Antennas

6

6.1 Features

This radio transmitter with IC ID: 267X-RF350R02 has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

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Cet émetteur radio avec IC ID: 267X-RF350R02 a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous avec le gain maximal admissible indiqué. types d'antennes non inclus dans cette liste, ayant un gain supérieur au gain maximum indiqué pour ce type, sont strictement interdits pour une utilisation avec cet appareil.

For the RF350R and RF350M readers, you can use the following plug-in antennas:

Antenna	Product photo	Limit distance S_g 1)	Dimensions
ANT 1		Up to 140 mm	75 x 75 x 20 mm (L x W x H)
ANT 3		Up to 50 mm	50 x 75 x 10 mm (L x W x H)

Antenna	Product photo	Limit distance S_g [1]	Dimensions
ANT 3S		Up to 5 mm	50 × 28 × 10 mm (L x W x H)
ANT 8 [2]		Up to 4 mm	M8 x 1.0 x 39 mm (∅ x thread x L)
ANT 12		Up to 16 mm	M12 x 1.0 x 40 mm (∅ x thread x L)
ANT 18		Up to 35 mm	M18 x 1.0 x 55 mm (Ø x thread x L)
ANT 30		Up to 55 mm	M30 x 1.5 x 61 mm (Ø x thread x L)

[1] Depending on the transponder used

[2] only released with RF350M und RF350R - second generation

Note

Use of the antennas in hazardous areas

The antennas ANT 1, ANT 12, ANT 18 and ANT 30 are approved for use in hazardous locations. For more information, refer to the section "Use of the reader in hazardous areas (Page 149)".

ANT 1

The ANT 1 is an antenna in the mid performance range and can be used to the customer's advantage in production and assembly lines due to its manageable housing shape. The antenna dimensions make it possible to read/write large quantities of data dynamically from/to the transponder during operation. The antenna cable can be connected at the reader end.

ANT 3

The ANT 3 is designed for use in small assembly lines. The extremely compact design of the antenna allows extremely accurate positioning. The antenna cable can be connected at the reader end.

ANT 3S

The ANT 3S is designed for use in small assembly lines. The extremely compact design of the antenna allows extremely accurate positioning even with small transponders. The antenna cable can be connected at the reader end.

ANT 8

The ANT 8 is primarily envisaged for tool identification applications. The extremely small design of the antenna allows extremely accurate positioning. The antenna cable can be connected at the reader end and screwed to the antenna.

The antenna ANT 8 has currently only been tested and released for use in conjunction with the mobile reader RF350M and the reader RF350R - second generation.

ANT 12

The ANT 12 is primarily envisaged for tool identification applications. The very small size of the antenna means that highly exact positioning is possible using the plastic nuts included in the scope of delivery. The antenna cable can be connected at the reader end.

ANT 18

The ANT 18 is designed for use in small assembly lines. Due to its small, compact construction, the antenna can be easily positioned for any application using two plastic nuts (included in the package). The antenna cable can be connected at the reader end.

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ANT 30

The ANT 30 is designed for use in small assembly lines. In comparison to ANT 18, the maximum write/read distance is approximately 60 % larger. Due to its compact construction, the antenna can be easily positioned for any application using two plastic nuts (included in the package). The antenna cable can be connected at the reader end.

6.2 Ordering data

Table 6- 1 Ordering data for antennas

		Article number
ANT 1	incl. integrated antenna cable 3 m	6GT2398-1CB00
ANT 3	without antenna connecting cable	6GT2398-1CD30-0AX0
	incl. plug-in antenna cable 3 m	6GT2398-1CD40-0AX0
ANT 3S	without antenna connecting cable	6GT2398-1CD50-0AX0
	incl. plug-in antenna cable 3 m	6GT2398-1CD60-0AX0
ANT 8	without antenna connecting cable	6GT2398-1CF00
	incl. plug-in antenna cable 3 m	6GT2398-1CF10
ANT 12	incl. plug-in antenna cable 3 m	6GT2398-1CC00
ANT 18	incl. plug-in antenna cable 3 m	6GT2398-1CA00
ANT 30	incl. plug-in antenna cable 3 m	6GT2398-1CD00

Table 6- 2 Antenna accessories ordering data

		Article number
Antenna connecting cable	3 m	6GT2398-0AH30

6.3 Ensuring reliable data exchange

The "center point" of the transponder must be situated within the transmission window.

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6.4 Metal-free area

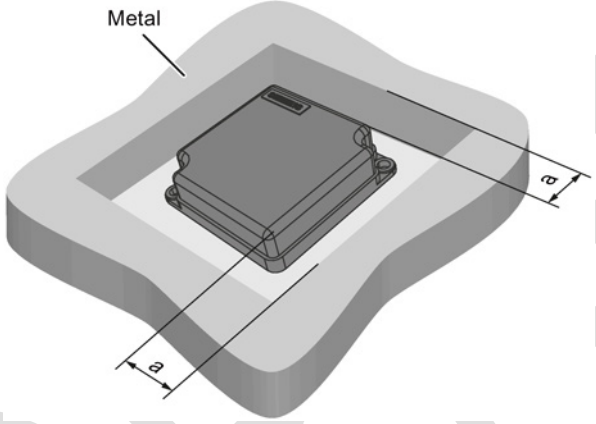
The antennas ANT 1, ANT 8, ANT 12, ANT 18 and ANT 30 can be flush-mounted in metal. Please allow for a possible reduction in the field data values. During installation, maintain the minimum distances (a and b) on/flush with the metal.

Note

Reduction of range if the metal-free space is not maintained

At values lower than a and b, the field data changes significantly, resulting in a reduction in the limit distance and operating distance. Therefore, during installation, maintain the minimum distances (a and b) on/flush with the metal.

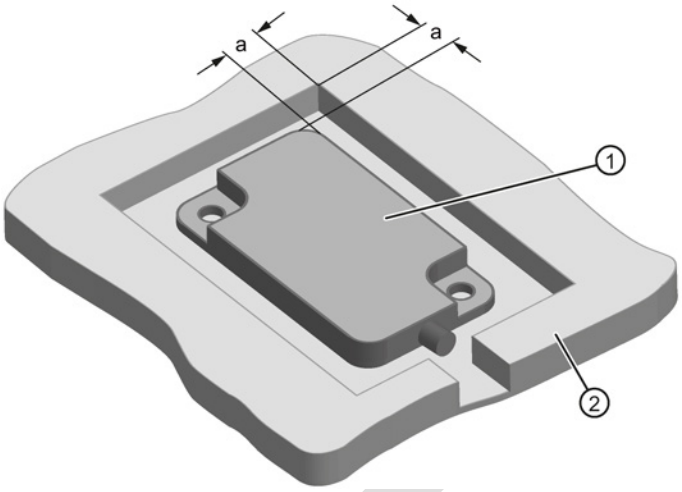
Metal-free space for flush-mounted installation of ANT 1



a = 40 mm

Figure 6-1 ANT 1 flush-mounted in metal

Metal-free space for flush-mounted installation of ANT 3 and ANT 3S



① ANT 3
② Metal
a = 10 mm

Figure 6-2 ANT 3 and ANT 3S flush-mounted in metal

Flush-mounting of ANT 8

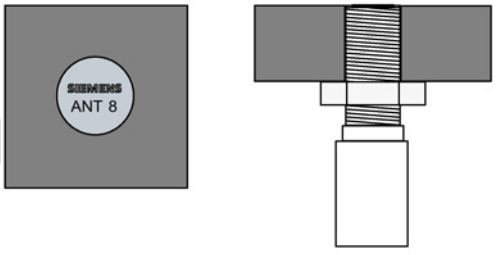


Figure 6-3 ANT 8 flush-mounted in metal

The ANT 8 can be flush-mounted in metal.

Flush-mounting of ANT 12

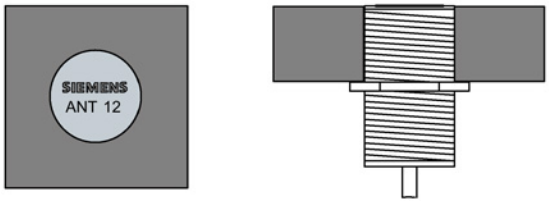
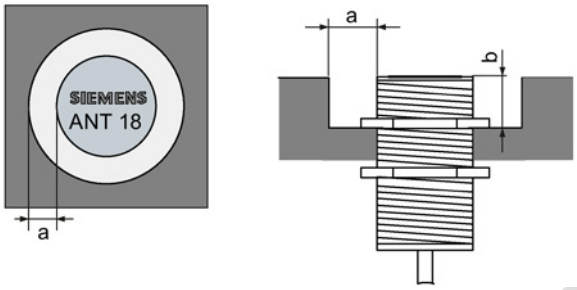


Figure 6-4 ANT 12 flush-mounted in metal

The ANT 12 can be flush-mounted in metal.

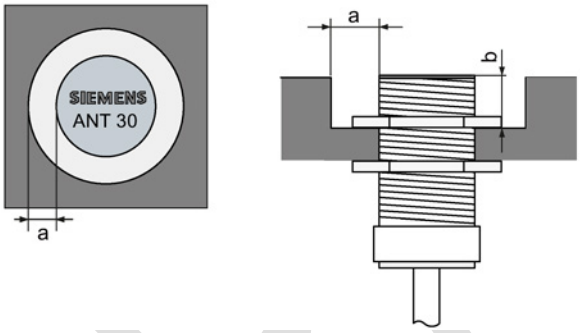
Metal-free space for flush-mounted installation of ANT 18



a = 10 mm
b = 10 mm

Figure 6-5 ANT 18 flush-mounted in metal

Metal-free space for flush-mounted installation of ANT 30



a = 20 mm
b = 20 mm

Figure 6-6 ANT 30 flush-mounted in metal

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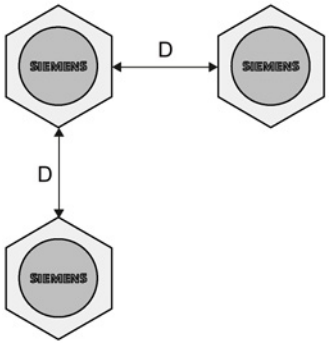
6.5 Minimum distance between antennas

Table 6- 3 Minimum distance between antennas

Diagram (example)	Minimum distance [mm]	
	**Antennas next to each other**	
	ANT 1	D ≥ 100 mm
	ANT 3	D ≥ 80 mm
	ANT 3S	D ≥ 20 mm
	ANT 8	D ≥ 50 mm
	ANT 12	D ≥ 70 mm
	ANT 18	D ≥ 100 mm
	ANT 30	D ≥ 100 mm
	Antennas face to face	
	ANT 1	D ≥ 500 mm
	ANT 3	D ≥ 100 mm
	ANT 3S	D ≥ 50 mm
	ANT 8	D ≥ 50 mm
	ANT 12	D ≥ 100 mm
	ANT 18	D ≥ 100 mm
	ANT 30	D ≥ 200 mm

The reader electronics can be mounted directly alongside each other.

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6.6 Technical specifications

Table 6- 4 Technical specifications of the antennas ANT 1, ANT 3 , ANT 3S and ANT 8

	ANT 1	**ANT 3**	**ANT 3S**	**ANT 8**
Max. write/read distance antenna ↔ transponder (S_g)	140 mm	50 mm	5 mm	4 mm
Housing dimensions	75 x 75 x 20 mm (L x W x H)	50 x 28 x 10 mm (L x W x H)	50 x 28 x 10 mm (L x W x H)	M8 x 1.0 x 39 mm (Ø x thread x L)
Color	Anthracite	Black	Black	silver-metallic
Material	Plastic PA 12	Plastic PA6-V0	Plastic PA6-V0	Stainless steel
Plug connection	M8, 4-pin; (pins on antenna side)	M8, 4-pin; socket on antenna side	M8, 4-pin; socket on antenna side	M8, 4-pin; (pins on antenna side)
Degree of protection to EN 60529	IP67			IP67 (front)
Shock-resistant acc. to EN 60721-3-7, Class 7M2 Vibration-resistant to EN 60721-3-7, Class 7M2	50 g [1)] 20 g (3 to 50 Hz) [1)]			
Attachment of the antenna	2 x M5 screws	2 x M4 screws	2 x M4 screws	2x stainless steel nuts M8 x 1.0 mm
Ambient temperature • During operation • During transportation and storage	 • -25 °C ... +70 °C • -40 °C ... +85 °C			
Weight, approx. • without antenna cable • with antenna cable (3.0 m)	 • -- • 225 g	 • 35 g • 160 g	 • 35 g • 160 g	 • 10 g • 140 g

[1)] Warning: The values for shock and vibration are maximum values and must not be applied continuously.

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Table 6- 5 Technical specifications of the antennas ANT 12, ANT 18 and ANT 30

	ANT 12	ANT 18	ANT 30
Max. write/read distance antenna ↔ transponder (S_g)	16 mm	35 mm	55 mm
Housing dimensions	M12 x 1.0 x 40 mm (Ø x thread x L)	M18 x 1.0 x 55 mm (Ø x thread x L)	M30 x 1.5 x 61 mm (Ø x thread x L)
Color	Pale turquoise		
Material	Plastic Crastin		
Plug connection	M8, 4-pin; (pins on antenna side)		
Degree of protection to EN 60529	IP67 (front)		
Shock-resistant acc. to EN 60721-3-7, Class 7M2 Vibration-resistant to EN 60721-3-7, Class 7M2	50 g [1)] 20 g (3 to 50 Hz) [1)]		
Attachment of the antenna	2 plastic nuts M12 x 1.0 mm	2 plastic nuts M18 x 1.0 mm	2 plastic nuts M30 x 1.5 mm
Ambient temperature • During operation • During transportation and storage	 • -25 °C to +70 °C • -40 °C to +85 °C		
Approx. weight • without antenna cable • with antenna cable (3.0 m)	 • -- • 145 g	 • -- • 130 g	 • -- • 180 g

[1)] Warning: The values for shock and vibration are maximum values and must not be applied continuously.

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6.7 Dimensional drawings

The cable length is 3 m. All dimensions are in mm.

ANT 1

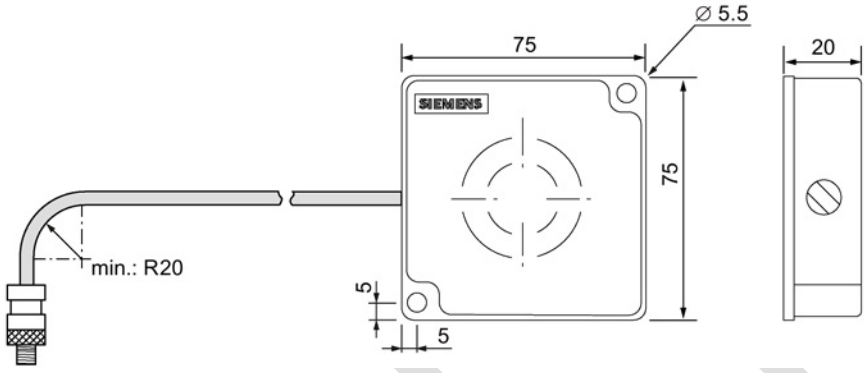

Figure 6-7 Dimension drawing for ANT 1

ANT 3 / ANT 3S

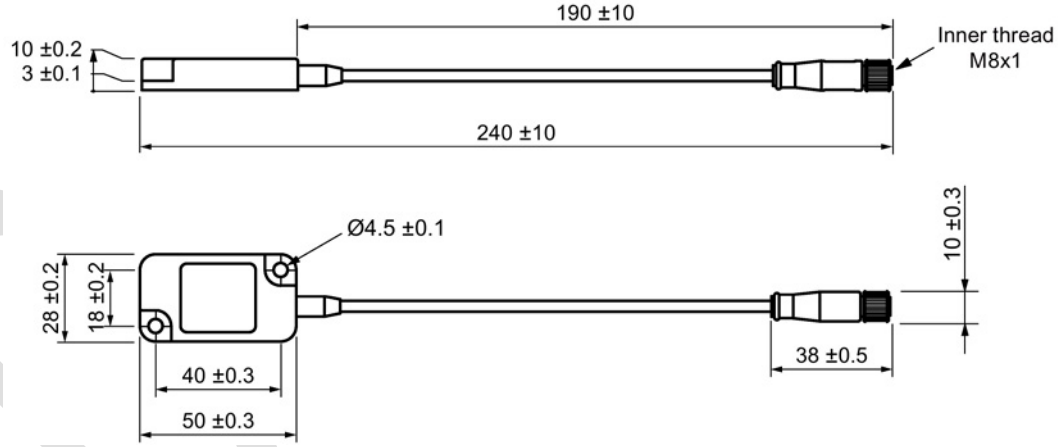

Figure 6-8 Dimension drawing ANT 3 7 ANT 3S

ANT 8

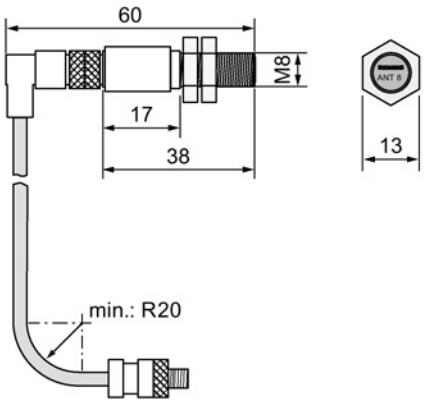

Figure 6-9 Dimension drawing for ANT 8

ANT 12

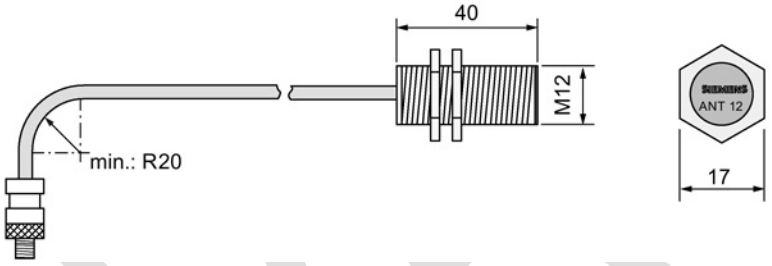

Figure 6-10 Dimension drawing for ANT 12

ANT 18

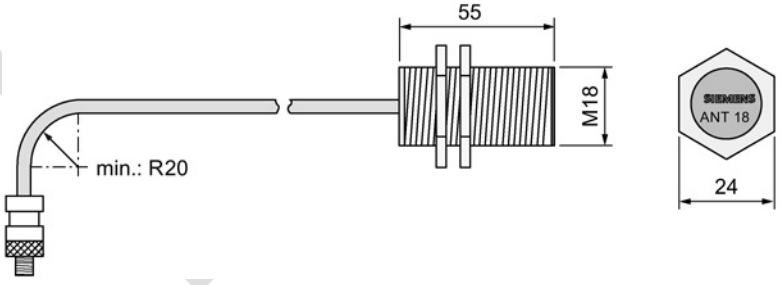

Figure 6-11 Dimension drawing for ANT 18

ANT 30

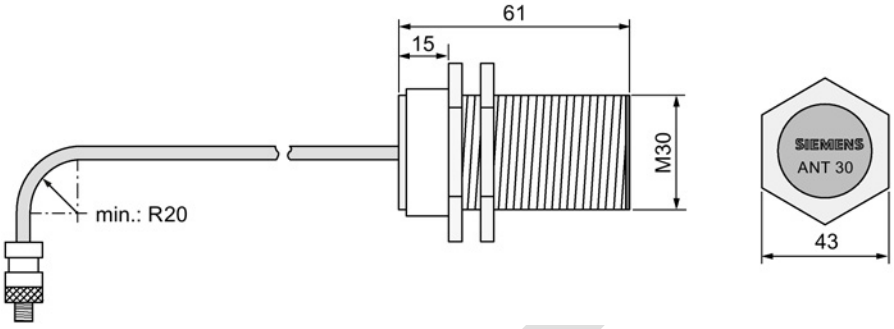

Figure 6-12 Dimension drawing for ANT 30

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RF300 transponder

7

Features of the RF300 transponders

The RF300 transponders (RF3xxT) stand out particularly for their extremely fast data exchange with the RF300 readers (RF3xxR). With the exception of the RF320T transponder, all of the RF300 transponders have 8 to 64 KB of FRAM memory, which has an almost unlimited capacity for reading and writing.

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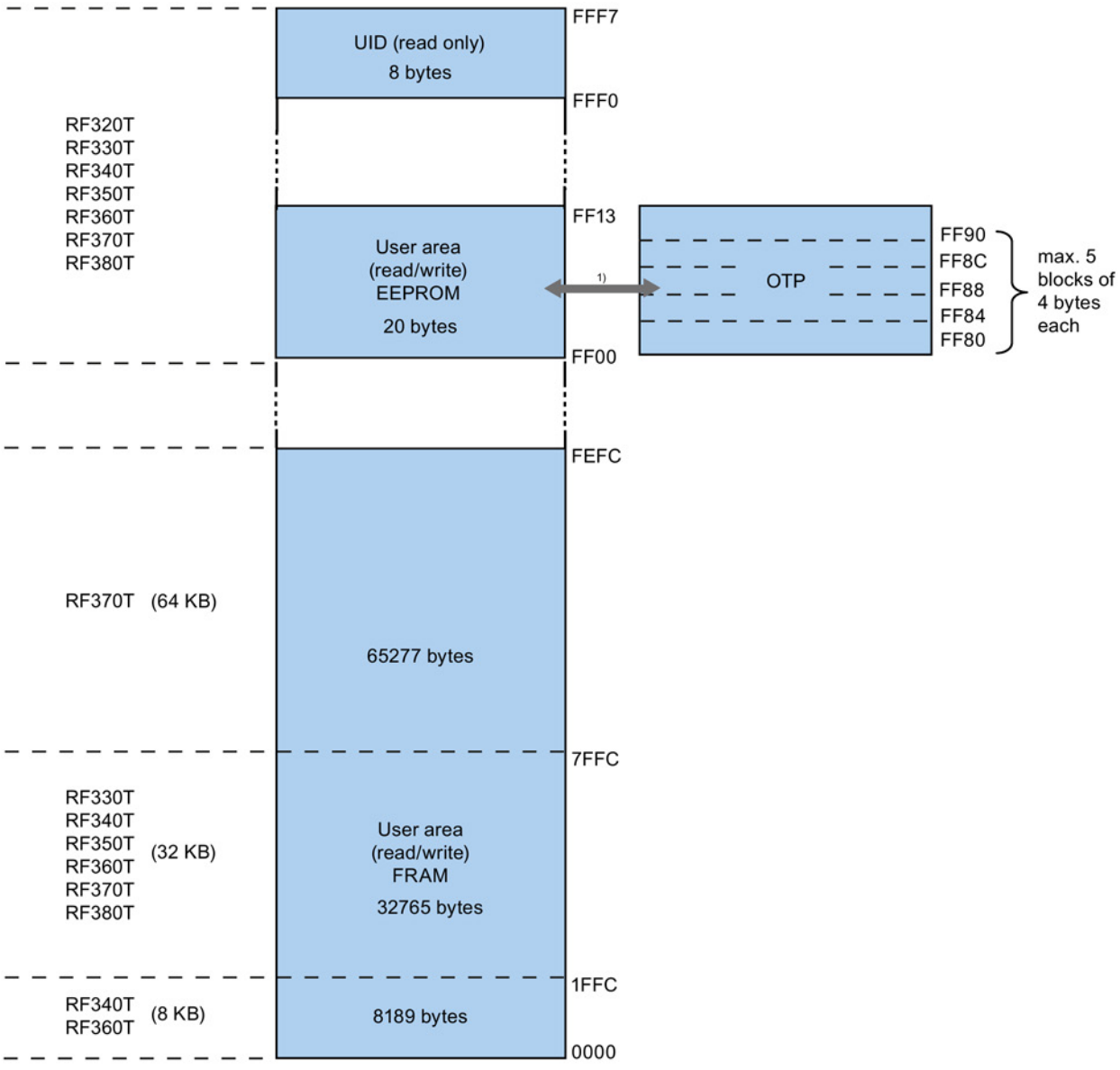
7.1 Memory configuration of the RF300 transponders



1) Physically identical memory When the OTP area is used, the corresponding user area (FF00-FF13) can no longer be modified (read only).

Figure 7-1 Memory configuration of the RF300 transponders

EEPROM area

The memory configuration of an RF300 transponder always comprises an EEPROM that has 20 bytes for user data (read/write) and a 4-byte unique serial number (UID, read only). For reasons of standardization, the UID is transferred as an 8 byte value through a read command to address FFF0 with a length of 8. The unused 4 high bytes are filled with zeros.

Note

Write speed

The EEPROM user memory (address FF00-FF13, or FF80-FF90) requires significantly more time for writing (approx. 11 ms/byte) than the high-speed FRAM memory. For time-critical applications with write functions, it is advisable to use FRAM transponders (e.g. RF330T, RF340T, RF350T, RF360T, RF370T, RF380T).

FRAM area

Depending on the tag type, high-speed FRAM memory is available. (8 KB, 32 KB, 64 KB). This area does not exist for the RF320T.

In the case of RF3xxT transponders with FRAM memory, the data carrier initialization command (INIT) is only effective on this memory area but not on the EEPROM area (FF00-FF13).

OTP area

The EEPROM memory area (address FF00-FF13) can also be used as a so-called "OTP" memory (One Time Programmable). The 5 block addresses FF80, FF84, FF88, FF8C and FF90 are used for this purpose. A write command to this block address with a valid length (4, 8, 12, 16, 20 depending on the block address) protects the written data from subsequent overwriting.

Note

Seamless use of the OTP area

When the OTP area is used, it must be ensured that the blocks are used starting from Block 0 consecutively.

Examples:

- 3 blocks (with write command), Block 0, 1, 2 (FF80, length = 12): valid
- 2 blocks (consecutive), Block 0 (FF80, length =4), Block 1 (FF84, length = 4): valid
- 2 blocks (consecutive), Block 0 (FF80, length =4), Block 2 (FF88, length = 4): Invalid
- 1 Block, Block 4 (FF90, length = 4): Invalid

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Note

Use of the OTP area is not reversible

If you use the OPT area, you cannot undo it, because the OPT area can only be written to once.

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7.2 SIMATIC RF320T

7.2.1 Features

RF320T	Characteristics	
	Area of application	Identification tasks on small assembly lines in harsh industrial environments
	Memory size	20 bytes of EEPROM user memory
	Write/read range	See section Field data of RF300 transponders (Page 49)
	Mounting on metal	Yes, with spacer
	Degree of protection	IP67/IPx9K

7.2.2 Ordering data

Table 7- 1 Ordering data RF320T

	Article number
RF320T	6GT2800-1CA00

Table 7- 2 Ordering data for RF320T accessories

	Article number
Spacer	6GT2690-0AK00

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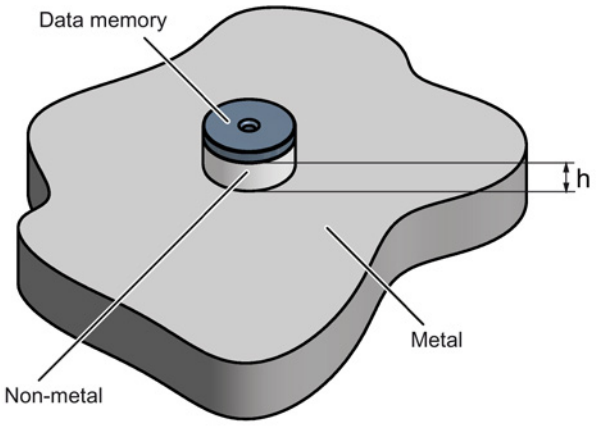
7.2.3 Mounting on metal

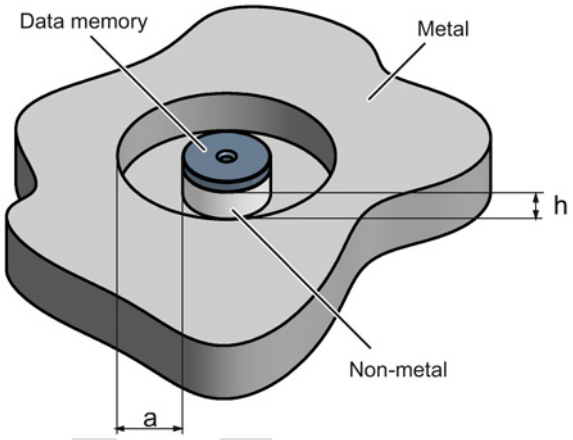
Mounting on metal



h ≥ 15 mm

Figure 7-2 Mounting the MDS D124/D324/D424/D524/E624 and RF320T on metal with spacer

Flush-mounting



h ≥ 15 mm
a ≥ 25 mm

Figure 7-3 Flush-mounting of the MDS D124/D324/D424/D524/E624 and RF320T in metal with spacer

Note

Going below the distances

If the distances (a and h) are not observed, a reduction of the field data results. It is possible to mount the MDS with metal screws (M3 countersunk head screws). This has no tangible impact on the range.

7.2.4 Technical data

Table 7- 3 Technical specifications for RF320T

	6GT2800-1CA00
Product type designation	SIMATIC RF320T
Memory	
Memory organization	Byte-oriented, write protection possible in 4-byte blocks
Memory configuration	
• UID	• 4 bytes EEPROM
• User memory	• 20 bytes EEPROM
• OPT memory	• 20 bytes EEPROM
Read cycles (at < 40 °C)	> 10^{14}
Write cycles (at < 40 °C)	> 10^{5}
Data retention time (at < 40 °C)	> 10 years
Write/read distance (S_g)	Dependent on the reader used, see section "Field data of RF300 transponders (Page 49)"
MTBF (Mean Time Between Failures)	1800 years
Mechanical specifications	
Housing	
• Material	• Epoxy resin
• Color	• Black
Recommended distance to metal	≥ 20 mm
Power supply	Inductive, without battery

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	6GT2800-1CA00
Permitted ambient conditions	
Ambient temperature	
• During operation	• -25 to +125 °C
• During transportation and storage	• -40 to +140 °C
Degree of protection to EN 60529	• IP67 • IPx9K
Shock-resistant to EN 60721-3-7, Class 7 M3	100 g [1]
Vibration-resistant to EN 60721-3-7, Class 7 M3	20 g [1]
Torsion and bending load	Not permitted
Design, dimensions and weight	
Dimensions (Ø x H)	27 x 4 mm
Weight	5 g
Type of mounting	• 1 x M3 screw [2] ≤ 1.0 Nm • Glued

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

[2]) To prevent it loosening during operation, secure the screw with screw locking varnish.

7.2.5 Dimension drawing

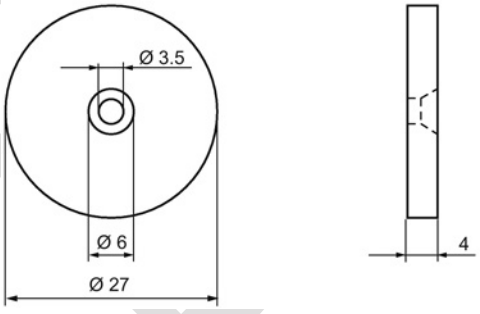

Figure 7-4 RF320T dimension drawing

Dimensions in mm

7.3 SIMATIC RF330T

7.3.1 Features

Table 7- 4

RF330T	Characteristics	
	Area of application	In production automation for identification of metallic workpiece holders, workpieces or containers.
	Memory size	32 KB EEPROM user memory
	Write/read range	See section "Field data of RF300 transponders (Page 49)"
	Mounting on metal	Yes flush mounted on/in metal
	Degree of protection	IP68/IPx9K

7.3.2 Ordering data

Table 7- 5 Ordering data RF330T

	Article number
RF330T	6GT2800-5BA00

Table 7- 6 Ordering data for RF330T accessories

	Article number
Fixing hood RF330T / MDS D423	6GT2690-0EA00

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7.3.3 Mounting on/in metal

Direct mounting of the RF330T on metal is permitted.

Mounting of the RF330T on metal

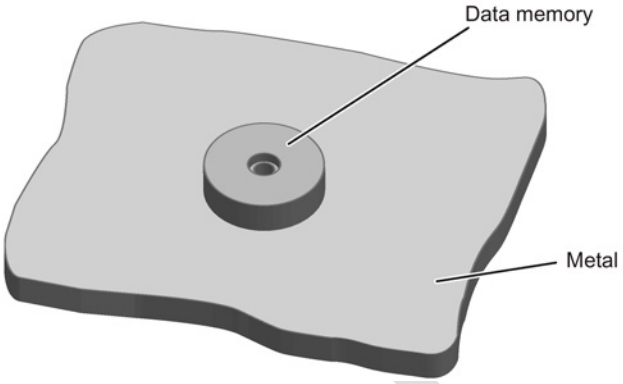
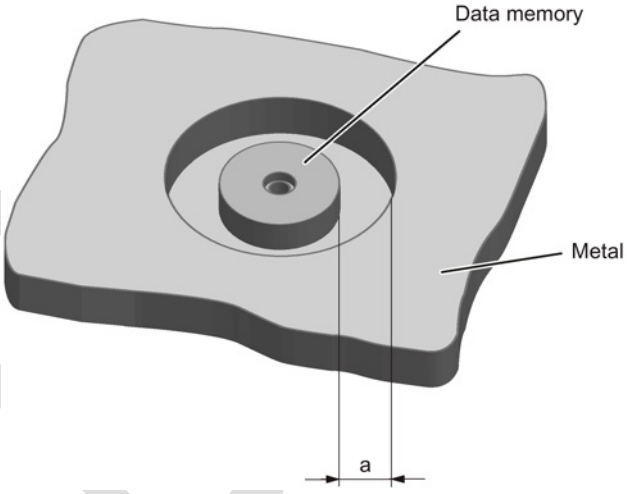


Figure 7-5 Mounting of the RF330T on metal

Flush-mounting of RF330T in metal



a ≥ 10 mm

Figure 7-6 Mounting of the RF330T in metal with 10 mm clearance

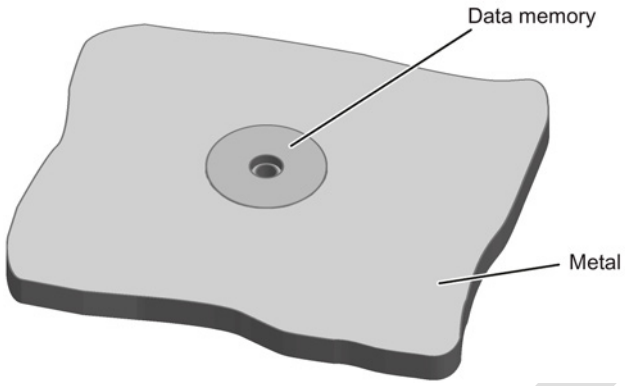


Figure 7-7 Mounting of the RF330T in metal without clearance

Note

Reduction of the write/read range

Note that when the device is flush-mounted in metal without a surrounding clearance ≥ 10 mm, the write/read range is significantly reduced.

7.3.4 Technical specifications

Table 7- 7 RF330T technical specifications

	6GT2800-5BA00
Product type designation	SIMATIC RF330T
Memory	
Memory organization	in bytes
Memory configuration	
• UID	• 4 bytes EEPROM
• User memory	• 8 KB FRAM
• OPT memory	• 20 bytes EEPROM
Read cycles (at < 40 °C)	> 10^{14}
Write cycles (at < 40 °C)	> 10^{14}
Data retention time (at < 40 °C)	> 10 years
Write/read distance (S_g)	Dependent on the reader used, see section "Field data of RF300 transponders (Page 49)"
MTBF (Mean Time Between Failures)	1200 years

	6GT2800-5BA00
Mechanical specifications	
Housing	
• Material	• Plastic PPS
• Color	• Black
Recommended distance to metal	≥ 0 mm
Power supply	Inductive, without battery
Permitted ambient conditions	
Ambient temperature	
• During operation	• -25 to +85 °C
• During transportation and storage	• -40 to +100 °C
Degree of protection to EN 60529	• IP68 2 hours, 2 m, 20 °C • IPx9K steam jet: 150 mm; 10 to 15 l/min; 100 bar; 75 °C
Pressure resistance	• Low pressure resistant vacuum dryer: up to 20 mbar • high pressure resistant (see degree of protection IPx9K)
Shock-resistant to EN 60721-3-7, Class 7 M3	50 g [1)]
Vibration-resistant to EN 60721-3-7, Class 7 M3	20 g [1)]
Torsion and bending load	Not permitted
Design, dimensions and weight	
Dimensions (Ø x H)	30 x 8 mm
Weight	10 g
Type of mounting	1 x M4 screw [2)] ≤ 1.5 Nm

1) The values for shock and vibration are maximum values and must not be applied continuously.

2) To prevent it loosening during operation, secure the screw with screw locking varnish.

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7.3.5 Dimension drawing

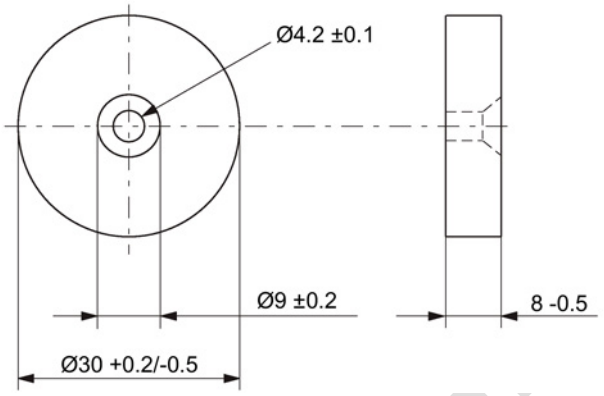

Figure 7-8 RF330T dimension drawing

Dimensions in mm

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7.4 SIMATIC RF340T

7.4.1 Features

Table 7- 8

RF340T	Characteristics	
	Area of application	Identification tasks on small assembly lines in harsh industrial environments
	Memory size	• 8 KB FRAM user memory • 32 KB FRAM user memory
	Write/read range	See section Field data of RF300 transponders (Page 49)
	Mounting on metal	Yes
	Degree of protection	IP68/IPx9K

7.4.2 Ordering data

Table 7- 9 Ordering data RF340T

	Article number
RF340T 8 KB FRAM user memory	6GT2800-4BB00
RF340T 32 KB FRAM user memory	6GT2800-5BB00

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7.4.3 Mounting on metal

Direct mounting of the RF340T on metal is permitted.

Mounting of RF340T on metal

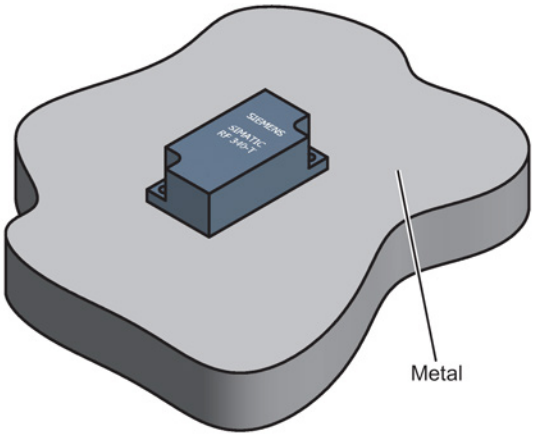

Figure 7-9 Mounting of RF340T on metal

Flush-mounting of RF340T in metal:

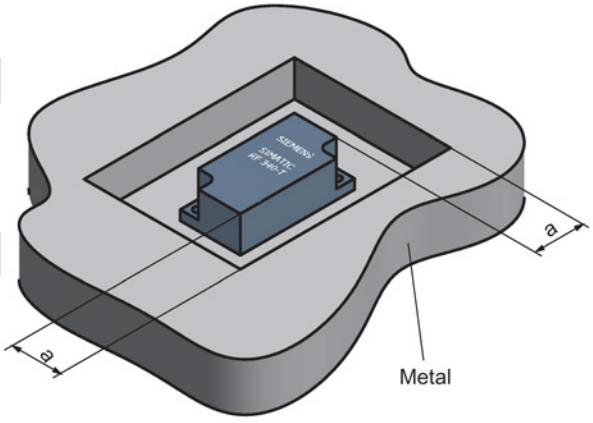

Figure 7-10 Flush-mounting of RF340T in metal

The standard value for a is ≥ 20 mm. At lower values, the field data change significantly, resulting in a reduction in the range.

7.4.4 Technical specifications

Table 7- 10 Technical specifications for RF340T

	6GT2800-4BB00
Product type designation	SIMATIC RF340T
Memory	
Memory organization	in bytes
Memory configuration	
• UID	• 4 bytes EEPROM
• User memory	• 8 KB FRAM
• OPT memory	• 20 bytes EEPROM
Read cycles (at < 40 °C)	> 10^{10}
Write cycles (at < 40 °C)	> 10^{10}
Data retention time (at < 40 °C)	> 10 years
Write/read distance (S_g)	Dependent on the reader used, see section "Field data of RF300 transponders (Page 49)"
MTBF (Mean Time Between Failures)	1200 years
Mechanical specifications	
Housing	
• Material	• Plastic PA 12
• Color	• Anthracite
Recommended distance to metal	≥ 0 mm
Power supply	Inductive, without battery
Permitted ambient conditions	
Ambient temperature	
• During operation	• -25 to +85 °C
• During transportation and storage	• -40 to +85 °C
Degree of protection to EN 60529	• IP68 • IPx9K
Shock-resistant to EN 60721-3-7, Class 7 M3	50 g [1)]
Vibration-resistant to EN 60721-3-7, Class 7 M3	20 g [1)]
Torsion and bending load	Not permitted

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	6GT2800-4BB00
Design, dimensions and weight	
Dimensions (L x W x H)	48 x 25 x 15 mm
Weight	25 g
Type of mounting	2 x M3 screws ≤ 1.0 Nm

1) The values for shock and vibration are maximum values and must not be applied continuously.

7.4.5 Dimension drawing

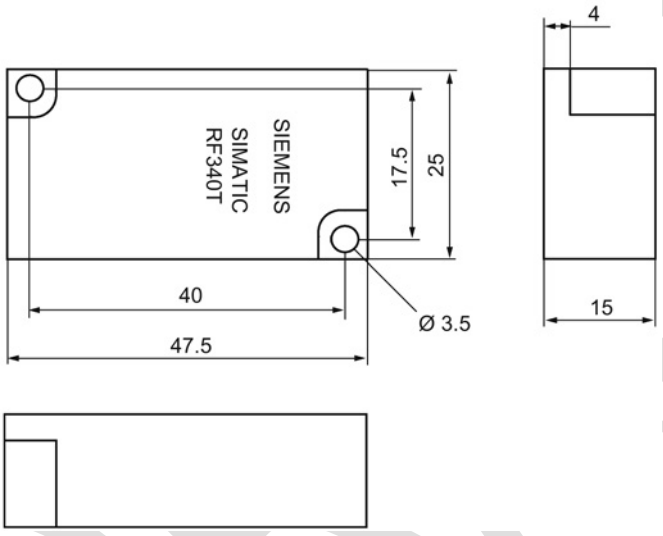

Figure 7-11 RF340T dimension drawing

Dimensions in mm

7.5 SIMATIC RF350T

7.5.1 Features

RF350T	Characteristics	
	Area of application	Identification tasks on small assembly lines in harsh industrial environments
	Memory size	32 KB FRAM user memory
	Write/read range	See section Field data of RF300 transponders (Page 49)
	Mounting on metal	Yes
	Degree of protection	IP68

7.5.2 Ordering data

Table 7- 11 Ordering data RF350T

	Article number
• IP68 • Memory size: 32 KB FRAM (read/write) and 4 bytes EEPROM (read only) • Operating temperature: -25 °C to +85 °C • Dimensions: 50 x 50 x 20 (L x W x H, in mm) • incl. securing frame	6GT2800-5BD00

7.5.3 Mounting on metal

Direct mounting of the RF350T on metal is permitted.

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Mounting of RF350T on metal

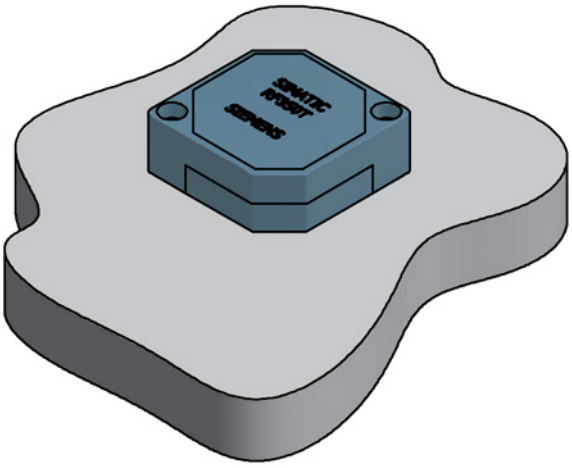

Figure 7-12 Mounting of RF350T on metal

Flush-mounting of RF350T in metal:

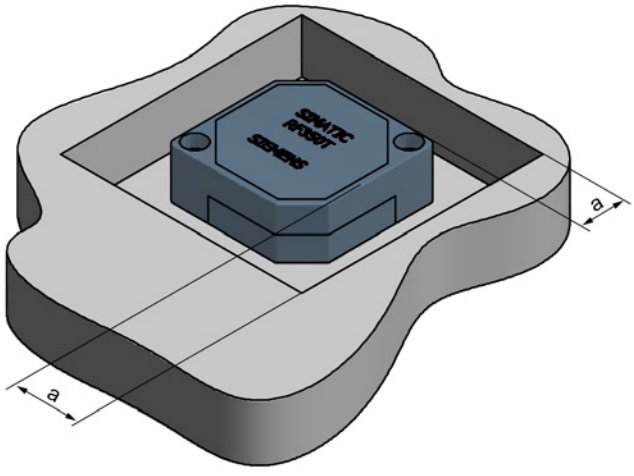

Figure 7-13 RF350T flush-mounted in metal

The standard value for a is ≥ 20 mm. At lower values, the field data change significantly, resulting in a reduction in the range.

7.5.4 Mounting options

Mounting with fixing frame

The RF350T transponder can be mounted as shown with the fixing frame:

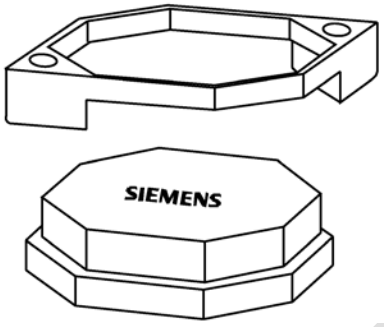

Figure 7-14 Installation diagram

Dimensions of the fixing frame

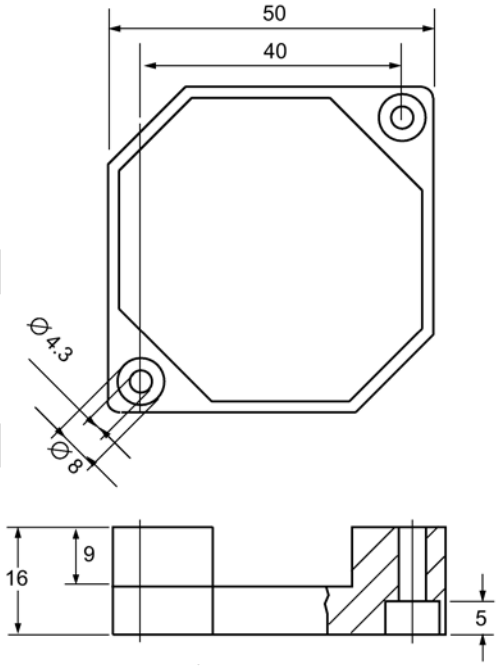

Figure 7-15 RF350T fixing frame

7.5.5 Technical data

Table 7- 12 Technical specifications for RF350T

	6GT2800-5BD00
Product type designation	SIMATIC RF350T
Memory	
Memory organization	in bytes
Memory configuration	
• UID	• 4 bytes EEPROM
• User memory	• 32 KB FRAM
• OPT memory	• 20 bytes EEPROM
Read cycles (at < 40 °C)	> 10^{10}
Write cycles (at < 40 °C)	> 10^{10}
Data retention time (at < 40 °C)	> 10 years
Write/read distance (S_g)	Dependent on the reader used, see section "Field data of RF300 transponders (Page 49)"
MTBF (Mean Time Between Failures)	1200 years
Mechanical specifications	
Housing	
• Material	• Plastic PA 12
• Color	• Anthracite
Recommended distance to metal	≥ 0 mm
Power supply	Inductive, without battery
Permitted ambient conditions	
Ambient temperature	
• During operation	• -25 to +85 °C
• During transportation and storage	• -40 to +85 °C
Degree of protection to EN 60529	IP68
Shock-resistant to EN 60721-3-7, Class 7 M3	50 g [1)]
Vibration-resistant to EN 60721-3-7, Class 7 M3	20 g [1)]
Torsion and bending load	Not permitted

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	6GT2800-5BD00
Design, dimensions and weight	
Dimensions (L x W x H)	50 x 50 x 20 mm
Weight	25 g
Type of mounting	2 x M4 screws ≤ 1.5 Nm

1) The values for shock and vibration are maximum values and must not be applied continuously.

7.5.6 Dimension drawing

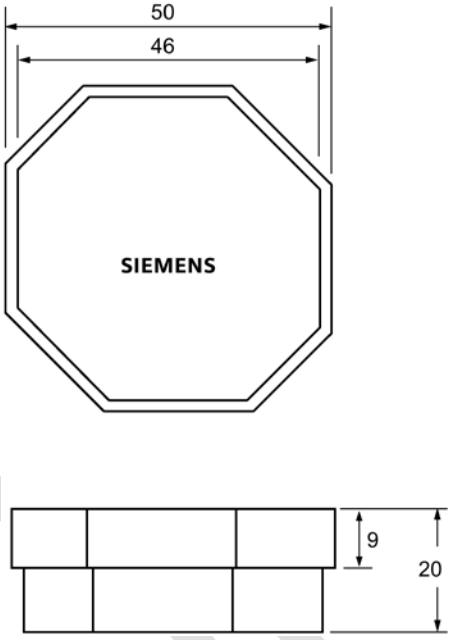

Figure 7-16 RF350T dimension drawing

Dimensions in mm

7.6 SIMATIC RF360T

7.6.1 Features

RF360T	Characteristics	
	Area of application	Identification tasks on small assembly lines in harsh industrial environments
	Memory size	• 8 KB FRAM user memory • 32 KB FRAM user memory
	Write/read range	see section Field data of RF300 transponders (Page 49)
	Mounting on metal	Yes, with spacer
	Degree of protection	IP67

7.6.2 Ordering data

Table 7- 13 Ordering data RF360T

	Article number
RF360T 8 KB FRAM user memory	6GT2800-4AC00
RF360T 32 KB FRAM user memory	6GT2800-5AC00

Table 7- 14 Ordering data for RF360T accessories

	Article number
Spacer (in conjunction with fixing pocket 6GT2190-0AB00)	6GT2190-0AA00
Fixing pocket (in conjunction with spacer 6GT2190-0AA00)	6GT2190-0AB00

7.6.3 Mounting on metal

Direct mounting of the RF360T on metal is not allowed. A distance ≥ 20 mm is recommended. This can be achieved using the spacer 6GT2190-0AA00 in combination with the fixing pocket 6GT2190-0AB00.

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Mounting of RF360T on metal

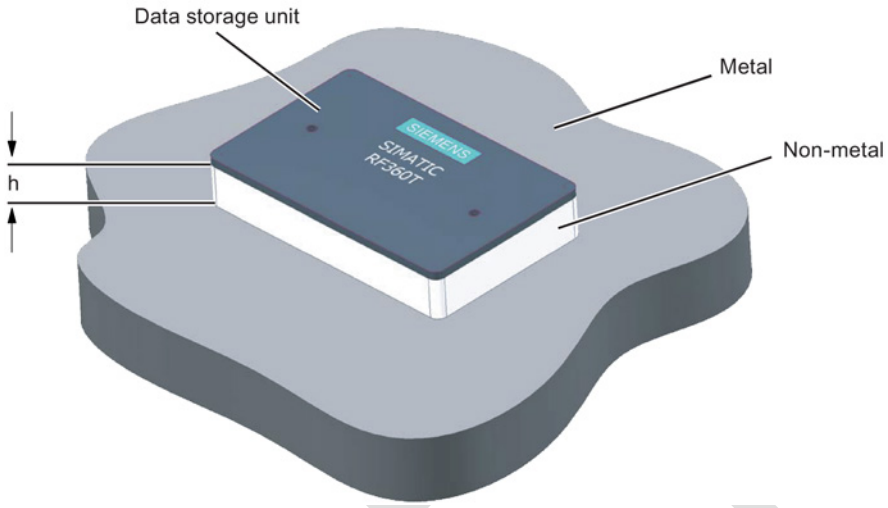


Figure 7-17 Mounting of RF360T with spacer

The standard value for h is ≥ 20 mm.

Flush-mounting of RF360T in metal:

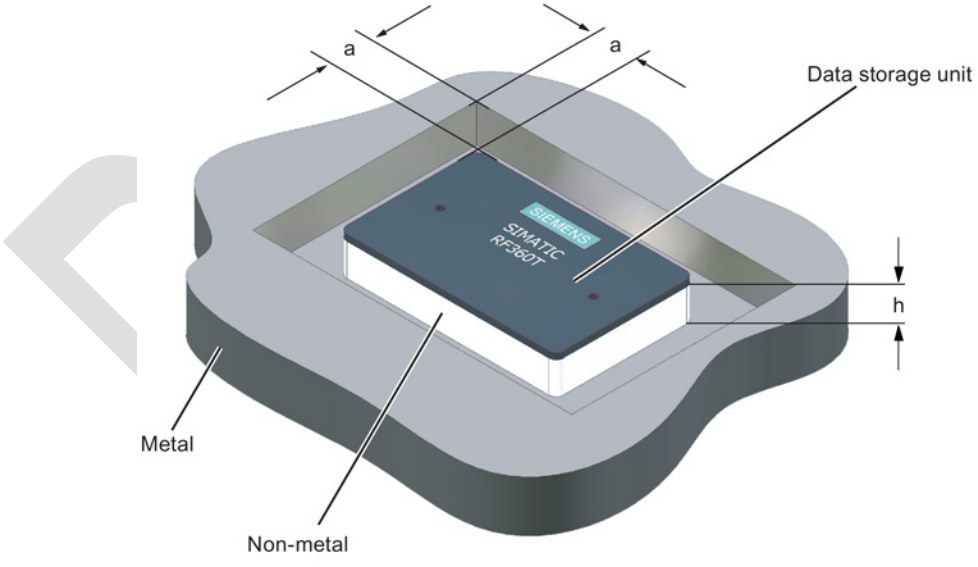
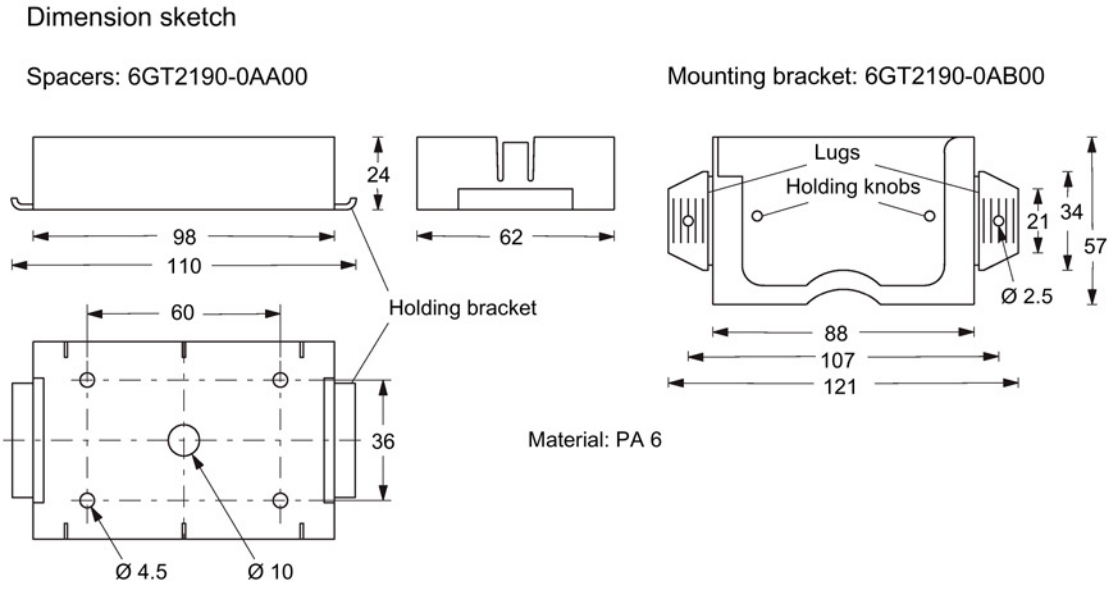


Figure 7-18 Flush-mounting of RF360T with spacer

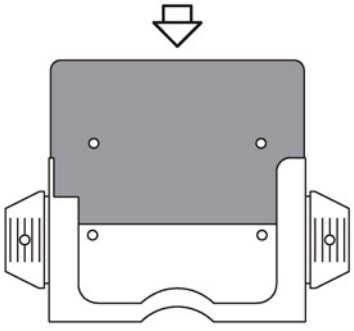
The standard value for a is ≥ 20 mm. At lower values, the field data change significantly, resulting in a reduction in the range.

Dimensions of spacer and fixing pocket for RF360T



The spacer can be mounted directly on metal. Together with the mounting bracket, this results in a distance of 20 mm between transponder and metal.

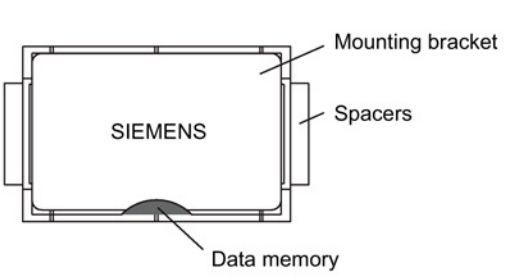
Mounting:
- With 2 or 4 screws (M4)
- With rubber pads on the holding brackets (e.g. on mesh boxes)
- With cable ties on the holding brackets (e.g. on mesh boxes)



The transponder is pushed into the mounting bracket. Locking takes place with holding knobs in the mounting bracket.w

The tabs of the mounting bracket are secured to a non-metal base. This can be done as follows:
- Screws in the holes provided
- Rivets in the holes provided
- Nails through the holes
- Staples through the plastic of the tabs
- Insertion in the spacer

The tabs can also be bent by 90°.



Re-assembly instructions:

Slide transponder into the mounting bracket. The tabs are then bent by 90° and inserted into the spacer. Position the mounting bracket so that it covers the transponder (see Figure). It is automatically locked into place.

Figure 7-19 Dimensions of spacer and fixing pocket for RF360T

7.6.4 Technical data

Table 7- 15 Technical specifications for RF360T

	6GT2800-4AC00 6GT2800-5AC00
Product type designation	SIMATIC RF360T
Memory	
Memory organization	in bytes
Memory configuration	
• UID	• 4 bytes EEPROM
• User memory	• 8 KB FRAM
• OPT memory	• 20 bytes EEPROM
Read cycles (at < 40 °C)	> 10^{10}
Write cycles (at < 40 °C)	> 10^{10}
Data retention time (at < 40 °C)	> 10 years
Write/read distance (S_g)	Dependent on the reader used, see section "Field data of RF300 transponders (Page 49)"
MTBF (Mean Time Between Failures)	1200 years
Mechanical specifications	
Housing	
• Material	• Epoxy resin
• Color	• Anthracite
Recommended distance to metal	≥ 20 mm
Power supply	Inductive, without battery
Permitted ambient conditions	
Ambient temperature	
• During operation	• -25 to +75 °C
• During transportation and storage	• -40 to +85 °C
Degree of protection to EN 60529	IP67
Shock-resistant to EN 60721-3-7, Class 7 M3	50 g
Vibration-resistant to EN 60721-3-7, Class 7 M3	20 g
Torsion and bending load	Not permitted

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	6GT2800-4AC00 6GT2800-5AC00
Design, dimensions and weight	
Dimensions (L x W x H)	86 x 55 x 2.5 mm
Weight	25 g
Type of mounting	• 2 x M3 screws ≤ 1.0 Nm • Fixing pocket (6GT2190-0AB00)

7.6.5 Dimension drawing

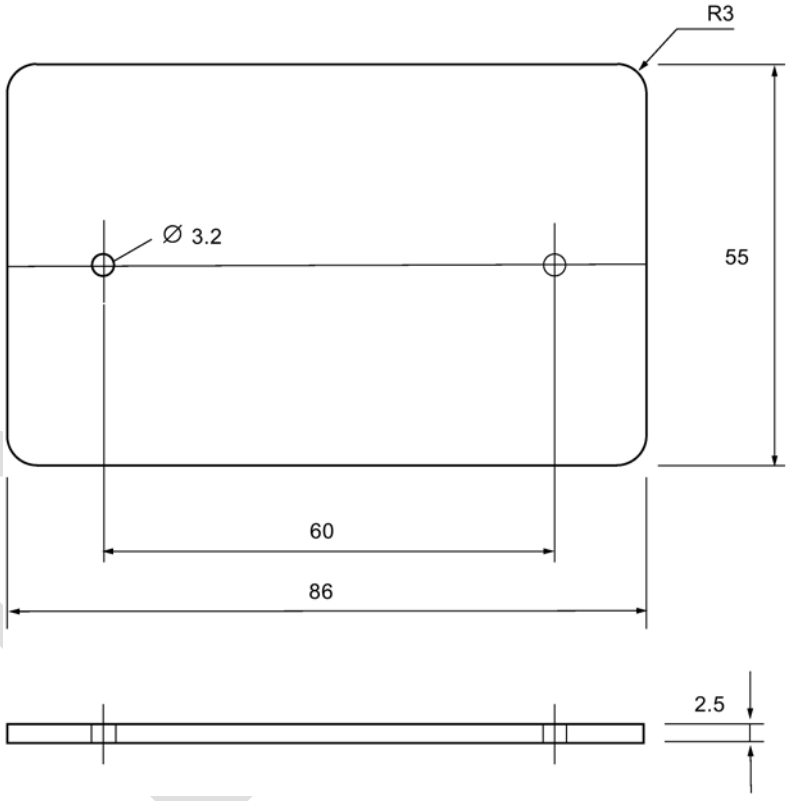

Figure 7-20 RF360T dimension drawing

Dimensions in mm

7.7 SIMATIC RF370T

7.7.1 Features

The SIMATIC RF370T transponder is a passive (i.e. battery-free) data carrier in a square type of construction.

RF370T	Characteristics	
	Area of application	Identification tasks on assembly lines in harsh industrial environments, due to high resistance to oils, lubricants and cleaning agents, and suitable for larger ranges, e.g. automotive industry
	Memory size	• 32 KB FRAM user memory • 64 KB FRAM user memory
	Write/read range	see section Field data of RF300 transponders (Page 49)
	Mounting on metal	Yes
	Degree of protection	IP68/IPx9K

7.7.2 Ordering data

Table 7- 16 Ordering data RF370T

	Article number
RF370T 32 KB FRAM user memory	6GT2800-5BE00
RF370T 76 KB FRAM user memory	6GT2800-6BE00

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7.7.3 Mounting on metal

Direct mounting of the RF370T on metal is permitted.

Mounting of RF370T on metal

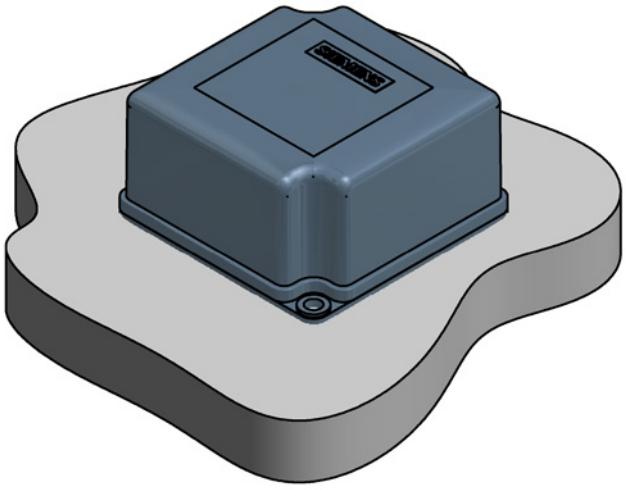

Figure 7-21 Mounting of RF370T on metal

Flush-mounting of RF370T in metal:

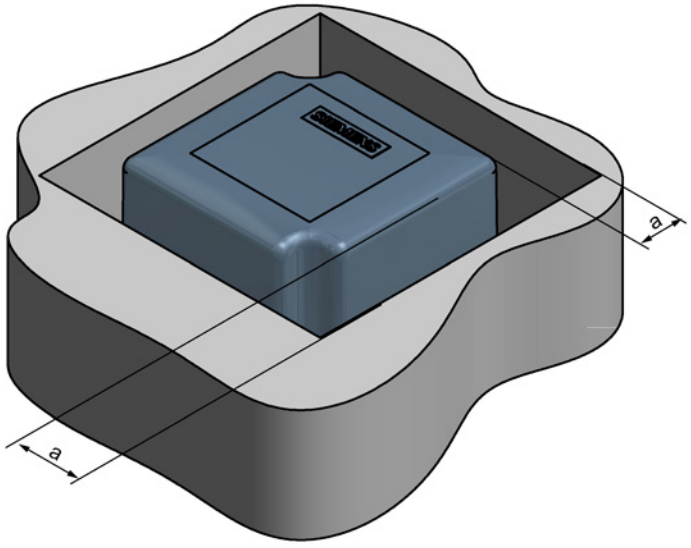

Figure 7-22 RF370T flush-mounted in metal

The standard value for a is ≥ 20 mm. At lower values, the field data change significantly, resulting in a reduction in the range.

7.7.4 Mounting instructions

It is essential that you observe the instructions in the Section Installation guidelines (Page 62).

Properties	Description
Type of installation	Screw fixing (two M5 screws)
Tightening torque	< 1.2 Nm (at room temperature)

7.7.5 Technical specifications

Table 7- 17 Technical specifications RF370T

	6GT2800-5BE00 6GT2800-6BE00
Product type designation	SIMATIC RF370T
Memory	
Memory organization	in bytes
Memory configuration	
• UID	• 4 bytes EEPROM
• User memory	• 32 or 64 KB FRAM
• OPT memory	• 20 bytes EEPROM
Read cycles (at < 40 °C)	> 10^{10}
Write cycles (at < 40 °C)	> 10^{10}
Data retention time (at < 40 °C)	> 10 years
Write/read distance (S_g)	Dependent on the reader used, see section "Field data of RF300 transponders (Page 49)"
MTBF (Mean Time Between Failures)	1200 years
Mechanical specifications	
Housing	
• Material	• Plastic PA 12
• Color	• Anthracite
Recommended distance to metal	≥ 0 mm
Power supply	Inductive, without battery

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	6GT2800-5BE00 6GT2800-6BE00
Permitted ambient conditions	
Ambient temperature	
• During operation	• -25 to +85 °C
• During transportation and storage	• -40 to +85 °C
Degree of protection to EN 60529	IPx9K
Shock-resistant to EN 60721-3-7, Class 7 M3	50 g [1]
Vibration-resistant to EN 60721-3-7, Class 7 M3	20 g [1]
Torsion and bending load	Not permitted
Design, dimensions and weight	
Dimensions (L x W x H)	75 x 75 x 41 mm
Weight	200 g
Type of mounting	2 x M5 screws ≤ 1.5 Nm

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

7.7.6 Dimensional drawing

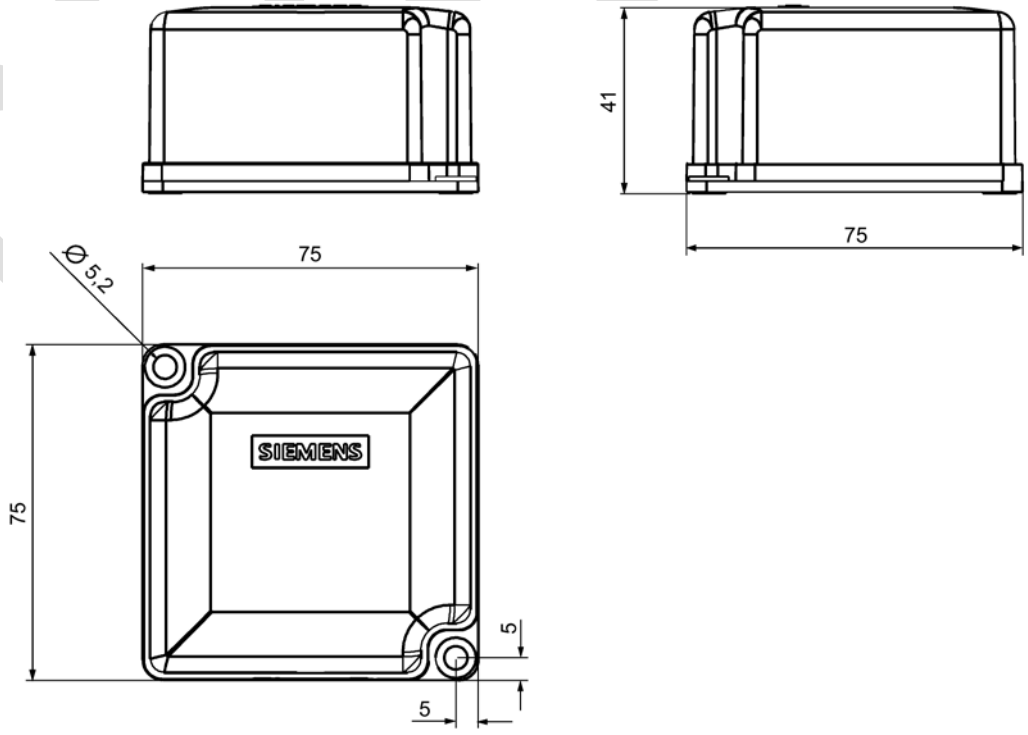


Figure 7-23 RF370T dimension drawing

Dimensions in mm

7.8 SIMATIC RF380T

7.8.1 Features

The SIMATIC RF380T transponder is an extremely rugged and heat-resistant round data carrier suitable e.g. for applications in the automotive industry.

SIMATIC RF380T transponder	Characteristics	
	Area of application	Identification tasks in applications (e.g. automotive industry) with cyclic high temperature stress > 85 °C and < 220 °C Highly resistant to mineral oils, lubricants and cleaning agents Typical applications: • Primer coat, electrolytic dip area, cataphoresis with the associated drying furnaces • Top coat area with drying furnaces • Washing areas at temperatures > 85°C • Other applications with higher temperatures
	Memory size	32 KB FRAM user memory
	Write/read range	see section "Field data of RF300 transponders (Page 49)"
	Mounting on metal	Yes, flush-mounted in metal
	Degree of protection	IP68

7.8.2 Ordering data

Table 7- 18 Ordering data RF380T

	Article number
RF380T User memory 32 KB FRAM (read/write) and 4 bytes EEPROM	6GT2800-5DA00

Table 7- 19 Ordering data for RF380T

	Article number
Holder (short version)	6GT2090-0QA00
Holder (long version)	6GT2090-0QA00-0AX3
Shrouding cover	6GT2090-0QB00
Universal holder	6GT2590-0QA00

7.8.3 Installation guidelines for RF380T

It is essential that you observe the instructions in the Section Installation guidelines (Page 62).

The following section only deals with features specific to the SIMATIC RF380T.

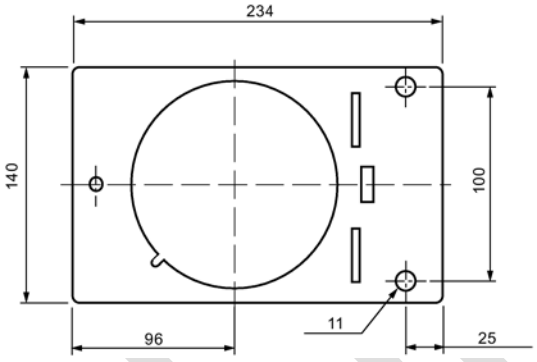
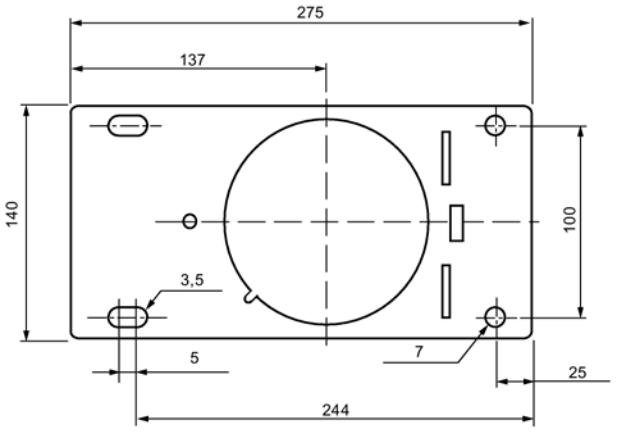
7.8.3.1 Mounting instructions

Note

Only use tag with original holder

You are strongly recommended to only use the tag with the original holder specified. Only this holder guarantees that the data memory observes the listed values for shock, vibration and temperature. A protective cover is recommendable for applications in paint shops.

Data memory holder

Short version (6GT2 090-0QA00)	Long version (6GT2090-0QA00-0AX3)
	
Material: V2A sheet-steel with thickness 2.5 mm BI 2.5 DIN 59382 1.4541	

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Assembly of data memory with holder

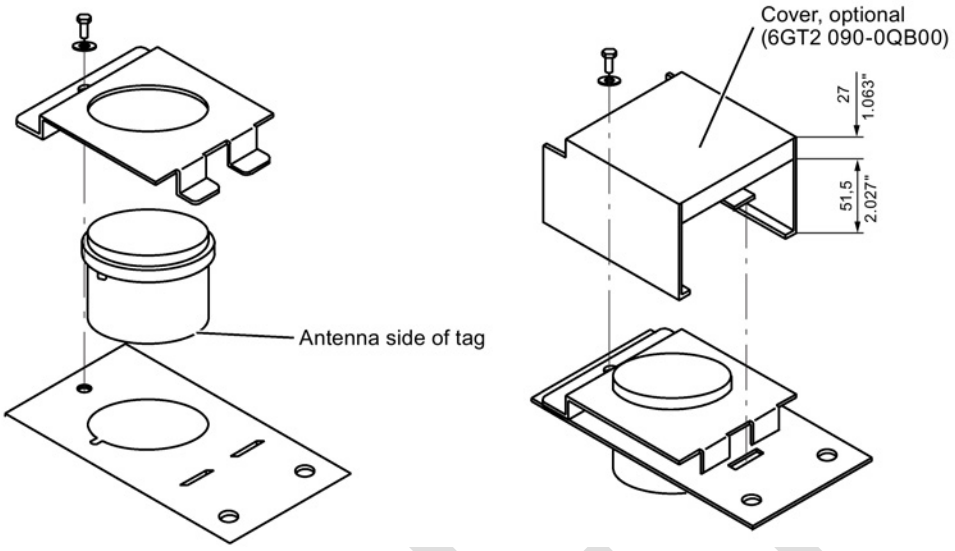

Figure 7-24 Assembly of tag with holder

Scope of supply

The holder is provided with all mounting parts and a mounting diagram. Mounting screws for securing the holder are not included. The mounting screws are of diameter M 10. The minimum length is 25 mm. The optional cover can be used for the long and short versions of the holder.

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Universal holder

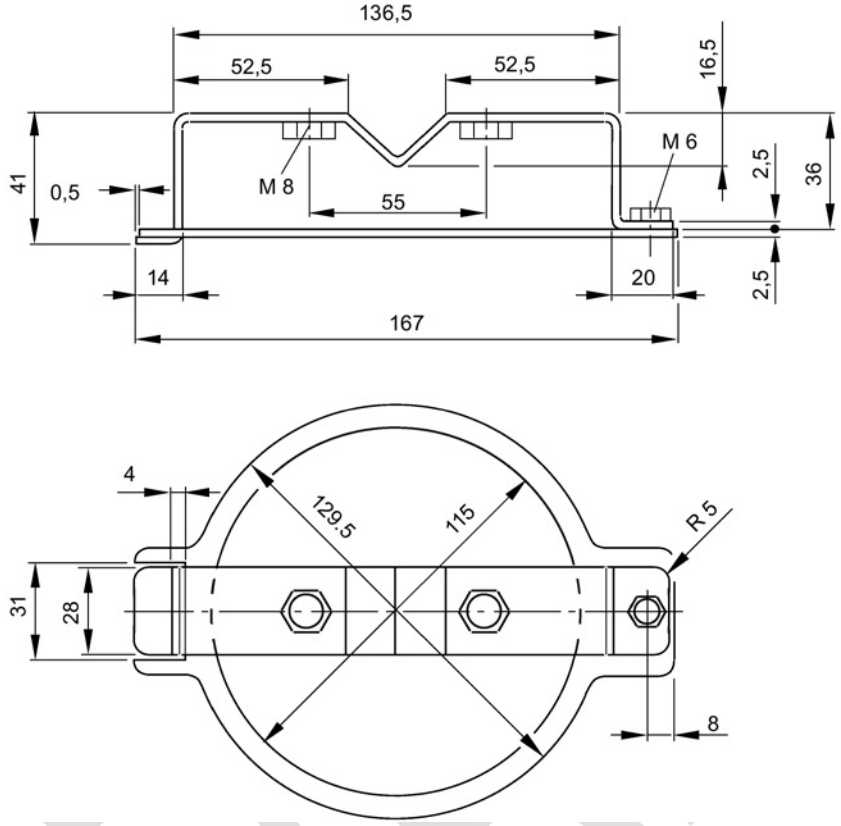

Figure 7-25 Universal holder 6GT2590-0QA00

7.8.3.2 Metal-free area

Direct mounting of the RF380T on metal is permitted.

Mounting of RF380T on metal

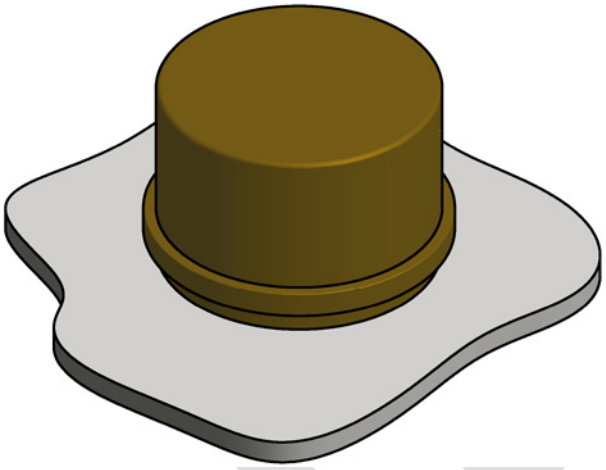

Figure 7-26 Mounting of RF380T on metal

Flush-mounting of RF380T in metal:

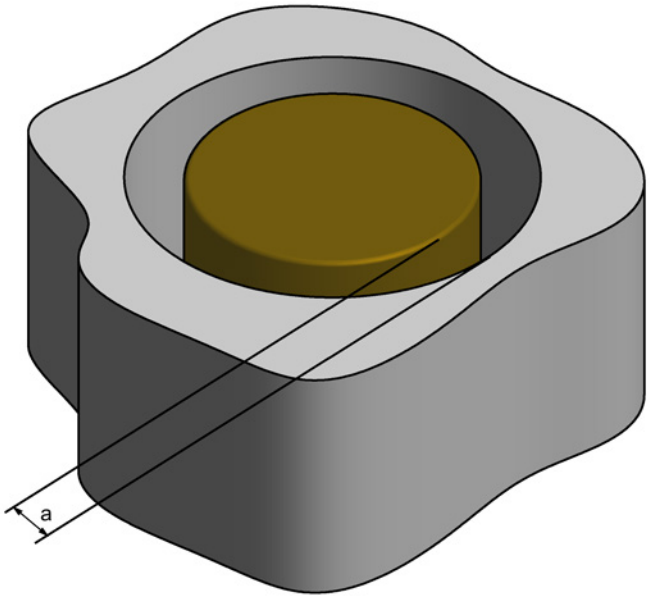

Figure 7-27 RF380T flush-mounted in metal

The standard value for a is ≥ 40 mm. At lower values, the field data change significantly, resulting in a reduction in the range.

7.8.4 Configuring instructions

7.8.4.1 Temperature dependence of the transmission window

The guidelines in the section "Planning the RF300 system" apply to configuration of heat-resistant data memories, with the exception of the limit distance and field length at temperatures above 85 °C. At temperatures above 85 °C, the length of the transmission window is reduced by up to 10%.

7.8.4.2 Temperature response in cyclic operation

At ambient temperatures (T_u) up to 110 °C, cyclic operation is not necessary, i.e. up to this temperature, the transponder can be in constant operation.

Note

Calculation of the temperature curves

Calculation of the temperature curves or of a temperature profile can be carried out on request by Siemens AG. Exact knowledge of the internal temperature facilitates configuration for time-critical applications.

You can also carry out the calculation with the aid of the "SIMATIC RF Temperature Calculator" on the "Ident Systems Software & Documentation" DVD (refer to the section "DVD "Ident Systems Software & Documentation" (Page 416)").

Ambient temperatures > 110 °C

Note

Cancellation of warranty

The internal temperature of the data memory must not exceed the critical threshold of 110 °C. Each heating phase must be followed by a cooling phase. No warranty claims will otherwise be accepted.

Some limit cycles are listed in the table below:

Table 7- 20 Limit cycles of data memory temperature

T_u (heating up)	Heating up	T_u (cooling down)	Cooling down
220 °C	0.5 h	25 °C	> 2 h
200 °C	1 h	25 °C	> 2 h
190 °C	1 h	25 °C	> 1 h 45 min
180 °C	2 h	25 °C	> 5 h
170 °C	2 h	25 °C	> 4 h

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The internal temperature of the tag follows an exponential function with which the internal temperature and the operability of the tag can be calculated in advance. This is particularly relevant to temperature-critical applications or those with a complex temperature profile.

Ambient temperatures > 220°C

Note

Cancellation of warranty

The data memory must not be exposed to ambient temperatures > 220 °C. No warranty claims will otherwise be accepted.

However, the mechanical stability is retained up to 230 °C!

Example of a cyclic sequence

Table 7- 21 Typical temperature profile of an application in the paint shop

Start of tag at initial point	Duration (min)	Ambient temperature (°C)
Electrolytic dip	20	30
Electrolytic dip dryer	60	200
Transport	60	25
PVC dryer	25	170
Transport	60	25
Filler dryer	60	160
Transport	60	25
Top coat dryer	60	120
Transport	60	25
Wax dryer	25	100
Transport	150	25

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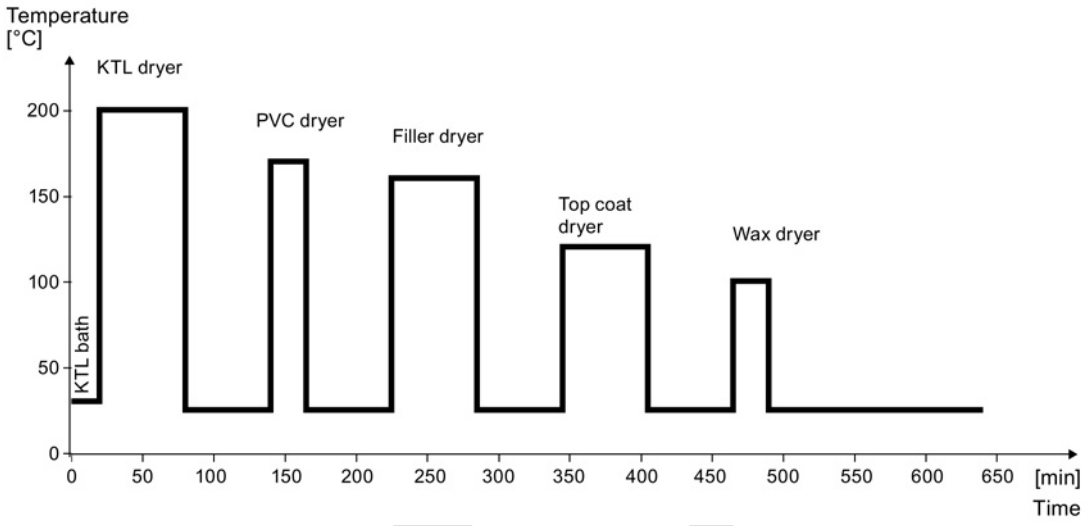

Figure 7-28 Graphic trend of temperature profile from above table

The simulation results in the following:

Following a simulation time of 36.5 hours, a total of 3 cycles were carried out, and an internal temperature of 90 degrees Celsius was reached.

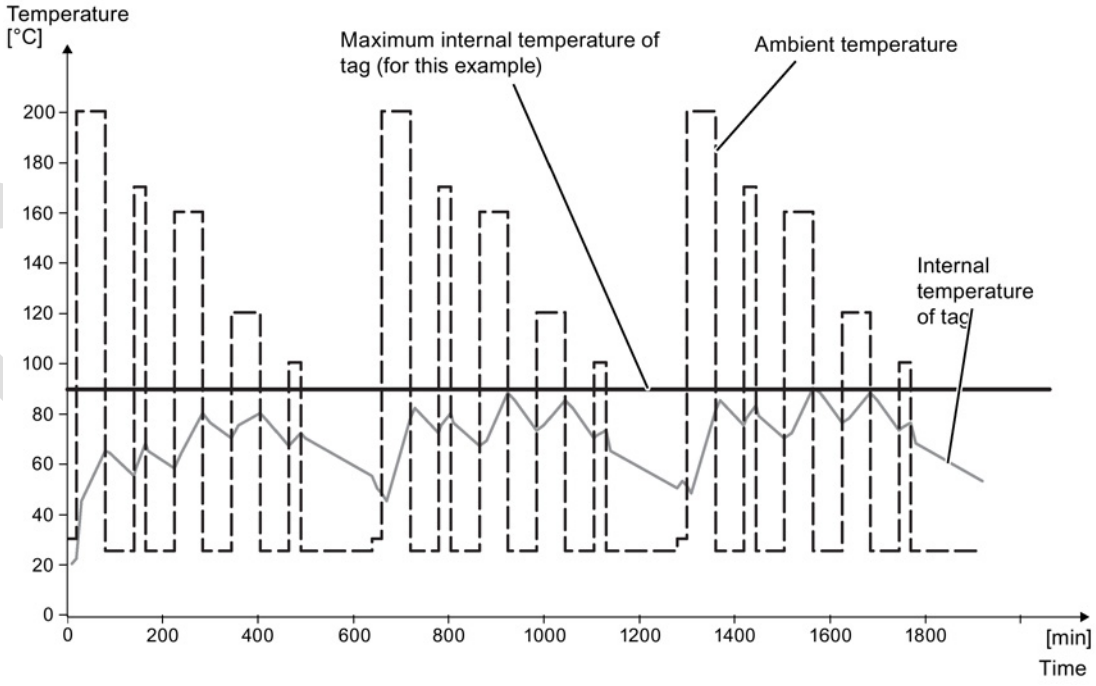

Figure 7-29 Complete temperature response due to simulation

7.8.5 Use of the transponder in the Ex protection area

The TÜV SÜD Automotive GmbH as approved test center as well as the TÜV SÜD Product Service GmbH as certification center, identification number 0123, as per Article 9 of the Directive of the European Council of 23 March 1994 (94/9/EC), has confirmed the compliance with the essential health and safety requirements relating to the design and construction of equipment and protective systems intended for use in hazardous areas as per Annex II of the Directive. The essential health and safety requirements are satisfied in accordance with the following standards:

Table 7- 22 Approvals

Document	Title
EN 60079-0: 2006	Electrical equipment for hazardous gas atmospheres - Part 0: General requirements
EN 60079-15: 2005	Electrical equipment for hazardous gas atmospheres - Part 15: Design, testing and identification of electrical equipment with type of protection "n"
DIN VDE 0848-5: 2001 (in parts)	Safety in electrical, magnetic and electromagnetic fields - Part 5: Explosion protection
ZLS SK 107.1	Central office of the states for safety; test components

Identification

Table 7- 23 The identification of the electrical equipment as an encapsulated unit

	II 3G Ex nC IIB T5
-25°C to +70°C	
Um=30Vdc	

The equipment is assigned the following references:

XXXYYYZZZ [= serial number, is assigned during production]
TPS 09 ATEX 1 459 X [= certificate number]

"No use of the equipment in the vicinity of processes generating high charges"

7.8.5.1 Use of the transponder in hazardous areas for gases

Temperature class delineation for gases

The temperature class of the transponder for hazardous areas depends on the ambient temperature range:

Ambient temperature range	Temperature class
-25 °C to +70 °C	T5

⚠ WARNING

Ignitions of gas-air mixtures

- When using the RF380T transponder, check that the temperature class is kept to in conjunction with the requirements of the area of application.
  If the temperature ranges are exceeded during use of the transponder, gas-air mixtures may be ignited.
- The maximum transmit power of the transmitter used to operate the transponder must not exceed 2 W.
  If the transmit power id not kept to, gas-air mixtures may ignite.

7.8.5.2 Installation and operating conditions for the hazardous area

a) Use of the equipment in the vicinity of processes generating high charges is not allowed.

b) The equipment must be mechanically protected when installed.

7.8.6 Cleaning the mobile data memory

Note

Do not clean the transponder with mechanical tools, sand-blasting or pressure hose. These cleaning methods result in damage to the transponder.

Clean the transponder only with the chemical cleansing agents listed in Chapter Chemical resistance of the transponders (Page 90).

7.8.7 Technical specifications

Table 7- 24 RF380T technical specifications

	6GT2800-5DA00
Product type designation	SIMATIC RF380T
Memory	
Memory organization	in bytes
Memory configuration	
• UID	• 4 bytes EEPROM
• User memory	• 32 KB FRAM
• OPT memory	• 20 bytes EEPROM

	6GT2800-5DA00
Read cycles (at < 40 °C)	> 10^{10}
Write cycles (at < 40 °C)	> 10^{10}
Data retention time (at < 40 °C)	> 10 years
Write/read distance (S_g)	Dependent on the reader used, see section "Field data of RF300 transponders (Page 49)"
MTBF (Mean Time Between Failures)	1177 years

Mechanical specifications	
Housing	
• Material	• PPS
• Color	• Anthracite
Recommended distance to metal	≥ 0 mm
Power supply	Inductive, without battery

Permitted ambient conditions	
Ambient temperature	
• During operation	• -25 to +110 °C
	• -25 … +220 °C: cyclic operation possible
• During transportation and storage	• -40 to +110 °C
Degree of protection to EN 60529	IP68
Shock-resistant to EN 60721-3-7, Class 7 M3	50 g [1)2)]
Vibration-resistant to EN 60721-3-7, Class 7 M3	5 g [2)]
Torsion and bending load	Not permitted

Design, dimensions and weight	
Dimensions (Ø x H)	114 x 83 mm
Weight	900 g
Type of mounting	Holder (must be ordered separately)

1) Applies only in conjunction with the original support

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

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7.8.8 Dimensional drawing

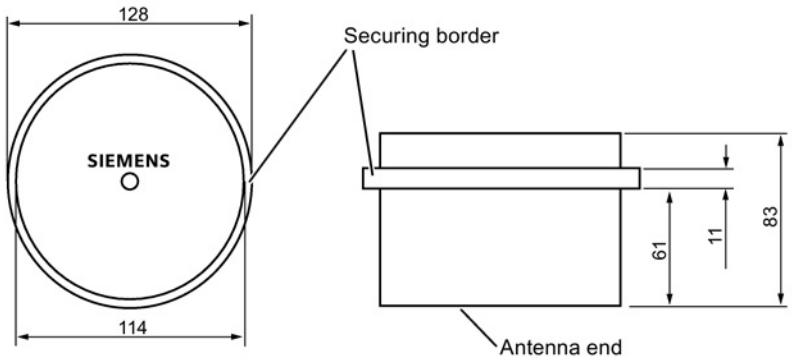

Figure 7-30 Dimension drawing RF380T

Dimensions in mm

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ISO transponder

8

Features of the ISO transponders

The transponders (MDS D) that are compatible with ISO 15693 represent a cost-effective alternative to RF300 transponders. The performance that can be achieved with this (transmission speed, memory size), however, is considerably less than with RF300 transponders.

You will find more information on transmission speeds in the section "Communication between communications module, reader and transponder (Page 47)".

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8.1 Memory configuration of ISO the transponders

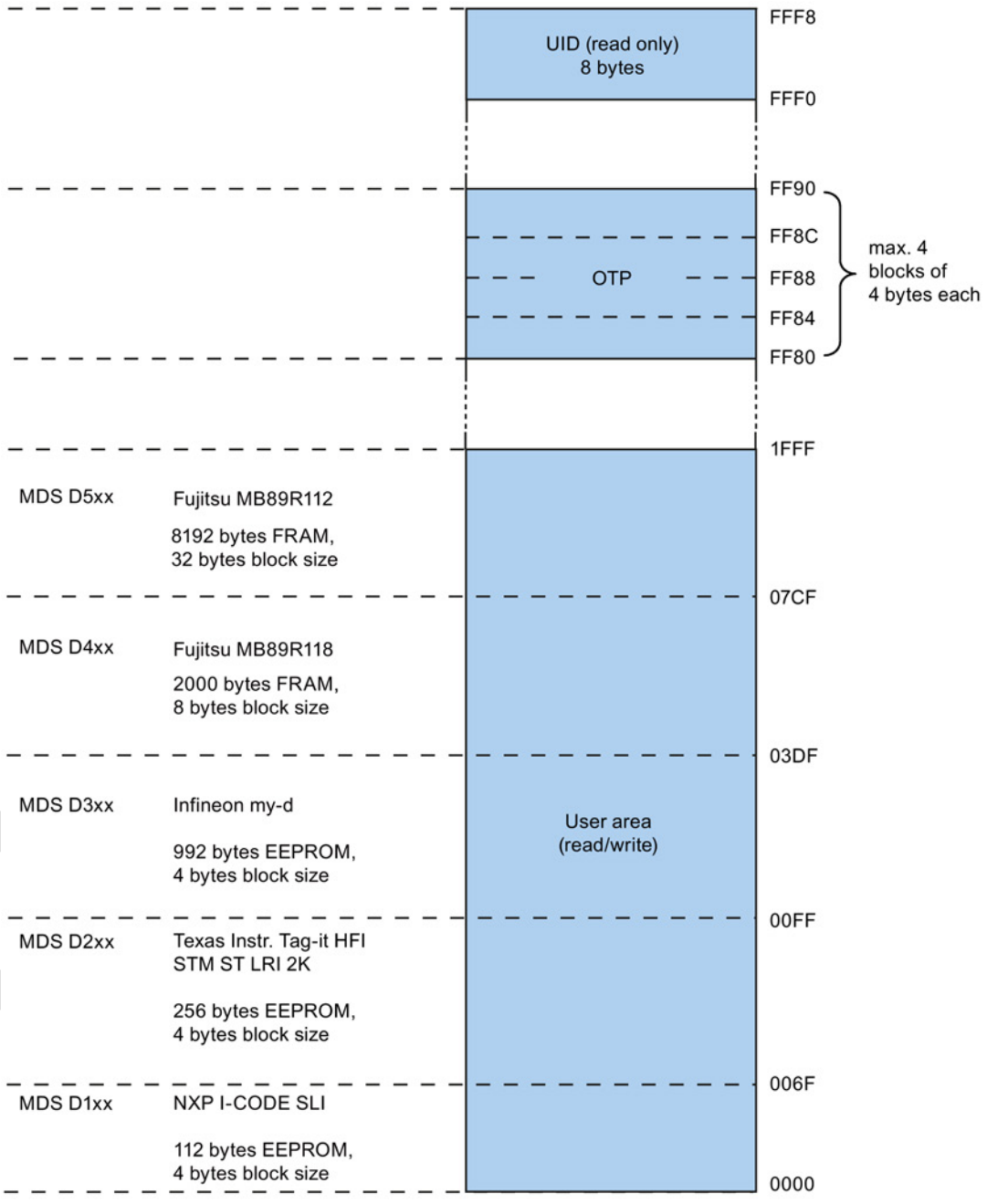

Figure 8-1 Memory configuration of ISO the transponders

Memory areas

Depending on the manufacturer of the transponder chip, the memory configuration of an ISO transponder consists of varying sizes of user memory.

The typical sizes are 112 bytes, 256 bytes, 992 bytes EEPROM or 2000 bytes FRAM. Each ISO transponder chip has an 8-byte long unique serial number (UID, read only). This UID is transferred as an 8 byte value through a read command to address FFF0 with a length of 8.

OTP area

For the OTP area, a 16-byte address space is always reserved at the end of the memory area. The blocks are divided up depending on the chip (see technical specifications). Note that the corresponding addresses for the user data are therefore not available to the application when the OTP area is used.

A total of 4 block addresses ("mapped" addresses) are provided:

- FF80
- FF84
- FF88
- FF8C

A write command to this block address with a valid length (4, 8, 12, 16 bytes depending on the block address) protects the written data from subsequent overwriting.

Note

Exception Fujitsu chip (MDS D4xx and MDS D522)

The Fujitsu chip MB89R118 (MDS D4xx) has 8-byte blocks, which means that only 2 block addresses have to be addressed: FF80 and FF88 with the length 8 and 16 bytes).

The Fujitsu chip MB89R112 (MDS D5xx) has 32 byte blocks and can therefore not be addressed in the OTP area.

Note

Restriction to the use of the OTP

Observe the following restrictions when using OTP:

- The OTP write/lock command can only be sent in static operation.
- The OTP write/lock command can not be sent as a chained command.

The Fujitsu chip MB89R112 (MDS D5xx) has 32 byte blocks and can therefore not be addressed in the OTP area.

Note

Use of the OTP area is not reversible

If you use the OPT area, you cannot undo it, because the OPT area can only be written to once.

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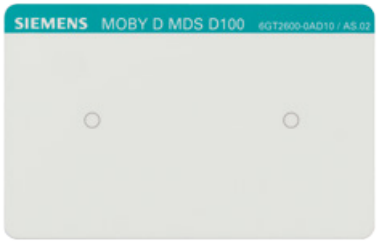
8.2 MDS D100

8.2.1 Characteristics

MDS D100	Characteristics	
	Area of application	From simple identification such as electronic barcode replacement/supplementation, through warehouse and distribution logistics, right up to product identification.
	Memory size	112 bytes of EEPROM user memory
	Write/read range	See section Field data of ISO transponders (MDS D) (Page 52).
	Mounting on metal	Yes, with spacer
	ISO standard	ISO 15693
	Degree of protection	IP68

8.2.2 Ordering data

Table 8- 1 Ordering data for MDS D100

	Article number
MDS D100	6GT2600-0AD10

Table 8- 2 Ordering data for MDS D100 accessory

	Article number
Spacer (in conjunction with fixing pocket 6GT2190-0AB00)	6GT2190-0AA00
Fixing pocket (in conjunction with spacer 6GT2190-0AA00)	6GT2190-0AB00
Fixing pocket (not suitable for fixing directly onto metal)	6GT2390-0AA00

8.2.3 Metal-free area

Direct mounting of the MDS D100 on metal is not allowed. A distance of ≥ 20 mm is recommended. This can be achieved using the spacer 6GT2190-0AA00 in combination with the fixing pocket 6GT2190-0AB00.

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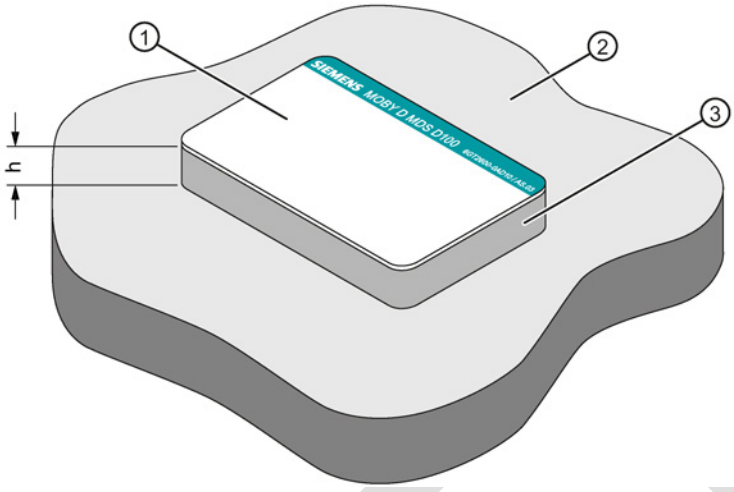
Mounting on metal

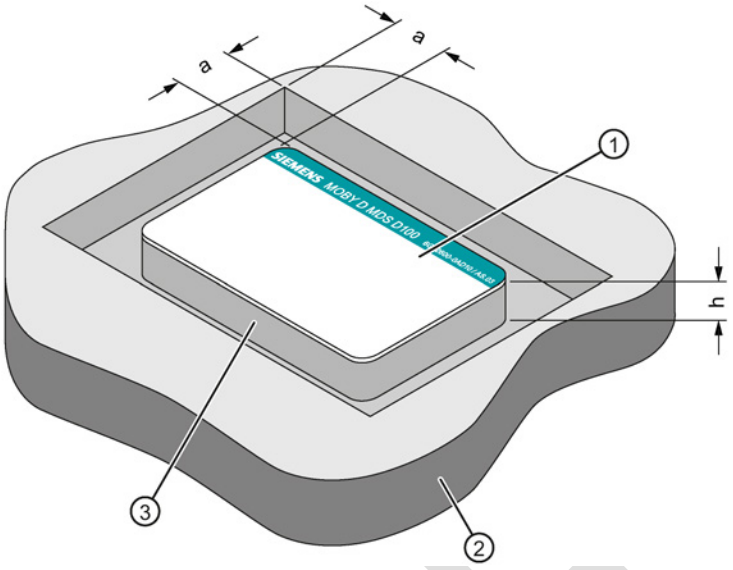


h ≥ 20 mm
① Data memory
② Metal
③ Non-metal

Figure 8-2 Mounting of the MDS D100 on metal with spacer

DRAFT

Flush-mounting



a ≥ 20 mm
h ≥ 20 mm
① Data memory
② Metal
③ Non-metal

Figure 8-3 Flush-mounting of MDS D100 in metal with spacer

Note

If the minimum guide values (h or a) are not observed, a reduction of the field data results.

8.2.4 Technical data

Table 8- 3 Technical specifications for MDS D100

	6GT2600-0AD10
Product type designation	SIMATIC MDS D100
Memory	
Memory configuration	
• UID	• 8 bytes
• User memory	• 112 bytes EEPROM
• OPT memory	• 16 bytes (EEPROM)

	6GT2600-0AD10
Read cycles (at < 40 °C)	> 10^{14}
Write cycles (at < 40 °C)	> 10^{6}
Data retention time (at < 40 °C)	> 10 years
Write/read distance (S_g)	Dependent on the reader used, see section "Field data of ISO transponders (MDS D) (Page 52)"
MTBF (Mean Time Between Failures)	228 years
Mechanical specifications	
Housing	
• Material	• PC
• Color	• White/petrol
Recommended distance to metal	≥ 20 mm
Power supply	Inductive, without battery
Permitted ambient conditions	
Ambient temperature	
• During operation	• -25 to +80 °C
• During transportation and storage	• -25 to +80 °C
Degree of protection to EN 60529	• IP68
Shock-resistant to EN 60721-3-7 class 7M3	ISO 10373 / ISO 7810 [1]
Vibration-resistant to EN 60721-3-7, class 7M3	ISO 10373 / ISO 7810 [1]
Torsion and bending load	ISO 10373/ISO 7816-1
Design, dimensions and weight	
Dimensions (L x W x H)	85.6 x 54 x 0.9 mm
Weight	5 g
Type of mounting	• Fixing pocket • Glued

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

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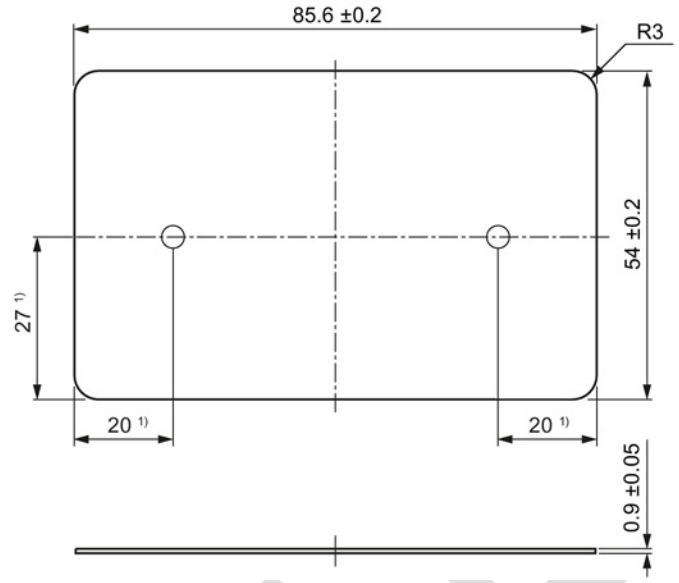
8.2.5 Dimension drawing



Dimensions in mm

1) Dimensions for mounting holes

Figure 8-4 MDS D100 dimension drawing

DRAFT

8.3 MDS D117

8.3.1 Features

MDS D117	Characteristics	
	Area of application	Very compact data carrier that can be cemented into objects where precise positioning is necessary; e.g. tool identification, workpiece holders etc..
	Memory size	112 bytes of EEPROM user memory
	Write/read range	See section "Field data of ISO transponders (MDS D) (Page 52)."
	Mounting in metal	Yes, flush-mounted in metal
	ISO standard	ISO 15693
	Degree of protection	IP68/IPx9K

8.3.2 Ordering data

Table 8- 4 Ordering data for MDS D117

	Article number
MDS D117 Pack of 10	6GT2600-0AG00

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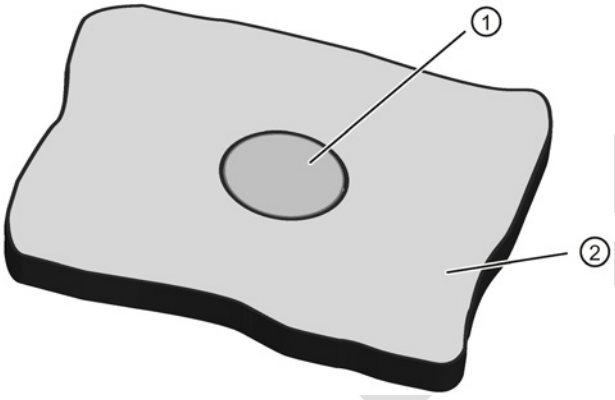
8.3.3 Mounting in metal

Flush-mounted in metal



① Transponder
② Metal

8.3.4 Technical specifications

Table 8- 5 Technical specifications for MDS D117

	6GT2600-0AG00
Product type designation	SIMATIC MDS D117
Memory	
Memory configuration	
• UID	• 8 bytes
• User memory	• 112 bytes EEPROM
• OPT memory	• 16 bytes (EEPROM)
Read cycles (at < 40 °C)	> 10^{14}
Write cycles (at < 40 °C)	> 10^{6}
Data retention time (at < 40 °C)	> 10 years
Write/read distance (S_g)	Dependent on the reader used, see section "Field data of ISO transponders (MDS D) (Page 52)"
MTBF (Mean Time Between Failures)	228 years

	6GT2600-0AG00
Mechanical specifications	
Housing	
• Material	• PPS
• Color	• Black
Recommended distance to metal	≥ 0 mm
Power supply	Inductive, without battery
Permitted ambient conditions	
Ambient temperature	
• During operation	• -25 to +85 °C
• During transportation and storage	• -40 to +125 °C
Degree of protection to EN 60529	IP68 2 hours, 2 bar, +20 °C
Shock-resistant to EN 60721-3-7 class 7M3	100 g [1]
Vibration-resistant to EN 60721-3-7, class 7M3	20 g [1]
Torsion and bending load	Not permitted
Design, dimensions and weight	
Dimensions (Ø x H)	4 x 5.2 mm
Weight	1 g
Type of mounting	• Fixing pocket • Glued

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

8.3.5 Dimension drawing

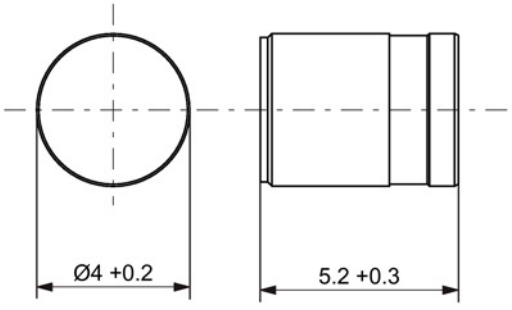


Figure 8-5 Dimensions in mm

8.4 MDS D124

8.4.1 Characteristics

MDS D124	Characteristics	
	Area of application	Application areas in production automation (e.g. small paintshops up to +180 °C)
	Memory size	112 bytes of EEPROM user memory
	Write/read range	See section "Field data of ISO transponders (MDS D) (Page 52)".
	Mounting on metal	Yes, with spacer
	ISO standard	ISO 15693
	Degree of protection	IP68/IPx9K

8.4.2 Ordering data

Table 8- 6 Ordering data for MDS D124

	Article number
MDS D124	6GT2600-0AC10

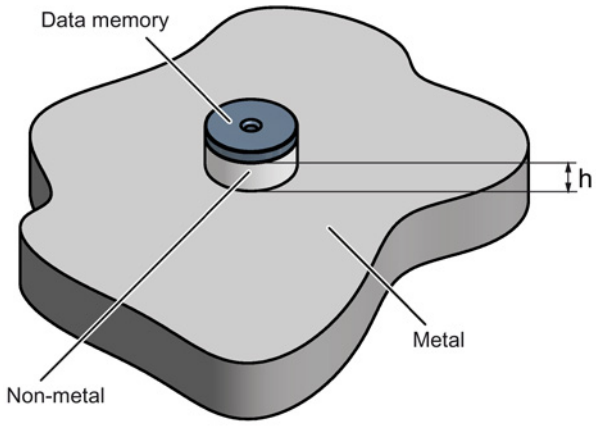
Table 8- 7 Ordering data for MDS D124 accessories

	Article number
Spacer	6GT2690-0AK00

DRAFT

8.4.3 Mounting on metal

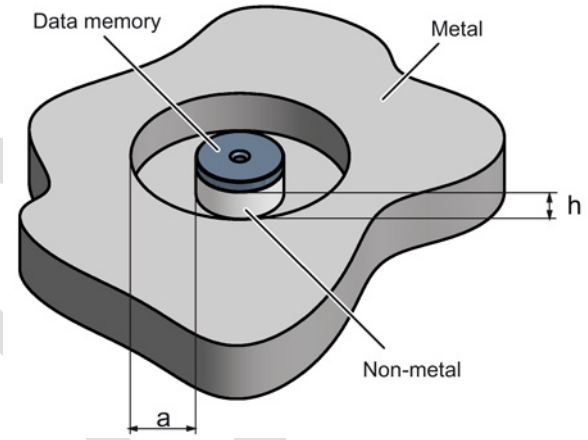
Mounting on metal



h ≥ 15 mm

Figure 8-6 Mounting the MDS D124/D324/D424/D524/E624 and RF320T on metal with spacer

Flush-mounting



h ≥ 15 mm

a ≥ 25 mm

Figure 8-7 Flush-mounting of the MDS D124/D324/D424/D524/E624 and RF320T in metal with spacer

Note

Going below the distances

If the distances (a and h) are not observed, a reduction of the field data results. It is possible to mount the MDS with metal screws (M3 countersunk head screws). This has no tangible impact on the range.

8.4.4 Technical specifications

Table 8- 8 Technical specifications for MDS D124

	6GT2600-0AC10
Product type designation	SIMATIC MDS D124
Memory	
Memory configuration	
• UID	• 8 bytes
• User memory	• 112 bytes EEPROM
• OPT memory	• 16 bytes (EEPROM)
Read cycles (at < 40 °C)	> 10^{14}
Write cycles (at < 40 °C)	> 10^{6}
Data retention time (at < 40 °C)	> 10 years
Write/read distance (S_g)	Dependent on the reader used, see section "Field data of ISO transponders (MDS D) (Page 52)"
MTBF (Mean Time Between Failures)	228 years
Mechanical specifications	
Housing	
• Material	• PPS
• Color	• Black
Recommended distance to metal	≥ 15 mm
Power supply	Inductive, without battery
Permitted ambient conditions	
Ambient temperature	
• During operation	• -25 to +180 °C
	• from +125 °C: 20% reduction in the limit distance
	• from +140 °C: No processing possible

	6GT2600-0AC10
	• at +180 °C: Tested up to 5000 hours or 3000 cycles
• During transportation and storage	• -40 to +125 °C
Degree of protection to EN 60529	• IP68 2 hours, 2 bar, +20 °C • IPx9K steam jet: 150 mm; 10 to 15 l/min; 100 bar; 75 °C
Shock-resistant to EN 60721-3-7 class 7M3	100 g [1]
Vibration-resistant to EN 60721-3-7, class 7M3	20 g [1]
Torsion and bending load	Not permitted
Design, dimensions and weight	
Dimensions (Ø x H)	4 x 5.2 mm
Weight	5 g
Type of mounting	• 1 x M3 screw [2] ≤ 1 Nm • Glued • With spacer

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

[2]) To prevent it loosening during operation, secure the screw with screw locking varnish.

8.4.5 Use of the MDS D124 in hazardous area

The mobile data memory MDS D124, device group II, category 1G or 1D may be installed and operated in zones 0, 1 and 2 or in the zones 20, 21 and 22.

The following requirements of the 94/9/EC directive are met:

- EN 60079-0:2009
- EN 60079-11:2007
- EN 61241-11:2006
- EN 60079-26:2007

When used in hazardous areas, the MDS D124 must not be operated with field strengths > 5 A / m to avoid impermissible heating. This is not the case with readers from the SIMATIC RF range (MOBY D, RF200 and RF300).

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Identification

II 1 G Ex ia IIC T3 to T6 Ga

or

II 1 D Ex ia IIIC T80 °C to T180 °C Da

TÜV 12 ATEX 084413 X

The temperature class or the maximum surface temperature depends on the maximum ambient temperature. The relationship between temperature class (gas) or maximum surface temperature (dust) can be found in the following table.

Table 8- 9 Ambient temperature

Ambient temperature range	Temperature class	Max. surface temperature
-25 ... +150 ℃	T3	T180
-25 ... +100 ℃	T4	T130
-25 ... +65 ℃	T5	T95
-25 ... +50 ℃	T6	T80

Note

Safety markings for hazardous areas

Since there is not enough space on the MDS D124 for the safety mark, this is supplied as a label with the device.

This must be affixed immediately next to the MDS D124 so that the label clearly relates to the device.

⚠ WARNING

Gefahr durch elektrostatische Entladungen

Potential electrostatic charging hazard

Danger potentiel de charges électrostatiques

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Note

Installation and operating conditions for hazardous areas:

- Use of the device in the vicinity of processes generating high charges is not allowed.
- The device must be installed so that it is mechanically protected.
- For applications requiring devices of category 1, the device must be mounted on a grounded, conductive base.
- It must only be cleaned with a damp cloth.
- The device is suitable for use in atmospheres containing dust, however not for full immersion in dust.

8.4.6 Dimension drawing

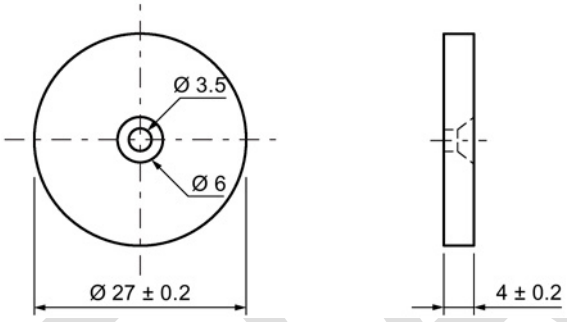

Figure 8-8 Dimension drawing of MDS D124

All dimensions in mm

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8.5 MDS D126

8.5.1 Characteristics

MDS D126	Characteristics	
	Area of application	Compact and rugged ISO transponder; suitable for identification of transport units in production-related logistics; can also be deployed in harsh conditions
	Memory size	112 bytes of EEPROM user memory
	Write/read range	See section Field data of ISO transponders (MDS D) (Page 52)
	Mounting on metal	Yes, with spacer
	ISO standard	ISO-15693
	Degree of protection	IP68

8.5.2 Ordering data

Table 8- 10 Ordering data for MDS D126

	Article number
MDS D126	6GT2600-0AE00

Table 8- 11 Ordering data for MDS D126 accessories

	Article number
Spacer	6GT2690-0AL00

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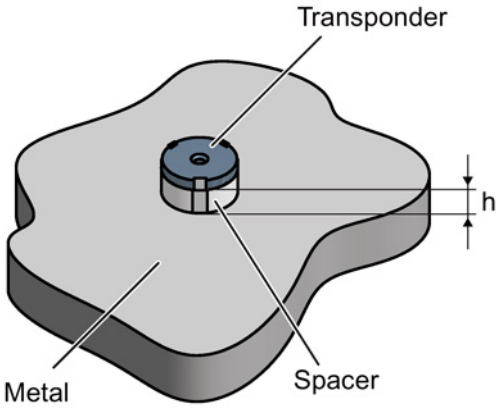
8.5.3 Mounting on metal

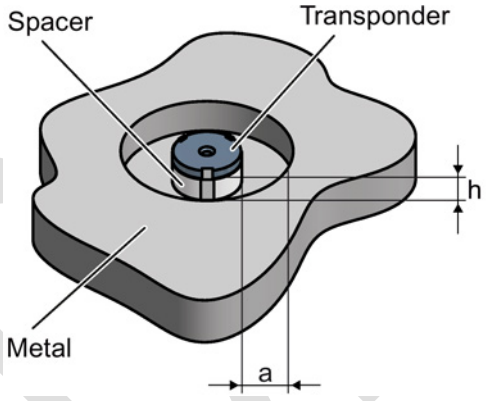
Mounting on metal



h ≥ 25 mm

Figure 8-9 Mounting the MDS D126 / D426 / D526 on metal with spacer

Flush-mounted in metal



h ≥ 25 mm

a ≥ 50 mm

Figure 8-10 Flush installation of the MDS D126 / D426 / D526 in metal with spacer

8.5.4 Technical specifications

Table 8- 12 Technical specifications for the MDS D126

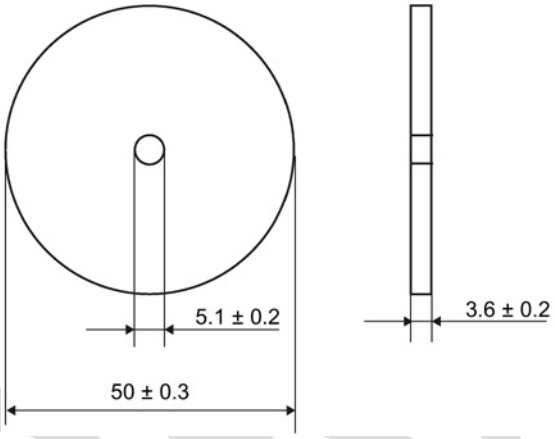
	6GT2600-0AE00
Product type designation	SIMATIC MDS D126
Memory	
Memory configuration	
• UID	• 8 bytes
• User memory	• 112 bytes EEPROM
• OPT memory	• 16 bytes (EEPROM)
Read cycles (at < 40 °C)	> 10^{14}
Write cycles (at < 40 °C)	> 10^{6}
Data retention time (at < 40 °C)	> 10 years
Write/read distance (S_g)	Dependent on the reader used, see section "Field data of ISO transponders (MDS D) (Page 52)"
MTBF (Mean Time Between Failures)	228 years
Mechanical specifications	
Housing	
• Material	• PA6.6 GF
• Color	• Black
Recommended distance to metal	≥ 25 mm
Power supply	Inductive, without battery
Permitted ambient conditions	
Ambient temperature	
• During operation	• -25 to +85 °C
• During transportation and storage	• -40 to +100 °C
Degree of protection to EN 60529	IP68 2 hours, 2 bar, +20 °C
Shock-resistant to EN 60721-3-7 class 7M3	50 g [1)]
Vibration-resistant to EN 60721-3-7, class 7M3	20 g [1)]
Torsion and bending load	Not permitted

	6GT2600-0AE00
Design, dimensions and weight	
Dimensions (Ø x H)	50 x 3.6 mm
Weight	13 g
Type of mounting	• 1 x M4 screw [2)] ≤ 1 Nm • Glued

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

[2]) To prevent it loosening during operation, secure the screw with screw locking varnish.

8.5.5 Dimension drawing



Dimensions in mm

Figure 8-11 Dimension drawing of MDS D126

8.6 MDS D127

8.6.1 Features

MDS D127	Characteristics	
	Area of application	Very compact data carrier that can be screwed into areas where precise positioning is necessary; e.g. tool identification, workpiece holders etc.
	Memory size	112 bytes of EEPROM user memory
	Write/read range	See section "Field data of ISO transponders (MDS D) (Page 52)"
	Mounting on metal	Yes, flush-mounted in metal
	ISO standard	ISO 15693
	Degree of protection	IP68/IPx9K

8.6.2 Ordering data

Table 8- 13 Ordering data for MDS D127

	Article number
MDS D127 Pack of 10 (A screw-in aid is supplied with each pack)	6GT2600-0AF00

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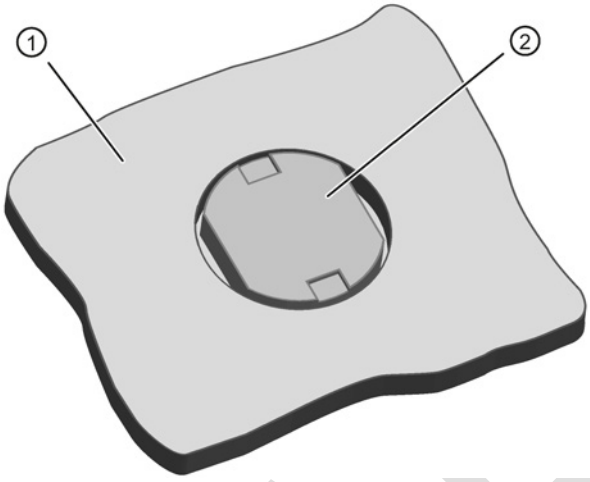
8.6.3 Mounting in metal

Flush-mounted in metal



① Metal
② Transponders

Note

Damage to the transponder due to improper mounting

To screw the MDS D127 into a suitable thread, use the supplied screw-in tool. This avoids damage to the MDS D127.

Figure 8-12 Screw-in aid for mounting the MDS D127

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8.6.4 Technical specifications

Table 8- 14 Technical specifications for MDS D127

	6GT2600-0AF00
Product type designation	SIMATIC MDS D127
Memory	
Memory configuration	
• UID	• 8 bytes
• User memory	• 112 bytes EEPROM
• OPT memory	• 16 bytes (EEPROM)
Read cycles (at < 40 °C)	> 10^{14}
Write cycles (at < 40 °C)	> 10^{6}
Data retention time (at < 40 °C)	> 10 years
Write/read distance (S_g)	Dependent on the reader used, see section "Field data of ISO transponders (MDS D) (Page 52)"
MTBF (Mean Time Between Failures)	228 years
Mechanical specifications	
Housing	
• Material	• PA6
• Color	• Black
Recommended distance to metal	≥ 0 mm
Power supply	Inductive, without battery
Permitted ambient conditions	
Ambient temperature	
• During operation	• -25 to +100 °C
• During transportation and storage	• -40 to +125 °C
Degree of protection to EN 60529	• IP68 2 hours, 2 bar, +20 °C • IPx9K steam jet: 150 mm; 10 to 15 l/min; 100 bar; 75 °C
Shock-resistant to EN 60721-3-7 class 7M3	100 g [1)]
Vibration-resistant to EN 60721-3-7, class 7M3	20 g [1)]
Torsion and bending load	Not permitted

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	6GT2600-0AF00
Design, dimensions and weight	
Dimensions (Ø x H)	M6 x 5.8 mm
Weight	1 g
Type of mounting	• Glued • 1 x M3 screw

1) The values for shock and vibration are maximum values and must not be applied continuously.

8.6.5 Dimension drawing

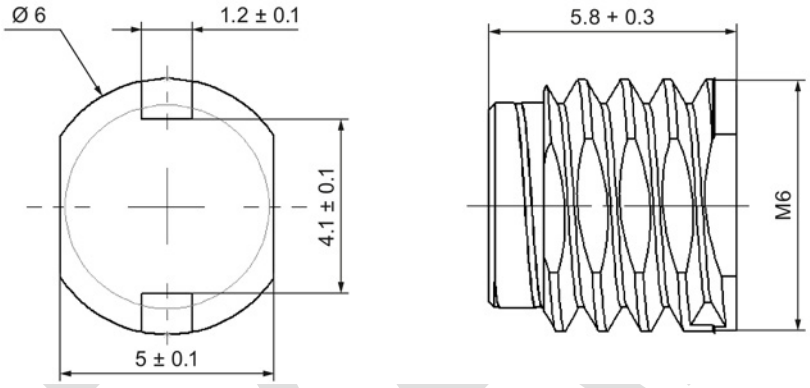

Figure 8-13 Dimensions in mm

8.7 MDS D139

8.7.1 Characteristics

MDS D139	Characteristics	
	Area of application	Applications in production logistics and in assembly lines subject to high temperatures (up to +220 °C) Typical application areas: • Paintshops and their preparatory treatments) • Primer coat, electrolytic dip area, cataphoresis with the associated drying furnaces • Top coat area with drying furnaces • Washing areas at temperatures > 85 °C • Other applications with higher temperatures
	Memory size	112 bytes of EEPROM user memory
	Write/read range	See section Field data of ISO transponders (MDS D) (Page 52).
	Mounting on metal	Yes, with spacer
	ISO standard	ISO 15693
	Degree of protection	IP68/IPx9K

Note

Compatibility with SIMATIC RF300 depending on the article number

The transponder MDS D139 with article number 6GT2600-0AA10 is compatible with the SIMATIC RF300 system. The transponder MDS D139 with article number 6GT2600-0AA00 is not compatible.

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8.7.2 Ordering data

Table 8- 15 Ordering data for MDS D139

	Article number
MDS D139	6GT2600-0AA10

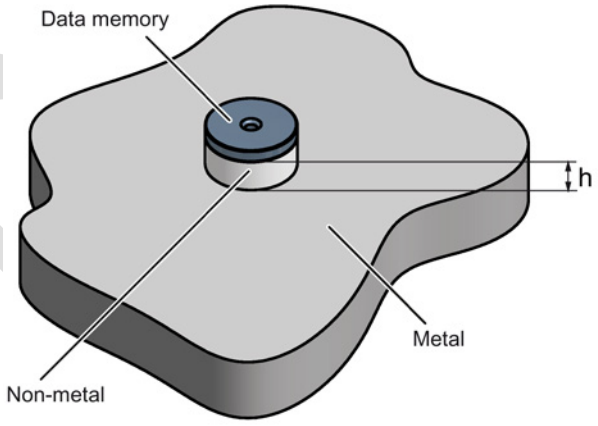
Table 8- 16 Ordering data for MDS D139 accessory

	Article number
Spacer	6GT2690-0AA00
Quick change holder (Ø x H): 22 x 60 mm	6GT2690-0AH00
Quick change holder (Ø x H): 22 x 47 mm	6GT2690-0AH10

8.7.3 Mounting on metal

Direct mounting of the MDS D139/D339 on metal is not allowed. A distance of ≥ 30 mm is recommended. This can be achieved using spacers (see "Ordering data (Page 423)").

Mounting on metal

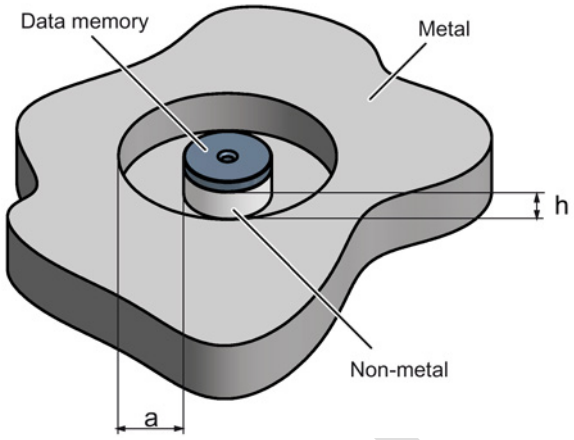


h ≥ 30 mm

Figure 8-14 Mounting the MDS D139/D339 on metal with spacer

Flush-mounting

It is possible to mount the MDS D139/D339 in metal. With large antennas, for example ANT D5, this leads to a reduction of ranges.



h ≥ 30 mm

a ≥ 100 mm

Figure 8-15 Flush-mounting of the MDS D139/D339 in metal with spacer

Note

Going below the distances

If the distances (a and h) are not observed, a reduction of the field data results. It is possible to mount the MDS with metal screws (M5). This has no tangible impact on the range. It is recommended that a test is performed in critical applications.

8.7.4 Cleaning the mobile data memory

Note

Do not clean the transponder with mechanical tools, sand-blasting or pressure hose. These cleaning methods result in damage to the transponder.

Clean the transponder only with the chemical cleansing agents listed in Chapter Chemical resistance of the transponders (Page 90).

8.7.5 Technical specifications

Table 8- 17 Technical specifications for MDS D139

	6GT2600-0AA10
Product type designation	SIMATIC MDS D139
Memory	
Memory configuration	
• UID	• 8 bytes
• User memory	• 112 bytes EEPROM
• OPT memory	• 16 bytes (EEPROM)
Read cycles (at < 40 °C)	> 10^{14}
Write cycles (at < 40 °C)	> 10^{6}
Data retention time (at < 40 °C)	> 10 years
Write/read distance (S_g)	Dependent on the reader used, see section "Field data of ISO transponders (MDS D) (Page 52)"
MTBF (Mean Time Between Failures)	228 years
Mechanical specifications	
Housing	
• Material	• PPS
• Color	• Black
Recommended distance to metal	≥ 30 mm
Power supply	Inductive, without battery
Permitted ambient conditions	
Ambient temperature	
• During operation	• -25 to +220 °C
	• from +125 °C: 20% reduction in the limit distance
	• from +140 °C: No processing possible
	• at +200 °C: Tested up to 5000 hours or 6000 cycles
	• at +220 °C: Tested up to 2000 hours or 2000 cycles
• During transportation and storage	• -40 to +100 °C

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	6GT2600-0AA10
Degree of protection to EN 60529	• IP68 2 hours, 2 bar, +20 °C • IPx9K steam jet: 150 mm; 10 to 15 l/min; 100 bar; 75 °C
Shock-resistant to EN 60721-3-7 class 7M3	50 g [1)]
Vibration-resistant to EN 60721-3-7, class 7M3	20 g [1)]
Torsion and bending load	Not permitted

Design, dimensions and weight	
Dimensions (Ø x H)	85 x 15 mm
Weight	50 g
Type of mounting	1 x M5 screw [2)] 1.5 Nm

1 The values for shock and vibration are maximum values and must not be applied continuously.

2) For mounting with the spacer (6GT2690-0AA00), use a stainless steel M5 screw to avoid damaging the MDS in high temperatures (expansion coefficient).

8.7.6 Use of the MDS D139 in hazardous areas

The MDS D139 mobile data memory is classed as a piece of simple, electrical equipment and can be operated in Protection Zone 2, Device Group II, Category 3G.

The following requirements of the 94/9/EC directive are met:

- EN 60079-0:2006
- EN 60079-15:2005
- EN 61241-0:2006
- EN 61241-1:2004

Identification

II 3 G Ex nA II T2

II 3 D Ex tD A22 IP68 T 220°C

KEMA 09 ATEX 0133 X

Ta: -25 ... +220°C

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⚠ WARNING
Gefahr durch elektrostatische Entladungen
Potential electrostatic charging hazard
Danger potentiel de charges électrostatiques

Note

Installations- und Betriebsbedingungen für den Ex-Schutzbereich:

a) Der Einsatz des Gerätes in der Nähe von stark ladungserzeugenden Prozessen ist untersagt.

b) Das Gerät ist mechanisch geschützt zu montieren.

c) Die Montage muss auf einem geerdeten, leitenden Untergrund erfolgen.

d) Die Reinigung darf nur mit feuchtem Tuch erfolgen.

Installation and operating conditions for hazardous areas:

a) Use of the equipment in the vicinity of processes generating high charges is not allowed.

b) The equipment must be mechanically protected when installed.

c) Installation must be performed on a grounded and conductive mounting surface.

d) Cleaning only with a wet cloth

Conditions d'installation et de mise en oeuvre pour la zone de protection Ex :

a) L'utilisation de l'appareil près de processus générant de fortes charges est interdite.

b) L'appareil doit être monté de manière à être protégé mécaniquement.

c) Le montage doit être effectué sur un socle conducteur mis à la terre.

d) Nettoyage uniquement avec un chiffon humide

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8.7.7 Dimension drawings

Dimensional drawing of MDS D139

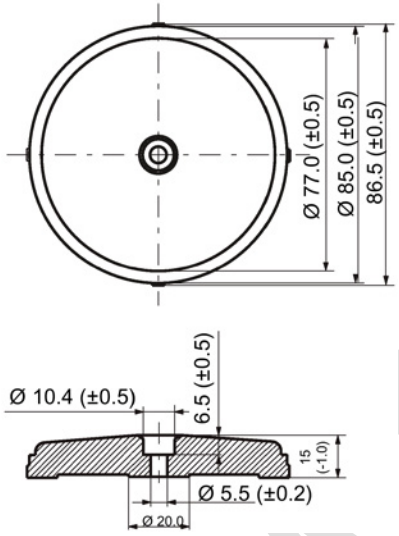

Figure 8-16 Dimensional drawing of MDS D139

Dimensions in mm

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8.8 MDS D160

8.8.1 Characteristics

MDS D160	Characteristics	
	Area of application	Thanks to its rugged packaging, the MDS D160 is a transponder that can be used under extreme environmental conditions. It is washable, heat-resistant and resistant to all chemicals generally used in the laundry process. Typical applications are, for example: • Rented work clothing • Hotel laundry • Surgical textiles • Hospital clothing • Dirt collection mats • Clothing for nursing homes/hostels
	Memory size	112 bytes of EEPROM user memory
	Write/read range	See section Field data of ISO transponders (MDS D) (Page 52).
	Mounting on metal	Yes, with spacer
	ISO standard	ISO 15693
	Degree of protection	IP68/IPx9K

8.8.2 Information for RF300 compatibility

Note

Compatibility with SIMATIC RF300 depending on MLFB number

Only the MDS D160 with MLFB 6GT2600-0AB10 is compatible with SIMATIC RF300.

8.8.3 Ordering data

Table 8- 18 Ordering data for MDS D160

	Article number
MDS D160	6GT2600-0AB10

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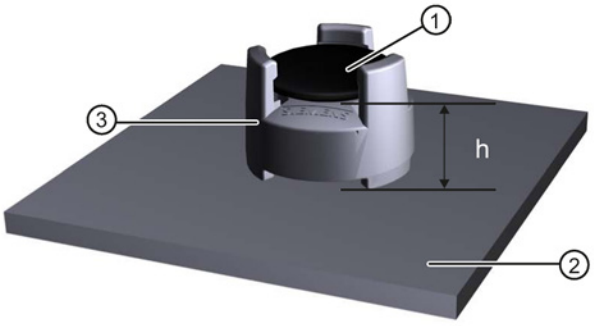
Table 8- 19 Ordering data for MDS D160 accessories

	Article number
Spacer	6GT2690-0AG00

8.8.4 Mounting on metal

Mounting on metal



① Transponder
② Metal carrier
③ Spacer
h ≥ 10 mm

Figure 8-17 Mounting the MDS D160 on metal with spacer

Note

Going below the minimum distance (h)

If the minimum distance (h) is not observed, a reduction of the field data results.
In critical applications, it is recommended that a test is performed.

Flush-mounting

Flush-mounting of the MDS D160 in metal is not permitted!

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8.8.5 Technical specifications

Table 8- 20 Technical specifications for the MDS D160

	6GT2600-0AB10
Product type designation	SIMATIC MDS D160
Memory	
Memory configuration	
• UID	• 8 bytes
• User memory	• 112 bytes EEPROM
• OPT memory	• 16 bytes (EEPROM)
Read cycles (at < 40 °C)	> 10^{14}
Write cycles (at < 40 °C)	> 10^{6}
Data retention time (at < 40 °C)	> 10 years
Write/read distance (S_g)	Dependent on the reader used, see section "Field data of ISO transponders (MDS D) (Page 52)"
MTBF (Mean Time Between Failures)	228 years
Mechanical specifications	
Housing	
• Material	• PPS
• Color	• beige
Recommended distance to metal	≥ 10 mm
Power supply	Inductive, without battery
Permitted ambient conditions	
Ambient temperature	
• In operation, during write/read access	• -25 … +85 °C
• In operation, outside write/read access	• -40 … +175 °C
	• from +125 °C: for 1000 hours, 20% reduction of the limit distance
	• from +140 °C: No processing possible
	• at +175 °C: 100 washing cycles tested
	• at +220 °C: Tested once for up to 30 seconds
• During transportation and storage	• -25 to +100 °C

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	6GT2600-0AB10
Mechanical strength	
• Isostatic pressure	• 300 bar for 5 min
• Axial pressure	• 1000 N for 10 s
• Radial pressure	• 1000 N for 10 s
Resistance to chemicals	All chemicals normally used in the washing process
MDS lifespan	At least 100 wash cycles
Degree of protection	• IP68 24 hours, 2 bar, +20 °C • IPx9K
Shock-resistant to IEC 68-2-27	40 g [1)] 18 ms; 6 axes; 2000 repetitions/h
Vibration-resistant to IEC 68-2-6	10 g [1)] 10 to 2000 Hz; 3 axes; 2.5 h
Torsion and bending load	Not permitted
Design, dimensions and weight	
Dimensions (Ø x H)	16 x 3 mm
Weight	1.2 g
Type of mounting	• Patched • Sewn in • Glued

1 The values for shock and vibration are maximum values and must not be applied continuously.

Note

Regeneration time between washing cycles

The regeneration time for the MDS D160 between washing cycles must be at least 24 hours.

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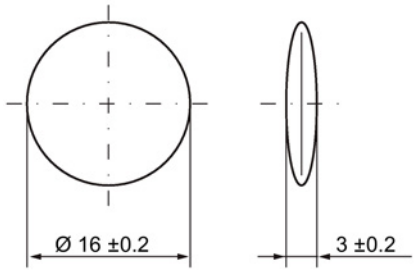
8.8.6 Dimension drawings

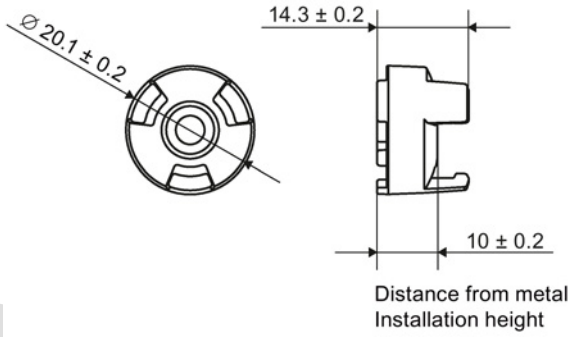
Dimensional drawing of MDS D160



Dimensions in mm

Figure 8-18 Dimensional drawing of MDS D160

Dimensional drawing of spacer



Dimensions in mm

Figure 8-19 Dimensional drawing of spacer

8.9 MDS D165

8.9.1 Features

MDS D165 (special version)	Characteristics	
	Area of application	The design of the transponder (self-adhesive label) permits a variety of designs, guaranteeing optimum dimensioning for the widest variety of applications. From simple identification such as electronic barcode replacement/supplementation, through warehouse and distribution logistics, right up to product identification.
	Memory size	112 bytes of EEPROM user memory
	Write/read range	See section Field data of ISO transponders (MDS D) (Page 52).
	Mounting on metal	Yes, with spacer
	ISO standard	ISO 15693
	Degree of protection	IP65

8.9.2 Ordering data

Table 8- 21 Ordering data for MDS D165

	Article number
MDS D165 (special version ISO-CARD)	6GT2600-1AB00-0AX0

Type of delivery

Minimum order quantity: 1250 units (5 rolls with 250 units each)

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8.9.3 Technical data

Table 8- 22 Technical specifications for MDS D165

			6GT2600-1AB00-0AX0
Product type designation	SIMATIC MDS D165		
Memory			
Memory configuration			
• UID	• 8 bytes		
• User memory	• 112 bytes EEPROM		
• OPT memory	• 16 bytes (EEPROM)		
Read cycles (at < 40 °C)	> 10^{14}		
Write cycles (at < 40 °C)	> 10^{6}		
Data retention time (at < 40 °C)	> 10 years		
Write/read distance (S_g)	Depending on the reader used, see section "Field data of ISO transponders (MDS D) (Page 52)"		
MTBF (Mean Time Between Failures)	228 years		
Mechanical specifications			
Housing			
• Material	• Top	• PET plastic (label material)	
	• Inlay	• PET plastic (carrier material)	
	• Antenna	• Aluminum	
	• Bottom	• Double-sided transfer adhesive on silicon paper	
• Color	• White		
Recommended distance to metal	≥ 25 mm		
Power supply	Inductive, without battery		
Permitted ambient conditions			
Ambient temperature			
• In operation, during write/read access	• -5 to +85 °C		
• In operation, outside write/read access	• -25 to +85 °C		
• During transportation and storage	• +15 to +30 °C Can be stored for 2 years, determined by the durability of the adhesive.		
Degree of protection	IP65		

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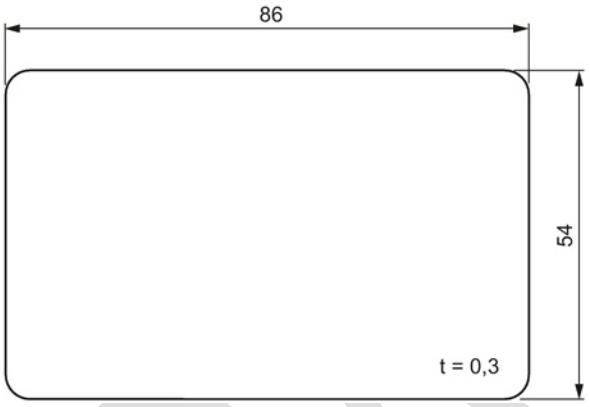
	6GT2600-1AB00-0AX0
Design, dimensions and weight	
Dimensions (L x W x H)	86 x 54 x 0.3 mm
Weight	1 g
Type of mounting	Glued with self-adhesive label

8.9.4 Dimension drawing



Dimensions in mm

Figure 8-20 Dimension drawing of MDS D165

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8.10 MDS D200

8.10.1 Features

MDS D200	Characteristics	
	Area of application	From simple identification such as electronic barcode replacement/supplementation, through warehouse and distribution logistics, right up to product identification.
	Memory size	256 bytes of EEPROM user memory
	Write/read range	See section Field data of ISO transponders (MDS D) (Page 52).
	Mounting on metal	Yes, with spacer
	ISO standard	15693 with Tag-it HFI technology
	Degree of protection	IP67

8.10.2 Ordering data

Table 8- 23 Ordering data for MDS D200

	Article number
MDS D200 (special version ISO-CARD)	6GT2600-1AD00-0AX0

Table 8- 24 Ordering data for MDS D200 accessories

	Article number
Spacer (in conjunction with fixing pocket 6GT2190-0AB00)	6GT2190-0AA00
Fixing pocket (in conjunction with spacer 6GT2190-0AA00)	6GT2190-0AB00
Fixing pocket (not suitable for fixing directly onto metal)	6GT2390-0AA00

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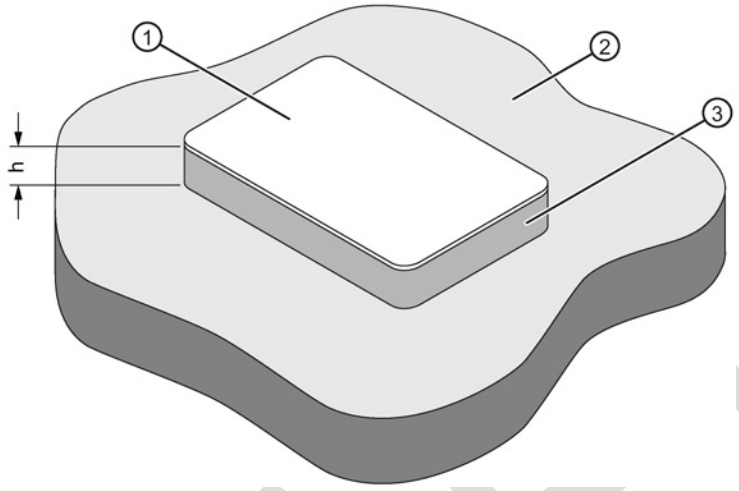
8.10.3 Mounting on metal

Mounting on metal



h ≥ 20 mm
① Data memory
② Metal
③ Non-metal

Figure 8-21 Mounting of the MDS D200 on metal with spacer

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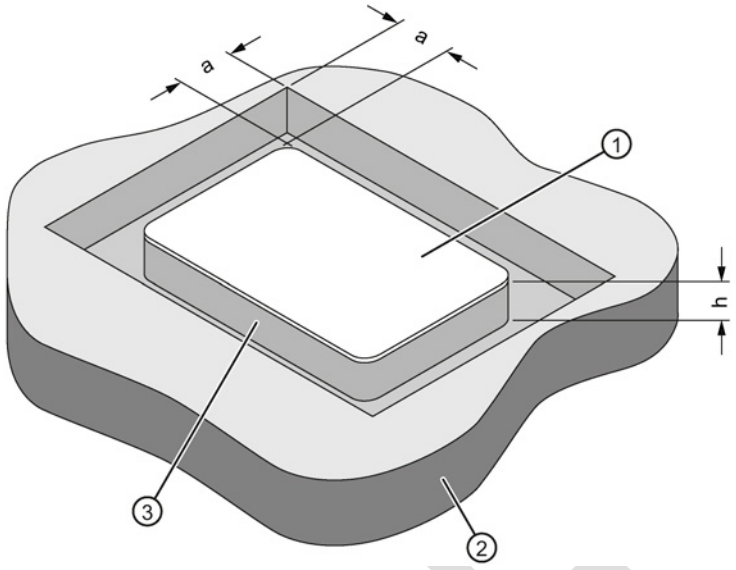
Flush-mounting



a ≥ 20 mm
h ≥ 20 mm
① Data memory
② Metal
③ Non-metal

Figure 8-22 Flush-mounting of MDS D200 in metal with spacer

Note

If the minimum guide values (h) are not observed, a reduction of the field data results.

8.10.4 Technical data

Table 8- 25 Technical specifications for MDS D200

	6GT2600-1AD00-0AX0
Product type designation	SIMATIC MDS D200
Memory	
Memory configuration	
• UID	• 8 bytes
• User memory	• 256 bytes EEPROM
• OTP memory	• 16 bytes (EEPROM)

	6GT2600-1AD00-0AX0
Read cycles (at < 25 °C)	> 10^{14}
Write cycles (at < 25 °C)	> 10^{6}
Data retention time (at < 25 °C)	> 10 years
Write/read distance (S_g)	Dependent on the reader used, see section "Field data of ISO transponders (MDS D) (Page 52)"
MTBF (Mean Time Between Failures)	228 years

Mechanical specifications	
Housing	
• Material	• PET
• Color	• White
Recommended distance to metal	≥ 20 mm
Power supply	Inductive, without battery

Permitted ambient conditions	
Ambient temperature	
• During operation	• -20 to +60 °C
• During transportation and storage	• -20 to +60 °C
Degree of protection to EN 60529	IP67
Shock-resistant to EN 60721-3-7 class 7M3	ISO 10373 / ISO 7810 [1]
Vibration-resistant to EN 60721-3-7, class 7M3	ISO 10373 / ISO 7810 [1]
Torsion and bending load	ISO 10373/ISO 7816-1

Design, dimensions and weight	
Dimensions (L x W x H)	85 x 54 x 0.8 mm
Weight	5 g
Type of mounting	• Fixing pocket • Glued

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

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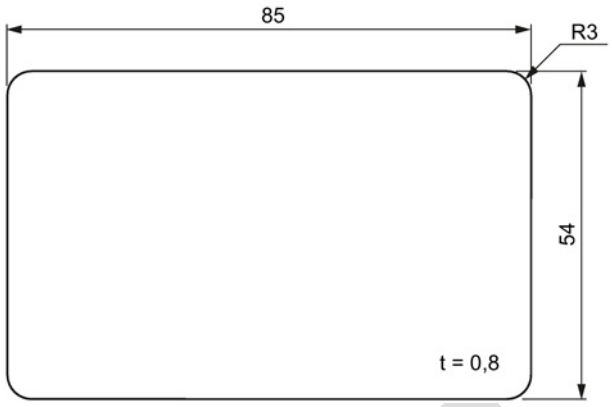
8.10.5 Dimension drawing



Dimensions in mm

Figure 8-23 Dimension drawing of MDS D200

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8.11 MDS D261

8.11.1 Features

MDS D261	Characteristics	
	Area of application	The design of the transponder (self-adhesive label) permits a variety of designs, guaranteeing optimum dimensioning for the widest variety of applications. From simple identification such as electronic barcode replacement/supplementation, through warehouse and distribution logistics, right up to product identification.
	Memory size	256 bytes of EEPROM user memory
	Write/read range	See section Field data of ISO transponders (MDS D) (Page 52).
	Mounting on metal	Yes, with spacer
	ISO standard	ISO 15693
	Degree of protection	IP65

8.11.2 Ordering data

Table 8- 26 Ordering data for MDS D261

	Article number
MDS D261	6GT2600-1AA00-0AX0

Type of delivery

Minimum order quantity: 1250 units (5 rolls with 250 units each)

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8.11.3 Technical data

Table 8- 27 Technical specifications of MDS D261

		6GT2600-1AA01-0AX0
Product type designation	SIMATIC MDS D261	
Memory		
Memory configuration		
• UID	• 8 bytes	
• User memory	• 256 bytes EEPROM	
• OTP memory	• 16 bytes (EEPROM)	
Read cycles (at < 40 °C)	> 10^{14}	
Write cycles (at < 40 °C)	> 10^{6}	
Data retention time (at < 40 °C)	> 10 years	
Write/read distance (S_g)	Dependent on the reader used, see section "Field data of ISO transponders (MDS D) (Page 52)"	
MTBF (Mean Time Between Failures)	228 years	
Mechanical specifications		
Housing		
• Material	• Top	• PET plastic (label material)
	• Inlay	• PET plastic (carrier material)
	• Antenna	• Aluminum
	• Bottom	• Double-sided transfer adhesive on silicon paper
• Color	• White	
Recommended distance to metal	≥ 25 mm	
Power supply	Inductive, without battery	
Permitted ambient conditions		
Ambient temperature		
• In operation, during write/read access	• -5 to +85 °C	
• In operation, outside write/read access	• -25 to +85 °C	
• During transportation and storage	• +15 to +30 °C Can be stored for 2 years, determined by the durability of the adhesive	
Degree of protection	IP65	

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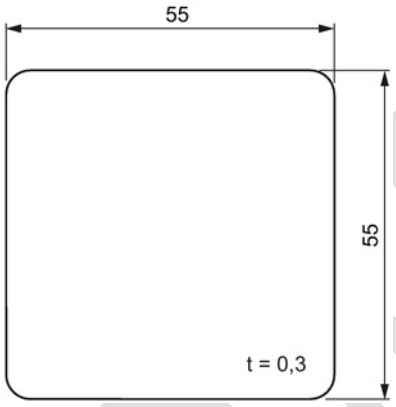
	6GT2600-1AA01-0AX0
Design, dimensions and weight	
Dimensions (L x W x H)	55 x 55 x 0.3 mm
Weight	1 g
Type of mounting	Glued with self-adhesive label

8.11.4 Dimension drawing



Dimensions in mm

Figure 8-24 Dimension drawing of MDS D261

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8.12 MDS D324

8.12.1 Characteristics

MDS D324	Characteristics	
	Area of application	Production and distribution logistics and product identification Can also be used in harsh environments under extreme environmental conditions (e.g. with higher temperature load).
	Memory size	992 bytes of EEPROM user memory
	Write/read range	See section "Field data of ISO transponders (MDS D) (Page 52)."
	Mounting on metal	Yes, with spacer
	ISO standard	ISO 15693
	Degree of protection	IP67; IPx9K

8.12.2 Ordering data

Table 8- 28 Ordering data MDS D324

	Article number
MDS D324	6GT2600-3AC00

Table 8- 29 Ordering data MDS D324 accessories

	Article number
Spacer	6GT2690-0AK00

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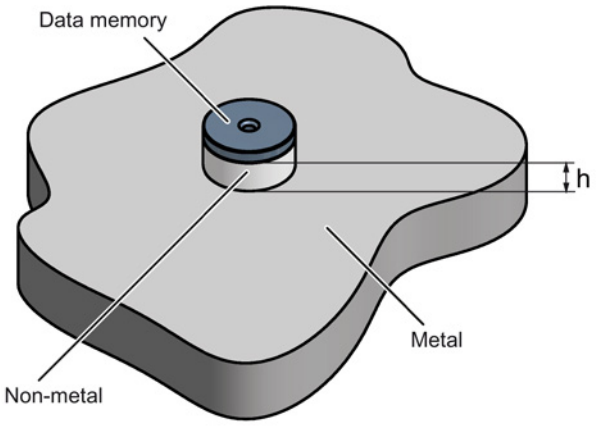
8.12.3 Mounting on metal

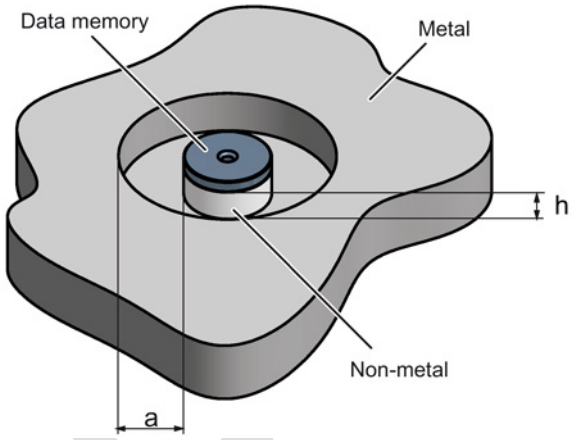
Mounting on metal



h ≥ 15 mm

Figure 8-25 Mounting the MDS D124/D324/D424/D524/E624 and RF320T on metal with spacer

Flush-mounting



h ≥ 15 mm

a ≥ 25 mm

Figure 8-26 Flush-mounting of the MDS D124/D324/D424/D524/E624 and RF320T in metal with spacer

Note

Going below the distances

If the distances (a and h) are not observed, a reduction of the field data results. It is possible to mount the MDS with metal screws (M3 countersunk head screws). This has no tangible impact on the range.

8.12.4 Technical specifications

Table 8- 30 Technical specifications of MDS D324

	6GT2600-3AC00
Product type designation	SIMATIC MDS D324
Memory	
Memory configuration	
• UID	• 8 bytes
• User memory	• 992 bytes EEPROM
• OPT memory	• 16 bytes (EEPROM)
Read cycles (at < 40 °C)	> 10^{14}
Write cycles (at < 40 °C)	> 10^{6}
Data retention time (at < 40 °C)	> 10 years
Write/read distance (S_g)	Dependent on the reader used, see section "Field data of ISO transponders (MDS D) (Page 52)"
MTBF (Mean Time Between Failures)	228 years
Mechanical specifications	
Housing	
• Material	• Epoxy resin
• Color	• Black
Recommended distance to metal	≥ 15 mm
Power supply	Inductive, without battery
Permitted ambient conditions	
Ambient temperature	
• During operation	• -25 to +125 °C
• During transportation and storage	• -40 to +140 °C

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	6GT2600-3AC00
Degree of protection to EN 60529	• IP67 • IPx9K
Shock-resistant to EN 60721-3-7 class 7M3	100 g [1]
Vibration-resistant to EN 60721-3-7, class 7M3	20 g [1]
Torsion and bending load	Not permitted

Design, dimensions and weight	
Dimensions (Ø x H)	27 x 4 mm
Weight	5 g
Type of mounting	• 1 x M3 screw [2] ≤ 1 Nm • Glued

1) The values for shock and vibration are maximum values and must not be applied continuously.

2) To prevent it loosening during operation, secure the screw with screw locking varnish.

8.12.5 Dimension drawing

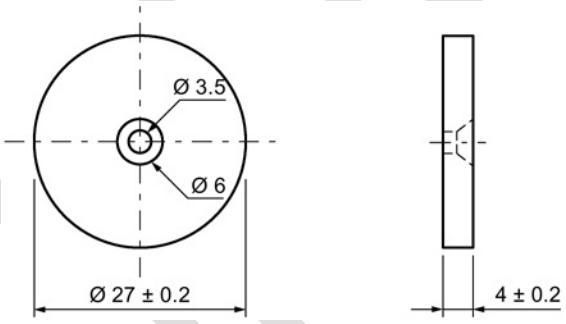

Figure 8-27 Dimension drawing of MDS D324

All dimensions in mm

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