SIEMENS

SIMATIC Ident
RFID systems
SIMATIC RF621T
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.

1 Characteristics

The SIMATIC RF621T is a passive, maintenance-free data storage medium. RF621T operation is based on UHF Class 1 Gen 2 technology and is used to store the "Electronic Product Code" (EPC ID) of 12 bytes/96 bits.

This robust transponder is designed for industrial requirements and is easy to attach to plastic, wood, and glass, e.g. containers, palettes, bins, and trolleys.

Note that this transponder cannot be disabled using a kill password.

SIMATIC RF621T	Characteristics	
	Area of application	Industrial asset management, RF identification of tools and containers
	Air interface	According to ISO 18000-63
	Memory	• EPC memory: 16 bytes / 128 bits • EPC ID: 12 bytes / 96 bits [1]
	Read range	Max. 10.0 m [2]
	Mounting	• Screws, bonding • Use a spacer on metal

[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 RF621T	6GT2810-1HC80
Spacer for SIMATIC RF621T	6GT2898-3AA00

Delivery format

SIMATIC RF621T is supplied in the following form:

• 10 transponders per packing unit
  Minimum order quantity: 1 packing unit

The spacer for SIMATIC RF621T is supplied in the following form:

• 10 spacers per packing unit
  Minimum order quantity: 1 packing 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]		
RF621T = 0x5E	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 in order to obtain the maximum read/write range.

4.2   Maximum read/write ranges

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

	SIMATIC RF621T	
	Metal-free surface	**Metal plate (15 × 15 cm) with spacer**
SIMATIC RF610R **SIMATIC RF615R** with internal antenna	2.0	1.6
SIMATIC RF615R with RF615A [1]	0.8	0.7
With RF620A/RF622A	1.2	1.1
With RF642A	5.0	3.5
With RF650A	2.2	2.0
With RF662A	7.0	4.0
With RF680A (circular)	2.2	1.8
SIMATIC RF650R with RF615A [1]	1.2	1.0
With RF620A/RF622A	1.4	1.2
With RF642A	10.0	4.0
With RF650A	3.2	2.4
With RF662A	8.0	5.0
With RF680A (circular)	3.2	2.5
SIMATIC RF685R with internal antenna	8.0	4.0
SIMATIC RF680R **SIMATIC RF685R** with RF615A [1]	1.2	1.0
With RF620A/RF622A	1.4	1.2
With RF642A	10.0	4.0
With RF650A	3.5	3.0
With RF662A	8.0	5.0
With RF680A (circular)	4.0	3.0

[1]   Mounting on metal. Mounting surface with a minimum diameter of 75 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 RF621T

	6GT2810-1HC80
Product designation	SIMATIC RF621T
Radio frequency	
Operating frequency	
• ETSI	• 865 to 868 MHz
• FCC	• 902 to 928 MHz
Memory	
Chip (manufacturer/type)	NXP UCode 8
Memory type	EEPROM
Memory configuration	
• EPC ID	• 12 bytes / 96 bits
• User memory	• 0 bytes / 0 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	• ≤ 6.0 m [1)]
• Reading	• ≤ 10.0 m [1)]
Protocol	EPCglobal Class 1 Gen 2 / ISO 18000-63
Transmission speed	≤ 320 kbps
Polarization	Linear
Mechanical specifications	
Material	Polyamide 12 (PA12)
Silicone-free	Yes
Color	Anthracite
Antenna material	Aluminum
Type of antenna	Shortened dipole
Imprint	Thermal transfer printing technique
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

	6GT2810-1HC80
Distance from metal	≥ 12 mm (with spacer) Not suitable 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	120 × 30 × 6.5 mm
• Spacer	130 × 31.5 × 12 mm
Weight	
• Transponder	• 14 g
• Spacer	• 8 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.
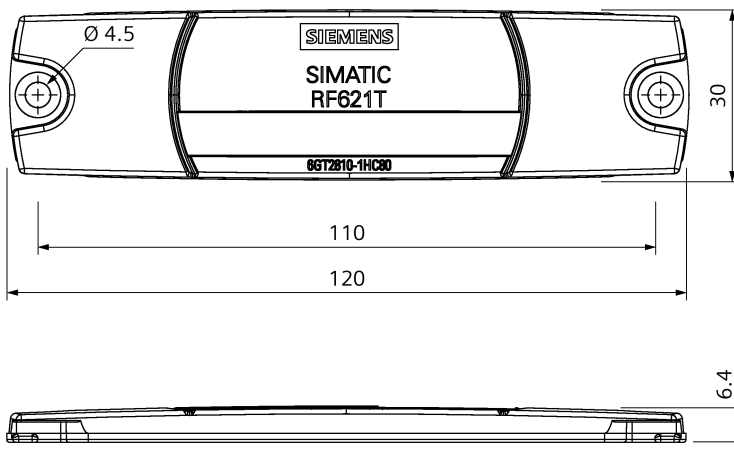
6 Dimension drawing

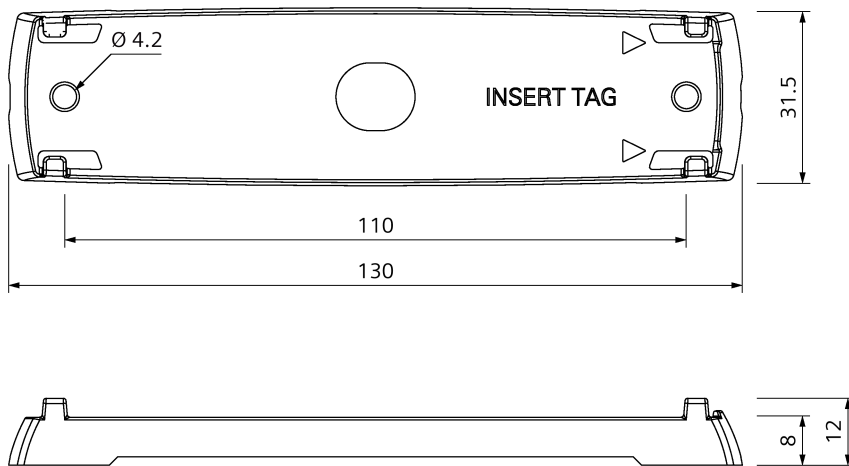Figure 6-1   Dimension drawing SIMATIC RF621T

Figure 6-2   Dimension drawing spacer for SIMATIC RF621T

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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