SIEMENS

SIMATIC Ident
RFID systems
SIMATIC RF620T (6GT2810-3HC80)
Compact Operating Instructions

Legal information
Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

⚠ DANGER
indicates that death or severe personal injury **will** result if proper precautions are not taken.

⚠ WARNING
indicates that death or severe personal injury **may** result if proper precautions are not taken.

⚠ CAUTION
indicates that minor personal injury can result if proper precautions are not taken.

NOTICE
indicates that property damage can result if proper precautions are not taken.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

⚠ WARNING
Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

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1 Characteristics

SIMATIC RF620T is a passive and maintenance-free data storage medium. The RF620T operates based on the UHF Class 1 Gen 2 technology and is used to store the "Electronic Product Code" (EPC ID) of 56 bytes/448 bits. The transponder also has a 256 byte/2048 bit user memory.

The transponder for industrial applications is rugged and highly resistant to detergents. It is designed for easy attachment onto plastic, wood, glass, e.g. containers, palettes, and trolleys.

SIMATIC RF620T	Characteristics	
	Area of application	Transponder for rugged, industrial requirements such as RF identification in warehouses and the logistics and transport area.
	Air interface	According to ISO 18000-63
	Memory	• EPC memory: 60 bytes / 480 bits • EPC ID: 56 bytes / 448 bits [1] • User memory: 256 bytes / 2048 bits
	Read range	Max. 5.0 m [2]
	Mounting	• Bolts

[1] The first 12 bytes/96 bits are preset in the delivery state.

[2] Depending on the environment, the reader/the antennas and the set power.

2 Ordering data

Table 2-1 Ordering data

	Article number
SIMATIC RF620T	6GT2810-3HC80
Spacer for SIMATIC RF620T	6GT2898-2AA00

Delivery format

SIMATIC RF620T is supplied in the following form:

- 20 transponders per packaging unit
  Minimum order quantity: 1 packaging unit

The spacer for SIMATIC RF620T is supplied in the following form:

- 10 spacers per packaging unit
  Minimum order quantity: 1 packaging unit

3 Presetting of the EPC memory

The first 12 bytes of the EPC memory ("0x00 - 0x0B") are preset. As of byte 13 ("0x0C") the EPC memory is not preset.

Table 3-1 Presetting of the EPC memory

Address UID	Address with FB (UID)	Value
0x00	0xFF00	0x00
...	...	...
0x04	0xFF04	0x00
0x05	0xFF05	Transponder type [1]
0x06	0xFF06	Year produced [1]
0x07	0xFF07	Month produced [1]
0x08	0xFF08	Day produced [1]
0x09	0xFF09	Consecutive number [1]
0x0A	0xFF0A	
0x0B	0xFF0B	

[1] In the following table, these values are described in greater detail.

Table 3-2 Explanation of the values

Transponder type	Year produced	Month produced	Day produced	Consecutive number [1]		
RF620T = 0x3E	2022 = 0x16 2023 = 0x17	Jan. = 0x01 Feb. = 0x02 ... Dec. = 0x0C	01 = 0x01 02 = 0x02 ... 31 = 0x1F	0x00 0x00 ... 0xFF	0x00 0x00 ... 0xFF	0x01 0x02 ... 0xFF

[1] The consecutive number is counted absolutely as of the respective production date and is therefore unique.

4 Planning operation

4.1 Note on installation

NOTICE
Reduction of the write/read range The maximum range is reached on metal-free surfaces. Use the spacer when installing on metal surfaces.

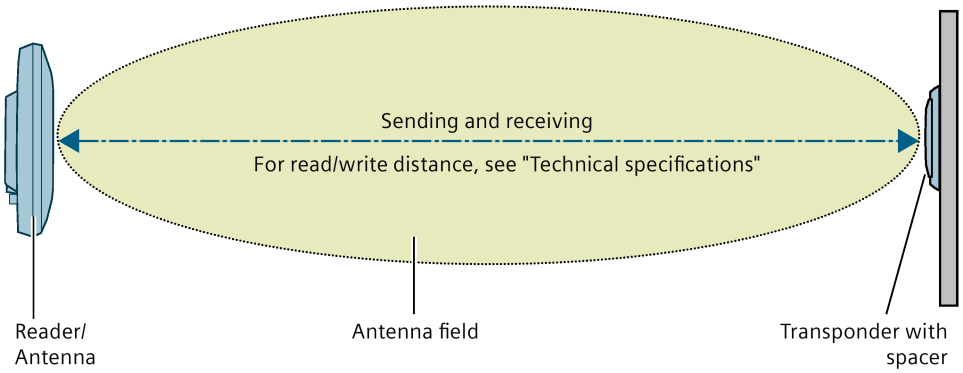


Figure 4-1 Example of optimum antenna/transponder positioning on metal surface

4.2 Mounting on a metal surface

The transponder has linear polarization. The polarization axis runs as shown in the diagram below. When a linear antenna (e.g. RF642A) is used, the polarization axes of antenna and transponder must always be aligned in parallel.

When a circular antenna (e.g. RF650A) is used and when the transponder is mounted on a flat surface, the transponder can be aligned in any direction.

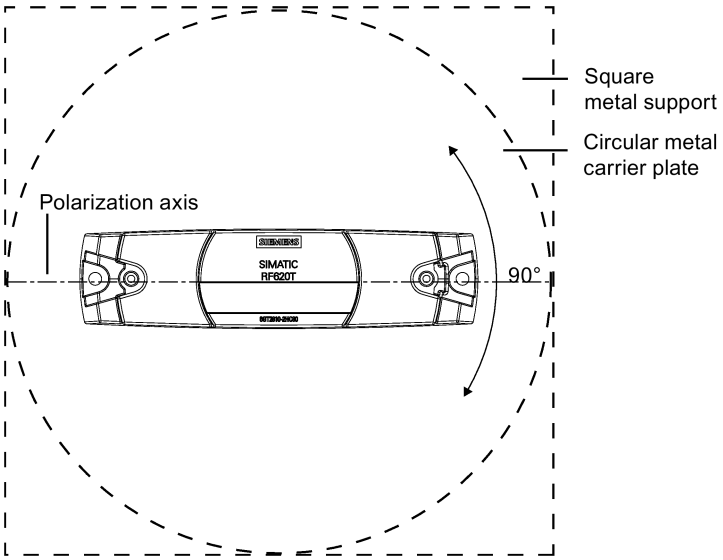


Figure 4-2 Optimum positioning of the transponder with spacer on a (square or circular) metal surface.

You will find more information on the range in the section "Maximum read/write ranges (Page 5)".

4.3 Maximum read/write ranges

Table 4-1 Read ranges of the transponder (all ranges in meters [m])

		SIMATIC RF620T	
		Metal-free surface	**Metal plate (300 × 300 mm) with spacer**
SIMATIC RF610R **SIMATIC RF615R** with internal antenna		2.0	1.8
SIMATIC RF615R with RF615A [1]		0.5	0.4
	With RF620A/RF622A	0.6	0.5
	With RF642A	3.0	2.5
	With RF650A	2.5	2.0
	With RF662A	2.5	2.2
	With RF680A (circular)	2.5	2.0
SIMATIC RF650R with RF615A [1]		0.5	0.4
	With RF620A/RF622A	0.6	0.5
	With RF642A	5.0	4.0
	With RF650A	4.0	3.0
	With RF662A	4.5	3.5
	With RF680A (circular)	4.0	3.0
SIMATIC RF685R with internal antenna		5.0	4.0
SIMATIC RF680R **SIMATIC RF685R** with RF615A [1]		0.5	0.5
	With RF620A/RF622A	0.6	0.6
	With RF642A	5.0	4.0
	With RF650A	4.0	3.0
	With RF662A	4.5	3.5
	With RF680A (circular)	4.0	3.0

[1] Mounting on metal. Mounting surface with a minimum diameter of 150 mm and a minimum thickness of 1 mm.

Maximum write ranges

The reader antenna requires more power for writing than for reading data. When writing, the maximum range is reduced by approximately 60% compared with the read range.

5 Technical specifications

Table 5-1 Technical specifications of SIMATIC RF620T

	6GT2810-3HC80
Product designation	SIMATIC RF620T
Radio frequency	
Operating frequency	
• ETSI	• 865 to 868 MHz
• FCC	• 902 to 928 MHz
Memory	
Chip (manufacturer/type)	NXP UCode 7xm-2k
Memory type	EEPROM
Memory configuration	
• EPC ID	• 56 bytes / 448 bits
• User memory	• 256 bytes / 2048 bits
• TID	• 12 bytes / 96 bits
Number of write cycles (< 40 °C)	> 10^5
Number of read cycles (< 40 °C)	> 10^{14}
Data retention time (< 40 °C)	10 years
Electrical data	
Range	
• Writing	• ≤ 2.5 m [1)]
• Reading	• ≤ 5.0 m [1)]
Protocol	EPCglobal Class 1 Gen 2 / ISO 18000-63
Transmission speed	≤ 320 kbps
Polarization	Linear
Mechanical specifications	
Material	Polypropylene (PP)
Silicone-free	Yes
Color	Anthracite
Antenna material	Aluminum
Type of antenna	Shortened dipole
Imprint	Can be laser-labeled on the label field
Permitted ambient conditions	
Ambient temperature	
• In operation, during write/read access	• -25 ... +85 °C
• In operation, outside write/read access	• -40 °C to +85 °C
• During transportation and storage	• -40 °C to +85 °C

	6GT2810-3HC80
Distance from metal	≥ 12 mm (with spacer 6GT2898-2AA00) Not intended for mounting directly on metal.
Degree of protection	IP67
Shock-resistant according to DIN EN 60721-3-7, Class 7 M3	100 g [2]
Vibrations according to EN 60068-2-6	50 g [2]
Resistance to mechanical stress	Torsion and bending stress are not permitted
Design, dimensions and weight	
Dimensions (L x W x H)	
• Transponder	127 × 38 × 6 mm
• Spacer	157 × 39 × 12 mm
Weight	
• Transponder	• 18 g
• Spacer	• 22 g
Type of mounting	2 x M4 screws ≤ 1 Nm
Standards, specifications, approvals	
MTBF	1940 years

[1] Depending on the environment, the reader / the antennas and the set power

[2] The values for shock and vibration are maximum values and must not be applied continuously.

6 Dimension drawing

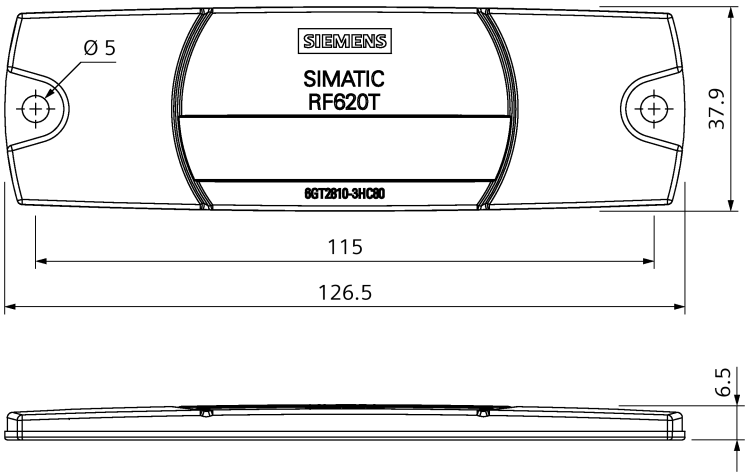


Figure 6-1 Dimension drawing SIMATIC RF620T

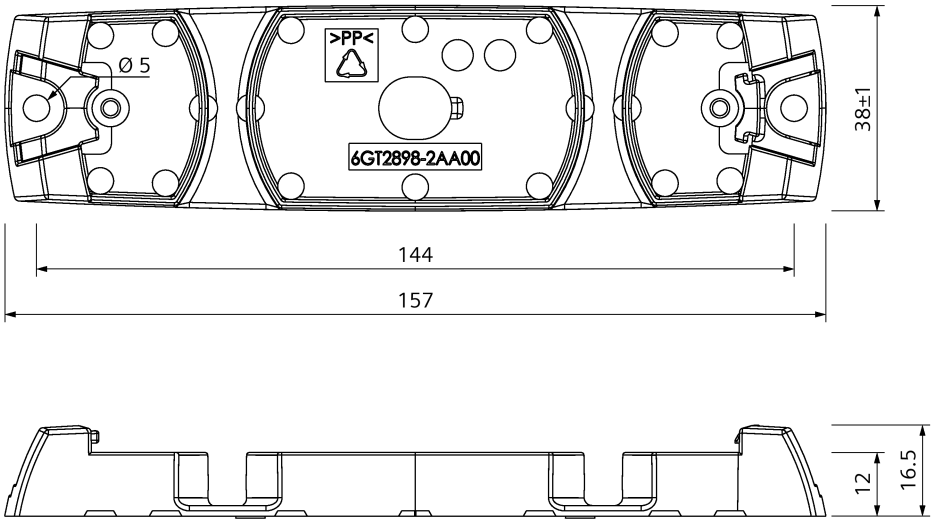


Figure 6-2 Dimension drawing spacer for SIMATIC RF620T

All dimensions in mm

Tolerances ±0.5 mm unless indicated otherwise.

7 Certificates and approvals

Table 7-1 Certificates and approvals

Labeling	Description
CE	Conformity with the RED directive 2014/53/EU Conformity with the RoHS directive 2011/65/EU

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We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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