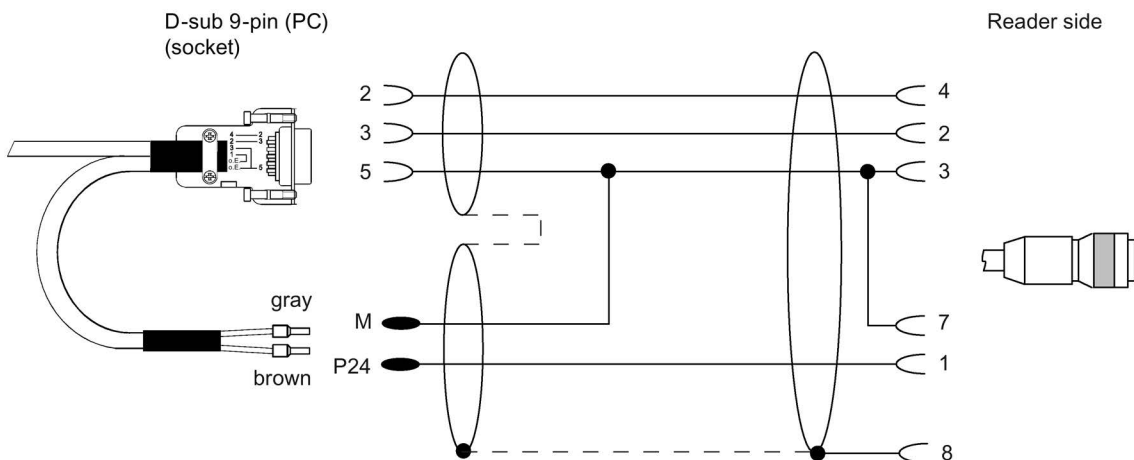


Figure A-21 Connecting cable between PC and RF240R/RF260R/RF290R (RS-232) with open ends for the power supply

Table A- 16 Ordering data connecting cable

	Article number
Connecting cable RS-232 with M12 male connector (4-pin), 5 m	6GT2891-4KH50
Connecting cable RS-232 with open ends (5 m)	6GT2891-4KH50-0AX0

### A.3.5 Reader RF290R

#### Antenna connecting cable

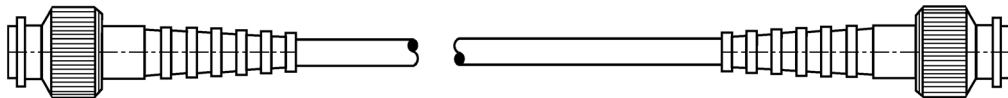


Figure A-22 ANT cable ↔ ANT Dx (3.3 m / 10.5 m)

Table A- 17 Ordering data

Length L	Article number
3.3 m	6GT2691-0CH33
10.5 m	6GT2691-0CN10

#### Antenna extension cable

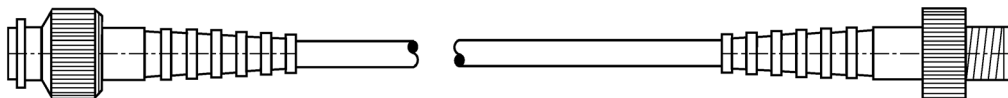


Figure A-23 Antenna extension cable (7.2 m)

Table A- 18 Ordering data

Length L	Article number
7.2 m	6GT2691-0DH72

## A.4 Ordering data

### RF200 components

Table A- 19 RF200 reader

Readers	Description	Article number
<b>RF210R</b>	<ul style="list-style-type: none"> <li>• With RS-422 interface (3964R)</li> <li>• IP67</li> <li>• Operating temperature: -25 °C ... +70 °C</li> <li>• Dimensions (L x Ø): 83 x 18 mm</li> <li>• with integrated antenna</li> </ul>	6GT2821-1AC10
<b>RF210M</b>	<ul style="list-style-type: none"> <li>• With RS-422 interface (3964R)</li> <li>• IP54</li> <li>• Operating temperature: -20 °C ... +50 °C</li> <li>• Dimensions with handle (L x W x H) 195 x 26 x 140 mm</li> <li>• with integrated antenna</li> </ul>	6GT2823-0AA00
<b>RF220R</b>	<ul style="list-style-type: none"> <li>• With RS-422 interface (3964R)</li> <li>• IP67</li> <li>• Operating temperature: -25 °C ... +70 °C</li> <li>• Dimensions (L x Ø): 83 x 30 mm</li> <li>• with integrated antenna</li> </ul>	6GT2821-2AC10
<b>RF240R</b>	<ul style="list-style-type: none"> <li>• With RS-422 interface (3964R)</li> <li>• IP67</li> <li>• Operating temperature: -20 °C ... +70 °C</li> <li>• Dimensions (L x W x H): 50 x 50 x 30 mm</li> <li>• with integrated antenna</li> </ul>	6GT2821-4AC10
<b>RF240R</b>	<ul style="list-style-type: none"> <li>• With RS-232 interface (3964R)</li> <li>• IP67</li> <li>• Operating temperature: -20 °C ... +70 °C</li> <li>• Dimensions (L x W x H): 50 x 50 x 30 mm</li> <li>• with integrated antenna</li> </ul>	6GT2821-4AC11
<b>RF240R</b>	<ul style="list-style-type: none"> <li>• With RS-232 interface (ASCII)</li> <li>• IP67</li> <li>• Operating temperature: -20 °C ... +70 °C</li> <li>• Dimensions (L x W x H): 50 x 50 x 30 mm</li> <li>• with integrated antenna</li> </ul>	6GT2821-4AC40

Readers	Description	Article number
RF250R	<ul style="list-style-type: none"> <li>• With RS-422 interface (3964R)</li> <li>• IP67</li> <li>• Operating temperature: -20 °C ... +70 °C</li> <li>• Dimensions (L x W x H): 50 x 50 x 30 mm</li> <li>• Reader with connections for external antennas ANT 8, ANT 12, ANT 18, ANT 30</li> </ul>	6GT2821-5AC10
RF250R	<ul style="list-style-type: none"> <li>• With RS-232 interface (ASCII)</li> <li>• IP67</li> <li>• Operating temperature: -20 °C ... +70 °C</li> <li>• Dimensions (L x W x H): 50 x 50 x 30 mm</li> <li>• Reader with connections for external antennas ANT 8, ANT 12, ANT 18, ANT 30</li> </ul>	6GT2821-5AC40
RF260R	<ul style="list-style-type: none"> <li>• With RS-422 interface (3964R)</li> <li>• IP67</li> <li>• Operating temperature: -20 °C ... +70 °C</li> <li>• Dimensions (L x W x H): 75 x 75 x 41 mm</li> <li>• with integrated antenna</li> </ul>	6GT2821-6AC10
RF260R	<ul style="list-style-type: none"> <li>• With RS-232 interface (3964R)</li> <li>• IP67</li> <li>• Operating temperature: -20 °C ... +70 °C</li> <li>• Dimensions (L x W x H): 75 x 75 x 41 mm</li> <li>• with integrated antenna</li> </ul>	6GT2821-6AC11
RF260R	<ul style="list-style-type: none"> <li>• With RS-232 interface (ASCII)</li> <li>• IP67</li> <li>• Operating temperature: -20 °C ... +70 °C</li> <li>• Dimensions (L x W x H): 75 x 75 x 41 mm</li> <li>• with integrated antenna</li> </ul>	6GT2821-6AC40
RF280R	<ul style="list-style-type: none"> <li>• With RS-422 interface (3964R)</li> <li>• IP67</li> <li>• Operating temperature: -25 ... +70 °C</li> <li>• Dimensions (L x W x H): 160 x 80 x 41 mm</li> <li>• with integrated antenna</li> </ul>	6GT2821-8AC10
RF280R	<ul style="list-style-type: none"> <li>• With RS-232 interface (ASCII)</li> <li>• IP67</li> <li>• Operating temperature: -25 ... +70 °C</li> <li>• Dimensions (L x W x H): 160 x 80 x 41 mm</li> <li>• with integrated antenna</li> </ul>	6GT2821-8AC40

Readers	Description	Article number
<b>RF290R</b>	<ul style="list-style-type: none"> <li>• With RS-232 interface (Advanced protocol) and RS-422 interface (3964R)</li> <li>• IP65</li> <li>• Operating temperature: -20 °C ... +55 °C</li> <li>• Dimensions (L x W x H): 200 x 140 x 80 mm</li> <li>• Long-range reader with the option of connecting external antennas ANT D5, ANT D6, ANT D10</li> </ul>	6GT2821-0AC12
<b>RF310M</b>	<ul style="list-style-type: none"> <li>• IP65</li> <li>• Operating temperature: -20 °C ... +50 °C</li> <li>• Dimensions (L x W x H): 277 x 100 x 44 mm</li> <li>• Mobile reader with integrated antenna</li> </ul>	6GT2803-1AC00
<b>RF310M</b>	<ul style="list-style-type: none"> <li>• IP65</li> <li>• Operating temperature: -20 °C ... +50 °C</li> <li>• Dimensions (L x W x H): 277 x 100 x 44 mm</li> <li>• Mobile reader with connections for external antennas ANT 8, ANT 12, ANT 18, ANT 30</li> </ul>	6GT2803-1AC10

Table A- 20 ISO transponder

ISO transponder	Description	Article number
<b>MDS D100</b>	<ul style="list-style-type: none"> <li>• IP68</li> <li>• Memory size: 112 bytes of EEPROM user memory</li> <li>• Operating temperature: -25 °C ... +80 °C</li> <li>• Dimensions (L x W x H): 85.6 x 54 x 0.9 mm</li> <li>• Credit card format</li> </ul>	6GT2600-0AD10
<b>MDS D117</b>	<ul style="list-style-type: none"> <li>• IP68</li> <li>• Memory size: 112 bytes of EEPROM user memory</li> <li>• Operating temperature: -25 °C ... +85 °C</li> <li>• Dimensions (Ø x H): 4 x 5 mm</li> </ul>	6GT2600-0AG00
<b>MDS D124</b>	<ul style="list-style-type: none"> <li>• IP68; IPx9K</li> <li>• Memory size: 112 bytes of EEPROM user memory</li> <li>• Operating temperature: -25 °C ... +180 °C</li> <li>• Dimensions (Ø x H): 27 (±0.2) x 4 (±0.2) mm</li> </ul>	6GT2600-0AC10
<b>MDS D126</b>	<ul style="list-style-type: none"> <li>• IP68</li> <li>• Memory size: 112 bytes of EEPROM user memory</li> <li>• Operating temperature: -25 °C ... +85 °C</li> <li>• Dimensions (Ø x H): 50 x 3.6 mm</li> <li>• Round design with mounting hole</li> </ul>	6GT2600-0AE00

ISO transponder	Description	Article number
<b>MDS D127</b>	<ul style="list-style-type: none"> <li>• IP68; IPx9K</li> <li>• Memory size: 112 bytes of EEPROM user memory</li> <li>• Operating temperature: -25 °C ... +125 °C</li> <li>• Dimensions (Ø x H): M6 x 5 (±0.2) mm</li> </ul>	6GT2600-0AF00
<b>MDS D139</b>	<ul style="list-style-type: none"> <li>• IP68; IPx9K</li> <li>• Memory size: 112 bytes of EEPROM user memory</li> <li>• Operating temperature: up to +200 °C / +220 °C</li> <li>• Dimensions (Ø x H): 85 (±0.5) x 15 (-1.0) mm</li> </ul>	6GT2600-0AA10
<b>MDS D160</b>	<ul style="list-style-type: none"> <li>• IP68; IPx9K</li> <li>• Memory size: 112 bytes of EEPROM user memory</li> <li>• Operating temperature: -25 °C...+70 °C</li> <li>• Dimensions (Ø x H): 16 (±0.2) x 3.0 (±0.2) mm</li> <li>• Laundry tag for cyclic applications</li> </ul>	6GT2600-0AB10
<b>MDS D165</b>	<ul style="list-style-type: none"> <li>• IP65</li> <li>• Memory size: 112 bytes of EEPROM user memory</li> <li>• Operating temperature: -25 °C ... +85 °C</li> <li>• Dimensions (L x W): 86 x 54 mm</li> <li>• Smartlabel (PET) in credit card format</li> </ul>	6GT2600-1AB00-0AX0
<b>MDS D200</b>	<ul style="list-style-type: none"> <li>• IP67</li> <li>• Memory size: 256 bytes of EEPROM user memory</li> <li>• Operating temperature: -20 °C ... +60 °C</li> <li>• Dimensions (L x W x H): 86 x 54 x 0.8 mm</li> <li>• Credit card format</li> </ul>	6GT2600-1AD00-0AX0
<b>MDS D261</b>	<ul style="list-style-type: none"> <li>• IP65</li> <li>• Memory size: 256 bytes of EEPROM user memory</li> <li>• Operating temperature: -25 °C ... +85 °C</li> <li>• Dimensions (L x W): 55 x 55 mm</li> <li>• Smartlabel (PET), small design</li> </ul>	6GT2600-1AA00-0AX0
<b>MDS D324</b>	<ul style="list-style-type: none"> <li>• IP67; IPx9K</li> <li>• Memory size: 992 bytes of EEPROM user memory</li> <li>• Operating temperature: -25 °C ... +125 °C</li> <li>• Dimensions (Ø x H): 27 (±0.2) x 4 (±0.2) mm</li> </ul>	6GT2600-3AC00
<b>MDS D339</b>	<ul style="list-style-type: none"> <li>• IP68; IPx9K</li> <li>• Memory size: 992 bytes of EEPROM user memory</li> <li>• Operating temperature: -25 °C ... +220 °C</li> <li>• Dimensions (Ø x H): 85 (±0.5) x 15 (-1.0) mm</li> </ul>	6GT2600-3AA10



ISO transponder	Description	Article number
<b>MDS D400</b>	<ul style="list-style-type: none"> <li>• IP67</li> <li>• Memory size: 2000 bytes of FRAM user memory</li> <li>• Operating temperature: -25 °C ... +60 °C</li> <li>• Dimensions (L x W x H) 85.6 (±0.3) × 54 (±0.2) × 0.8 (±0.05) mm</li> </ul>	6GT2600-4AD00
<b>MDS D421</b>	<ul style="list-style-type: none"> <li>• IP67; IPx9K</li> <li>• Memory size: 2000 bytes of FRAM user memory</li> <li>• Operating temperature -25 °C ... +85 °C</li> <li>• Dimensions (Ø x H): 10 x 4.5 mm</li> </ul>	6GT2600-4AE00
<b>MDS D422</b>	<ul style="list-style-type: none"> <li>• IP68</li> <li>• Memory size: 2000 bytes of FRAM user memory</li> <li>• Operating temperature: -25 °C ... +85 °C</li> <li>• Dimensions (Ø x H): M20 x 6 (±0.2) mm</li> <li>• Can be screwed into metal (flush-mounted)</li> </ul>	6GT2600-4AF00
<b>MDS D423</b>	<ul style="list-style-type: none"> <li>• IP68; IPx9K</li> <li>• Memory size: 2000 bytes of FRAM user memory</li> <li>• Operating temperature: -25 °C ... +85 °C</li> <li>• Dimensions (Ø x H): 30 (+0.2/-0.5) x 8 (-0.5) mm</li> </ul>	6GT2600-4AA00
<b>MDS D424</b>	<ul style="list-style-type: none"> <li>• IP67; IPx9K</li> <li>• Memory size: 2000 bytes of FRAM user memory</li> <li>• Operating temperature: -25 °C ... +125 °C</li> <li>• Dimensions (Ø x H): 27 (±0.2) x 4 (±0.2) mm</li> </ul>	6GT2600-4AC00
<b>MDS D425</b>	<ul style="list-style-type: none"> <li>• IP68; IPx9K</li> <li>• Memory size: 2000 bytes of FRAM user memory</li> <li>• Operating temperature: -25 °C ... +85 °C</li> <li>• Dimensions (Ø x H): 24 X 10 mm; M6 thread</li> <li>• Screw transponder</li> </ul>	6GT2600-4AG00
<b>MDS D426</b>	<ul style="list-style-type: none"> <li>• IP68</li> <li>• Memory size: 2000 bytes of FRAM user memory</li> <li>• Operating temperature: -25 °C ... +85 °C</li> <li>• Dimensions (Ø x H): 50 x 3.6 mm</li> <li>• Round design with mounting hole</li> </ul>	6GT2600-4AH00
<b>MDS D428</b>	<ul style="list-style-type: none"> <li>• IP68; IPx9K</li> <li>• Memory size: 2000 bytes of FRAM user memory</li> <li>• Operating temperature: -25 °C ... +85 °C</li> <li>• Dimensions (Ø x H): 18(±1) x 20(±1) mm (without thread); thread M8</li> </ul>	6GT2600-4AK00-0AX0

ISO transponder	Description	Article number
<b>MDS D460</b>	<ul style="list-style-type: none"> <li>• IP67; IPx9K</li> <li>• Memory size: 2000 bytes of FRAM user memory</li> <li>• Operating temperature: -25 °C ... +85 °C</li> <li>• Dimensions (Ø x H): 16 (±0.2) x 3.0 (±0.2) mm</li> </ul>	6GT2600-4AB00
<b>MDS D521</b>	<ul style="list-style-type: none"> <li>• IP67; IPx9K</li> <li>• Memory size: 8192 bytes of FRAM user memory</li> <li>• Operating temperature -25 °C ... +85 °C</li> <li>• Dimensions (Ø x H): 10 x 4.5 mm</li> </ul>	6GT2600-5AE00
<b>MDS D522</b>	<ul style="list-style-type: none"> <li>• IP68</li> <li>• Memory size: 8192 bytes of FRAM user memory</li> <li>• Operating temperature: -25 °C ... +85 °C</li> <li>• Dimensions (Ø x H): M20 x 6 (±0.2) mm</li> <li>• Can be screwed into metal (flush-mounted)</li> </ul>	6GT2600-5AF00
<b>MDS D522 Special variants</b>	<ul style="list-style-type: none"> <li>• IP68</li> <li>• Memory size: 8192 bytes of FRAM user memory</li> <li>• Operating temperature: -25 °C ... +85 °C</li> <li>• Dimensions (Ø x H): 18 (+0.1) x 5.2 mm</li> <li>• Can be clipped into metal (flush-mounted)</li> </ul>	6GT2600-5AF00-0AX0
<b>MDS D524</b>	<ul style="list-style-type: none"> <li>• IP67</li> <li>• Memory size: 8192 bytes of FRAM user memory</li> <li>• Operating temperature: -25 °C ... +85 °C</li> <li>• Dimensions (Ø x H): 27 (±0.2) x 4 (±0.2) mm</li> </ul>	6GT2600-5AC00
<b>MDS D526</b>	<ul style="list-style-type: none"> <li>• IP67; IPx9K</li> <li>• Memory size: 8192 bytes of FRAM user memory</li> <li>• Operating temperature: -25 °C ... +85 °C</li> <li>• Dimensions (Ø x H): 50 x 3.6 mm</li> <li>• Round design with mounting hole</li> </ul>	6GT2600-4AH00
<b>MDS D528</b>	<ul style="list-style-type: none"> <li>• IP68; IPx9K</li> <li>• Memory size: 8192 bytes of FRAM user memory</li> <li>• Operating temperature: -25 °C ... +85 °C</li> <li>• Dimensions (Ø x H): 18(±1) x 20(±1) mm (without thread); thread M8</li> </ul>	6GT2600-5AK00

Table A- 21 Communication modules/interface modules

ASM/ communications module	Description	Article number
<b>ASM 456</b>	ASM 456 for PROFIBUS DP-V1 max. 2 readers connectable	6GT2002-0ED00
<b>ASM 475</b>	ASM 475 for SIMATIC S7 max. 2 RF2xxR readers with RS-422 can be connected in parallel without a front connector	6GT2002-0GA10
<b>RF120C</b>	Communications module RF120C for SIMATIC S7-1200	6GT2002-0LA00
<b>RF160C</b>	Communications module RF160C for PROFIBUS DP V0 max. 2 readers connectable	6GT2002-0EF00
<b>RF170C</b>	RF170C communications module	6GT2002-0HD00
	RF170C connecting block	6GT2002-1HD00
<b>RF180C</b>	RF180C communications module max. 2 SLGs or readers can be connected	6GT2002-0JD00
	Connecting block M12, 7/8" (5-pin)	6GT2002-1JD00
	Connecting block M12, 7/8" (4-pin)	6GT2002-4JD00
	Push-pull connecting block, RJ-45	6GT2002-2JD00
<b>RF182C</b>	RF182C communication module Max. 2 SLGs or readers can be connected	6GT2002-0JD10
	Connecting block M12, 7/8" (5-pin)	6GT2002-1JD00
	Connecting block M12, 7/8" (4-pin)	6GT2002-4JD00
	Push-pull connecting block, RJ-45	6GT2002-2JD00
<b>RFID 181EIP</b>	RF182C communications module max. 2 SLGs or readers can be connected	6GT2002-0JD20
	Connecting block M12, 7/8" (5-pin)	6GT2002-1JD00
	Connecting block M12, 7/8" (4-pin)	6GT2002-4JD00
	Push-pull connecting block, RJ-45	6GT2002-2JD00

Table A- 22 Antennas

Antennas	Description	Article number
<b>ANT 3</b>	<ul style="list-style-type: none"> <li>• IP67</li> <li>• Operating temperature: -25 °C ... +70 °C</li> <li>• Dimensions (L x W x H): 50 x 28 x 10 mm</li> <li>• without antenna connecting cable</li> </ul>	6GT2398-1CD30-0AX0
	<ul style="list-style-type: none"> <li>• incl. one plug-in antenna connecting cable 3 m</li> </ul>	6GT2398-1CD40-0AX0
<b>ANT 8</b>	<ul style="list-style-type: none"> <li>• IP67</li> <li>• Operating temperature: -25 °C ... +70 °C</li> <li>• Dimensions (Ø x L): M8 x 40 mm</li> <li>• without antenna connecting cable</li> </ul>	6GT2398-1CF00
	<ul style="list-style-type: none"> <li>• incl. one plug-in antenna connecting cable 3 m</li> </ul>	6GT2398-1CF10

Antennas	Description	Article number
ANT 12	<ul style="list-style-type: none"> <li>IP67</li> <li>Operating temperature: -25 °C ... +70 °C</li> <li>Dimensions (Ø x L): M12 x 40 mm</li> <li>incl. one integrated antenna connecting cable 0.6 m</li> </ul>	6GT2398-1CC10
	<ul style="list-style-type: none"> <li>incl. one plug-in antenna connecting cable 3 m</li> </ul>	6GT2398-1CC00
ANT 18	<ul style="list-style-type: none"> <li>IP67 (front)</li> <li>Operating temperature: -25 °C ... +70 °C</li> <li>Dimensions (Ø x L): M18 x 55 mm</li> <li>incl. one integrated antenna connecting cable 0.6 m</li> </ul>	6GT2398-1CA10
	<ul style="list-style-type: none"> <li>incl. one plug-in antenna connecting cable 3 m</li> </ul>	6GT2398-1CA00
ANT 30	<ul style="list-style-type: none"> <li>IP67</li> <li>Operating temperature: -25 °C ... +70 °C</li> <li>Dimensions (Ø x L): M30 x 58 mm</li> <li>incl. one plug-in antenna connecting cable 3 m</li> </ul>	6GT2398-1CD00
ANT D5	<ul style="list-style-type: none"> <li>IP65</li> <li>Operating temperature: -20 °C ... +55 °C</li> <li>Dimensions (L x W x H): 380 x 380 x 110 mm</li> <li>incl. one antenna connecting cable 3.3 m</li> </ul>	6GT2698-5AA10
ANT D6	<ul style="list-style-type: none"> <li>IP65</li> <li>Operating temperature: -20 °C ... +55 °C</li> <li>Dimensions (L x W x H): 580 x 480 x 110 mm</li> <li>incl. one antenna connecting cable 3.3 m</li> </ul>	6GT2698-5AB00
ANT D10	<ul style="list-style-type: none"> <li>IP65</li> <li>Operating temperature: -20 °C ... +55 °C</li> <li>Dimensions (L x W x H): 1150 x 365 x 115 mm</li> <li>incl. one antenna connecting cable 3.3 m</li> </ul>	6GT2698-5AF00

## Accessories

Table A- 23 Reader accessories

Readers	Accessories	Article number
RF290R	Adapter for mounting on a DIN rail (pack of 3)	6GK5798-8ML00-0AB3

Table A- 24 ISO transponder accessories

Transponder	Accessories	Article number
MDS D100 / D200 / D400	Spacer	6GT2190-0AA00
	Fixing pocket	6GT2190-0AB00
	Securing pocket (cannot be mounted directly on metal)	6GT2390-0AA00
MDS D139 / D339	Spacer (Ø x H): 85 x 30 mm	6GT2690-0AA00
	Quick change holder (Ø x H): 22 x 48 mm	6GT2690-0AH00
MDS D124 / D324 / D424 / D524	Spacer (Ø x H): 35 x 15 mm	6GT2690-0AK00
MDS D126 / D426 / D526	Spacer (Ø x H): 60 x 30 mm	6GT2690-0AL00
MDS D160 / D460	Spacer (Ø x H): 20 x 15 mm	6GT2690-0AG00

Table A- 25 Antenna accessories

Antennas	Accessories	Article number	
ANT 3 / ANT 8	Antenna connecting cable with M8 plug (with angled plug)	6GT2391-0AH30	
ANT D5 / ANT D6 / ANT D10	Antenna splitter (incl. one antenna connecting cable 3.3 m)	6GT2690-0AC00	
	Antenna multiplexer SIMATIC RF260X (incl. one antenna connecting cable 0.4 m)	6GT2894-0EA00	
	Antenna cable	3.3 m	6GT2691-0CH33
		10.5 m	6GT2691-0CN10
	Antenna cable extension	7.2 m	6GT2691-0DH72
ANT D6	Cover	6GT2690-0AD00	

Table A- 26 Accessories - connecting cable RF200 reader ↔ PC

Connecting cable	Accessories	Article number
RF240R / RF260R / RF290R (RS-232) and PC	Connecting cable RS-232 with M12 male connector (4-pin), 5 m	6GT2891-4KH50
	Connecting cable RS-232 with open ends, 5 m	6GT2891-4KH50-0AX0
RF290R	Antenna cable 3.3 m	6GT2691-0CH33
	Antenna cable 10.5 m	6GT2691-0CN10
RF290R	Antenna extension cable 7.2 m	6GT2691-0DH72

Table A- 27 Accessories - connecting cable communications module/ASM ↔ reader

Connecting cables	Description Length	Article number
ASM 456 / RF160C / RF170C / RF180C and RF2xxR reader (RS-422)	2 m	6GT2891-4FH20
	5 m	6GT2891-4FH50
	10 m	6GT2891-4FN10
	20 m	6GT2891-4FN20
	50 m	6GT2891-4FN50
ASM 456 / RF160C / RF170C / RF180C and RF2xxR reader (RS-422) with angled connector	2 m	6GT2891-4JH20
	5 m	6GT2891-4JH50
	10 m	6GT2891-4JN10
ASM 475 and RF2xxR reader (RS-422)	2 m	6GT2891-4EH20
	5 m	6GT2891-4EH50
RF120C and reader RF3xxR (RS-422)	2 m	6GT2091-4LH20
	5 m	6GT2091-4LH50
	10 m	6GT2091-4LN10

Table A- 28 RFID accessories, general

RFID general	Article number
DVD "Ident Systems Software & Documentation"	6GT2080-2AA20
Wide-range power supply unit for SIMATIC RF systems (100 - 240 VAC / 24 VDC / 3 A) with country-specific power cable/plug, 2 m	EU: 6GT2898-0AA00
	UK: 6GT2898-0AA10
	US: 6GT2898-0AA20
24 V connecting cable, 5 m	6GT2491-1HH50
M12 connector, 4-pin for wide range power supply unit, pack of 3	6GK1907-0DB10-6AA3

## A.5 Service & Support

### Industry Online Support

In addition to the product documentation, the comprehensive online information platform of Siemens Industry Online Support at the following Internet address:

Link 1: (<https://support.industry.siemens.com/cs/de/en/>)

Apart from news, there you will also find:

- Project information: Manuals, FAQs, downloads, application examples etc.
- Contacts, Technical Forum
- The option submitting a support query:  
link 2: (<https://support.industry.siemens.com/My/ww/en/requests>)
- Our service offer:

Right across our products and systems, we provide numerous services that support you in every phase of the life of your machine or system - from planning and implementation to commissioning, through to maintenance and modernization.

You will find contact data on the Internet at the following address:

Link 3: ([http://w3.siemens.com/aspa\\_app](http://w3.siemens.com/aspa_app))

### RFID homepage

For general information about our identification systems, visit RFID homepage (<http://w3.siemens.com/mcms/identification-systems/>).

### Online catalog and ordering system

The online catalog and the online ordering system can also be found on the Industry Mall Homepage (<https://mall.industry.siemens.com>).

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The training offer includes more than 300 courses on basic topics, extended knowledge and special knowledge as well as advanced training for individual sectors - available at more than 130 locations. Courses can also be organized individually and held locally at your location.

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Link: (<http://sitrain.automation.siemens.com/sitrainworld/>)





# Index

## A

- Accessories
  - SIMATIC RF260X antenna multiplexer, 339
  - Wide-range power supply unit, 347
- ANT 12
  - Definition of distance D, 179
- ANT 18
  - Definition of distance D, 184
- ANT 30
  - Definition of distance D, 190
- ANT 8
  - Definition of distance D, 174
- ANT D10
  - Definition of distance D, 206
  - Dimensions, 208
  - Transmission window, 204
- ANT D5
  - Definition of distance D, 195
- ANT D6
  - Definition of distance D, 200
- Antenna
  - ANT 1, 161
  - ANT 12, 177
  - ANT 18, 182
  - ANT 3, 166
  - ANT 30, 187
  - ANT 8, 172
  - ANT D10, 203
  - ANT D5, 192
  - ANT D6, 198
- Antenna splitter, 337
  - Technical specifications, 338
- Application Planning
  - SIMATIC RF200, 27
- Approvals, 335
- Article numbers, 367
- ASM 475
  - Assignment for connecting cable, 363
  - Pin assignment, 363

## C

- Certificates, 335
- Communication time
  - Calculating, 37

## D

- Detection area, 34
- Diagnostic functions
  - ISO transponder, 333
- Direction of motion
  - Transponder, 34
- Dwell time
  - Transponder, 36
- Dynamic mode, 35
  - Dwell time of the transponder, 36

## F

- Field data
  - RF210R, 39
  - RF220R, 40
  - RF240R, 40
  - RF260R, 44
  - RF280R, 45
  - RF290R, 46
- Flush-mounting
  - of transponders and readers, 52

## I

- Input parameters, 325
- Installation
  - Several readers, 53
- Installation guidelines, 50
- ISO transponder
  - Resistance to chemicals, 93

## M

- MDS D100 transponder
  - Technical specifications, 212
- MDS D117 transponder
  - Technical specifications, 216
- MDS D124 Transponder
  - Technical specifications, 220
- MDS D127 transponder
  - Technical specifications, 230
- MDS D160 transponder
  - Technical specifications, 240

- MDS D200 transponder
  - Technical specifications, 248
- MDS D339 transponder
  - Technical specifications, 260
- MDS D424 Transponder
  - Technical specifications, 283
- MDS D425 Transponder
  - Technical specifications, 286
- MDS D428 transponder
  - Technical specifications, 293
- MDS D460 Transponder
  - Technical specifications, 297
- MDS D521 transponder
  - Technical specifications, 301
- MDS D522 transponder
  - Technical specifications, 305
- MDS D524 transponder
  - Technical specifications, 314
- MDS D526 transponder
  - Technical specifications, 318
- MDS D528 transponder
  - Technical specifications, 321
- Metal
  - Influence on the transmission window, 54
- Metal-free space
  - Reader RF280R, 74
  - Reader RF290R, 76
  - RF210R reader, 55
  - RF220R reader, 58
  - RF240R reader, 60
  - RF250R reader, 63
  - RF260R reader, 71
- Minimum distance
  - Antenna to antenna, 50
  - Reader to reader, 50
  - Transponder to transponder, 48

**O**

- Ordering data, 367
  - Accessories, 374
  - Antenna multiplexer SIMATIC RF260X, 339
  - Antenna splitter, 337
  - Antennas, 373
  - Interface modules/communication Modules, 373
  - ISO transponder, 369
  - Readers, 367
  - Wide-range power supply unit, 348

**P**

- Parameter assignment
  - Function blocks, 325

**R**

- Reader RF280R
  - Metal-free space, 74
- Reader RF290R
  - Metal-free space, 76
- Reader SIMATIC RF210M, 110
- Reader SIMATIC RF240R, 122
- Reader SIMATIC RF280R, 140
- Reader SIMATIC RF290R, 147
- Readers
  - Mounting, 53
- Reducing interference due to metal, 51
- Resistance to chemicals
  - Transponder, 93
- RF200 transponder
  - Resistance to chemicals, 93
- RF210R reader
  - Metal-free space, 55
- RF220R reader
  - Metal-free space, 58
- RF240R reader
  - Metal-free space, 60
- RF250R reader
  - Metal-free space, 63
- RF260R reader
  - Metal-free space, 71

**S**

- Selection criteria
  - SIMATIC RF200 components, 27
- SIMATIC RF210R reader, 104
- SIMATIC RF220R reader, 116
- SIMATIC RF250R reader, 128
- SIMATIC RF260R reader, 134
- SIMATIC RF260X, 339
- SIMATIC RF260X antenna multiplexer, 339
- Static mode, 35
  - Dwell time of the transponder, 36
- Support, 377

**T**

- Technical specifications
  - MDS D100 transponder, 212

- MDS D117 transponder, 216
- MDS D124 Transponder, 220
- MDS D127 transponder, 230
- MDS D160 transponder, 240
- MDS D200 transponder, 248
- MDS D339 transponder, 260
- MDS D424 Transponder, 283
- MDS D425 Transponder, 286
- MDS D428 transponder, 293
- MDS D460 Transponder, 297
- MDS D521 transponder, 301
- MDS D522 transponder, 305
- MDS D524 transponder, 314
- MDS D526 transponder, 318
- MDS D528 transponder, 321
- Transponder MDS D126, 226
- Transponder MDS D139, 235
- Transponder MDS D165, 244
- Transponder MDS D261, 251
- Transponder MDS D324, 255
- Transponder MDS D400, 266
- Transponder MDS D421, 272
- Transponder MDS D422, 275
- Transponder MDS D423, 279
- Transponder MDS D426, 290

Tracking

- Tolerance, 30

Tracking tolerances, 30

Training, 377

Transmission gaps, 38

Transmission window

- Impact of metal, 54
- Width, 30

Transponder

- Detection area, 34
- Directions of motion, 34
- Dwell time, 36
- Mounting on metal, 53

Transponder MDS D126

- Technical specifications, 226

Transponder MDS D139

- Technical specifications, 235

Transponder MDS D165

- Technical specifications, 244

Transponder MDS D261

- Technical specifications, 251

Transponder MDS D324

- Technical specifications, 255

Transponder MDS D400

- Technical specifications, 266

Transponder MDS D421

- Technical specifications, 272

Transponder MDS D422

- Technical specifications, 275

Transponder MDS D423

- Technical specifications, 279

Transponder MDS D426

- Technical specifications, 290

## U

User data

- calculating, 37

## W

Wide-range power supply unit, 347

- Pin assignment for DC outputs, 352

