# RFID Systems

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## RFID systems – for optimization of material flow and logistics

A constant flow of information is essential for seamless, efficient processes. In a wide range of different sectors, the intelligent RFID systems MOBY D, MOBY E, MOBY R, MOBY U, SIMATIC RF300 and RF600 ensure that you are always in the picture. This system family offers you considerable advantages over conventional identification systems.

Important data accompany a product or object from the start. Contactless data transfer provides for high levels of industrial compatibility. And the uniform system integration ensures easy and low-cost integration in the application. In short: With the RFID systems, you can perfectly control and optimize your material flow and your logistics.

## Highlights

- Time savings in production and logistics
- Fully automated and rapid identification with 100% transmission reliability
- Production and quality data can be saved directly on the product
- Insensitive to temperature fluctuations and dirt
- Broad range of data memories reusable at any time – from SmartLabel up to 64 KByte tag
- Flexible system integration: Serial, via PROFIBUS or Ethernet
- Simple integration into SIMATIC reduces engineering costs
- Supports the following standards: ISO 14443, ISO 15693, ISO 18000-2, ISO 18000-4 as well as EPCglobal and ISO/IEC 18000-6



### *Meaningful data from the outset*

The RFID systems ensure that meaningful data accompanies a product or object from the very beginning. The mobile data storage units (MDS or tag/transponder) are attached to the product, product carrier, object or its transport or packing unit and are written by non-contact methods. This means that all the application-specific data is available on the mobile data storage unit. This is true whether you are dealing with vehicle body parts in the automotive industry or order picking boxes. Up to 64 KB of data can be stored and individually read and supplemented when required at the various workstations or manufacturing stations. This all means that the flow of material and data is synchronized optimally.

### *Contactless data transfer and a high degree of industrial compatibility*

Powerful read/write devices (SLG) in various rugged designs ensure fast and reliable data transfer between the mobile data storage units and the higher-level systems (PLC, PC, ...).

The data and power are transmitted inductively by an electromagnetic alternating field or by radio waves. This principle of contactless data transfer works reliably in the presence of contamination or through non-metallic materials.

### *Perfectly matched components*

The RFID systems consist of perfectly matched individual components:

- Mobile data storage units (tags)
- Read/write devices and mobile hand-held terminals (readers)
- Antennas
- Interfaces for connection to the automation system (PROFIBUS, PROFINET)
- Software for system integration

### *Suitable for every sector*

- Assembly lines
- Conveyor systems
- Industrial manufacturing
- Warehouses
- Logistics
- Distribution
- Order picking

### *Broad range of mobile data storage units*

A wide range of different mobile data storage units is available using a variety of storage technologies (fixed code, EEPROM or FRAM/SRAM) and geometric designs. Their strength is not only their high level of data security but also the excellent high degree of protection against ambient conditions such as contamination, temperature fluctuations, washing water or shock load.

### *Flexible system integration*

No matter what the requirements are: The RFID systems allow easy system integration into SIMATIC or SINUMERIK, in the PROFIBUS, Ethernet or a PC environment, and can be connected to any controller.

A wide range of communication modules, function blocks and powerful drivers and function libraries make integration into the application a quick an easy affair.

## RFID systems for production – strong in performance and rugged

Conditions can sometimes be extremely harsh in the vicinity of assembly lines and industrial production. This is not a problem for the RFID systems and the systems specially developed for industrial applications. These are highly effective for both reading and writing as well as extremely reliable and feature high degrees of protection up to IP68.

They are characterized by a high level of data security and a large memory capacity, they can manage large volumes of data, communicate at lightning speed and are extremely resistant to interference. Because they are also especially easy to configure and install, they not only ensure reliable identification but also provide cost savings over the complete production line.

Finely graded systems are available for optimizing material flow and for controlling production to suit simple or complex tasks.

### *Application*

- Main assembly lines in the automotive industry such as body shop, paint shop, final assembly
- Production lines for engines, gearboxes or steering gear
- Conveyor systems for the assembly of anti-skid brake systems, airbags, brake systems, doors and cockpits
- Assembly lines for household electrical appliances, consumer electronics or electronic communication equipment
- Assembly lines for PCs, low-power motors, contactors or switches
- Production lines in the glass and ceramics industry

## Highlights

- Suitable for use under the harshest conditions – high degree of protection up to IP68 as well as being insensitive to interference
- Large range of data memories – from the most compact sizes for flush mounting in conveyor systems with small workpiece holders through to high-temperature versions
- Seamless integration into SIMATIC reduces engineering costs
- Production and quality data can be saved directly on the product

| | Production | | |
|---|---|---|---|
| | MOBY E | SIMATIC RF300 | MOBY U |
| **Read/write distance** | Up to 0.1 m | Up to 0.15 m | Up to 3.0 m |
| **Frequency** | 13.56 MHz | 13.56 MHz | 2.4 GHz |
| **Standards** | ISO 14443-A | | ISO 18000-4 |

### *Note on phased-out product MOBY I*

The RFID system MOBY I has been a phased-out product since October 1, 2008. It will be possible to order the products for plant expansions until September 30, 2010. The innovative, high-performance RFID system SIMATIC RF300 is available for new applications.

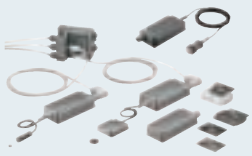
The main advantages of SIMATIC RF300 over MOBY I are:

- 3 x faster data transfer (typically 3 KB/s)
- Wide-ranging status and diagnostic functions, LEDs on the read/write device
- Data memory from 20 byte to 64 KB with unique serial number (UID) and OTP memory area
- Smaller connectors on the reader (M12)

Existing MOBY I software applications (with FC45/FB45) can continue to be used.

Additional information can be found in the Internet under:
http://www.siemens.com/simatic-sensors/rf

## Technical specifications

| | MOBY E | | | |
|---|---|---|---|---|
| |  | | | |
| Read/write distance | Up to 100 mm | | | |
| Data transmission rate | ≥ 2.55 ms/byte reading, ≥ 2.8 ms/byte writing | | | |
| Memory | EEPROM | | | |
| Standards | ISO 14443-A | | | |
| Approvals | ETS 300330 (Europe); FCC Part 15 (U.S.A.), UL/CSA | | | |
| Bulk capability | • (only with SSIM) | | | |
| Multitag capability | • (only with SSIM) | | | |
| Frequency | 13.56 MHz | | | |
| **Mobile data storage units (tags)** | **Name** | **Memory size** | **Operating temperature** | **Degree of protection** |
| | MDS E600<br>MDS E611<br>MDS E623<br>MDS E624 | 752 byte<br>752 byte<br>752 byte<br>752 byte | -25 ... +60 °C<br>-25 ... +75 °C<br>-25 ... +85 °C<br>-25 ... +125 °C | IP68<br>IP67<br>IP67/IPX9K<br>IP67/IPX9K |
| **Read/write devices** | **Name** | **Operating temperature** | **Degree of protection** | |
| Stationary, with detached antenna | SIM 70 with ANT 0<br>SIM 70 with ANT 1<br>SLG 75 | -25 ... +75 °C<br>-25 ... +75 °C<br>-25 ... +75 °C | IP65/IP67<br>IP65/IP67<br>IP65 | |
| Stationary, with integrated antenna | SLG 72<br>SIM 72 | -25 ... +75 °C<br>-25 ... +75 °C | IP65<br>IP65 | |
| Mobile hand-held terminal with integrated antenna | STG E | -20 ... +50 °C | IP54 | |
| **Antennas** | **Name** | **Operating temperature** | **Degree of protection** | |
| | SLA 71<br>ANT 1<br>ANT 12<br>ANT 18<br>ANT 30<br>ANT 4 | -25 ... +70 °C<br>-25 ... +70 °C<br>-25 ... +70 °C<br>-25 ... +70 °C<br>-25 ... +70 °C<br>-25 ... +70 °C | IP65<br>IP65<br>IP65<br>IP65<br>IP65<br>IP65 | |
| **Connection to the automation system** | **directly** | | **via communication module (ASM)** | |
| SIMATIC S7-300, S7-400 | | | • | |
| PROFIBUS DP | | | • | |
| PROFINET | | | • | |
| Serial interface to other controllers, PCs, any other systems | | • | • | |
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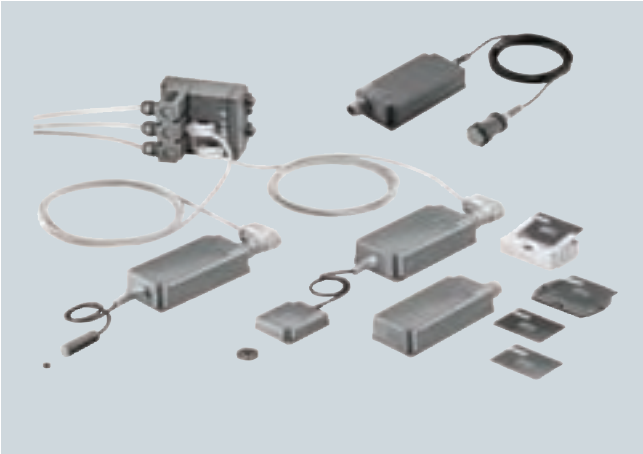
| | SIMATIC RF300 | | | | MOBY U | | | |
|---|---|---|---|---|---|---|---|---|
| |  | | | |  | | | |
| Read/write distance | 150 mm | | | | 150 ... 3000 mm | | | |
| Data transmission rate | typically 3 KB/s (with IQ-Sense 50 byte/s) | | | | Approx. 8 or 4.8 KB/s without bulk (net) | | | |
| Memory | FRAM/EEPROM | | | | RAM | | | |
| Standards | – | | | | ISO 18000-4 | | | |
| Approvals | CE, UL, FCC, CSA | | | | EN 300440-2, FCC Part 15C, UL/CSA | | | |
| Bulk capability | • | | | | • (max. 12) | | | |
| Multitag capability | • (max. 4)[1] | | | | • (max. 12) | | | |
| Frequency | 13.56 MHz | | | | 2.4 GHz ... 2.4835 GHz | | | |
| **Mobile data storage units (tags)** | **Name** | **Memory size** | **Operating temperature** | **Degree of protection** | **Name** | **Memory size** | **Operating temperature** | **Degree of protection** |
| | RF320T | 20 byte | -25 ... +125 °C | IP67/IPX9K | MDS U315 | 2 KB RAM | -25 ... +70 °C | IP65 |
| | RF340T | 8188 byte | -25 ... +85 °C | IP68/IPX9K | MDS U524 | 32 KB RAM | -25 ... +85 °C | IP68 |
| | RF350T | 32765 byte | -25 ... +85 °C | IP68 | MDS U525 | 32 KB RAM | -25 ... +85 °C | IP65 |
| | RF360T | 8188 byte | -25 ... +75 °C | IP67 | MDS U589 | 32 KB RAM | -25 ... +85 ... 220 °C cyclical | IP68 |
| | RF370T | 32765 byte or 65276 byte | -25 ... +85 °C | IP68 | MDS U Service | 32 KB RAM | -25 ... +70 °C | IP40 |
| | RF380T | 32765 byte | -25 ... +110 °C (+220 °C cyclical) | IP68 | | | | |
| **Read/write devices** | **Name** | **Operating temperature** | **Degree of protection** | | **Name** | **Operating temperature** | **Degree of protection** | |
| Stationary, with detached antenna | RF350R | -25 ... +70 °C | IP65 | | | | | |
| Stationary, with integrated antenna | RF310R<br>RF340R<br>RF380R | -25 ... +70 °C<br>-25 ... +70 °C<br>-25 ... +70 °C | IP67<br>IP67<br>IP67 | | SLG U92 | -25 ... +70 °C | IP65 | |
| Mobile hand-held terminal with integrated | RF310M | -10 ... +50 °C | IP54 | | STG U | -20 ... +60 °C | IP54 | |
| **Antennas** | **Name** | **Operating temperature** | **Degree of protection** | | | | | |
| | ANT 1 | -25 ... +70 °C | IP65 | | | | | |
| | ANT 18 | -25 ... +70 °C | IP65 | | | | | |
| | ANT 30 | -25 ... +70 °C | IP65 | | | | | |
| **Connection to the automation system** | **directly** | | **via communication module (ASM)** | | **directly** | | **via communication module (ASM)** | |
| SIMATIC S7-300, S7-400 | | | • | | | | • | |
| PROFIBUS DP | | | • | | | | • | |
| PROFINET | | | • | | | | • | |
| Serial interface to other controllers, PCs, any other systems | • (via RS 422)<br>• (via RS 232, only RF380R) | | | | • | | | |
| **Page** | **5/30** | | | | **5/51** | | | |

1) Available soon

# MOBY E

## Introduction

### Overview



MOBY E is a contactless identification system that has been specially designed for applications in logistics, distribution and industrial production.

Depending on requirements (EEPROM, size, ambient conditions, large clearance etc.), different data memories and read/write devices are available. Thanks to their low price, these data memories can be used, for example, as an "electronic barcode substitute" or "delivery note".

The MOBY E identification system boasts the following features:

- 13.56 MHz identification system with read/write distance of up to 100 mm
- Designed for the upper and medium performance range
- Extensive range of battery-free data memories (752 byte EEPROM, up to +150 °C) including a special data memory for tool identification.
- Very high level of reliability even in the presence of contamination, temperature fluctuations and electromagnetic interference.
- Simple integration into SIMATIC and the PROFIBUS DP.
- Can be connected via serial interface to any system, e.g. PC with DOS / Windows 95/NT.

### Benefits

- The standard MOBY E components permit the secure and quick construction of application specific identification systems, so that capacities are freed up for the generation of the application software.
- Worldwide support, configuration and service support.

### Application

MOBY E is used wherever containers, boxes, carriers, workpiece carriers, tools and hangers have to be identified reliably, quickly, automatically and without contact.

The main applications for MOBY E are:

- Logistics (identification of pallets, charge carriers, containers etc.)
- Distribution (data memory as "electronic barcode supplement" or "delivery note")
- Parts identification (e.g. data storage is attached to products/pallets).
- Assembly lines (e.g. data memory is attached to workpiece carriers)
- Conveyor systems (e.g. data memory is attached to the hanger of an overhead conveyor).

### Function

MOBY identification systems ensure that important data accompanies the product from the very beginning.

Mobile data storage units ("electronic goods notes") are used in place of barcodes and already contain all product-specific data in addition to the product number. Up to 752 byte of user data can be stored and managed in this way. Enough to enable quality data to be stored as well.

Using stationary as well as mobile read/write devices (SLGs), the necessary information (production data, transport routes, etc.) can be read without contact (inductively), and even be supplemented or modified without the need for a direct line-of-sight link. MOBY records the data of objects quickly and reliably. MOBY thereby ensures effective and cost-effective automation.

### Technical specifications

| Type | Contactless RF identification system for the lower and medium performance range |
|---|---|
| Transmission frequency data/energy | 13.56 MHz |
| Memory capacity | 752 byte user memory<br>4 byte fixed code as serial number |
| Memory type | EEPROM |
| Read/write cycles | > 1 000 000/unlimited |
| Data management | Bytewise access (16-byte block organization internally) |
| Data transmission rate from mobile data storage unit to read/write device | ≥ 2.8 ms/byte |
| Read/write distance | Up to 100 mm |
| Operating temperature | -25 to +125 °C |
| Degree of protection | IP67, IP68 |
| Can be connected to | SIMATIC S5/S7, PC, non-Siemens PLC, PROFIBUS DP |
| Special features | • CRC checksums for secure data transmission<br>• High resistance to interference frequencies<br>• Multitag and password function (SIM only) |
| Approvals | ETS 300330 (Europe)<br>FCC Part 15 (U.S.A.), UL/CSA |

## Overview

| Type | Features |
|---|---|
| **MDS E600** | Universal data storage unit (752 byte EEPROM) in credit card format (85 mm x 54 mm x 0.8 mm)<br>• Degree of protection IP68<br>• Temperature range up to +60 °C<br>• Max. read/write distance 70 mm |
| **MDS E611** | Universal data storage unit (752 byte EEPROM) in credit card format (85 mm x 54 mm x 2.5 mm)<br>This mobile data medium can also be used in harsh environments and under extreme conditions<br>• Degree of protection IP67<br>• Temperature range up to +75 °C<br>• Max. read/write distance 100 mm |
| **MDS E623** | Small data storage unit (752 byte EEPROM, Ø 10 mm x 4.5 mm ), specially for tool coding according to DIN 69873<br>• Degree of protection IP67/IPX9K [1] to DIN EN 60529 / VDE 0470-1<br>• Temperature range up to +85 °C<br>• Max. read/write distance 6 mm |
| **MDS E624** | Universal compact data storage unit (752 byte EEPROM), Ø 27 mm x 4 mm<br>• Degree of protection IP67/IPX9K [1] to DIN EN 60529 / VDE 0470-1<br>• Temperature range up to +125 °C<br>• Max. read/write distance 40 mm |

1) Extract:
Test equipment: Steam jet-air ejector 0 °C, 30 °C, 60 °C, 90 °C
Water flow: 10 … 15 l/min at 100 bar (75 °C)
Distance: 10 … 15 cm

## Design

The MOBY E mobile data storage units mainly comprises logic, an antenna and an EEPROM memory.

## Function

If an MDS moves into the transmission field of the SLG, the necessary power for all circuit components is generated and monitored by means of the energy supply unit. The pulse-coded information is prepared in such a way that it can be processed further as pure digital signals. The handling of data, including check routines, is performed by the control unit which also manages the user memory.

## Introduction

### Technical specifications

#### *Field data of MDS and SLG (all dimensions in mm)*

The field data for all MOBY E components of the MDS and SLG are shown in the table below. Thus it becomes particularly easy to select the right MDS and SLG. All the technical specifications listed are typical data and are applicable for an ambient temperature of between 0 °C and +50 °C and a supply voltage of between 22 V and 27 V DC.

#### *Operating/limit distance (without influence of metal)*

| Type | MDS E600 | MDS E611 | MDS E623 | MDS E624 |
|---|---|---|---|---|
| **SIM 70 with ANT 0** | - | - | 0 … 4/6 | 0 … 8/15 |
| **SIM 70 with ANT 1** | 0 … 50/70 | 10 … 70/100 | - | 0 … 25/40 |
| **SLG 72 / SIM 72** | 0 … 50/70 | 10 … 70/100 | - | 0 … 30/40 |
| **SLA 71** | 0 … 50/70 | 10 … 70/100 | - | 0 … 25/40 |
| **SLG 75 with ANT 1** | 0 … 50/70 | 10 … 70/100 | - | 0 … 25/40 |
| **SLG 75 with ANT 4** | 0 … 50/70 | 10 … 70/100 | - | 0 … 25/40 |
| **SLG 75 with ANT 12** | - | - | 0 … 4/5 | - |
| **SLG 75 with ANT 18** | - | - | 0 … 4/6 | 0 … 8/15 |
| **SLG 75 with ANT 30** | - | - | - | 0 … 18/24 |

#### *Distance from MDS to MDS*

| Type | MDS E600 | MDS E611 | MDS E623 | MDS E624 |
|---|---|---|---|---|
| **SIM 70 with ANT 0** | - | - | > 30 | > 50 |
| **SIM 70 with ANT 1** | > 400 | > 400 | - | > 250 |
| **SLG 72/SIM 72/ SLA 71** | > 400 | > 400 | - | > 250 |
| **SLG 75 with ANT 1** | > 400 | > 400 | - | > 250 |
| **SLG 75 with ANT 4** | > 400 | > 400 | - | > 250 |
| **SLG 75 with ANT 12** | - | - | > 20 | - |
| **SLG 75 with ANT 18** | - | - | > 30 | > 50 |
| **SLG 75 with ANT 30** | - | - | - | > 60 |

## Overview

Universal data storage unit (752 byte EEPROM) in credit card format (85 mm x 54 mm x 0.8 mm), degree of protection IP68, temperature range up to +60 °C and a max. read/write distance of 70 mm.

## Technical specifications

| MDS E600 mobile data storage unit | |
|---|---|
| Memory size | 752 byte of EEPROM available |
| MTBF | 2 x $10^6$ hours |
| Read cycles | Unlimited |
| Write cycles, min. | 200000 |
| • at ≤ 40 °C, typical | > 1000000 |
| Data retention time | > 10 years (at < +40 °C) |
| Read/write distance, max. | 70 mm (see field data) |
| Memory organization | Bytewise access (16-byte block organization internally) |
| Energy source | Inductive power transmission |
| Shock/vibration | ISO 10373/ISO 7810 |
| Torsion and bending load | ISO 10373/ISO 7816-1 |
| Mounting technique | Fixing lug/adhesive |
| Recommended distance to metal | ≥ 20 mm, e.g. using spacer 6GT2190-0AA00 in conjunction with fixing lug 6GT2190-0AB00 |
| Degree of protection to EN 60529 | IP68 |
| Resistance to chemicals | See configuration manual |
| Housing | ISO card |
| • Dimensions (Lx W x H) in mm | 85.6. x 54 x 0.8 |
| • Color/material | Anthracite/white/PVC |
| Ambient temperature | |
| • During operation | -25 … +60 °C |
| • During storage and transport | -25 … +60 °C |
| Weight, approx. | 6 g |

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### *Field data in mm*

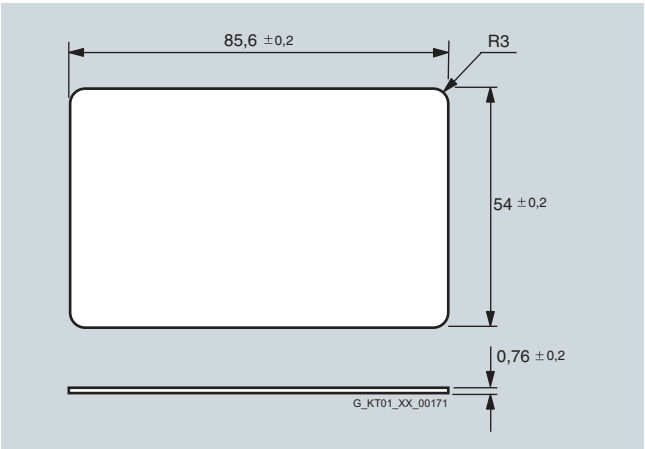
| MDS E600 to: | SIM 70 with ANT 1<br>SLG 75 with ANT 1 | SLG 75 with ANT 4 | SLG 72/SIM 72 | SLA 71 |
|---|---|---|---|---|
| Operating distance ($S_a$) | 0 ... 50 | 0 ... 50 | 0 ... 50 | 0 ... 50 |
| Limit distance ($S_g$) | 70 | 70 | 70 | 70 |
| Transmission window (L) | 60 | 220 | 75 / 50 | 60 |
| Minimum distance from MDS to MDS | > 400 | > 400 | > 400 | > 400 |

## Selection and Ordering data

| | | Order No. |
|---|---|---|
| **MDS E600<br>mobile data storage unit** | ► A | **6GT2 300-0AA00** |
| Minimum order quantity: 50 units | | |
| ***Accessories*** | | |
| **Fixing lug** | ► A | **6GT2 390-0AA00** |
| For MDS E600 | | |
| **Fixing lug** | ► | **6GT2 190-0AB00** |
| For MDS E600/E611 | | |
| **Spacer** | ► | **6GT2 190-0AA00** |
| For fixing lug, thickness 20 mm | | |

A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

## Dimensions



# MDS E611

## Overview

Universal data memory (752 byte EEPROM) in credit card format (85 mm x 54 mm x 2.5 mm), degree of protection IP67, temperature range up to +85 °C and a max. read/write distance of 100 mm.

## Technical specifications

| MDS E611 mobile data storage unit | |
|---|---|
| Memory size | 752 byte of EEPROM available |
| MTBF | 2 500 000 h |
| Read cycles | Unlimited |
| Write cycles, min. | 200 000 |
| • at ≤ 40 °C, typical | > 1 000 000 |
| Data retention time | > 10 years (at < +40 °C) |
| Read/write distance, max. | 100 mm (see field data) |
| Memory organization | Bytewise access (16-byte block organization internally) |
| Energy source | Inductive power transmission |
| Shock/vibration | 50 *g*/20 *g* to EN 60721-3-7 |
| Torsion and bending load | none |
| Mounting | Fixing lug/screws |
| Recommended distance to metal | > 20 mm |
| Degree of protection to EN 60529 | IP67 |
| Resistance to chemicals | See configuration manual |
| Enclosure | EPOXY card |
| • Dimensions (Lx W x H) in mm | 85.8 x 54.1 x 2.5 |
| • Color/material | Anthracite/black/epoxy plate |
| Ambient temperature | |
| • Operation | -25 … +75 °C |
| • Storage and transport | -40 … +85 °C |
| Weight, approx. | 21 g |

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### *Field data in mm*

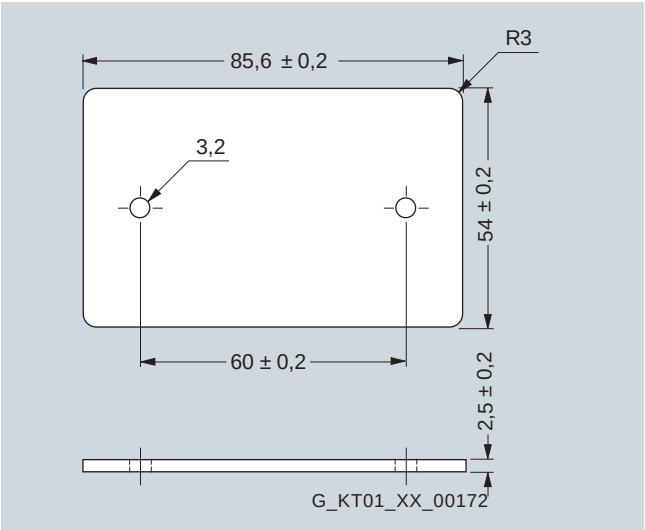
| MDS E611 to: | SIM 70 with ANT 1<br>SLG 75 with ANT 1 | SLG 75 with ANT 4 | SLG 72/SIM 72 | SLA 71 |
|---|---|---|---|---|
| Operating distance ($S_a$) | 20 ... 70 | 10 ... 70 | 20 ... 70 | 10 ... 70 |
| Limit distance ($S_g$) | 100 | 100 | 100 | 100 |
| Transmission window (L) | 80 | 250 | 90 / 60 | 80 |
| Minimum distance from MDS to MDS | > 400 | > 400 | > 400 | > 400 |

## Selection and Ordering data

| | Order No. |
|---|---|
| **MDS E600 mobile data storage unit** ► | **6GT2 300-0BB00** |
| Minimum order quantity: 50 units | |
| ***Accessories*** | |
| **Fixing lug** ► | **6GT2 190 0AB00** |
| For MDS E600/E611 | |
| **Spacer** ► | **6GT2 190-0AA00** |
| For fixing lug, thickness 20 mm | |

► Preferred type, available from stock.

## Dimensions



## Overview

Small data storage unit (Ø 10 mm x 4.5 mm, 752 byte EEPROM) specially designed for tool coding according to DIN 69873.
It can be mounted flush in metal and can also be used in small workpiece holders.

## Technical specifications

| MDS E623 mobile data storage unit | |
|---|---|
| Memory size | 752 byte of EEPROM available |
| MTBF | 2 500 000 h |
| Read cycles | Unlimited |
| Write cycles, min. | 200 000 |
| • at ≤ 40 °C, typical | > 1 000 000 |
| Data retention time | > 10 years (at < +40 °C) |
| Read/write distance, max. | 6 mm (see field data) |
| Memory organization | Byte-oriented access (16-byte internal block organization) |
| Energy source | Inductive power transmission |
| Shock/vibration to EN 60721-3-7,Class 7 M3 | 100 *g* /20 *g* |
| Torsion and bending load | Not permissible |
| Fixing | Glue, e.g. UHU Plus endfest 300 |
| Recommended distance from metal | Flush mounted |
| Degree of protection to | |
| • EN 60 529 | IP67 |
| • DIN EN 60529 / VDE 0470-1 | IPX9K[1)] |
| Resistance to chemicals | See Configuration Manual |
| Housing | DIN pill |
| • Dimensions | Ø 10 mm x 4.5 mm to DIN 69873 |
| • Color/material | Black/epoxy resin |
| Ambient temperature | |
| • During operation | -25 … +85 °C |
| • During transportation and storage | -40 … +100 °C |
| Weight, approx. | 4 g |

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### *Field data in mm*

| MDS E623 to: | SIM 70 ANT 0, SLG 75 with ANT 18 | SLG 75 with ANT 12 |
|---|---|---|
| | Metal-free installation | |
| Operating distance ($S_a$) | 0 … 6 | 0 … 4 |
| Limit distance ($S_g$) | 6 | 5 |
| Transmission window (L) | 4 (center deviation ±2) | 8 (center deviation ±4) |
| | Flush-mounted in metal | |
| Operating distance ($S_a$) | 0 … 3.5 | 0 … 3 |
| Limit distance ($S_g$) | 4 | 4 |
| Transmission window (L) | 3 (center deviation ±2) | 4 (center deviation ±2) |
| Minimum distance from MDS to MDS | > 30 | > 20 |

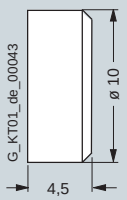
1) Extract:
Test equipment: Steam jet-air ejector 0 °C, 30 °C, 60 °C, 90 °C
Water flow: 10 … 15 l/min at 100 bar (75 °C)
Distance: 10 … 15 cm

## Selection and Ordering data

| | Order No. |
|---|---|
| **MDS E623 mobile data storage unit** ► | **6GT2 300-0CD00** |
| Minimum order quantity: 10 units | |

► Preferred type, available from stock.

## Dimensions



# MDS E624

## Overview

Universal compact data memory (Ø 27 mm × 4 mm, 752 byte EEPROM) with degree of protection IP67/IP X9K 1), a temperature range of up to +125 °C and a max. read/write distance of 40 mm.

## Technical specifications

| MDS E624 mobile data storage unit | |
|---|---|
| Memory size | 752 byte of EEPROM available |
| MTBF | 2 500 000 h |
| Read cycles | Unlimited |
| Write cycles, min. | 200 000 |
| • at ≤ 40 °C, typical | > 1 000 000 |
| Data retention time | > 10 years (at < +50 °C) |
| Read/write distance, max. | 40 mm (see field data) |
| Memory organization | Bytewise access (16-byte block organization internally) |
| Energy source | Inductive power transmission |
| Shock/vibration to EN 60721-3-7, Class 7 M3 | 100 *g*/20 *g* |
| Torsion and bending load | Not permissible |
| Mounting | Adhesive/M3 screws |
| Recommended distance to metal | > 20 mm |
| Degree of protection to | |
| • EN 60 529 | IP67 |
| • DIN EN 60529 / VDE 0470-1 | IPX9K[1)] |
| Ex approval | ATEX Zone 2G |
| Resistance to chemicals | See configuration manual |
| Enclosure | Button |
| • Dimensions | Ø 27 mm x 4 mm |
| • Color/material | Black/epoxy resin |
| Ambient temperature | |
| • Operation | -25 … +125 °C |
| • Storage and transport | -40 … +150 °C |
| Weight, approx. | 5 g |

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### *Field data in mm*

| MDS E624 to: | SIM 70 with ANT 0 | SLG 75 with ANT 1 | SLG 75 with ANT 4 | SLG 75 with ANT 18 | SIM 70 with ANT 1, SLA 71 | SLG 72 | SLG 75 with ANT 30 |
|---|---|---|---|---|---|---|---|
| Operating distance ($S_a$) | 0 ... 8 | 0 ... 25 | 0 ... 25 | 0 ... 8 | 0 ... 25 | 0 ... 30 | 0 ... 18 |
| Limit distance ($S_g$) | 15 | 40 | 35 | 15 | 40 | 40 | 24 |
| Transmission window (L) | 12 | 38 | 200 | 12 | 38 | 60 | 14 |
| Minimum distance from MDS to MDS | > 50 | > 250 | > 250 | > 50 | > 250 | > 250 | > 60 |

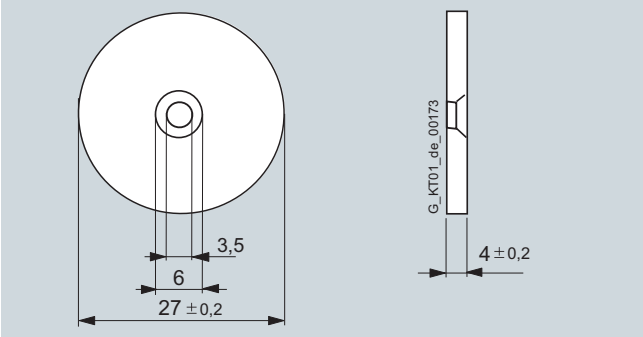
1) Extract:
Test equipment: Steam emitter 0 °C, 30 °C, 60 °C, 90 °C
Water flowrate: 10 … 15 l/min with 100 bar (75°C)
Spacing: 10 … 15 cm

## Selection and Ordering data

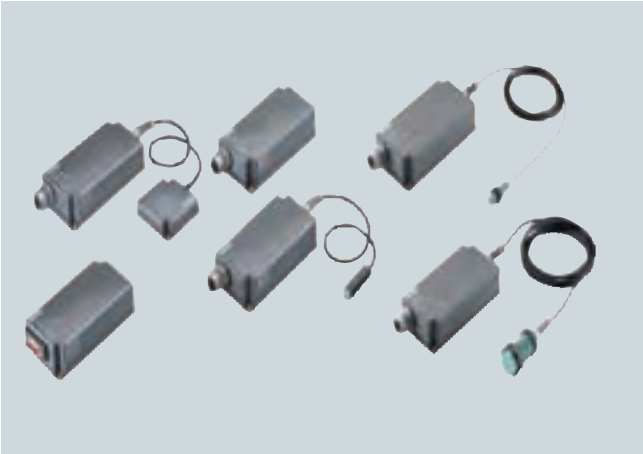
| | Order No. |
|---|---|
| **MDS E624 mobile data storage unit** ► | **6GT2 300-0CE00** |
| Minimum order quantity: 20 units | |

► Preferred type, available from stock.

## Dimensions



## Overview



The SLG/SIM ensures inductive communication and energy supply to the MDS and for the serial connection to various systems (SIMATIC, PC, etc.).

Various different SLGs/SIMs are available for small, medium and large distances to the MDS to satisfy specific customer requirements.

A rugged enclosure supports use under harsh industrial conditions and ensures high resistance to many chemical substances.

| Type | Features |
|---|---|
| **SIM 70 with ANT 0** | A read/write device with separate antenna optimized for use in small assembly lines (dimensions (mm) Ø 18 x 1 x 50)<br>• Max. read/write distance 15 mm<br>• Degree of protection IP65<br>• Temperature range up to +70 °C<br>• With RS 232/RS 422 interface for connection to PC/PLC |
| **SIM 70 with ANT 1** | Universal read/write device with detached antenna (dimensions (mm) 75 x 75 x 20)<br>• Max. read/write distance 100 mm<br>• Degree of protection IP65<br>• Temperature range up to +70 °C<br>• With RS 232/RS 422 interface for connection to PC/PLC |
| **SLA 71** | Universal low-cost, compact read/write antenna for connection to ASM 724/754 (dimensions (mm) 75 x 75 x 20)<br>• Max. read/write distance 100 mm<br>• Degree of protection IP65<br>• Temperature range up to +70 °C |
| **SLG 72** | Universal<br>Universal read/write device with integrated antenna (dimensions (mm) 160 x 80 x 40)<br>• Max. read/wrtrite distance 100 mm<br>• Degree of protection IP65<br>• Temperature range up to +70 °C<br>• RS 422 interface for connection to ASM 475/473/452/456 ... |
| **SIM 72** | Same as above but with RS 232/RS 422 interface for connection to PC/PLC |
| **SLG 75** | Read/write device with with connector for an external antenna, with RS 422 interface for connection to ASM 475/473/452/456 ... |
| **ANT 1** | Universal compact antenna (dimensions (mm) 75 x 75 x 20)<br>• Max. read/write distance 100 mm<br>• Degree of protection IP65<br>• Temperature range up to +70 °C<br>• Cable length 3 m |
| **ANT 4** | Antenna for production systems and assembly lines (dimensions (mm) 320 x 80 x 30) For high speeds over a long transmission field<br>• Max. read/write distance 100 mm<br>• Degree of protection IP65<br>• Temperature range up to +70 °C<br>• Cable length 1 m, plugged in on electronics side |
| **ANT 12** | Small antenna (dimensions (mm) Ø 12 x 1.5 x 40) for tool identification (with MDS E623)<br>• Max. read/write distance 5 mm<br>• Degree of protection IP65<br>• Temperature range up to +70 °C<br>• Cable length 3 m |
| **ANT 18** | Universal compact antenna (dimensions (mm) Ø 18 x 1.5 x 58) for assembly lines with small workpiece holders<br>• Max. read/write distance 100 mm<br>• Degree of protection IP65<br>• Temperature range up to +70 °C<br>• Cable length 3 m |
| **ANT 30** | Universal compact antenna (dimensions (mm) Ø 30 x 1.5 x 58) for assembly lines with small workpiece holders<br>• Max. read/write distance 24 mm<br>• Degree of protection IP65<br>• Temperature range up to +70 °C<br>• Cable length 3 m |

## Introduction

### Function

The SLG/SLA converts the commands (read MDS, etc.) received by the interface module (ASM) and generates via the antenna a magnetic alternating field for the contactless communication and transmission of power to the MDS. The transmittable volume of data between SLG/SLA/SIM and MDS depends on:

- the speed at which the MDS moves through the transmission window of the SLG/SLA
- the length of the transmission window

Failsafe protocols and access mechanisms achieve a high degree of data security and guarantee fast, secure and noise-resistant communication.

The SIM combines an ASM and an SLG in one rugged enclosure. It can be supplied with an RS 422/RS 232 interface so that it can be connected to any higher-level system:

- PC
- Computer
- Non-Siemens PLC

All SIM versions are operated with a 3964R procedure. The following C libraries are available on the "RFID Systems Software & Documentation" CD for quick and easy integration into the application:

- CCT32 (for Windows 95/NT 4.0), extended function range including password protection, access authorization and multitag recognition

### Technical specifications

#### *Field data*

| Minimum distance from SLG to SLG (antennas) | | |
|---|---|---|
| SIM 70 with ANT 0 | SIM 70 with ANT 0 | > 125 mm |
| SIM 70 with ANT 1 | SIM 70 with ANT 1 | > 800 mm |
| SLG 72 / SIM 72 | SLG 72/SIM 72 | > 800 mm |
| SLG 75 with ANT 1 | SLG 75 with ANT 1 | > 800 mm |
| SLG 75 with ANT 4 | SLG 75 with ANT 4 | > 800 mm |
| SLG 75 with ANT 12 | SLG 75 with ANT 12 | > 80 mm |
| SLG 75 with ANT 18 | SLG 75 with ANT 18 | > 125 mm |
| SLG 75 with ANT 30 | SLG 75 with ANT 30 | > 200 mm |

## Overview

Optimized for use in small assembly lines, read/write device with detached antenna (dimensions (mm) Ø 18 × 1 × 50), max. read/write distance 15 mm, degree of protection IP65, temperature range up to +75 °C, with RS 232/RS 422 interface for connection to PC/PLC.

## Selection and Ordering data

| | | Order No. |
|---|---|---|
| **SIM 70 with ANT 0** | ► | **6GT2 305-0AA00** |
| *Accessories* | | |
| **RS 232 connecting cable** | ► A | **6GT2 391-1DH50** |
| Between the PC and SIM 70, with connecting cable for DI/DO and 24 V connector, 5 m in length (the power supply must be ordered separately) | | |
| **Connector for SIM 70** | ► | **6GT2 390-1AA00** |
| Degree of protection IP65, 15-pin sub D connector | | |
| **CD "RFID Systems Software & Documentation"** | ► | **6GT2 080-2AA10** |
| FB/FC for SIMATIC, 3964R driver for DOS/WINDOWS 95/NT/2000/XP, C libraries, PC presentation program. RFID documentation | | |

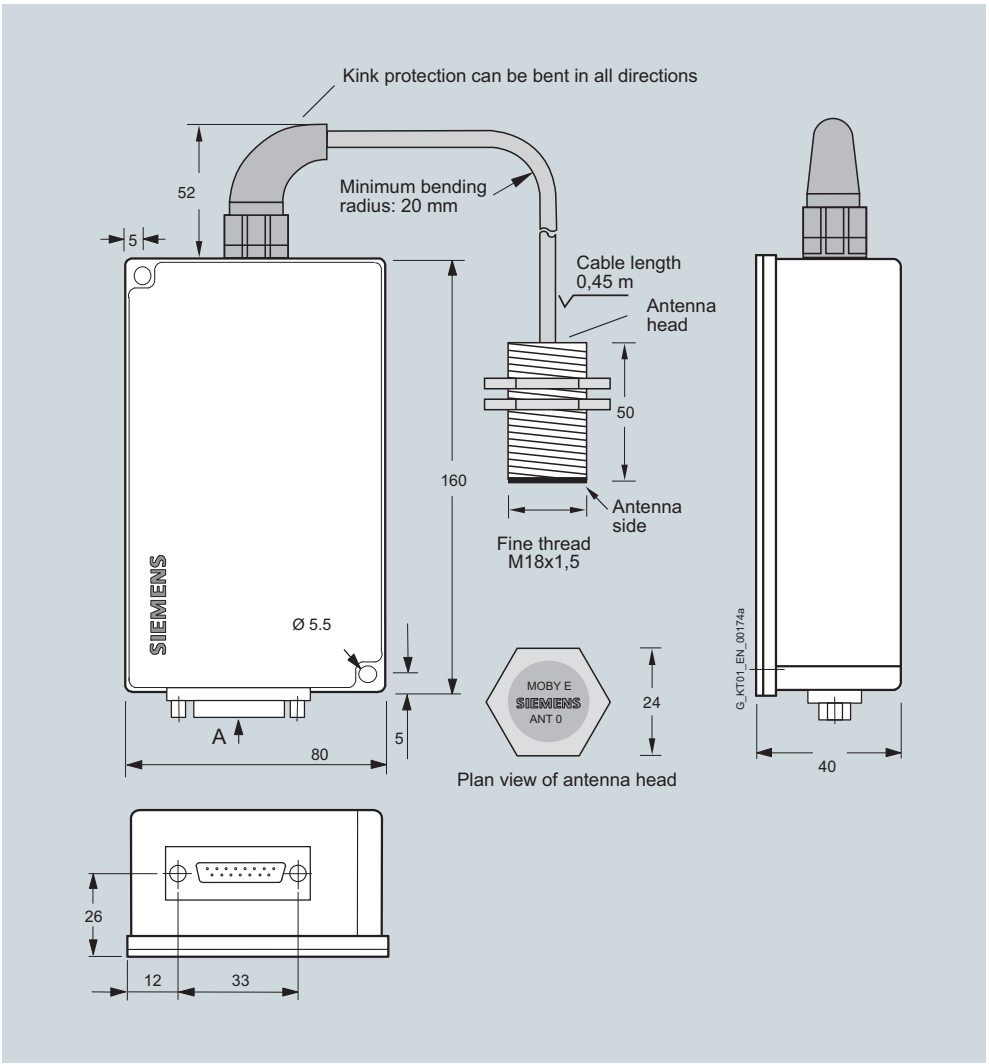
A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

## Technical specifications

| Read/write device | SIM 70 with ANT 0 |
|---|---|
| Induct. interface to the MDS | Remote antenna |
| Read/write distance | max. 15 mm, see MDS field data |
| Transmission frequency (energy/data) | 13.56 MHz |
| Serial interface | RS 232/RS 422 to PC/PLC |
| Max. cable length at 24 V DC | 30 m (RS 232) |
| Connector | 15-pin subminiature connector (pin) |
| Data transmission rate | 9600 baud |
| Procedure | 3964 R |
| Software functions | |
| • Programming | Dependent on PC/PLC etc. |
| • Available software (included on MOBY software CD) | C-library for PC CT32 (Windows 95/NT 4.0) |
| • Commands | Read, write, initialize MDS ..., multitag and password function |
| Digital input/output v ia 15-pin sub D connector | 1/1, short-circuit proof |
| MTBF (at +25 °C) | 2.5 x $10^5$ hours |
| Rated supply voltage value/permissible range | Via connectors 24 V DC / 12 … 30 V DC |
| Power consumption (at room temperature) | |
| • Inrush current, momentary | Max. 700 mA |
| • During operation | typ. 180 mA |
| Enclosure | |
| • Dimensions in mm | |
| - For antenna head | M18 x 1.0 x 55 |
| - For electronics without connector | 160 x 80 x 40 |
| • Color | |
| - Antenna/SLG housing | Anthracite/anthracite |
| • Material | |
| - Antenna/SIM/SLG housing | Krastin/PA 12 |
| Degree of protection to EN 60529 | |
| Enclosure/Antenna (front side) | IP65/IP67 |
| Shock resistant to EN 60721-3-7 | 30 *g*, Class 7M2 |
| Vibration resistant to EN 60721-3-7 | 1,5 *g*, Class 7M2 |
| Attachment of enclosure | 2 M5 screws |
| Attachment of the antenna | 2 plastic nuts M18 x 5 |
| Ambient temperature | |
| • During operation | -25 … +75 °C |
| • During transportation and storage | -40 … +85 °C |
| Weight, approx. | 0.51 kg |

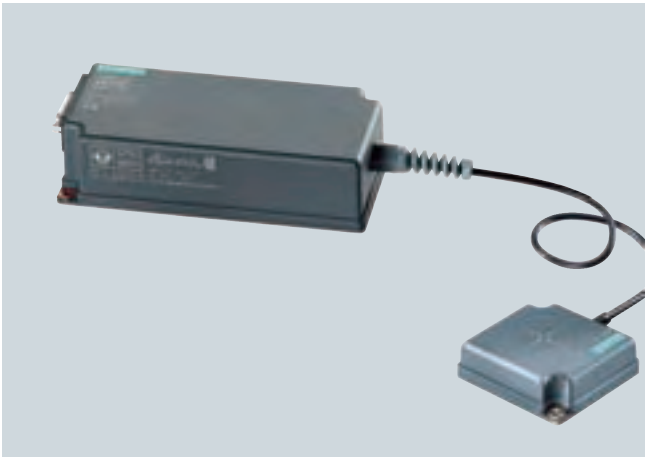
## SIM 70 with ANT 0

### Dimensions




SIM 70 with antenna ANT 0

## Overview



Universal read/write device with detached antenna (dimensions (mm) 75 × 75 × 20), max. read/write distance 100 mm, degree of protection IP65, temperature range up to +75 °C, with RS 232/ RS 422 interface for connection to PC/PLC.

## Selection and Ordering data

| | | Order No. |
|---|---|---|
| **Read/write device SIM 70 with ANT 1** | ► | **6GT2 305-0AB00** |
| ***Accessories*** | | |
| **RS 232 connecting cable**<br>Between the PC and SIM 70, with connecting cable for DI/DO and 24 V connector, 5 m in length (the power supply must be ordered separately) | ► A | **6GT2 391-1DH50** |
| **Connector for SIM 70**<br>Degree of protection IP65, 15-pin sub D connector | ► | **6GT2 390-1AA00** |
| **CD "RFID Systems Software & Documentation"**<br>FB/FC for SIMATIC, 3964R driver for DOS/WINDOWS 95/NT/2000/XP, C libraries, PC presentation program. RFID documentation (German + English) | ► | **6GT2 080-2AA10** |

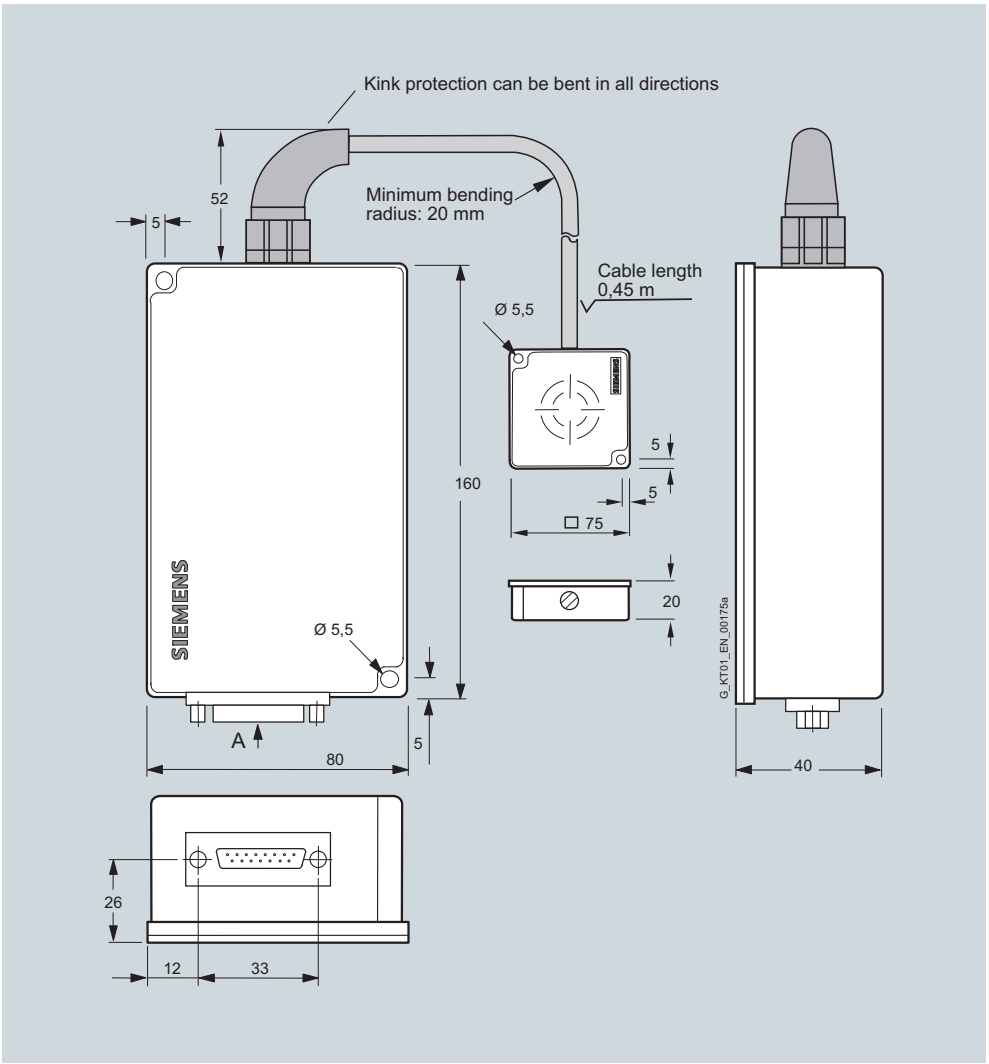
A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

## Technical specifications

| Read/write device | SIM 70 with ANT 1 |
|---|---|
| Inductive interface to the MDS | Remote antenna |
| Read/write distance | max. 100 mm, see MDS field data |
| Transmission frequency (energy/data) | 13.56 MHz |
| Serial interface | RS 232/RS 422 to PC/PLC |
| Max. cable length at 24 V DC | 30 m (RS 232) |
| Connector | 15-pin subminiature connector (pin) |
| Data transmission rate | 9600 baud |
| Procedure | 3964 R |
| Software functions | |
| • Programming | Dependent on PC, PLC etc. |
| • Available software (included on MOBY software CD) | C-library for PC CCT32 (Windows 95/NT 4.0) |
| • Commands | Read, write, initialize MDS ..., multitag and password function |
| Digital input/output via 15-pin sub D connector | 1/1, short-circuit proof |
| MTBF (at +25 °C) | 2.5 x $10^5$ hours |
| Rated supply voltage value/permissible range | Via connectors 24 V DC / 12 … 30 V DC |
| Current input | |
| (at room temperature) | |
| • Inrush current, momentary | Max. 700 mA |
| • Operation | typ. 180 mA |
| Enclosure | |
| • Dimensions in mm | |
| - for antenna head | 75 x 75 x 2 |
| - for electronics without connector | 160 x 80 x 40 |
| • Color | |
| - antenna/SLG housing | Anthracite/anthracite |
| • Material | |
| - antenna/SIM/SLG housing | PA 12 |
| Degree of protection to EN 60529 | |
| Enclosure/antenna (front side) | IP67/IP67 |
| Shock resistant to EN 60721-3-7 | 30 *g*, Class 7M2 |
| Vibration resistant to EN 60721-3-7 | 1,5 *g*, Class 7M2 |
| Attachment of enclosure | 2 x M5 screws |
| Attachment of the antenna | 2 x M5 screws |
| Ambient temperature | |
| • Operation | -25 … +75 °C |
| • Storage and transport | -40 … +85 °C |
| Weight, approx. | 0.62 kg |

## SIM 70 with ANT 1

### Dimensions




SIM 70 with antenna ANT 1

## Overview

### *SLG 72*

Universal read/write device with integral antenna (dimensions (mm) 160 x 80 x 40), max. read/write distance 100 mm, degree of protection IP65, temperature range up to +75 °C

### *SIM 72*

Like the SLG 72, but with RS 232/RS 422 interface for connection to PC/PLC.

## Technical specifications

| Read/write device | SLG 72 | SIM 72 |
|---|---|---|
| Inductive interface to the MDS | | |
| Read/write distance | max. 100 mm, see MDS field data | |
| Transmission frequency (energy/data) | 13.56 MHz | |
| Serial interface | RS 422 to ASM | RS 232/RS 422 |
| Max. cable length at 24 V DC | 1000 m (ASM-SLG) | 30 m (RS 232) |
| Connector | 6-pin SLG connector to DIN 43651 | 15-pin subminiature connector (pin) |
| Data transmission rate | 19200 baud | 9600 baud |
| Procedure | MOBY I procedure | 3964 R |
| Software functions | | |
| • Programming | | Dependent on PC, PLC etc. |
| • Available software (included on MOBY software CD) | See ASM and associated S5/S7 – FB/FC | C-library for PC CCT32 (Windows 95/NT 4.0) |
| • Commands | Read, write, initialize MDS ..., Multitag and password function | |
| Digital input/output via 15-pin sub-D connector | - | 1/1, short-circuit proof |
| MTBF (at +25 °C) | 2.5 x $10^5$ hours | |
| Rated supply voltage value/permissible range | Via connectors 24 V DC / 20 … 30 V DC | Via connectors 24 V DC / 12 … 30 V DC |
| Current input (at room temperature) | | |
| • Inrush current, momentary | Max. 700 mA | Max. 700 mA |
| • Operating (24 V DC) | Typ. 180 mA | Typ. 180 mA without DO |
| Enclosure | | |
| • Dimensions in mm | 160 x 80 x 40 | |
| • Color | Anthracite | |
| • Material | PA 12 | |
| Degree of protection to EM 60529 | IP65 | |
| Shock resistant to EN 60721-3-7 | 30 *g*, Class 7M2 | |
| Vibration resistant to EN 60721-3-7 | 1.5 *g*, Class 7M2 | |
| Attachment of enclosure | 2 x M5 screws | |
| Ambient temperature | | |
| • Operation | -25 … +75 °C | |
| Weight, approx. | 0.55 kg | |

## SLG 72/SIM 72

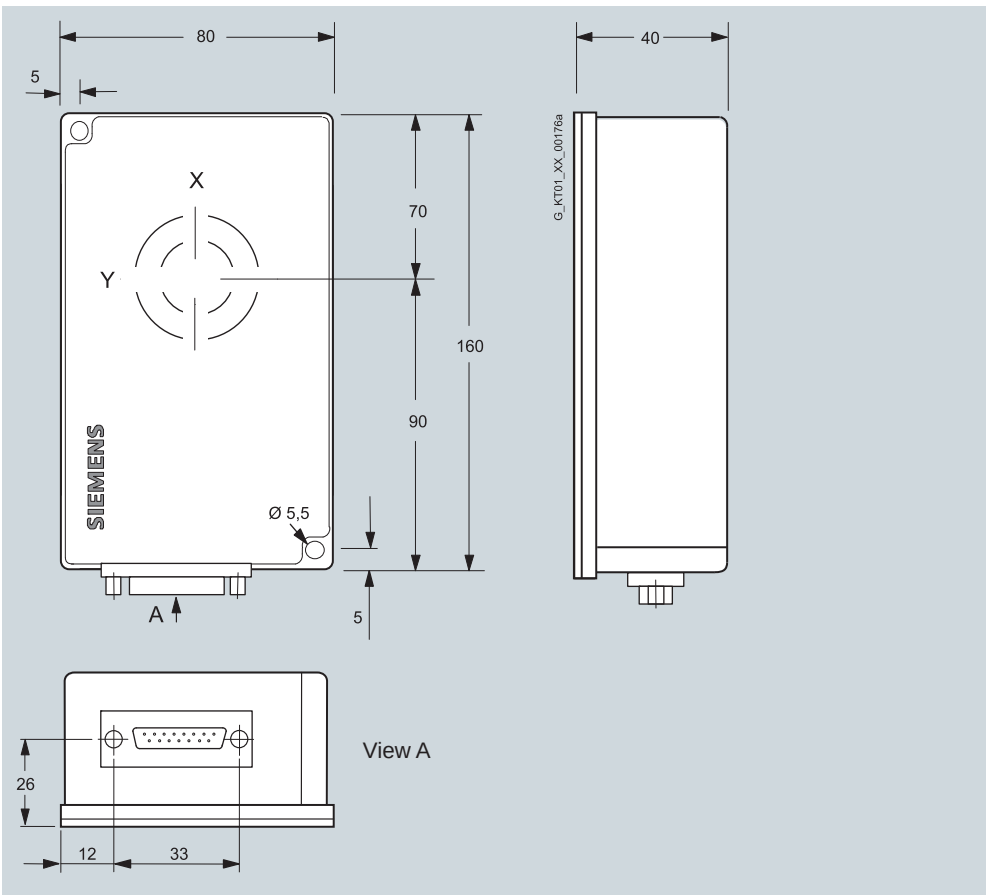
### Selection and Ordering data

| | | Order No. |
|---|---|---|
| **SLG 72** | ▶ | **6GT2 301-0CA00** |
| With integrated antenna for connection to a communication module | | |
| **SIM 72** | ▶ | **6GT2 305-0CA00** |
| With integrated antenna for connection to a PC/PLC | | |
| *Accessories* | | |
| **RS 232 connecting cable** | ▶ A | **6GT2 391-1DH50** |
| Between the PC and SIM 72, with connecting cable for DI/DO and 24 V connector, 5 m in length (the power supply must be ordered separately) | | |
| **Connector for SIM 72** | ▶ | **6GT2 390-1AA00** |
| Degree of protection IP65, 15-pin Sub-D connector | | |
| **Connector on SLG side (MOBY E, U)** | | |
| 6-pin DIN 43651 connector with female contacts for crimping | | |
| • with angled output, 1 piece | ▶ A | **6GT2 090-0BA00** |
| • with angled output, 1 packaging unit (10 pieces, price per piece) | ▶ A | **6GT2 090-0BA10** |
| • with straight output, 1 piece | ▶ A | **6GT2 090-0UA00** |

| | | Order No. |
|---|---|---|
| **SLG cable** | | |
| Without connector between ASM and SLG; 6 x 0.25 $mm^2$ | | |
| • 50 m | ▶ A | **6GT2 090-0AN50** |
| • 120 m | ▶ A | **6GT2 090-0AT12** |
| • 800 m | A | **6GT2 090-0AT80** |
| **CD "RFID Systems Software & Documentation"** | ▶ | **6GT2 080-2AA10** |
| FB/FC for SIMATIC, 3964R driver for DOS/Windows 95/NT/2000/XP, C libraries, PC demonstration program. RFID documentation (German + English) | | |

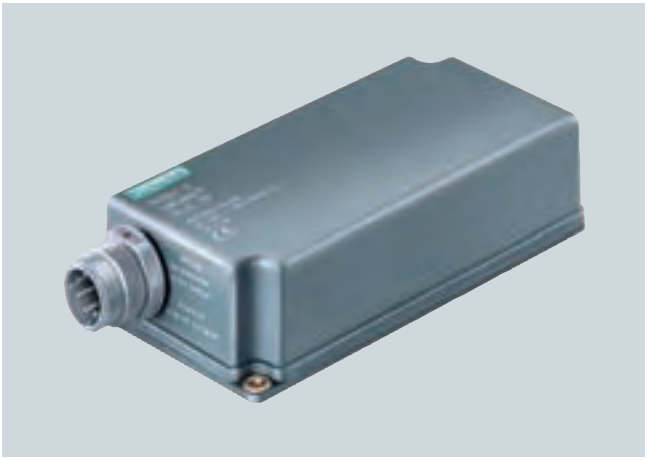
A: Subject to export regulations AL = N and ECCN = EAR99H
▶ Preferred type, available from stock.

### Dimensions




SIM 72 with integrated antenna

## Overview



Read/write device with RS 422 interface for connection to ASM, with connector for an external antenna:

- ANT 1, universal compact antenna (dimensions (mm) 75 x 75 x 20)
- ANT 4, for production plants and assembly lines. Due to the long transmission field, high speeds are possible. Dimensions (mm) 320 x 80 x 30
- ANT 12, small antenna (dimensions (mm) Ø 12 x 1.5 x 40) for tool identification (with MDS E623)
- ANT 18, universal compact antenna (dimensions (mm) Ø 18 x 1.5 x 58) for assembly lines with small workpiece holders
- ANT 30, universal compact antenna (dimensions (mm) Ø 30 x 1.5 x 58) for assembly lines with small workpiece holders

## Technical specifications

| Read/write device | SLG 75 with ANT x |
|---|---|
| Interface to remote antennas | ANT 1, ANT 4, ANT 12, ANT 18 or ANT 30 |
| Connector | 4-pin (socket) |
| Serial interface | RS 422 to ASM |
| Max. cable length at 24 V DC | 1000 m (ASM-SLG) |
| Connector | 6-pin SLG-connector to DIN 43651 (pin on device side) |
| Transmission rate | 19200 baud |
| Procedure | MOBY I procedure |
| Software functions | |
| • Programming | See ASM and associated S5/S7 – FB/FC |
| • Commands | Read, write, initialize MDS ... |
| MTBF (at +25 °C) | 2.5 x $10^5$ hours |
| Rated supply voltage value/permissible range | Via connectors 24 V DC / 20 … 30 V DC |
| Power consumption (at room temperature) | |
| • Inrush current, momentary | max. 700 mA |
| • Operation | typ. 180 mA |
| Housing | |
| • Dimensions for electronics without connector (in mm) | 160 x 80 x 40 |
| • Color | Anthracite |
| • Material | PA 12 |
| Degree of protection as per EN 60529 | IP65 |
| Shock-resistant to EN 60721-3-7, Class 7M2 | 30 *g* |
| Vibration-resistant to EN 60721-3-7, Class 7M2 | 1.5 *g*, 200 … 500 Hz |
| Attachment of enclosure | 2 x M5 screws |
| Ambient temperature | |
| • Operating | -25 … +70 °C |
| • During transportation and storage | -40 … +85 °C |
| Weight, approx. | 0.52 kg |

| Antenna | ANT 1 | ANT 4 | ANT 12 | ANT 18 | ANT 30 |
|---|---|---|---|---|---|
| Inductive interface to the MDS | 13.56 MHz | | | | |
| Max. read/write distance ANT-MDS ($S_g$) | 100 mm | | 5 mm | 15 mm | 24 mm |
| Interface to SLG 75 | | | | | |
| Plug connection | 4-pin (pins on antenna side) | | | | |
| Antenna cable length (cannot be changed) | 3 m | 1 m | 3 m | | |
| Enclosure dimensions in mm | 75 x 75 x 20 (L x W x H) | 320 x 80x 30 (L x W x H) | M12 x 1.0 x 40 (Ø x thread x L) | M18 x 1.0 x 55 (Ø x thread x L) | M30 x 1.5 x 58 (Ø x thread x L) |
| Color | Anthracite | | Pale turquoise | | |
| Material | Plastic PA 12 | | Plastic Krastin | | |
| Degree of protection as per EN 60 529 | IP67 | | IP67 (front) | | |
| Shock-resistant to EN 60 721-3-7, Class 7M2 | 50 *g* maximum value, no continuous load | | | | |
| Vibration-resistant to EN 60 721-3-7, Class 7M2 | 20 *g* (3 … 500 Hz) maximum value, no continuous load | | | | |
| Ambient temperature | | | | | |
| • in operation | - 25 ... + 70 °C | | | | |
| • During transportation and storage | - 40 ... + 85 °C | | | | |
| MTBF (at 40 °C) | 2.5 x $10^5$ hours | | | | |
| Weight, approx. | 80 g | 950 g | 45 g | 120 g | 150 g |

## SLG 75 with ANT x

### *Field data SLG 75 with antenna*

| SLG 75 | ANT 1 | ANT 4 | ANT 12 | ANT 18 | ANT 30 |
|---|---|---|---|---|---|
| Operating distance ($S_a$), MDS-dependent | 0 ... 70 mm | 0 ... 70 mm | 0 ... 4 mm | 0 ... 8 mm | 0 ... 18 mm |
| Limit distance ($S_g$), MDS-dependent | 100 mm | 100 mm | 5 mm | 15 mm | 24 mm |
| Transmission window | MDS-dependent | MDS-dependent | ∅ 8 mm | MDS-dependent | ∅ 14 mm |
| Minimum distance from SLG to SLG (D) | > 800 mm | > 800 mm | > 80 mm | > 125 mm | > 200 mm |

### Selection and Ordering data

| | | Order No. |
|---|---|---|
| **SLG 75**<br>Without antenna | ► | **6GT2 398-1AF00** |
| **Antenna ANT 1**<br>For SLG 75 | ► | **6GT2 398-1CB00** |
| **Antenna ANT 4**<br>For SLG 75 | ► A | **6GT2 398-1CE00** |
| **Antenna ANT 12**<br>For SLG 75 | ► | **6GT2 398-1CC00** |
| **Antenna ANT 18**<br>For SLG 75 | ► | **6GT2 398-1CA00** |
| **Antenna ANT 30**<br>For SLG 75 | ► | **6GT2 398-1CD00** |

### *Accessories*

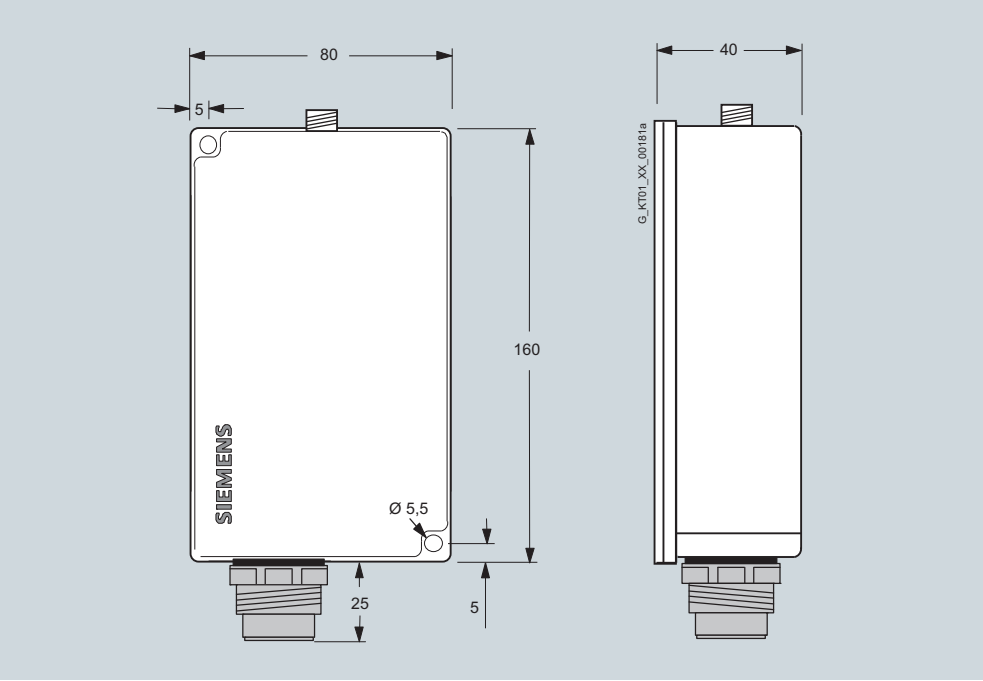
| | | |
|---|---|---|
| **Connector on SLG side (MOBY E, U)**<br>6-pin DIN 43651 connector with female contacts for crimping | | |
| • with angled output, 1 piece | ► A | **6GT2 090-0BA00** |
| • with angled output, 1 packaging unit (10 pieces, price per piece) | ► A | **6GT2 090-0BA10** |
| • with straight output, 1 piece | ► A | **6GT2 090-0UA00** |

| | | Order No. |
|---|---|---|
| **SLG cable**<br>Without connector between ASM and SLG; 6 x 0.25 $mm^2$ | | |
| • 50 m | ► A | **6GT2 090-0AN50** |
| • 120 m | ► A | **6GT2 090-0AT12** |
| • 800 m | A | **6GT2 090-0AT80** |
| **CD "RFID Systems Software & Documentation"**<br>FB/FC for SIMATIC, 3964R driver for DOS/Windows 95/NT/2000/XP, C libraries, PC demonstration program. RFID documentation | ► | **6GT2 080-2AA10** |

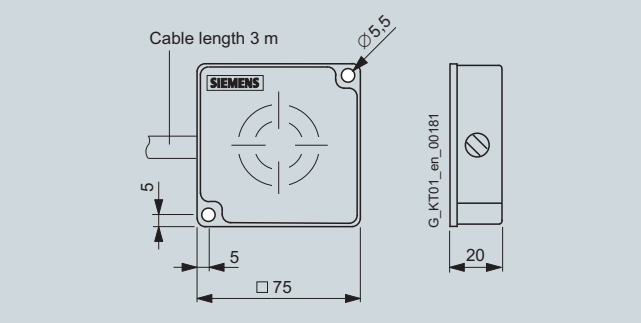
A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

5

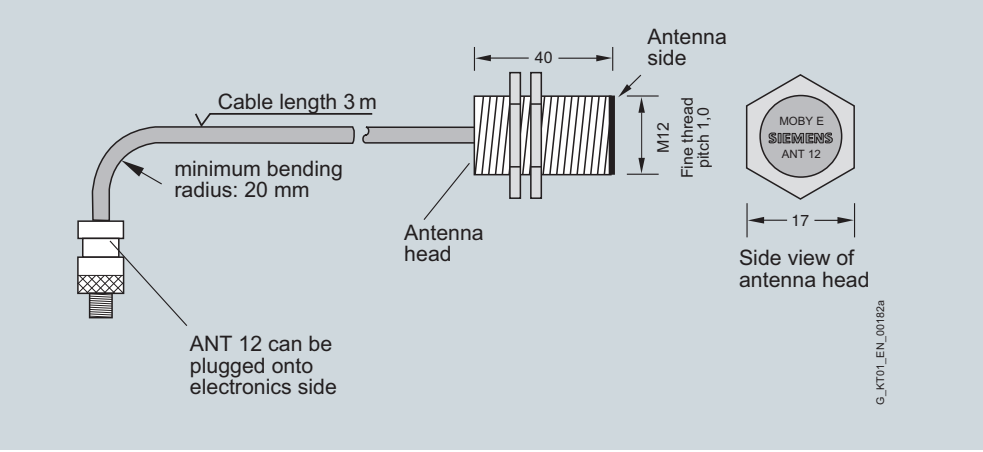
## Dimensions




Read/write device SLG 75 without antenna

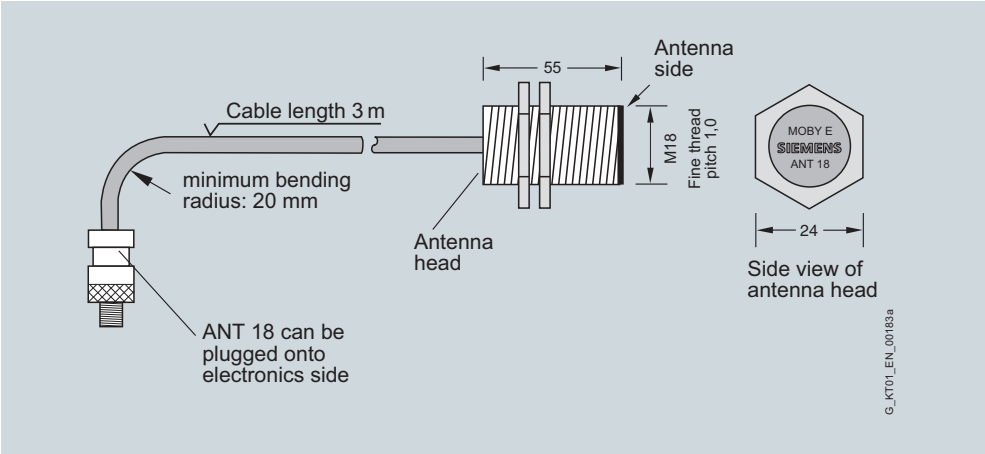



ANT 1 antenna

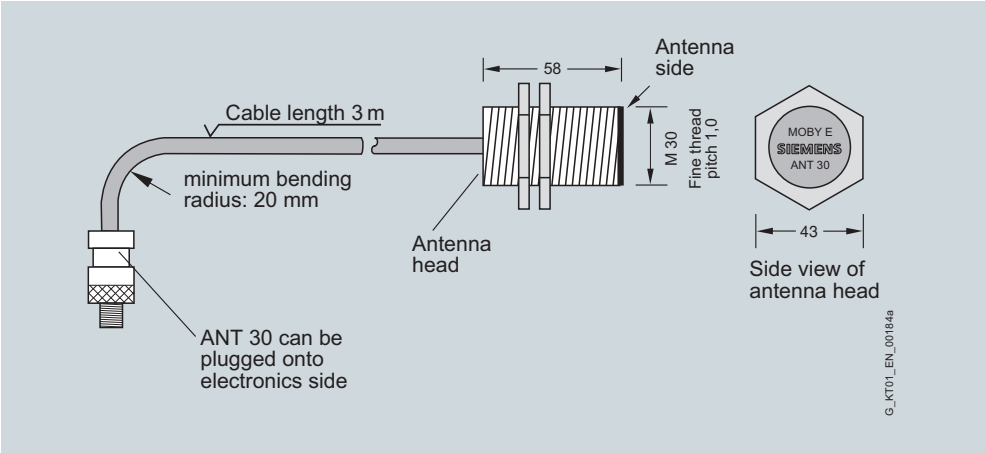



ANT 12 antenna

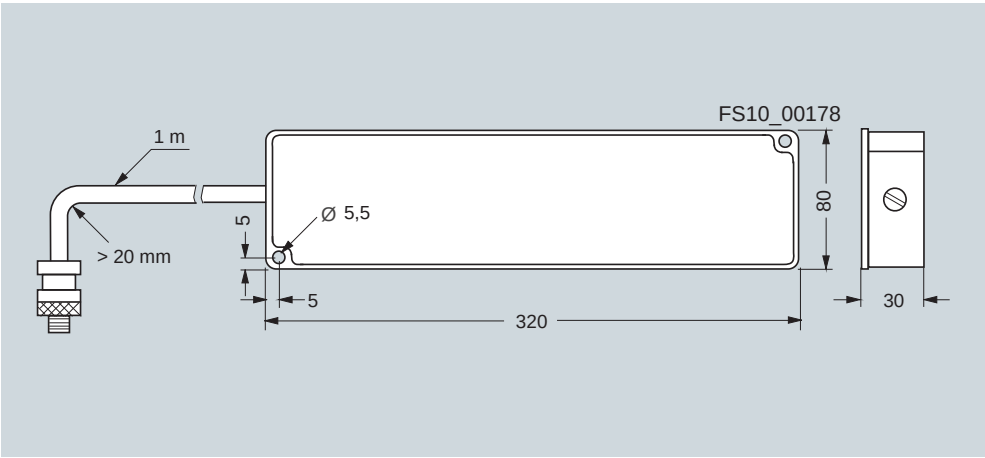
## SLG 75 with ANT x




ANT 18 antenna




ANT 30 antenna




ANT 4 antenna

## Overview

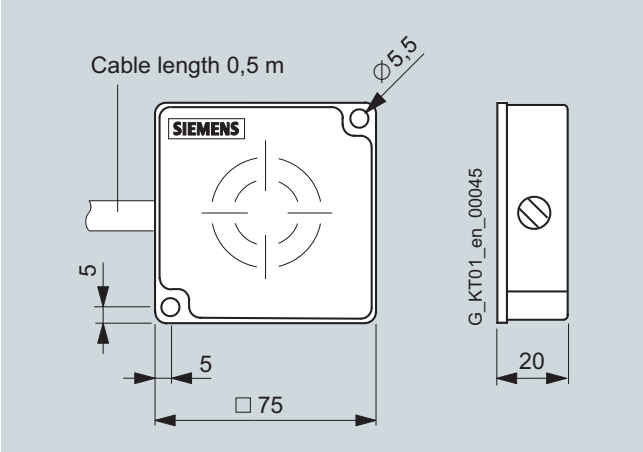
The SLA 71 is a low-cost and compact MOBY E read/write antenna with a maximum read/write distance of 100 mm. The SLA 71 is connected to the interface modules ASM 724 or ASM 754 by means of an additional connecting cable (5 m). The maximum cable length between SLA 71 and ASM can be extended to 55 m by means of two 25 m extension cables.

Due to the compact design and the high degree of protection (IP65), the SLA 71 can be used universally.

## Technical specifications

| Read/write antenna | SLA 71 |
|---|---|
| Inductive interface to the MDS | |
| Data transmission frequency (energy/data) | 13.56 MHz |
| Read/write distance to MDS, max. | 100 mm (see field data under "Read/write Devices") |
| Serial interface, connectable to | ASM 724/754 |
| Max. cable length to SLA 71 | 55 m |
| Plug connection | 0.5 m cable with 8-pin M12 connector (pin on device side); 5 m connecting cable 6GT2391-1AH50 required |
| Software functions | See ASM page 5/128 |
| Power supply | Via ASM |
| Enclosure | |
| • Dimensions (W x H x D) in mm | 75 x 75 x 20 |
| • Color | Anthracite |
| • Material | PA12 |
| Degree of protection to EN 60 529 | IP65 |
| MTBF (at 40 °C) | 1 x $10^5$ hours |
| Mounting | 2 x M5 screws |
| Ambient temperature | |
| • Operation | -25 … + 70 °C |
| • Storage and transport | -40 … +85 °C |
| Weight, approx. | 0.15 kg |

## Dimensions




## Selection and Ordering data

| | | Order No. |
|---|---|---|
| **SLA 71** | | **6GT2 301-2BB00** |
| Read/write antenna | | |
| ***Accessories*** | | |
| **Extension connecting cable** | | |
| For antenna cable | | |
| 10 m | ► | **6GT2 391-1BN10** |
| 25 m | ► | **6GT2 391-1BN25** |
| **CD "RFID Systems Software & Documentation"** | ► | **6GT2 080-2AA10** |
| FB/FC for SIMATIC, 3964R driver for DOS/Windows 95/NT/2000/XP, C libraries, PC presentation program RFID documentation | | |

► Preferred type, available from stock.

5

## STG E mobile hand-held terminal

### Overview

The STG E is a powerful mobile hand-held terminal with integral read/write antenna for applications in the field of production logistics, distribution and service. In addition, it is an indispensable tool for commissioning and testing.

### Design

The STG E mobile hand-held terminal consists of one basic unit (Basis PSION Workabout PRO) and a removable compact read/write head. It has a splashwater-proof enclosure (IP54), LCD color monitor 1/4 VGA, 320 x 240 pixels, TFT portrait format, alphanumeric keyboard and various interfaces (for SD memory card, charging batteries, USB, Bluetooth, etc.).

### Function

The pre-installed MOBY software provides service and test functions for reading, writing, etc. of the MOBY data memory:

- Reading data from the data memory
- Writing data to the data memory
- Reading and displaying the ID number of the data memory (to the extent available)
- Displaying and editing the data in hexadecimal, ASCII, decimal and binary formats
- Activate/deactivate password

User applications that were developed for the predecessor model Workabout MX can be transferred to this terminal with little effort. For this purpose, various optional development tools for the PC are available directly from PSION. This is opening up new applications in the field of logistics and distribution, for example, the hand-held terminal enables commissioning data to be recorded or processed offline and forwarded to the PC/computer with a time delay.

### Technical specifications

| STG E mobile hand-held terminal | |
|---|---|
| Processor | 400 MHz Intel Xscale PXA255 |
| Operating system | Microsoft Windows CE .NET 4.20 |
| RAM/Flash EEPROM memory | 128 MB/32 MB |
| User program | MOBY standard application |
| Screen | TFT color touch display , ¼ VGA 320 x 240 (portrait format); adjustable backlighting |
| Keyboard | alphanumeric |
| Sound | Piezo signal transmitter |
| Power supply | • Lithium-ion battery (3.7 V; 3000 mAh)<br>• Quick charging possible (automatic shut-off) or 3 x 1.5 V type AA<br>• Backup battery: 3 V ML 2032 lithium cell |
| Interfaces | • LIF interface (low insertion force interface) for battery charging and communication with the PC using a docking and loading station (USB)<br>• CF interface for expansion cards (e.g. WLAN) |
| Dimensions | 305 x 90 x 44 [mm] |
| Weight (incl. battery) | Approx. 0.5 kg |
| Ambient temperature | |
| • During operation | -10 ...+50 °C |
| • Storage (without batteries) | -25 ...+60 °C |
| Relative humidity, non-condensing | 5 ... 90% |
| Degree of protection | IP54 (splashwater proof) |
| EMC | EN 55022, EN 55024 |

| Integral read/write head, inductive interface to MDS | |
|---|---|
| Read/write distance to MDS | up to 30 mm, depending on MDS |
| Energy/data transmission frequency | 13.56 MHz |
| Serial interface (to basic unit) | TTL, 3964R protocol |
| Functionality of the SW application | Standard user interface for reading/writing of data memories, etc. |

| Selection and Ordering data | | Order No. |
|---|---|---|
| **STG E mobile hand-held terminal with MOBY E read/write head**<br>Basic unit (PSION Workabout PRO) with MOBY E read/write, battery, standard software pre-installed, without loading/docking station | ► D | **6GT2 303-0AA10** |
| ***Accessories*** | | |
| **Loading/docking station**<br>For a mobile hand-held terminal as well as a spare battery, incl. wide-range plug-in power supply 100 ... 240 V AC and country-specific adapters as well as USB cable | ► A | **6GT2 898-0BA00** |
| **MOBY E read/write head**<br>For basic unit (PSION Workabout mx and PSION Workabout PRO) | ► A | **6GT2 303-1AA00** |
| **Basic unit**<br>Basic unit (PSION Workabout PRO) with adapter for MOBY RFID read/write heads | ► D | **6GT2 003-0AA10** |
| **Spare battery**<br>For basic unit (PSION Workabout PRO), High Capacity 3000 mAh, Li-ion | ► A | **6GT2 898-0CA00** |
| **"RFID Systems Software & Documentation" CD**<br>FB/FC for SIMATIC, 3964R driver for DOS/Windows 95/NT/2000/XP, C libraries, PC presentation program. MOBY documentation | ► | **6GT2 080-2AA10** |

A: Subject to export regulations AL = N and ECCN = EAR99H
D: Subject to export regulations AL = N and ECCN = 4A994X
► Preferred type, available from stock.

***For optional components, please visit***
http://www.psionteklogix.com

For example:

- SD expansion cards
- Handles, belt loops
- Vehicle holder with charging function

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## Configuring instructions

### Overview

#### *Note*

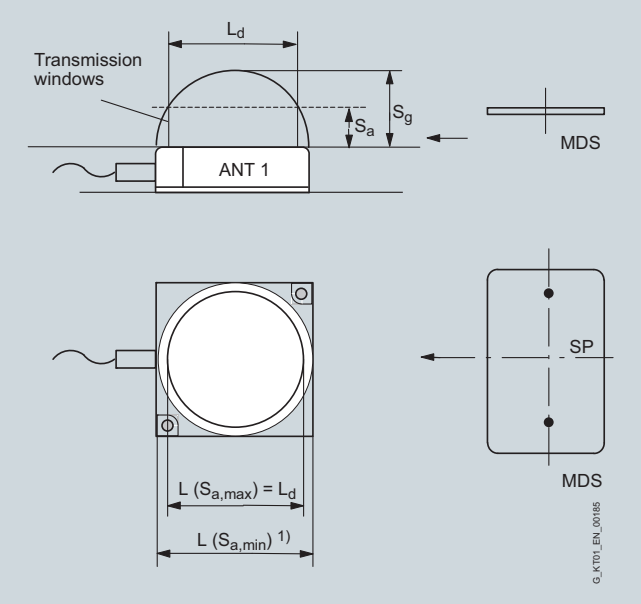
Detailed configuration and commissioning data is contained in the “Manual for Configuration, Assembly and Service”.

#### *Transmission window*

The read/write device generates an inductive alternating field. The field is at its strongest near the SLG and declines rapidly as the distance from the SLG increases. The distribution of the field depends on the structure and geometry of the antennas in the read/write device and MDS.

A prerequisite for the function of the MDS is a minimum field strength at the MDS that is achieved at a distance $S_g$ from the read/write device.

The picture below shows the transmission window between MDS and SLG:




*$S_a$: Operating distance between MDS and SLG*

*$S_g$: Limit distance (maximum clear distance between upper surface of SLG and MDS at which transmission can still function under normal conditions)*

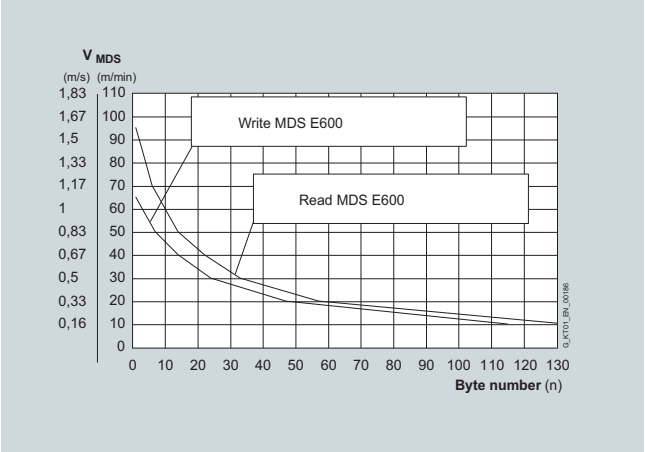
*L: Length of a transmission window*

*SP: Intersection of the axes of symmetry of the MDS*

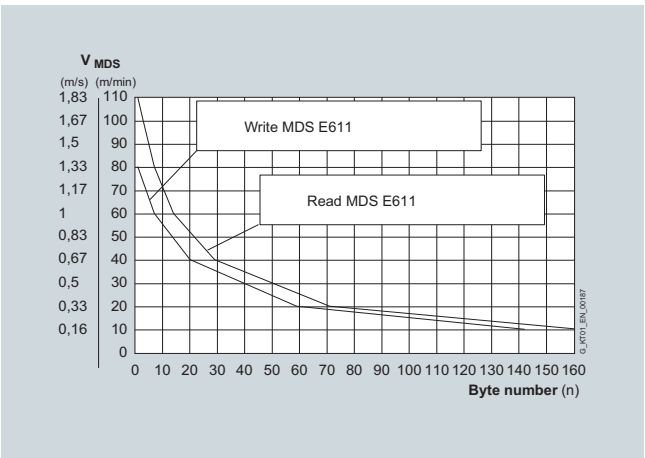
The active field for the MDS consists of a circle (see plan view). The MDS can be used as soon as the intersection of the MDS enters the circle of the transmission window. The direction of movement and rotation of the MDS has no effect.

#### *Representation of speed relative to data quantity*

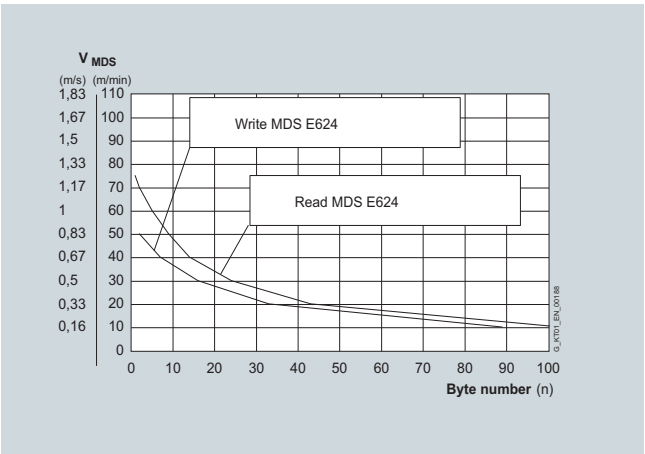
The characteristics shown here should make it easier to preselect the MOBY E components MDS and SLG for dynamic use. The characteristics apply for operation within the transmission window (L) and the operating distance ($S_a$).




SLG 75 ANT 1/SLA 71/SLG 72 with MDS E600



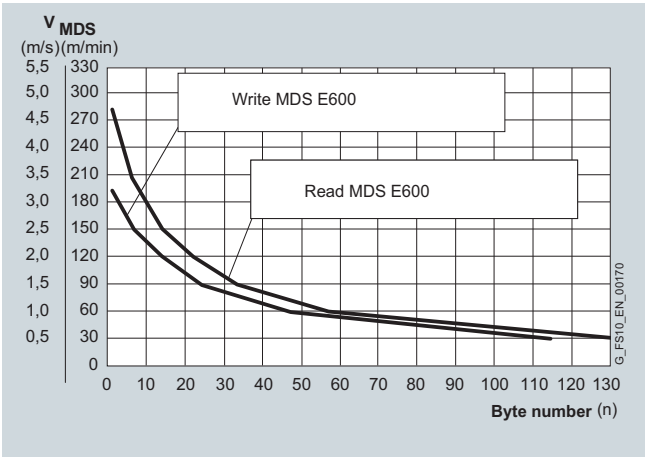

SLG 75 ANT 1/SLG 72 with MDS E611



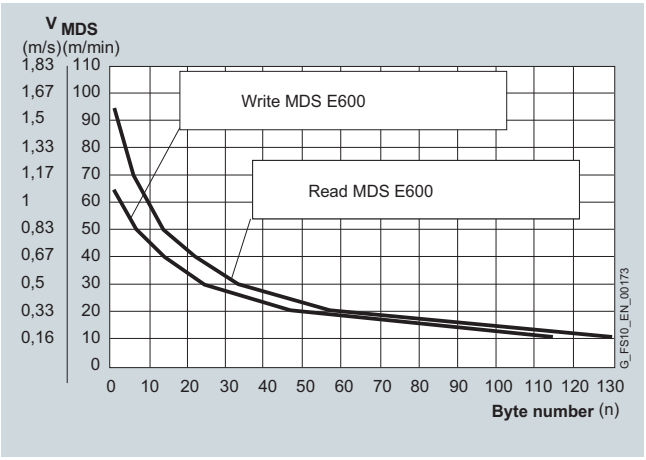

SLG 75 ANT 1/SLG 72 with MDS E624

#### *Read transmission time of the ID number*

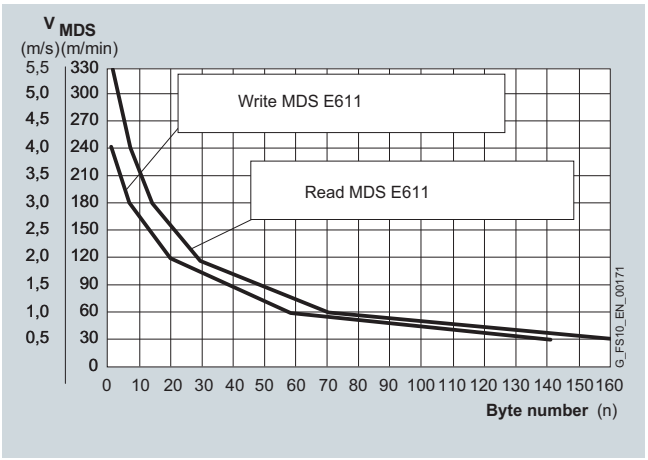
| Type | Size of ID number | Read ID no. |
|---|---|---|
| MDS E6xx | 4 byte | 20 ms |



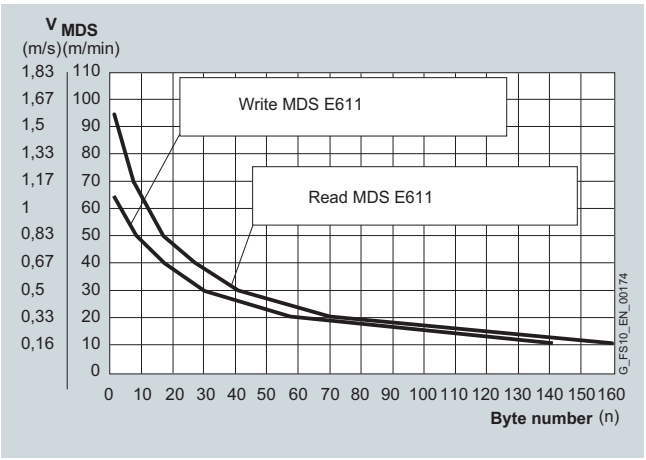

SLG 75 ANT 4 with MDS E600



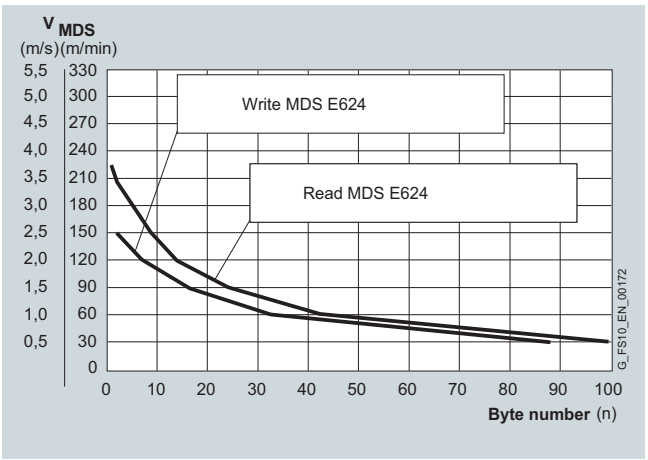

SLG 72 with MDS E600




SLG 75 ANT 4 with MDS E611




SLG 72 with MDS E611




SLG 75 ANT 4 with MDS E624

# Introduction

## Overview

SIMATIC RF 300 is a non-contact identification system specially designed for use in industrial production for the control and optimization of the material flow. Thanks to its compact modular structure, it is particularly suited for small assembly lines and conveyor systems with restricted space for installation. The rugged components feature an attractive price/performance ratio.

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

- A particularly economical solution with a link to SIMATIC S7-300 over the IQ-Sense interface for low requirements in terms of speed and data volume
- Read/write devices for high demands in terms of speed and data volume for connection to SIMATIC, PROFIBUS, PROFINET or PC or non-Siemens controllers

The SIMATIC RF300 identification system boasts the following features:

- 13.56 MHz operating frequency
- Passive (without battery) transponders (tags)
- Rugged, compact components
- Very high immunity to noise
- Extensive diagnostic functions
- Extremely fast data transmission
- Simple integration into SIMATIC, PROFIBUS DP and PROFINET

## Benefits

Minimization of commissioning time by direct connection of system to SIMATIC S7-300, PROFIBUS, PROFINET and non-Siemens PLC or PC.

Minimization of downtimes thanks to:

- Fault-resistant data transmission
- Specific diagnostics information
- High data security under critical operating conditions

High-speed data processing thanks to high data transfer rates on the "air interface".

SIMATIC RF300 records the data of objects quickly and reliably. SIMATIC RF300 thereby ensures effective and cost-effective automation.

## Application

The RFID system SIMATIC RF300 is used primarily for contact-free identification of containers, pallets and workpiece holders in a closed production cycle. This means that the data carriers (transponders, tags) remain in the production chain and are not shipped out with the products. Thanks to the compact enclosure dimensions of the transponders as well as of the read/write devices, SIMATIC RF300 is particularly suitable for (small) assembly lines where space is at a premium.

The main application areas of SIMATIC RF300 are:

- Assembly and handling systems, assembly lines (identification of workpiece carriers)
- Production logistics (material flow control, identification of containers and other vessels)
- Parts identification (e.g. transponder is attached to product or pallet)
- Conveyor systems (e.g. overhead monorail conveyors)

## Function

The MOBY and SIMATIC RF300 RFID systems ensure that highly-informative data accompany a product right from the start.

### *Tags*

Tags ("electronic delivery notes") are used in place of barcodes and contain all production-specific data in addition to the product number. Up to 64 KB of user data can be stored and managed in this way. Enough to enable quality data to be stored as well.

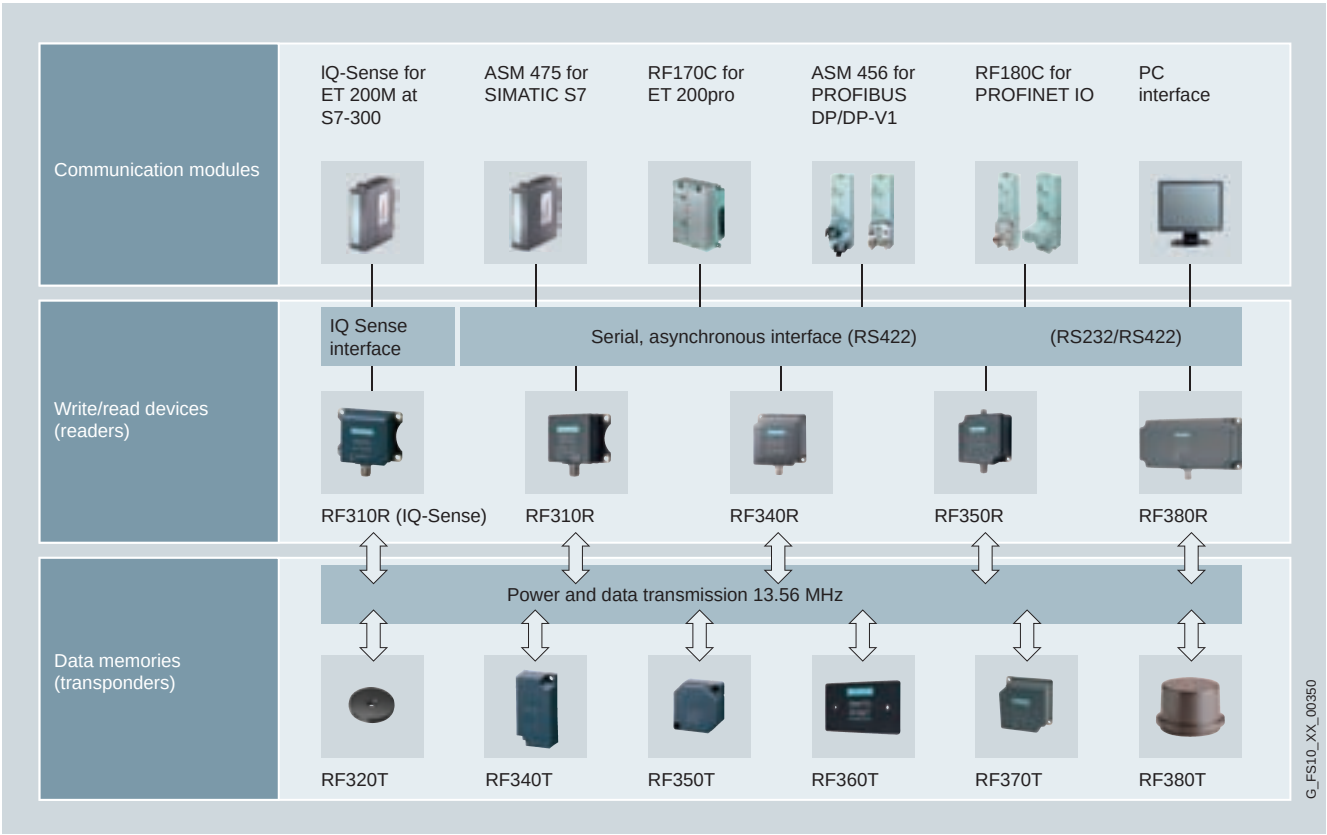
### *Read/write devices*

Using stationary as well as mobile read/write devices, the necessary information (production data, transport routes, etc.) can be read from the tag without contact (inductively) and can even be added to or modified without the need for a direct line-of-sight link.

### *Communication modules*

Communication modules integrate SIMATIC RF300 RFID systems into the automation world. For this purpose, a broad spectrum of communication modules is available for simple system integration into the SIMATIC S7 as well as into the PROFIBUS, PROFINET or Ethernet networks.

## Integration




## Technical specifications

| Type | Contactless, inductive RF identification system for industrial applications |
|---|---|
| Transmission frequency data/energy | 13.56 MHz |
| Memory capacity | • 20 byte … 64 KB user memory (r/w)<br>• 4 byte fixed code as serial number (ro) |
| Memory type | EEPROM / FRAM |
| Write cycles | |
| • EEPROM | > 1000000 (at 40 °C) |
| • FRAM | unlimited |
| Read cycles | unlimited |
| Data management | Byte-oriented access |
| Data transfer rate, reader tag | max. 7 KByte/s, typ. 3 KByte/s (IQ sense: 50 byte/s) |
| Read/write distance (system limit) | up to 0.15 m |
| Operating temperature range | |
| • Read/write device (reader) | -25 ...+70 °C |
| • Mobile data storage units (tags) | -25 … +125 °C (+220 °C cyclic) |
| Degree of protection | |
| • Read/write device (reader) | up to IP67 |
| • Mobile data storage units (tags) | up to IPX9K/IP68 |

| Type | Contactless, inductive RF identification system for industrial applications |
|---|---|
| Can be connected to | • SIMATIC S7-300<br>• PROFIBUS DP V1<br>• PROFINET<br>• PC<br>• Non-Siemens PLC |
| Special features | • high noise immunity<br>• compact components<br>• extensive diagnostic options<br>• Reader with IQ-Sense interface |
| Approvals | • ETS 300330 (Europe)<br>• FCC Part 15 (U.S.A.)<br>• UL/CSA CE |

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## Introduction

### Overview


| Type | Features |
|---|---|
| **SIMATIC RF320T** | Universal, compact data storage unit (20 + 4 byte EEPROM)<br>Ø 27 mm x 4 mm, not suitable for mounting directly on metal<br>• Degree of protection IP67/IPX9K[1)]<br>• Temperature range up to +85 °C |
| **SIMATIC RF340T** | Universal data storage unit (8 KB FRAM + 24 byte EEPROM), 48 mm x 25 mm x 15 mm<br>• Degree of protection IP68/IPX9K[1)]<br>• Temperature range up to +85 °C |
| **SIMATIC RF350T** | Universal data storage unit (32 KB FRAM + 24 byte EEPROM), 50 mm x 50 mm x 20 mm<br>• Degree of protection IP68<br>• Temperature range up to +85 °C |
| **SIMATIC RF360T** | Universal data storage unit in credit card format (8 KB FRAM + 24 byte EEPROM), 85.5 mm x 54.1 mm x 2.5 mm<br>• Degree of protection IP67<br>• Temperature range up to +75 °C |
| **SIMATIC RF370T** | Universal data storage unit (32 or 64 KB FRAM + 24 byte EEPROM), 75 mm x 75 mm x 40 mm<br>• Degree of protection IP68<br>• Temperature range up to +85 °C |
| **SIMATIC RF380T** | Heat-resistant data storage unit, designed for skid identification in paint shops (32 KB FRAM + 24 byte EEPROM), housing dimensions (mm) Ø 114 x 83<br>• Degree of protection IP68<br>• Temperature range up to +220 °C (cyclic) |

1) Extract:
Test equipment: steam jet-air ejector 0 °C, 30 °C, 60 °C, 90 °C
Water flow rate: 10 … 15 l/min at 100 bar (75 °C)
Distance: 10 … 15 cm

### Design

A SIMATIC RF 300 data storage unit essentially consists of an electronic module, an antenna and an EEPROM or FRAM memory built into a rugged plastic enclosure.

### Function

If a tag moves into the transmission field of the reader, the necessary power for all circuit components is generated and monitored by means of the energy supply unit. The pulse-coded information is prepared in such a way that it can be processed further as pure digital signals. The handling of data, including check routines, is performed by the control unit which also manages the user memory.

## Overview


Universal, compact tag (20 + 4 byte EEPROM) in button format (Ø 27 mm x 4 mm), not suitable for mounting directly on metal.

| Mobile data storage unit | SIMATIC RF320T |
|---|---|
| Data retention time | > 10 years (at < +40 °C) |
| Read/write distance | (see field data) |
| Memory organization | Byte-oriented access, write protection possible in 4-byte blocks |
| Energy source | Inductive power transmission |
| Shock/vibration to EN 60721-3-7, Class 7 M3 | 100 *g*/20 *g* |
| Torsion and bending load | Not permissible |
| Mounting | Adhesive/M3 screws |
| Recommended distance to metal | > 20 mm |
| Degree of protection to | |
| • EN 60529 | IP67/IPX9K[1)] |
| Enclosure | Button |
| • Dimensions | Ø 27 mm x 4 mm |
| • Color/material | Black/epoxy resin |
| Ambient temperature | |
| • During operation | -25 ... +125 °C |
| • During transportation and storage | -40 ... +150 °C |
| Weight, approx. | 5 g |

1) Extract:
Test equipment: Steam jet-air ejector 0 °C, 30 °C, 60 °C, 90 °C
Water flow rate: 10 … 15 l/min at 100 bar (75 °C)
Distance: 10 … 15 cm

## Technical specifications

| Mobile data storage unit | SIMATIC RF320T |
|---|---|
| Memory size | 20 byte EEPROM (r/w), 4 byte UID (ro) |
| MTBF | 1.6 x $10^7$ h |
| Read cycles | Unlimited |
| Write cycles, min. | 100000 |
| • at ≤ 40 °C, typical | > 1000000 |

### *Field data in mm*

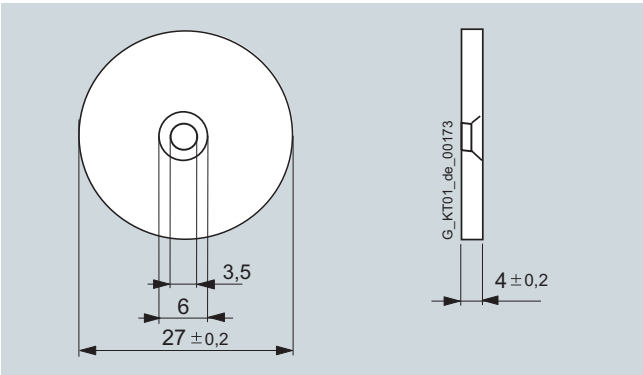
| SIMATIC RF320T to: | SIMATIC RF310R | SIMATIC RF340R | SIMATIC RF350R with ANT 1 | SIMATIC RF350R with ANT 18 | SIMATIC RF350R with ANT 30 | SIMATIC RF380R |
|---|---|---|---|---|---|---|
| Operating distance ($S_a$) | 2 ... 10 | 2 ... 20 | 2 ... 20 | 2 ... 8 | 2 ... 11 | 2 ... 30 |
| Limit distance ($S_g$) | 16 | 25 | 25 | 10 | 15 | 47 |
| Transmission window (L) | 30 | 45 | 45 | 10 | 15 | 100 |

## Selection and Ordering data

| | | Order No. |
|---|---|---|
| **SIMATIC RF320T tag** | ► A | **6GT2 800-1CA00** |

A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

## Dimensions



## SIMATIC RF340T

### Overview


Universal data memory (8 KB FRAM + 24 byte EEPROM + 4 byte serial number), particularly suitable for small workpiece carriers.

### Technical specifications

| Mobile data storage unit | SIMATIC RF340T |
|---|---|
| Memory size | 8 KB FRAM (r/w),<br>20 byte EEPROM (r/w),<br>4 byte UID (ro) |
| MTBF | 1.1 x $10^7$ h |
| Read cycles | Practically unlimited (>$10^{10}$) |
| Write cycles | Practically unlimited (>$10^{10}$) |
| Data retention time | > 10 years (at < +40°C) |
| Read/write distance | (see field data) |
| Memory organization | Byte-oriented access, write protection possible in 4-byte blocks for the 20-byte EEPROM area |
| Energy source | Inductive power transmission |
| Shock/vibration to EN 60721-3-7 | 50 *g* / 20 *g* |
| Torsion and bending load | Not permissible |
| Mounting | 2 x M3 screws |
| Degree of protection to EN 60529 | IP68/IPX9K[1)] |
| Dimensions in mm | 48 x 25 x 15 |
| Color/material | Anthracite/polyamide 12 |
| Ambient temperature | |
| • During operation | -25 ... + 85 °C |
| • During transportation and storage | -40 ... + 85 °C |
| Weight, approx. | 25 g |

1) Extract:
Test equipment: Steam jet-air ejector 0 °C, 30 °C, 60 °C, 90 °C
Water flow rate: 10 … 15 l/min at 100 bar (75 °C)
Distance: 10 … 15 cm

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*Field data in mm*

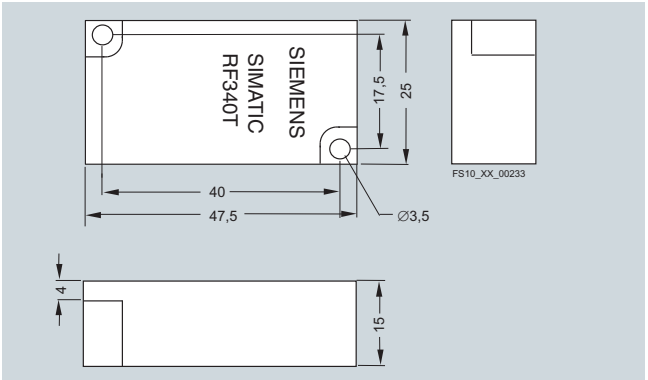
| SIMATIC RF340T to: | SIMATIC RF310R | SIMATIC RF340R | SIMATIC RF350R with ANT 1 | SIMATIC RF350R with ANT 18 | SIMATIC RF350R with ANT 30 | SIMATIC RF380R |
|---|---|---|---|---|---|---|
| Operating distance ($S_a$) | 2 ... 20 | 5 ... 25 | 5 ... 25 | 2 ... 10 | 5 ... 15 | 20 ... 70 |
| Limit distance ($S_g$) | 26 | 35 | 35 | 13 | 20 | 90 |
| Transmission window (L) | 38 | 60 | 60 | 20 | 25 | 115 |

### Selection and Ordering data

| | | Order No. |
|---|---|---|
| **SIMATIC RF340T tag** | ► A | **6GT2 800-4BB00** |

A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

### Dimensions



## Overview


Universal data memory (32 KB FRAM + 24 byte EEPROM)

## Technical specifications

| Mobile data storage unit | SIMATIC RF350T |
|---|---|
| Memory size | 32 KB FRAM (r/w),<br>20 byte EEPROM (r/w),<br>4 byte UID (ro) |
| MTBF | 1.1 x $10^7$ h |
| Read cycles | Practically unlimited (>$10^{10}$) |
| Write cycles | Practically unlimited (>$10^{10}$) |
| Data retention time | > 10 years (at < +40°C) |
| Read/write distance | (see field data) |
| Memory organization | Byte-oriented access, write protection possible in 4-byte blocks for the 20-byte EEPROM area |
| Energy source | Inductive power transmission |
| Shock/vibration to EN 60721-3-7, Class 7 M3 | 50 *g*/20 *g* |
| Torsion and bending load | Not permissible |
| Mounting | 2 x M4 screws |
| Recommended distance to metal | Can be directly mounted on metal |
| Degree of protection to EN 60529 | IP68 |
| Enclosure | 8-sided, with mounting frame |
| L x W x H, in mm | 50 x 50 x 20 |
| Color/material | Anthracite/polyamide 12 |
| Ambient temperature | |
| • During operation | -25 ... + 85 °C |
| • During transportation and storage | -40 ... + 85 °C |
| Weight, approx. | 25 g |

*Field data in mm*

| SIMATIC RF350T to: | SIMATIC RF310R | SIMATIC RF340R | SIMATIC RF350R with ANT 1 | SIMATIC RF350R with ANT 18 | SIMATIC RF350R with ANT 30 | SIMATIC RF380R |
|---|---|---|---|---|---|---|
| Operating distance ($S_a$) | 5 ... 22 | 5 ... 35 | 5 ... 35 | - | 5 ... 16 | 35 ... 70 |
| Limit distance ($S_g$) | 30 | 50 | 50 | - | 22 | 105 |
| Transmission window (L) | 45 | 60 | 60 | - | 25 | 120 |

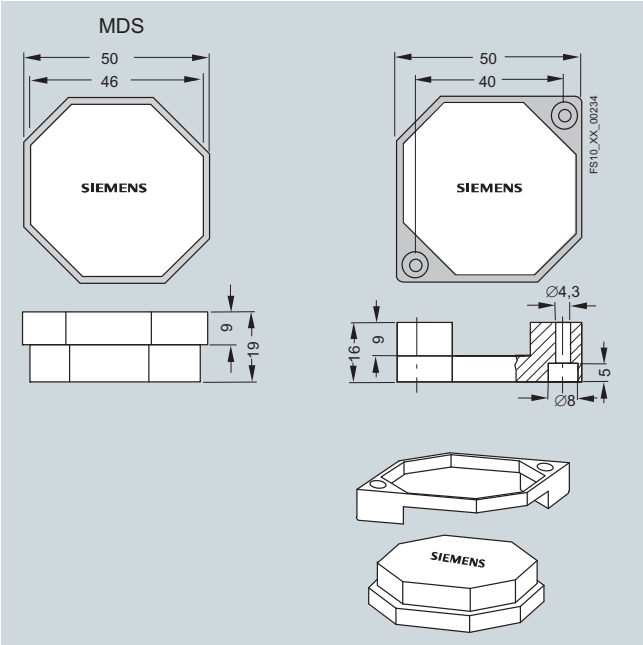
-: Combination reader tag not released

## Selection and Ordering data

| | | Order No. |
|---|---|---|
| **SIMATIC RF350T tag** | ► A | **6GT2 800-5BD00** |

A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

## Dimensions




Left: Mobile data storage unit.
Upper right: Mounting frame.
Lower right: Installation diagram. The MDS can be mounted with the mounting frame as shown.

## SIMATIC RF360T

### Overview


Universal data memory in credit card format (8 KB FRAM + 24 byte EEPROM).

### Technical specifications

| Mobile data storage unit | SIMATIC RF360T |
|---|---|
| Memory size | 8 KB FRAM (r/w),<br>20 byte EEPROM (r/w),<br>4 byte UID (ro) |
| MTBF | 1.1 x $10^7$ h |
| Read cycles | Practically unlimited (>$10^{10}$) |
| Write cycles | Practically unlimited (>$10^{10}$) |
| Data retention time | > 10 years (at < +40 °C) |
| Read/write distance | (see field data) |
| Memory organization | Byte-oriented access, write protection possible in 4-byte blocks for the 20-byte EEPROM area |
| Energy source | Inductive power transmission |
| Shock/vibration to EN 60721-3-7 | 50 *g*/20 *g* |
| Torsion and bending load | Not permissible |
| Mounting | 2 screws M3 or with mounting lug 6GT2190-0AB00 |
| Recommended distance to metal | > 20 mm; e.g. using spacer 6GT2190-0AA00 in conjunction with mounting lug 6GT2190-0AB00 |
| Degree of protection to EN 60529 | IP67 |
| Enclosure | Credit card format |
| L x W x H, in mm | 85.8 x 54.8 x 2.5 |
| Color/material | Anthracite / epoxy resin |
| Ambient temperature | |
| • During operation | -25 ... + 75 °C |
| • During transportation and storage | -40 ... + 85 °C |
| Weight, approx. | 25 g |

5

*Field data in mm*

| SIMATIC RF360T to: | SIMATIC RF310R | SIMATIC RF340R | SIMATIC RF350R with ANT 1 | SIMATIC RF350R with ANT 18 | SIMATIC RF350R with ANT 30 | SIMATIC RF380R |
|---|---|---|---|---|---|---|
| Operating distance ($S_a$) | 5 ... 26 | 8 ... 40 | 8 ... 40 | - | - | 40 ... 120 |
| Limit distance ($S_g$) | 35 | 60 | 60 | - | - | 140 |
| Transmission window (L) | 45 | 70 | 70 | - | - | 145 |

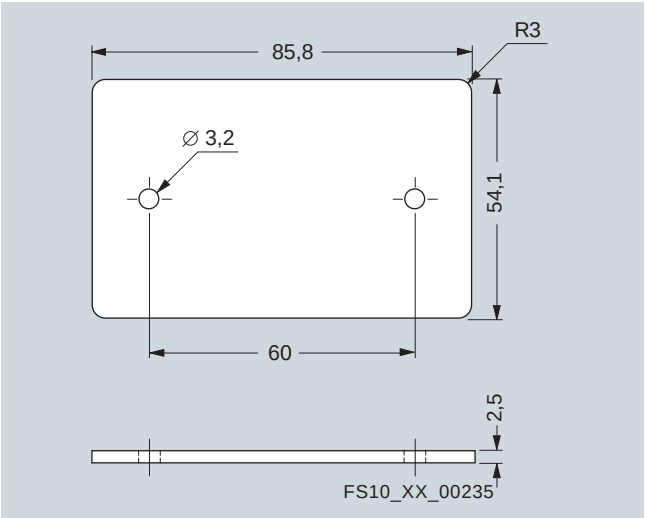
-: Combination reader tag not released

### Selection and Ordering data

| | | Order No. |
|---|---|---|
| **SIMATIC RF360T tag** | ► A | **6GT2 800-4AC00** |
| ***Accessories*** | | |
| **Fixing lug** | ► | **6GT2 190 0AB00** |
| For SIMATIC RF360T | | |
| **Spacers** | ► | **6GT2 190-0AA00** |
| For fixing lug, thickness 20 mm<br>The purpose of the spacer is to maintain the recommended distance to the metal when installing the tag. | | |

A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

### Dimensions



## Overview


Universal data storage unit in square format (32 or 64 KB FRAM + 24 byte EEPROM), 75 mm x 75 mm x 40 mm.

## Technical specifications

| Mobile data storage unit | SIMATIC RF370T |
|---|---|
| Memory size | 32 or 64 KB FRAM (r/w), 20 byte EEPROM (r/w), 4 byte UID (ro) |
| MTBF | 1.0 x $10^7$ h |
| Read cycles | Practically unlimited (>$10^{10}$) |
| Write cycles | Practically unlimited (>$10^{10}$) |
| Data retention time | > 10 years (at < +40 °C) |
| Read/write distance | (see field data) |
| Memory organization | Byte-oriented access, write protection possible in 4-byte blocks for the 20-byte EEPROM area |
| Energy source | Inductive power transmission |
| Shock/vibration to EN 60721-3-7, Class 7 M3 | 50 *g*/20 *g* |
| Torsion and bending load | Not permissible |
| Mounting | 2 M5 screws |
| Recommended distance to metal | Can be directly mounted on metal |
| Degree of protection to EN 60529 | IP68 |
| Enclosure | Square format |
| L x W x H, in mm | 75 x 75 x 40 |
| Color/material | Anthracite/polyamide 12 |
| Ambient temperature | |
| • During operation | -25 ... + 85 °C |
| • During transportation and storage | -40 ... + 85 °C |
| Weight, approx. | 200 g |

### *Field data in mm*

| SIMATIC RF370T to: | SIMATIC RF310R | SIMATIC RF340R | SIMATIC RF350R with ANT 1 | SIMATIC RF350R with ANT 18 | SIMATIC RF350R with ANT 30 | SIMATIC RF380R |
|---|---|---|---|---|---|---|
| Operating distance ($S_a$) | * | 15 ... 36 | 15 ... 45 | - | - | 35 ... 85 |
| Limit distance ($S_g$) | * | 52 | 65 | - | - | 125 |
| Transmission window (L) | * | 75 | 70 | - | - | 135 |

-: Combination reader tag not released

*: The combination of RF370T to RF310R is possible in principle, but it is not recommended because the antenna geometry between the reader and antenna is not optimal.

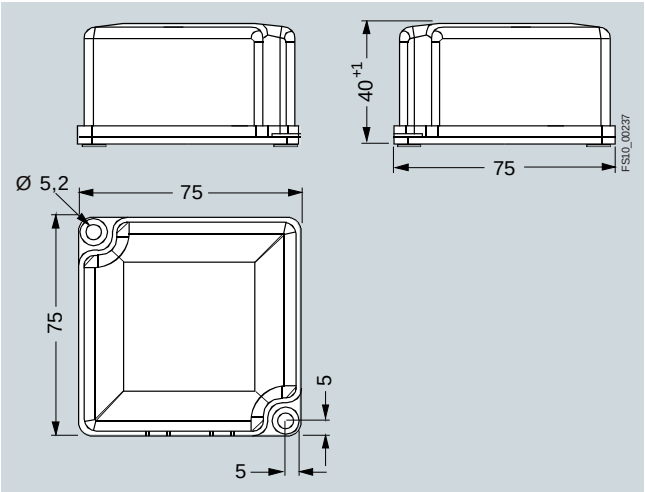
## Selection and Ordering data

| | | Order No. |
|---|---|---|
| **SIMATIC RF370T tag** With 32 KB FRAM | ► A | **6GT2 800-5BE00** |
| **SIMATIC RF370T tag** With 64 KB FRAM | ► A | **6GT2 800-6BE00** |

A: Subject to export regulations AL = N and ECCN = EAR99H

► Preferred type, available from stock.

## Dimensions



## SIMATIC RF380T

### Overview

Heat-resistant data memory, designed for skid identification in paint shops (32 KB FRAM + 24 byte EEPROM), housing dimensions (mm) Ø 114 x 83, temperature range up to +220 °C (cyclic).

### Application

Typical applications are:

- Primer application, cataphoresis with the associated drying ovens
- Outer paint coating area with drying ovens
- Washing area with temperatures > +85°C

### Technical specifications

| Heat-resistant data storage unit | SIMATIC RF380T |
|---|---|
| Memory size | 32 KB FRAM (r/w),<br>20 byte EEPROM (r/w),<br>4 byte UID (ro) |
| MTBF | 1.0 x $10^7$ h |
| Read cycles | Practically unlimited (>$10^{10}$) |
| Write cycles | Practically unlimited (>$10^{10}$) |
| Data retention time | > 10 years (at < +40 °C) |
| Read/write distance | (see field data) |
| Memory organization | Byte-oriented access, write protection possible in 4-byte blocks for the 20-byte EEPROM area |
| Energy source | Inductive power transmission |
| Shock/vibration to EN 60721-3-7 | 50 *g*/5 *g* |
| Torsion and bending load | Not permissible |
| Mounting | With special support (to be ordered separately) |
| Recommended distance to metal | Can be directly mounted on metal |
| Degree of protection to EN 60529 | IP68 |
| Enclosure | Round type |
| • Dimensions (Ø x H, in mm) | 114 x 83 |
| • Color/material | Brown / PPS |
| Ambient temperature | |
| • In operation (permanent) | -25 ... + 110 °C |
| • In operation (cyclic) | -25 ... + 220 °C |
| • During transportation and storage | -40 ... + 110 °C |
| Weight, approx. | 900 g |

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#### *Field data in mm*

| SIMATIC RF380T to: | SIMATIC RF310R | SIMATIC RF340R | SIMATIC RF350R with ANT 1 | SIMATIC RF350R with ANT 18 | SIMATIC RF350R with ANT 30 | SIMATIC RF380R |
|---|---|---|---|---|---|---|
| Operating distance ($S_a$) | * | 15 … 47 | 15 … 53 | - | - | 25 … 85 |
| Limit distance ($S_g$) | * | 55 | 65 | - | - | 125 |
| Transmission window (L) | * | 85 | 88 | - | - | 155 |

-: Combination reader tag not released

*: The combination of RF380T to RF310R is possible in principle, but it is not recommended because the antenna geometry between the reader and antenna is not optimal.

#### *Cyclic operation of the MDS at temperatures > 100 °C*

At ambient temperatures between +110 °C and +220 °C, care must be taken to ensure that the internal temperature of the SIMATIC RF380T does not exceed the critical threshold of +110 °C. Each heating phase must therefore be followed by a cooling phase. Some limit cycles are listed in the table below.

A temperature calculation tool calculates the temperature curve for the heat-proof MDS SIMATIC RF380T (see CD "RFID Systems Software & Documentation", Order No. 6GT2 080-2AA10).

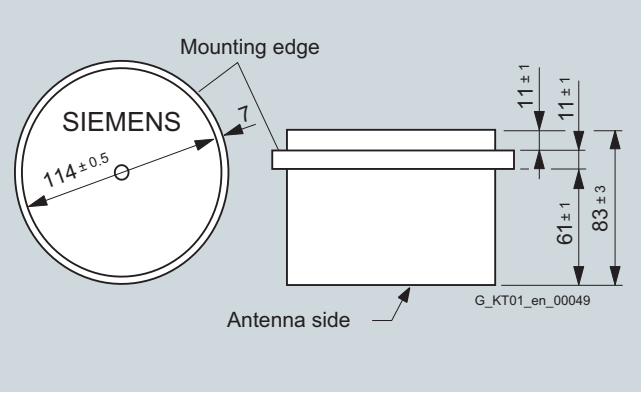
| Heating up | | Cooling down | |
|---|---|---|---|
| Temperature | Time | Temperature | Time |
| 200 °C | 2 h | 25°C | > 8 h |
| 200 °C | 1 h | 25°C | > 2 h |
| 190 °C | 2 h | 25°C | > 7 h |
| 190 °C | 1 h | 25°C | > 1 h 45 min |
| 180 °C | 2 h | 25°C | > 5 h 30 min |
| 180 °C | 2 h | 25°C | > 4 h 30 min |

## Selection and Ordering data

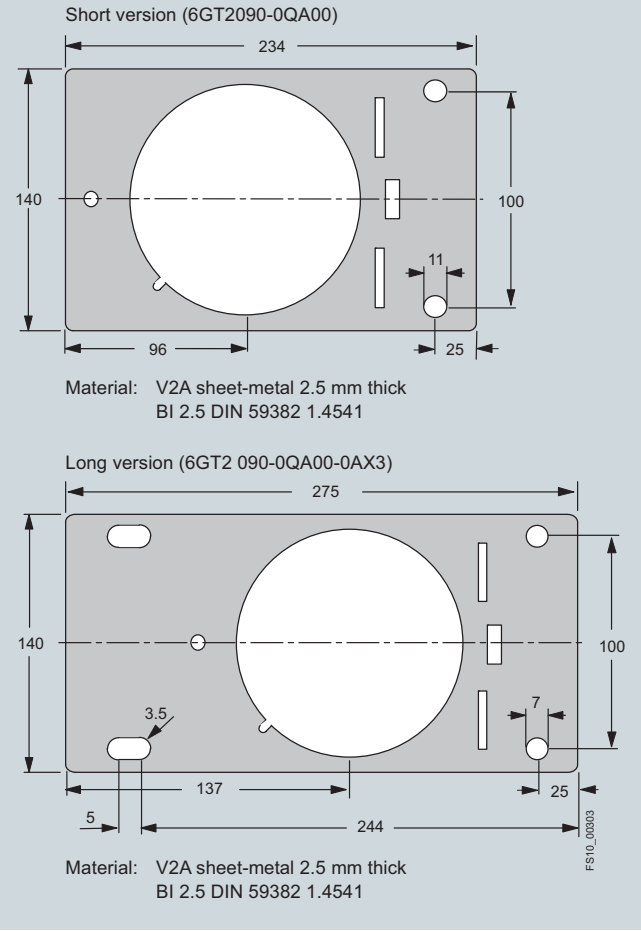
| | | Order No. |
|---|---|---|
| **SIMATIC RF380T tag** | ► A | **6GT2 800-5DA00** |
| With 32 KB FRAM | | |
| ***Accessories*** | | |
| **Skid support for RF380T** | | |
| • Short type | ► A | **6GT2 090-0QA00** |
| • Long type | A | **6GT2 090-0QA00-0AX3** |
| **Universal support** | | |
| For RF380T, e.g. for attachment to the body with a customer-specific adapter | ► | **6GT2 590-0QA00** |
| **Cover** | ► A | **6GT2 090-0QB00** |
| For skid support | | |

A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

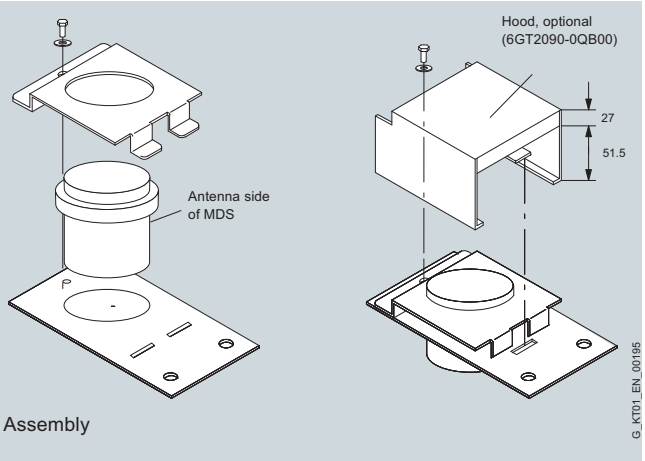
## Dimensions



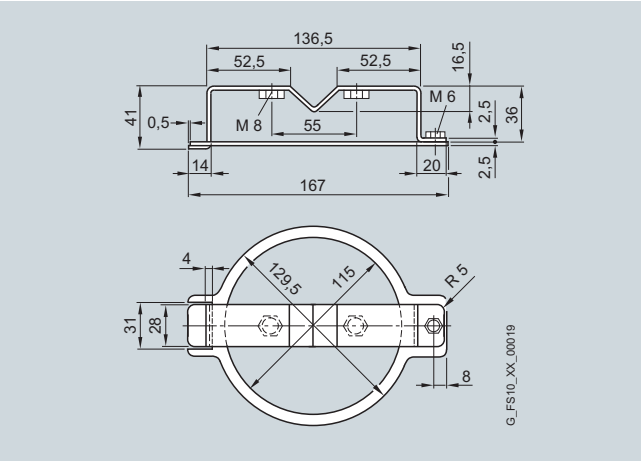

SIMATIC RF380T data carrier




Support for RF380T




Skid support, cover




Universal support

Universal holder with heat-proof data carrier RF380T

## Introduction

### Overview

| Type | Features |
|---|---|
| **SIMATIC RF310R** | Ideal for use on small assembly lines. Reader with integrated antenna.<br>• Degree of protection IP67<br>• Temperature range up to +70 °C<br>• Dimensions 55 mm x 75 mm x 30 mm<br>• 2 interface variants (IQ-Sense and RS 422) |
| **SIMATIC RF340R** | Ideal for use on assembly lines. Reader with integrated antenna.<br>• Degree of protection IP67<br>• Temperature range up to +70 °C<br>• Dimensions 75 mm x 75 mm x 40 mm<br>• Interface RS 422 |
| **SIMATIC RF350R** | Ideal for use on assembly lines. Reader for the connection of external MOBY E antennas (ANT1, ANT18, ANT30).<br>• Degree of protection IP65<br>• Temperature range up to +70 °C<br>• Dimensions 75 mm x 75 mm x 40 mm<br>• Interface RS 422 |
| **SIMATIC RF380R** | Ideal for use in assembly lines in which long ranges are required. Reader with integrated antenna.<br>• Degree of protection IP67<br>• Temperature range up to +70 °C<br>• Dimensions 160 mm x 80 mm x 40 mm<br>• Interface RS 422 / RS 232 |

### Function

The reader implements the commands received from the communication module or the host system. These commands and the data to be written or read are processed by a corresponding digital/analog circuit in the reader and control communication with the tag.

The communication between tag and reader takes place over inductive alternating fields. The transmittable quantity of information between reader and tag depends on:

- the speed at which the tag moves through the transmission window of the reader
- the length of the transmission window
- the tag type (FRAM, EEPROM).

## Overview


The SIMATIC RF310R is a read/write device (reader) in the lower performance range and can be used to great advantage in assembly lines thanks to its small, compact design.

This reader is available in two interface variants:

- With IQ-Sense interface for the 8xIQ-Sense module SM338 on S7-300/ET200M
- With RS 422 interface for the RFID communication modules ASM 456, 475, RF170C and RF180C

Thanks to the high degree of protection and the use of high-quality materials, the SIMATIC RF310R ensures problem-free use even under the toughest industrial conditions. Connection is either over a 4-pin M12 plug-in connector (IQ-Sense variant) or over an 8-pin M12 plug-in connector (RS 422 variant).

## Technical specifications

| SIMATIC RF310R reader | 6GT2801-0AA00 (for IQ-Sense) | 6GT2801-1AA10 (for RS 422) |
|---|---|---|
| Inductive interface to the tag | | |
| • Transmission frequency (energy/data) | 13.56 MHz | 13.56 MHz |
| • Read/write distance to the tag | Max. 35 mm (see tag field data) | Max. 35 mm (see tag field data) |
| Port | | |
| • to SIMATIC S7-300 | 8-IQ-Sense, 2-wire pole-independent; max. 2 readers on one module | - |
| • to RFID communication modules | - | RS 422 (3964R protocol) |
| Baud rates | - | 19200, 57600, 115200 bit/s |
| Cable length reader-master module | Max. 50 m (unshielded cable) | Max. 1000 m (shielded cable) |
| Data transfer rate, reader-tag | | |
| • Writing, approx. | 40 byte/s | 3100 byte/s |
| • Reading, approx. | 50 byte/s | 3100 byte/s |
| Functions | Read, write, initialize tag | Read/write/initialize tag, scan status and diagnostics information, switch antenna on/off, repeat command, scan tag serial numbers (UID) |
| Multi-tag | No | Available soon |
| Power supply | Via IQ-Sense master module (24 V DC) | 24 V DC |
| Display elements | 2-color LEDs (operating voltage, presence, error) | 2-color LEDs (operating voltage, presence, error) |
| Plug-in connector | M12, 4-pin | M12, 8-pin |
| Enclosure | | |
| • Dimensions in mm | 55 x 75 x 30 (without connector) | 55 x 75 x 30 (without connector) |
| • Color | Anthracite | Anthracite |
| • Material | PA 12 | PA 12 |
| Degree of protection to EN 60529 | IP67 | IP67 |
| Shock-resistant to EN 60721-3-7, Class 7 M2 | 50 *g* | 50 *g* |
| Vibration-resistant to EN 60721-3-7, Class 7 M2 | 20 *g* | 20 *g* |
| Mounting | 4 x M5 screws | 4 x M5 screws |
| Tightening torque (at room temperature) | ≤ 2 Nm | ≤ 2 Nm |
| Ambient temperature | | |
| • During operation | -25 ... + 70 °C | -25 ... + 70 °C |
| • During transportation and storage | -40 ... + 85 °C | -40 ... + 85 °C |
| MTBF (at 40 °C) | 1.3 x $10^6$ h | 1.5 x $10^6$ h |
| Weight, approx. | 200 g | 200 g |

## SIMATIC RF310R

*Field data in mm*

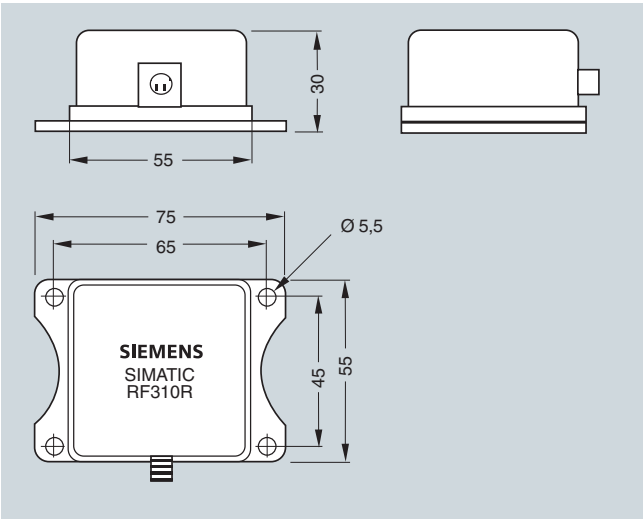
| Reader | SIMATIC RF310R |
|---|---|
| **Minimum distance from reader to reader** | ≥ 100 mm |

### Selection and Ordering data

| | | Order No. |
|---|---|---|
| **SIMATIC RF310R reader** | | |
| • With IQ-Sense interface | ► | **6GT2 801-0AA00** |
| • With RS 422 interface (3964R protocol) | ► A | **6GT2 801-1AA10** |
| ***Accessories*** | | |
| **IQ-Sense module SM 338 for S7-300 and ET 200M** | ► | **6ES7 338-7XF00-0AB0** |
| **CD "RFID Systems Software & Documentation"**<br>FB/FC for SIMATIC, 3964R driver for DOS/Windows 95/NT/2000/XP, C libraries, PC demonstration program. MOBY documentation | ► | **6GT2 080-2AA10** |
| **M12 cable plug**<br>PUR cable 4 x 0.34 $mm^2$, straight connector for SIMATIC RF310R (IQ sense) | | |
| 5 m | ► | **3RX8 000-0CB42-1AF0** |
| 10 m | ► | **3RX8 000-0CB42-1AL0** |

A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

### Dimensions

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## SIMATIC RF340R

### Overview


The SIMATIC RF340R is a read/write device (reader) with integrated antenna for the medium performance range and can be used to great advantage in assembly lines thanks to its compact design. This reader is also particularly suitable for dynamic applications, in which the data carrier does not stop during the read/write process.

This reader has an RS 422 interface with transmission procedure 3964R for connection to the RFID communication modules ASM 456, 475, RF170C, RF180C.

Thanks to the high degree of protection and the use of high-quality materials, the SIMATIC RF340R ensures problem-free use even under the toughest industrial conditions. It is connected by means of an 8-pin M12 connector.

### Technical specifications

| Reader | SIMATIC RF340R |
|---|---|
| Inductive interface to the tag | |
| • Transmission frequency (energy/data) | 13.56 MHz |
| • Read/write distance to the tag | See mobile data storage units field data |
| Port | RS 422 (3964R protocol) |
| Transmission rates | 19200, 57600, 115200 bit/s |
| Cable length reader-master module | Max. 1000 m (shielded cable) |
| Data transfer rate, reader-tag | Read/write: approx. 3,100 byte/s |
| Functions | Read/write/initialize tag, scan status and diagnostics information, switch antenna on/off, repeat command, scan tag serial numbers (UID) |
| Multi-tag | Available soon |
| Power supply | 24 V DC |
| Display elements | 2-color LEDs (operating voltage, presence, error) |
| Plug-in connector | M12, 8-pin |
| Enclosure | |
| • Dimensions in mm | 75 x 75 x 40 (without device connector) |
| • Color | Anthracite |
| • Material | PA 12 |
| Degree of protection to EN 60529 | IP67 |
| Shock-resistant to EN 60721-3-7, Class 7 M2 | 50 *g* |
| Vibration-resistant to EN 60721-3-7, Class 7 M2 | 20 *g* |

| Reader | SIMATIC RF340R |
|---|---|
| Mounting | 2 M5 screws |
| Tightening torque (at room temperature) | ≤ 2 Nm |
| Ambient temperature | |
| • During operation | -25 ... + 70 °C |
| • During transportation and storage | -40 ... + 85 °C |
| MTBF (at 40 °C) | 1.2 x $10^6$ hours |
| Weight, approx. | 250 g |

*Field data in mm*

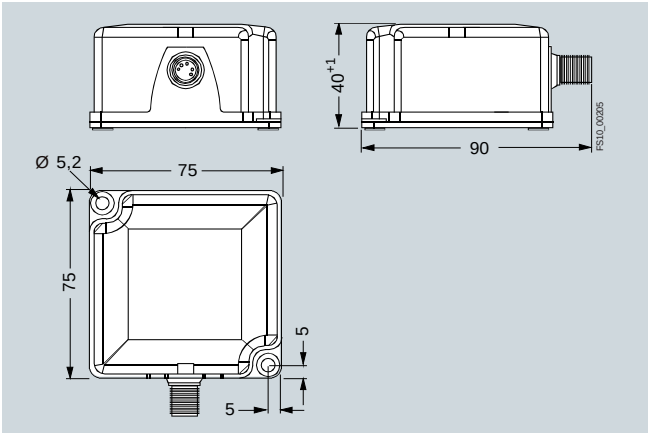
| Reader | SIMATIC RF340R |
|---|---|
| **Minimum distance from reader to reader** | ≥ 500 mm |

### Selection and Ordering data

| | Order No. |
|---|---|
| **SIMATIC RF340R reader** ► A<br>with integrated antenna | **6GT2 801-2AA10** |
| ***Accessories*** | |
| **CD: "RFID Systems Software & Documentation"** ► | **6GT2 080-2AA10** |
| FB/FC for SIMATIC, 3964R driver for DOS/Windows 95/NT/2000/XP, C libraries, PC presentation program. MOBY documentation | |

A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

### Dimensions




SIMATIC RF340R reader

5

## SIMATIC RF350R

### Overview


The SIMATIC RF350R is a universal read/write device (reader) for use with external antennas. Due to the different, pluggable antenna designs (flat antenna, round antennas), there are many possible applications in the area of industrial production, especially in assembly lines.

This reader has an RS 422 interface with transmission procedure 3964R for connection to the RFID communication modules ASM 456, 475, RF170C, RF180C.

Thanks to the high degree of protection and the use of high-quality materials, the SIMATIC RF350R ensures problem-free use even under the toughest industrial conditions. It is connected by means of an 8-pin M12 connector.

One of each of the following antennas from the MOBY E spectrum can be operated on an RF350R:

- ANT 1, universal flat antenna, also for dynamic applications size (L x W x H in mm): 75 x 75 x 20
- ANT 18, universal round antenna in M18 design for assembly lines with small workpiece holders size (Ø x L in mm) M18 x 55
- ANT 30, universal round antenna for assembly lines with small workpiece holders size (Ø x L in mm) M30 x 58

### Technical specifications

| Reader | SIMATIC RF350R |
|---|---|
| Inductive interface to the tag | |
| • Transmission frequency (energy/data) | 13.56 MHz |
| • Port | RS 422 (3964R protocol) |
| • Transmission rates | 19200, 57600, 115200 bit/s |
| Cable length reader-master module | Max. 1000 m (shielded cable) |
| Data transfer rate, reader-tag | Read/write: approx. 3,100 byte/s |
| Functions | Read/write/initialize tag, scan status and diagnostics information, switch antenna on/off, repeat command, scan tag serial numbers (UID) |
| Multi-tag | Available soon |
| Power supply | 24 V DC |
| Display elements | 2-color LEDs (operating voltage, presence, error) |
| Plug-in connector | M12, 8-pin |
| Enclosure | |
| • Dimensions in mm | 75 x 75 x 40 (without device connector) |
| • Color | Anthracite |
| • Material | PA 12 |
| Degree of protection to EN 60529 | IP65 |
| Shock-resistant to EN 60721-3-7, Class 7 M2 | 50 *g* |
| Vibration-resistant to EN 60721-3-7, Class 7 M2 | 20 *g* |
| Mounting | 2 M5 screws |
| Tightening torque (at room temperature) | ≤ 2 Nm |
| Ambient temperature | |
| • During operation | -25 ... + 70 °C |
| • During transportation and storage | -40 ... + 85 °C |
| MTBF (at 40 °C) | 1.2 x $10^6$ hours |
| Weight, approx. | 250 g |

| Connectable antenna | ANT 1 | ANT 18 | ANT 30 |
|---|---|---|---|
| Inductive interface to the tag | 13.56 MHz | | |
| Max. read/write distance ANT tag ($S_g$) | See "Mobile data storage units" field data | | |
| Port to RF350R | | | |
| • Plug connection | 4-pin (pins on antenna side) | | |
| • Antenna cable length (cannot be changed) | 3 m | | |
| Enclosure dimensions in mm | 75 x 75 x 20 (L x W x H) | M18 x 55 (Ø x L) | M30 x 58 (Ø x L) |
| Color | Anthracite | Pale turquoise | |
| Material | Plastic PA 12 | Plastic Krastin | |
| Degree of protection to EN 60529 | IP67 | IP67 (front) | |
| Shock-resistant to EN 60721-3-7, Class 7M2 | 50 *g* maximum value, no continuous load | | |
| Vibration-resistant to EN 60721-3-7, Class 7M2 | 20 *g* (3 … 500 Hz) maximum value, no continuous load | | |
| Ambient temperature | | | |
| • During operation | -25 ... + 70 °C | | |
| • During transportation and storage | -40 ... + 85 °C | | |
| MTBF (at 40 °C) | 2.5 x $10^5$ hours | | |
| Weight, approx. | 80 g | 120 g | 150 g |

### *Field data*

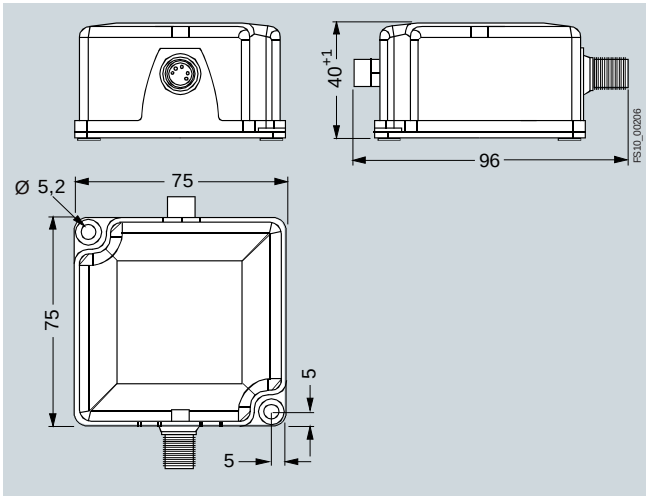
| RF350R with Antenne | ANT 1 | ANT 18 | ANT 30 |
|---|---|---|---|
| Operating distance ($S_a$) | See "Mobile data storage units" field data | | |
| Limit distance ($S_g$) | | | |
| Diameter of the transmission window ($L_d$) | | | |
| Minimum distance from antenna to antenna (D) | | | |
| • ANT1 | 800 | 400 | 400 |
| • ANT18 | 400 | 125 | 200 |
| • ANT30 | 400 | 200 | 200 |

## Selection and Ordering data

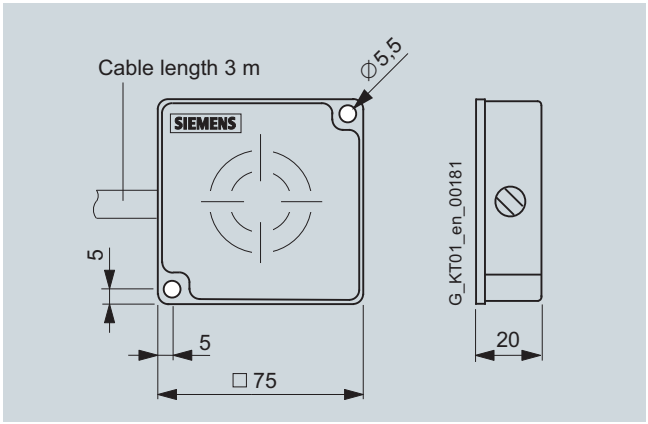
| | | Order No. |
|---|---|---|
| **Reader SIMATIC RF350R**<br>Without antenna | ► A | **6GT2 801-4AA10** |
| **ANT 1 antenna**<br>for RF350R and SLG 75 (MOBY E) | ► | **6GT2 398-1CB00** |
| **ANT 18 antenna**<br>for RF350R and SLG 75 (MOBY E) | ► | **6GT2 398-1CA00** |
| **ANT 30 antenna**<br>for RF350R and SLG 75 (MOBY E) | ► | **6GT2 398-1CD00** |
| ***Accessories*** | | |
| **CD: "RFID Systems Software & Documentation"**<br>FB/FC for SIMATIC, 3964R driver for DOS/Windows 95/NT/2000/XP, C libraries, PC presentation program. RFID documentation | ► | **6GT2 080-2AA10** |

A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

## Dimensions




SIMATIC RF350R reader




ANT 1 antenna

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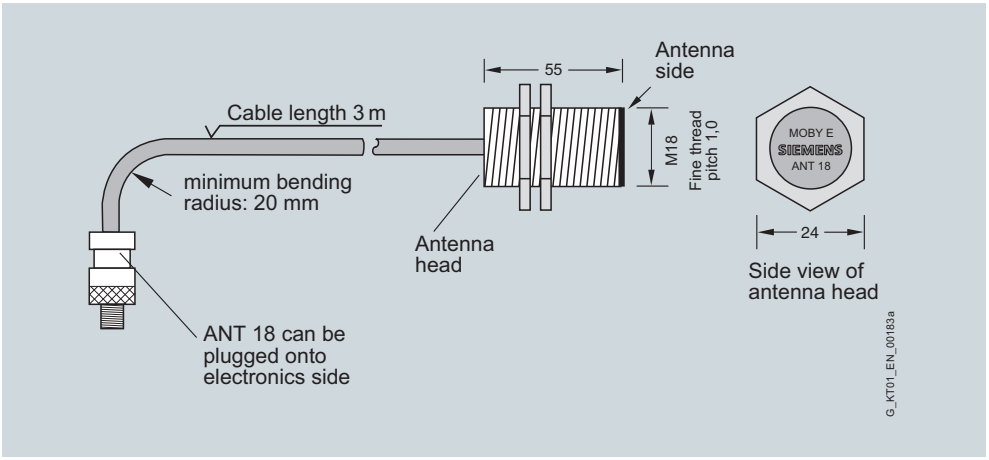
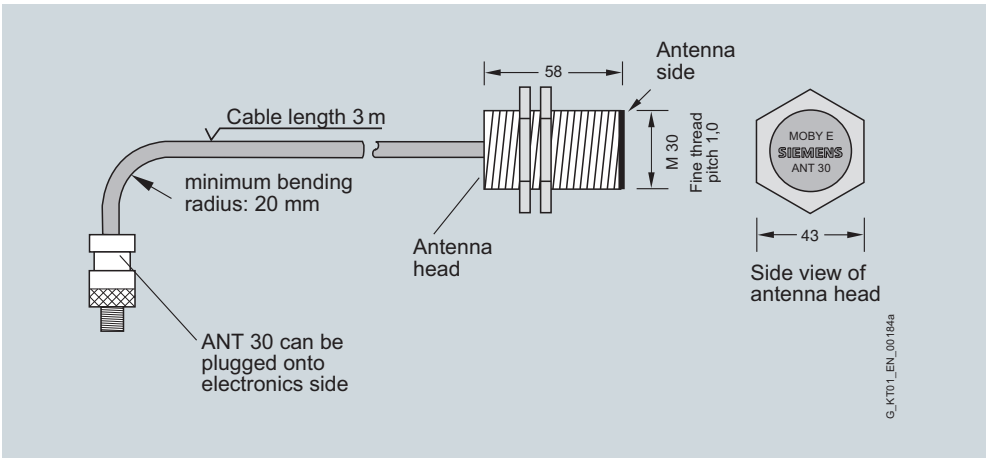



ANT 18 antenna




ANT 30 antenna

## Overview


SIMATIC RF380R is a read/write device with an integrated antenna for the top-end performance range and its compact construction makes it ideal for implementation in assembly lines in which long ranges are required (e.g. bodyshop/paintshop in the automotive industry). This reader is also particularly well-suited to dynamic applications in which the data storage unit is not stopped during the read/write process (e.g. baggage conveyors in airports).

This reader has both an RS 422 and an RS 232 interface with a 3964R transmission procedure for connection to RFID communication modules ASM 452, 456, 473, 475, RF170C and RF180C as well as to non-Siemens PLCs or a PC.

Due to the high degree of protection and the use of high-quality materials, the SIMATIC RF380R ensures problem-free operation even under the harshest industrial conditions. It is connected via an 8-pole M12 plug connector.

## Technical specifications

| SIMATIC RF380R reader | |
|---|---|
| Inductive interface to the tag | |
| • Transmission frequency (energy/data) | 13.56 MHz |
| • Read/write distance to the tag | See "Mobile data storage units" field data |
| • Port | RS 422 / RS 232 (3964R protocol) |
| • Baud rates | 19200, 57600, 115200 bit/s |
| Max. cable length reader-master module | 1000 m for RS 422 (shielded cable) |
| Data transfer rate, reader-tag | Read / write: approx. 3,100 byte/s |
| Functions | Read/write/initialize tag, scan status and diagnostics information, switch antenna on/off, repeat command, scan tag serial numbers (UID) |
| Multi-tag | Available soon |
| Power supply | 24 V DC |
| Display elements | 2-color LEDs (operating voltage, presence, error) |
| Plug-in connector | M12, 8-pin |
| Enclosure | |
| • Dimensions in mm (without plug connector) | 160 x 80 x 40 |
| • Color | Anthracite |
| • Material | PA 12 |
| Degree of protection to EN 60529 | IP67 |
| Shock-resistant to EN 60721-3-7, Class 7 M2 | 50 *g* |
| Vibration-resistant to EN 60721-3-7, Class 7 M2 | 20 *g* |
| Mounting | 4 x M5 screws |
| Tightening torque (at room temperature) | ≤ 2 Nm |
| Ambient temperature | |
| • During operation | -25 ... + 70 °C |
| • During transportation and storage | -40 ... + 85 °C |
| MTBF (at 40 °C) | 9.5 x $10^5$ hours |
| Weight, approx. | 600 g |

### *Field data*

| Minimum distance from reader to reader | |
|---|---|
| SIMATIC RF380R | ≥ 500 mm |

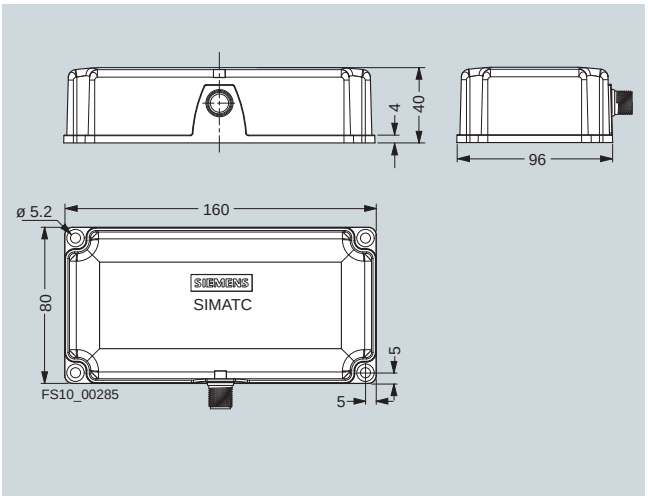
## SIMATIC RF380R

### Selection and Ordering data

| | | Order No. |
|---|---|---|
| **SIMATIC RF380R reader** | ► A | **6GT2 801-3AA10** |
| *Accessories* | | |
| **RS 232 connecting cable** | ► A | **6GT2 891-0KH50** |
| Between the PC and RF380R, with a connecting cable for a 24 V connector (M12 socket), straight connector, 5 m | | |
| **CD "RFID Systems Software & Documentation"** | ► | **6GT2 080-2AA10** |
| FB/FC for SIMATIC, 3964R driver for DOS/ Windows 95/NT/2000/XP, C libraries, PC demonstration program. RFID documentation | | |

A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

### Dimensions

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## Overview

SIMATIC RF310M with loading/docking station

The SIMATIC RF310M is a powerful mobile hand-held terminal with integral read/write antenna for applications in the field of production logistics, distribution and service. In addition, it is an indispensable tool for commissioning and testing.

## Design

The SIMATIC RF310M mobile hand-held terminal consists of one basic unit (Basis PSION Workabout PRO) and an integrated read/write unit for RF300 transponders (mobile data storage unit). It has a splashwater-proof enclosure (IP54), LCD color monitor 1/4 VGA, 320 x 240 pixels, TFT portrait format, alphanumeric keyboard and various interfaces (for SD memory card, battery charging, USB, Compact Flash for expansion modules, Bluetooth, etc.).

## Function

The supplied and pre-installed RF300 software provides service and test functions for reading, writing, etc. of the RF300 data memory:

- Reading data from the data memory
- Writing data to the data memory
- Reading and displaying the ID number of the data memory
- Displaying and editing the data in hexadecimal, ASCII, decimal and binary formats
- Activate/deactivate password

Based on the operating system and communication standard (WIN CE), the unit ensures simple integration into existing or planned infrastructures. Various optional development tools for the PC and a wide selection of accessories are available for this direct from PSION or Microsoft.

## Technical specifications

| Mobile hand-held terminal | SIMATIC RF310M |
|---|---|
| Processor | 400 MHz Intel Xscale PXA255 |
| Operating system | Microsoft Windows CE .NET 4.20 |
| RAM/Flash EEPROM memory | 128 MB/64 MB |
| User program | RF300 application RF310M.EXE |
| Screen | TFT color touch display , ¼ VGA 320 x 240 (portrait format); adjustable backlighting |
| Keyboard | alphanumeric |
| Sound | Piezo signal transmitter |
| Power supply | • Lithium-ion battery (3.7 V; 3000 mAh)<br>• Quick charging possible (automatic shut-off) or 3 x 1.5 V type AA<br>• Backup battery: 3 V lithium cell ML 2032 |
| Interfaces | • LIF interface (low insertion force interface) for battery charging and communication with the PC, USB and Ethernet using a loading station (USB)<br>• SD card slot for memory card<br>• CF interface for expansion cards (e.g. WLAN) |
| Ambient temperature | |
| • During operation | -10 ...+50 °C |
| • Storage (without batteries) | -25 ...+60 °C |
| Relative humidity, non-condensing | 5 ... 95% |
| Degree of protection | IP54 (splashwater proof) |
| EMC | EN 55022 |
| Electrostatic; RF; EFT | IEC 801-2; IEC 801-3; IEC 801-4 |
| Dimensions (mm) | 280 x 92 x 42 |
| Weight (incl. battery) | Approx. 0.5 kg |

| Integral read/write head, inductive interface to transponder | For SIMATIC RF300 |
|---|---|
| Read/write distance to MDS | up to 20 mm, depending on MDS |
| Energy/data transmission frequency | 13.56 MHz |
| Serial interface (internal, to basic unit) | RS 232, 3964R protocol |
| Functionality of the SW application | Standard user interface for reading/writing of data memories, etc. |

## SIMATIC RF310M mobile hand-held terminal

### Selection and Ordering data

| | | Order No. |
|---|---|---|
| **SIMATIC RF310M mobile hand-held terminal**<br>Basic unit (PSION Workabout PRO) with integrated read/write unit for RF300, battery, standard software pre-installed, without loading/docking station | ► A | **6GT2 803-0AA00** |
| ***Accessories*** | | |
| **Loading/docking station**<br>For a mobile hand-held terminal as well as a spare battery, incl. wide-range plug-in power supply 100 ... 240 V AC and country-specific adapters as well as USB cable | ► A | **6GT2 898-0BA00** |
| **Spare battery**<br>For basic unit (PSION Workabout PRO), High Capacity 3000 mAh, Li-ion | ► A | **6GT2 898-0CA00** |
| **CD: "RFID Systems Software & Documentation"**<br>FB/FC for SIMATIC, 3964R driver for DOS/Windows 95/NT/2000/XP, C libraries, PC presentation program. MOBY documentation | ► | **6GT2 080-2AA10** |

A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

***For optional components, please visit***
http://www.psionteklogix.com

For example:

- SD expansion cards
- CF WLAN adapter
- Handles, belt loops
- Vehicle holder with charging function

5

## Overview

MOBY U from Siemens is an identification system with excellent properties for use in industry and logistics. On the one hand it combines the performance of innovative HF technologies and, on the other hand, it ensures continuity for the user thanks to extensive compatibility with the tried and tested MOBY I identification system. Rugged housings and power-saving circuit logic permit many years of maintenance-free operation even in the toughest production environments.

MOBY U eliminates familiar sources of interference during UHF transmissions, such as reflections, electromagnetic interference and overreach, by means of appropriate technical measures.

Correspondingly constructed antennas ensure a homogeneous transmission field to guarantee reliable recognition of the mobile data storage units (MDS) even from unfavorable locations.

In addition, special coding procedures ensure that the data transmission functions without errors and the data integrity is guaranteed. To this end, methods and algorithms that have been tried and tested in mobile radio technology (GSM, UMTS) have been transferred to the identification technology.

***The MOBY U UHF identification system boasts the following features:***

- 2.4 MHz identification system with read/write distance of up to 3,000 mm
- Designed for the upper and medium performance range
- Innovative technology (GSM/UMTS technology) guarantees simple installation/migration and maintenance-free operation for many years:
  - Active suppression of overreach
  - Automatic frequency hopping
  - Homogeneous transmission field with circular polarization
  - Multitag-capability, max. 12 mobile data storage units (MDS)
  - Automatic synchronization of up to 3 read/write devices
  - Service functions for fast error analysis
  - MOBY I call-compatible
- Extensive range of rugged data memories for a vast range of applications
- Special heat-resistant data storage unit for use in automotive industry (paintshops)
- Very high level of reliability even in the presence of contamination, temperature fluctuations and electromagnetic interference
- Simple Integration into SIMATIC/PROFIBUS DP-V1 and Industrial Ethernet
- Can be connected via serial interface to any system, e.g. PC with Windows 98/NT/2000/XP
- Mobile hand-held terminal

## Benefits

- MOBY U standard components ensure that application-specific identification systems can be built up quickly and reliably and guarantee fast replacement under servicing conditions even many years later.
- Worldwide support, configuration and service support.

## Application

The MOBY U identification system has been specially designed for applications in automobile production, logistics etc., where considerable demands are made, for example, in terms of immunity to noise, large read/write distance in the case of a mobile data storage unit, fast and secure data transmission, simple installation and reliable functioning even in harsh environments. It used the universally approved ISM frequency band at 2.4 GHz and the radiated power is well below the limits recommended by major health authorities from around the world.

MOBY U covers a transmission range from a few centimeters to three meters and thus creates the requirement for an integrated identification solution, e.g. in automotive production.

Depending on the requirement, various data memories (max. 32 KB RAM) and read/write devices are available for connection to SIMATIC, PROFIBUS, Industrial Ethernet and PCs/PLCs.

The main applications for MOBY U are:

- Main assembly lines in the automotive industry (body in white, surface and assembly)
- Vehicle identification/access control in transport companies, vehicle depots, etc.
- Container/ carrier identification in transport logistics and distribution
- Traffic control systems
- Assembly lines

## Function

Mobile data storage units ensure that important data (e.g. production/quality data) accompanies the product from the very beginning.

Mobile data storage units are first attached to the product or its transport or packing unit (e.g. container, pallet, chassis) then inscribed, modified and read using non-contact methods. All the information that is important, e.g. for manufacturing and material flow control, is thus available on the product. A rugged enclosure supports use under harsh industrial conditions and makes the MDS resistant to many chemical substances.

Using stationary as well as mobile read/write devices (SLGs), the necessary information (production data, transport routes, etc.) can be read without contact from a mobile data storage unit and even be supplemented or modified without the need for a direct line-of-sight link.

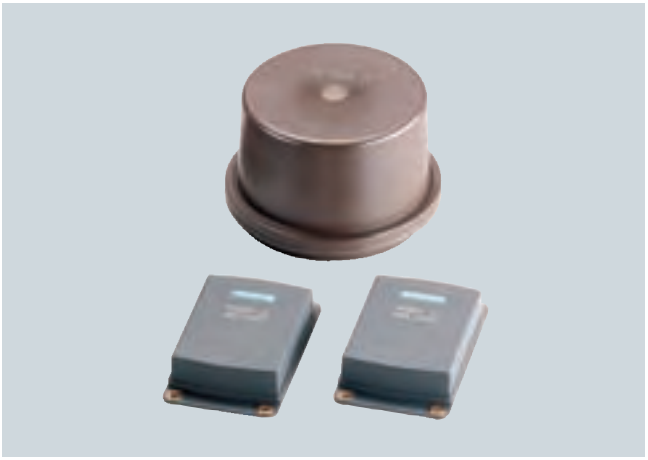
## Introduction

### Technical specifications

| Type | Contact-free UHF identification system for the medium to upper performance range |
|---|---|
| Transmission frequency | 2.4 … 2.4835 GHz in the ISM band |
| Transmit power | < 10 mW EIRP |
| Memory capacity (MDS) | |
| • Fixed code memory | 32-bit serial number |
| • Read-only memory | 128 bit, to be written once by user |
| • Memory size | Up to 32 KB RAM |
| Read/write cycles (MDS) | Unlimited/ $10^9$ at +25 °C |
| Data management (MDS) | Byte or file-oriented access |
| Bulk capability, multitag capability | Yes, up to 12 MDS |
| Multi-SLG | Yes, up to 3 SLGs side by side (can be synchronized by cable) |
| Data transmission rate MDS – SLG (read/write) | Approx. 8 / 4.8 KB/s without bulk (net) |
| Read/write distance | 150 … 3000 mm |
| Operating temperature (MDS) | -25 … +85 °C/+220 °C cyclic |
| Degree of protection (MDS) | Up to IP68 |
| Can be connected to | SIMATIC S7, PROFIBUS DP V1, Industrial Ethernet, PC, non-Siemens PLC, computer |
| Approvals[2)] | RF: EN 300 440-2<br>SAR: EN 50 371<br>Safety: EN 60 950-1<br>EMC:<br>• EN 301 489-01<br>• EN 301 489-03<br>• ENV 50 204<br>FCC Part 15C[1)]<br>UL/CSA<br>No effect on heart pacemakers |
| Special features | Innovative technology ensures simple installation/migration and maintenance-free operation:<br>• Active suppression of overreach<br>• Automatic frequency hopping<br>• MOBY I call-compatible |

1) See SLG U92 – Ordering data (page 5/60).
2) Also refer to the "Configuration, Assembly and Service Manual"

## Overview



MOBY U records the data of objects quickly and reliably. MOBY U thereby ensures efficient and cost-effective automation.

| Type | Features |
|---|---|
| **MDS U315** | Mobile data storage unit (2 KB RAM) for universal applications, preferably in transport and logistics applications,<br>enclosure dimensions<br>111 mm x 67 mm x 23.5 mm<br>Degree of protection IP65, operating temperature -25 … +70 °C<br>with replaceable battery |
| **MDS U524** | Rugged and mobile data storage unit (32 KB RAM) for universal use, enclosure dimensions<br>111 mm x 67 mm x 23.5 mm, degree of protection IP68, operating temperature -25 … +85 °C |
| **MDS U525** | Same as MDS U524, but with degree of protection IP65 and replaceable battery |
| **MDS U589** | • Heat-resistant and rugged data memory for use in paint shops (automotive industry, priming/finishing coats) or applications with similarly high temperature requirements.<br>• Memory capacity 32 KB RAM, temperature range -25 … +85 °C, up to +220 °C cyclically, degree of protection IP68, enclosure dimensions (mm) Ø 114 x 83<br>• Silicone-free<br>Options:<br>• Universal installation kit<br>• Support for attachment to skid<br>• Cover for support<br>• Additional supports available on request |
| **MDS U Service** | The MDS U Service is an MDS for use in the start-up phase and during servicing in the automotive industry and other industrial production plants with similar requirements. Memory capacity 32 KB RAM, two LED displays for communication, replaceable battery.<br>With On/Off switch. Enclosure dimensions 111 mm x 67 mm x 23.5 mm, degree of protection IP40, operating temperature -25 … +70°C |

## Technical specifications

### *Field data (all dimensions in mm)*

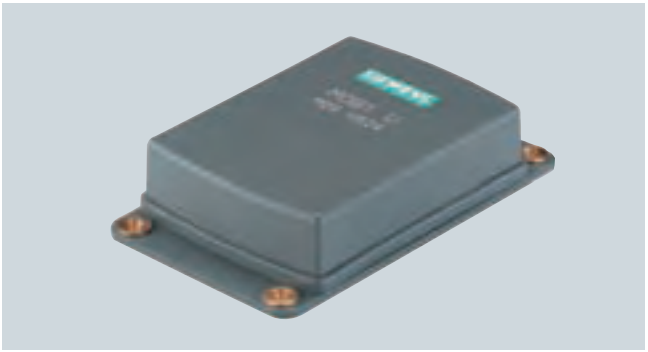
| | **MDS U315, MDS U524, MDS U525<br>MDS U589, MDS U Service** |
|---|---|
| Operating/limit distance to SLG U92 | 150 to 2100/3000, adjustable in 500 mm steps |

**Note:**

The listed field data are typical values and are valid for a room temperature of +25 °C (77 °F) and a supply voltage of 24 V DC.

## MDS U315/MDS U524/MDS U525

### Overview



*MDS U315*

Mobile data storage unit (2 KB RAM) for universal applications, preferably in transport and logistics applications, enclosure dimensions 111 mm x 67 mm x 23.5 mm, degree of protection IP65, operating temperature -25 °C to +70 °C, with replaceable battery

*MDS U524*

Rugged and mobile data storage unit (32 KB RAM) for universal use, enclosure dimensions 111 mm x 67 mm x 23.5 mm, degree of protection IP68, operating temperature -25 °C to +85 °C

*MDS U525*

Same as MDS U524, but with degree of protection IP65 and replaceable battery.

### Technical specifications

| Mobile data storage unit | MDS U315 | MDS U524 | MDS U525 |
|---|---|---|---|
| Memory size | | | |
| • Fixed code memory | 32-bit serial number | | |
| • Read-only memory | 128 bit, to be written once by user | | |
| • Application memory | 2 KB RAM | 32 KB RAM | |
| MTBF (at +40 °C) | 2 400 000 h (without taking battery into account) | | |
| Read/write cycles | unlimited / $10^9$ at +25 °C | | |
| Read/write distance | 150 … 3,000 mm | | |
| Bulk and multitag capability | yes | | |
| Power supply | Replaceable battery | Battery | Replaceable battery |
| Battery lifetime | ≥ 5 years[1)] | ≥ 8 years[1)] | |
| Shock/vibration-resistant to DIN EN 60721-3-7, Class 7M3 | 50 *g* / 10 *g* | | |
| Free fall height to DIN EN 60068-2-32 | 1 m | | |
| Torsion and bending load | Not permissible | | |
| Suggested attachment | 4 x M4 screws | | |
| Recommended distance to metal | Can be directly mounted on metal | | |
| Degree of protection to EN 60529 | IP65 | IP68 | IP65 |
| Resistance to chemicals | See configuration manual | | |
| Enclosure | | | |
| • Dimensions (L x W x H) | 111 x 67 x 23.5 mm | | |
| • Color/material | Anthracite / plastic PA 12 GF 25 | | |
| Ambient temperature | | | |
| • During operation | -25 ... +70 °C | -25 ... +85 °C | |
| • During transportation and storage | -40 ... +85 °C | | |
| Weight, approx. | 100 g | | |
| Special features | Universal mobile data storage unit for the preferred deployment in transport and logistics | Rugged and mobile data storage unit for universal use | |

1) The service life depends on the temperature, the time in which the MDS is located within the antenna field of the SLG (Zone 1 and 2) and the volume of data that is read/written.

*Field data (all dimensions in mm)*

**MDS U315/MDS U524/MDS U525 to SLG U92**

Ranges ($S_g$) of the SLG can be limited in 500 mm steps up to 3500 mm

| | minimal | Standard | maximal |
|---|---|---|---|
| Limit distance ($S_g$), approx. | 500 | 2000 | 3000 |
| Operating distance ($S_a$) | 350 | 1400 | 2100 |
| Transmission window at $S_a$ length / width | 700 | 2400 | 3000 |
| | 700 (with FCC approval) | 2000 (with FCC approval) | 2100 (with FCC approval) |

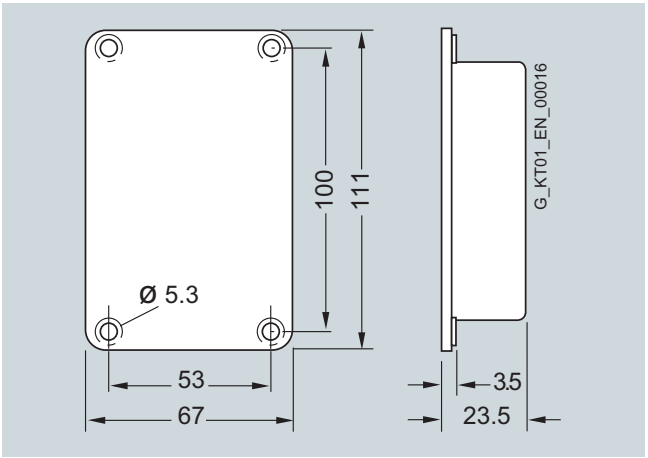
The field data apply to write and read operations of the MDS.

## Selection and Ordering data

| | | Order No. |
|---|---|---|
| **Mobile data storage unit MDS U315**<br>2 KB RAM | ► A | **6GT2 500-3BF10** |
| **Mobile data storage unit MDS U524**<br>32 KB RAM | ► A | **6GT2 500-5CE10** |
| **Mobile data storage unit MDS U525**<br>32 KB RAM, replaceable battery | ► A | **6GT2 500-5CF10** |

A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

## Dimensions

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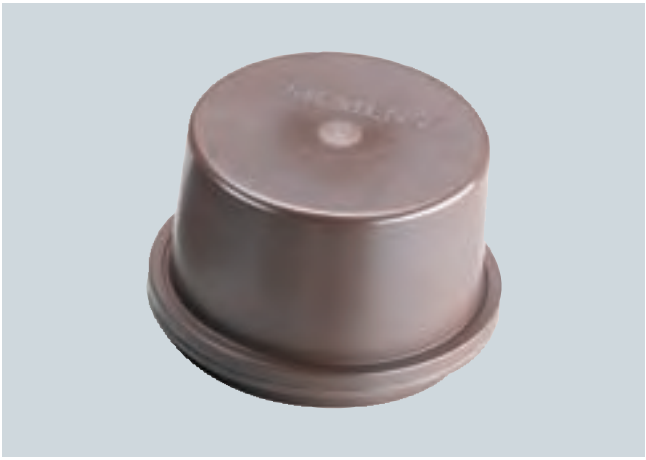
## MDS U589

### Overview



Heat-proof, rugged data storage unit for use in paintshops (automotive industry, primer/top coat) or applications with similar temperature requirements, memory capacity 32 KB RAM, temperature range -25 °C to + 85 °C, up to +220 °C cyclically, IP68 degree of protection, enclosure dimensions (mm) Ø 114 x 83

### Technical specifications

| MDS U589 (heat-resistant) mobile data storage unit | |
|---|---|
| Memory size | |
| • Fixed code memory | 32-bit serial number |
| • Read-only memory | 128 bits, to be written once by user |
| • Application memory | 32 KB RAM |
| MTBF (at +40 °C) | 2,400,000 h (not taking the battery into account) |
| Read/write cycles | Unlimited/ $10^9$ at +25 °C |
| Read/write distance | 150 … 3000 mm |
| Multitag capability | Yes |
| Power supply | Battery |
| Battery life | ≥5 years 1) |
| Shock/vibration-resistant to DIN EN 60721-3-7, Class 7 M3 | 50 g / 5 g 2) |
| Free fall height to DIN EN 60068-2-32 | 1000 mm |
| Torsion and bending load | not permissible |
| Suggested attachment | See universal installation kit or skid support |
| Recommended distance from metal | Can be directly mounted onto metal |
| Degree of protection per EN 60529 | IP68 |
| Chemical stability | See Configuration Manual |
| Casing | |
| • Dimensions (ø x H) | 114 mm x 83 mm |
| • Color/material | Brown/PPS |
| Ambient temperature | |
| • During operation | -25 … +85 °C, up to +220 °C cyclic |
| • During transportation and storage | -40 … +85 °C |
| Weight, approx. | 600 g |
| Special features | Designed for integrated use in body-in-white and paintshops (KTL, top coat, ...) |

1) The service life depends on the temperature, the length of time the MDS is located within the antenna field of the read/write device (Zones 1 and 2) and the volume of data that is read/written.
2) Applies only in connection with original bracket.

*Field data (all dimensions in mm)*

**MDS U589 to SLG U92**

Ranges (Sg) of the read/write device can be limited in 500 mm steps up to 3000 mm

| | minimal | Standard | maximal |
|---|---|---|---|
| Limit distance ($S_g$), approx. | 500 | 2000 | 3000 |
| Operating distance ($S_a$) | 350 | 1400 | 2100 |
| Transmission window at $S_a$ length / width | 700 | 2400 | 3000 |
| | 700 (with FCC approval) | 2000 (with FCC approval) | 2100 (with FCC approval) |

### *Cyclic operation of the MDS at temperatures > 85 °C*

At temperatures up to +85 °C, cyclic operation is not necessary, i.e. up to this temperature, the MDS can be in constant operation

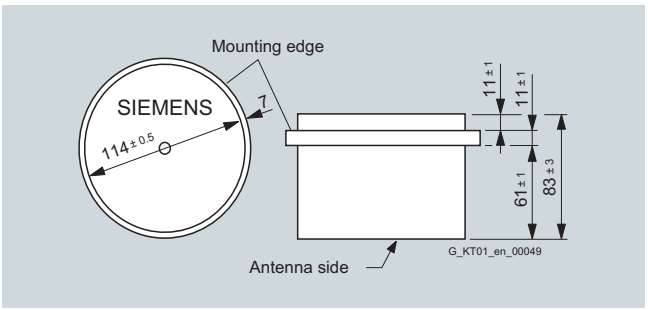
| Heating up | | Cooling down | |
|---|---|---|---|
| **Temperature** | **Time** | **Temperature** | **Time** |
| 220 °C | Momentary | 25 °C | > 30 min |
| 200 °C | 1 h | 25 °C | > 4 h |
| 200 °C | 0.5 h | 25 °C | > 1 h |
| 180 °C | 1 h | 25 °C | > 3 h |

## Selection and Ordering data

| | | Order No. |
|---|---|---|
| **Mobile data storage unit MDS U589**<br>32 KB RAM, up to 220 °C cyclic | ► | **6GT2 500-5JK10** |
| ***Accessories*** | | |
| **Skid-support for MDS U589** | | |
| Short version | ► A | **6GT2 090-0QA00** |
| **Cover**<br>For skip support | ► A | **6GT2 090-0QB00** |
| **Universal support**<br>For MDS U589, e.g. for attachment to the body with a customer-specific adapter | ► | **6GT2 590-0QA00** |

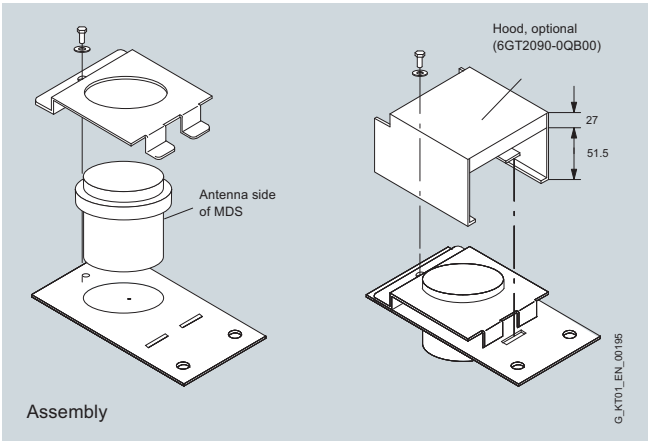
A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

## Dimensions

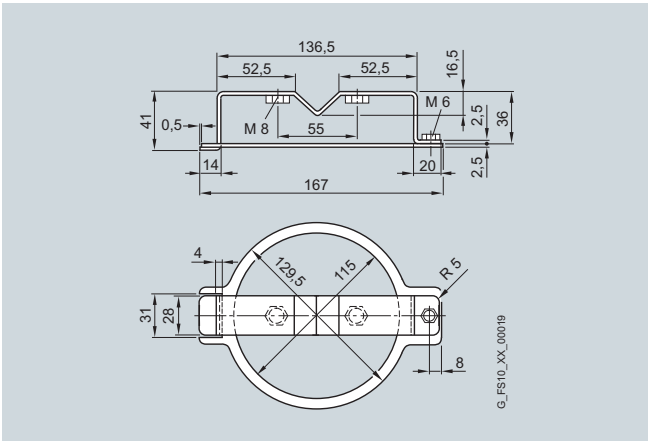



Data carrier MDS U589

Universal support with heat-proof data carrier MDS U589



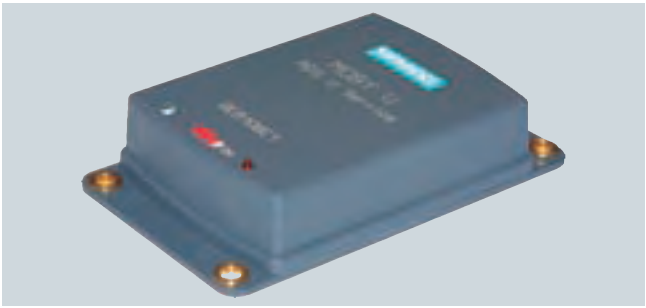

Skid support, Cover




Universal support

## MDS U Service

### Overview



*MDS U Service*

The MDS U Service is an MDS for use in the start-up phase and during servicing in the automotive industry and other industrial production plants with similar requirements.

Memory capacity 32 KB RAM, two LED displays for communication, replaceable battery. With On/Off switch. Enclosure dimensions 111 mm x 67 mm x 23.5 mm, degree of protection IP40, operating temperature -25 °C to +70 °C.

### Technical specifications

| Mobile data storage unit | MDS U Service |
|---|---|
| Memory size | |
| • Fixed code memory | 32-bit serial number |
| • Read-only memory | 128 bit, to be written once by user[1)] |
| • Application memory | 32 KB RAM |
| Read/write cycles | Unlimited/ $10^9$ at +25 °C |
| Read/write distance | 150 … 3000 mm |
| Bulk and multitag capability | Yes |
| Power supply | Replaceable battery |
| Battery life | |
| • MDS switched on, no communication and MDS outside antenna range | approx. 1 year[2)] |
| • MDS switched on, with communication | < 1 year[3)] |
| • MDS switched off | ≥ 10 years |
| On/Off switch | Voltage on/off |
| Indicators | 2 LEDs |
| • Orange flashing | Voltage On |
| • Green | Communication |
| Torsion and bending load | Not permissible |
| Suggested attachment | 4 x M4 screws |
| Recommended distance from metal | Can be directly mounted onto metal |
| Degree of protection as per EN 60529 | IP40 |
| Resistance to chemicals | See Configuration Manual |
| Housing | |
| • Dimensions (L x W x H) | 111 mm x 67 mm x 23.5 mm |
| • Color/material | Anthracite / plastic PA 12 GF 25 |
| Ambient temperature | |
| • During operation | -25 … +70 °C |
| • During transportation and storage | -40 … +85 °C |
| Weight, approx. | 120 g |
| Special features | MDS service for assignments during the start-up phase and for servicing. For implementation in the automotive industry and other industrial production plants with similar requirements. |

1) After "voltage off" the information in the read-only memory is lost and must/can be written again.
2) The service life depends on the temperature. The MDS must not be located within the antenna range of the SLG (Zones 1 and 2).
3) The service life depends on the temperature, the length of time the MDS is located within the antenna field of the read/write device (Zones 1 and 2) and the volume of data that is read/written.

*Field data (all dimensions in mm)*

**MDS U Service**

Ranges (Sg) of the SLG can be limited in 500 mm steps up to 3500 mm

| | minimal | Standard | maximal |
|---|---|---|---|
| Limit distance ($S_g$), approx. | 500 | 2000 | 3000 |
| Operating distance ($S_a$) | 350 | 1400 | 2100 |
| Transmission window at $S_a$ length / width | 700 | 2400 | 3000 |
| | 700 (with FCC approval) | 2000 (with FCC approval) | 2100 (with FCC approval) |

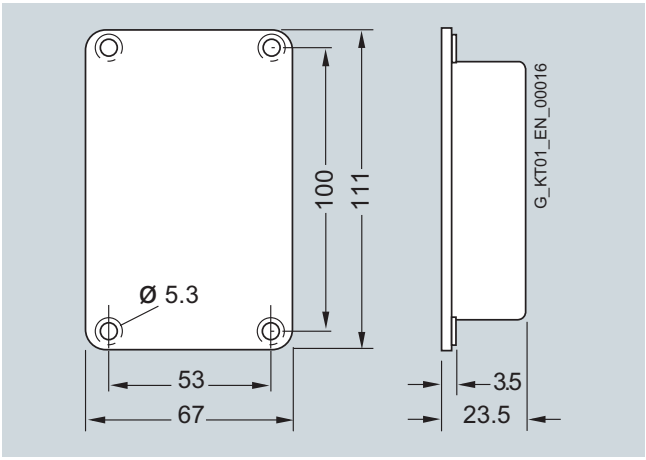
The field data apply to write and read operations of the MDS.

## Selection and Ordering data

| | Order No. |
|---|---|
| **MDS U Service mobile data storage**<br>32 KB RAM ► | **6GT2 500-5BF20** |

► Preferred type, available from stock.

## Dimensions

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## SLG U92

### Overview

The compact and low-cost SLG U92 is a universal read/write device (SLG) with an integral antenna for applications where read/write distances of up to 3000 mm are required. Thanks to the automatic SLG synchronization via cable, it is possible to install up to three SLGs in a very small space.

Two different interfaces are available for the connection to a wide variety of systems:

- RS 232; serial interface for connection to any system (PC/PLC)
- RS 422; serial interface to the PC/PLC or to the MOBY interface modules (SIMATIC RF170C, SIMATIC RF180C, ASM 475, ASM 456) for integration into SIMATIC S7, PROFIBUS, or Industrial Ethernet

Software tools such as the SIMATIC S7 functions (FB/FC45 / FC46 / FC55 / FC56) and the C library MOBY API for applications under Windows 98/NT/2000/XP allow for easy implementation in the respective application.

The integrated file management system (compatible with the familiar MOBY I file handler and supplemented with multitag-handling commands) ensures simple and user-friendly management of data on the mobile data storage unit.

| Type | Features |
|---|---|
| **SLG U92** | Compact and low-cost read/write device with integral antenna for universal applications, read/write distances of up to 3000 mm (adjustable by software in 500 mm steps to 3500 mm) incl. file handler, degree of protection IP65, enclosure dimensions (mm) 290 x 135 x 42 |
| **SLG U92 with RS 232** | As above, but with RS 232 interface for connection to PC/PLC |
| **SLG U92 with RS 422** | As above, but with RS 422 interface for connection to ASM (e.g. ASM 456, SIMATIC RF170C, ASM 475) or PC/PLC |

For use in the U.S.A. and Canada, a version with FCC PART 15C radio approval is available.

### Function

The SLG U92 operates with a transmission frequency in the ISM band between 2.4 and 2.4835 GHz. This supports transmission ranges from a few centimeters up to three meters for an extremely low transmit power of < 10 mW EIRP and high net transmission rates up to 8 KB/s. Thanks to the selected transmission frequency, rugged modulation technique and appropriate check mechanisms, sources of electromagnetic interference can be disregarded and fault-free data transmission and data integrity are assured. MOBY U technology blocks the types of fault sources familiar in UHF transmissions such as reflections, interference and overrange. Matching antennas provide a homogeneous transmission field and ensure a detection rate of 100% for mobile data storage units (MDS). There is no need for time-consuming shielding measures and antenna alignment.

The antenna field of the SLG can be activated and deactivated with a function call or triggered automatically by a sensor (BERO) for the duration of communication with an MDS.

For management of the data on the mobile data storage unit, there are two possibilities, as follows:

- Byte-oriented addressing via absolute addresses (start address, length)
- Conveniently in a file management system (compatible with the MOBY I file handler)

In file handler mode, the MOBY U read/write device always fetches the necessary file management information directly from the MDS and it can be operated in three steps:

1. For existing system solutions with MOBY I, MOBY U can be operated with the default settings and unmodified file handler functions without the MOVE and LOAD commands that are no longer required.

2. The default settings and requests for diagnostic data can be easily changed with just a few additional commands.

3. Utilization of all features including multitag processing. In this step, the commands and/or useful data can be uniquely assigned as well as the relevant MDS number.

Two LEDs indicate the current status (e.g. MDS in the field) and make start-up easier.

For easy start-up and diagnostics during normal operation, a separate service and diagnostics interface (RS 232) is available. This interface can also be used by the service function "Load software in the SLG" to integrate future function expansions into existing applications without the need to replace the SLG.

The system interface (RS 232 or RS 422) can be used for serial connection to any other system (PC/PLC).

## Technical specifications

| SLG U92 read/write device | |
|---|---|
| **Air interface to the MDS** | Integrated antenna |
| Transmission frequency | 2.4 … 2.4835 GHz in the ISM band |
| Bandwidth | 2 x 1 MHz within 83 MHz |
| Check mechanisms | Forward-correction by means of systematic block code (CRC), ARQ procedure |
| Error rate | < 1 reading error per $10^6$ transactions |
| Data rate (read/write) (net) | approx. 8 / 4.8 KB/s without bulk<br>approx. 4 / 2.4 KB/s for bulk size 2 |
| Range (read/write) | 150 … 3000 mm, see MDS field data |
| Local resolution | Range can be limited in steps of between 500 mm and 3500 mm |
| Radiant power / intensity | |
| • for SLG U92 version without FCC approval | < 10 mW EIRP / <0.5 µW/cm$^2$ (at a distance of 1 m) |
| • for SLG U92 version with FCC approval | < 50 mV/m at a distance of 3 m |
| Beam angle | approx. 70° horizontal/vertical |
| Polarization | Circular |
| Multi-identification capability | up to 12 MDS |
| MDS recording time | > 2 s for 12 MDS |
| Object speed (MDS) | < 2 m/s if $S_a$ = 1.5 m and reading/writing ≤ 2.5 KB data |
| SLG-SLG synchronization | by means of semaphore control via second interface; max. 3 SLGs with one another |
| Minimum distance between two SLGs | > 6 m; if synchronized directly side by side |
| Serial interface to ASM or PC | RS 232 or RS 422 (SLG U92 variant), 6-pin SLG connector according to EN 175201-804 |
| Data transmission rate | Automatic baud rate recognition 19.2 to 115.2 kbit/s (depending on cable length) |
| Transmission protocol | 3964 R |
| Cable length, SLG – ASM/PC | max. 1000 m (RS 422, shielded) |
| Cable length, SLG – PC | max. 30 m / 300 m (RS 422, shielded) |
| **Software functions** | |
| Commands | MOBY file handler: Format data memory, create/delete file, write data to file, define access rights, etc.<br>Direct reading/writing: read / write data, etc. |
| Programming | FC45/FC46/FC55/FC56, see ASM C library for PC with Windows 98/NT/2000/XP |

| SLG U92 read/write device | |
|---|---|
| **Service interface** | RS 232, 11-pin connector to DIN EN 175201-804 |
| Data transmission rate | 19.2 kbit/s |
| Cable length SLG – PC (shielded) | max. 20 m |
| Transmission protocol | Terminal, ASCII characters |
| 2 DI for BERO | Triggering antenna field on/off |
| Cable length SLG – BERO (shielded) | max. 50 m |
| Interface for SLG-SLG synchronization (shielded) | max. cable length 30 m |
| Display elements | 2 LEDs (data memory in field, errors, etc. ) |
| MTBF (at +40 °C) | 0.4 x $10^6$ hours |
| Power supply | 24 V DC (rated value), 20 … 30 V DC |
| Power consumption (transmitting) | < 300 mA |
| Enclosure | |
| • Dimensions (Lx W x H) in mm | 290 x 135 x 42 (without connector) |
| • Color/material | anthracite / plastic PA 12 |
| • Mounting | 4 x M6 screws |
| Shock/vibration-resistant to DIN EN 60721-3-7, Class 7 M3 | 30 g / 1.5 g |
| Degree of protection to EN 60529 | IP65 |
| Ambient temperature | |
| • Operation | -25 … +70 °C |
| • Transport and storage | -40 … +85 °C |
| Weight, approx. | 900 g |
| Special features | • Active suppression of overreach<br>• Automatic frequency hopping<br>• Service functions for fast error analysis<br>• MOBY I – call-compatible (FC) |

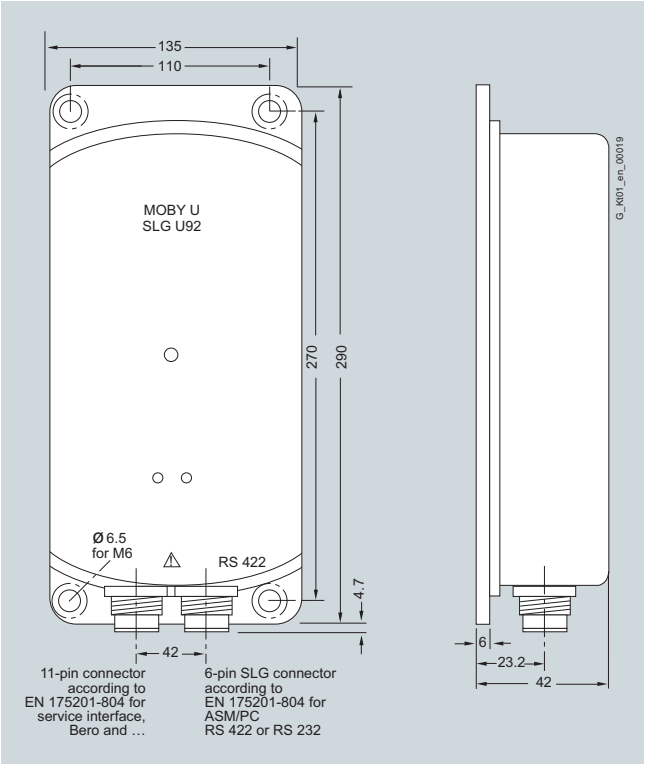
## SLG U92

### Selection and Ordering data

| | | Order No. |
|---|---|---|
| **SLG U92 with RS 422** | | |
| Integrated antenna | ► | **6GT2 501-0CA00** |
| Integrated antenna, FCC approval | | **6GT2 501-0BA00** |
| **SLG U92 with RS 232** | | |
| Integrated antenna | ► | **6GT2 501-1CA00** |
| Integrated antenna, FCC approval | | **6GT2 501-1BA00** |
| *Accessories* | | |
| **RS 232 connecting cable** | | |
| Between the PC and SLG U92, with a connecting cable for a 24 V connector (M12 socket), angled connector | | |
| 5 m | ► | **6GT2 591-1CH50** |
| 20 m | ► | **6GT2 591-1CN20** |
| **Connector for SLG U92 service interface** | ► | **6GT2 590-0BA00** |
| 11-pin, with angled output | | |
| **Connector on SLG side (MOBY E, U)** | | |
| 6-pin DIN 43651 connector with female contacts for crimping | | |
| • with angled output, 1 piece | ► A | **6GT2 090-0BA00** |
| • with angled output, 1 packaging unit (10 pcs., price per piece) | ► A | **6GT2 090-0BA10** |
| • with straight output, 1 piece | ► A | **6GT2 090-0UA00** |
| **SLG cable** | | |
| Without connector between ASM and SLG; 6 x 0.25 $mm^2$ | | |
| • 50 m | ► A | **6GT2 090-0AN50** |
| • 120 m | ► A | **6GT2 090-0AT12** |
| • 800 m | A | **6GT2 090-0AT80** |
| **Wide-range power supply** | | |
| Primary side: 100 ... 240 V AC, 120 ... 353 V DC, secondary side: 24 V DC, 3 A, with no-load protection, with continuous short-circuit protection | | |
| • EU connector version | ► A | **6GT2 898-0AA00** |
| • UK connector version | ► A | **6GT2 898-0AA10** |
| • US connector version | ► A | **6GT2 898-0AA20** |
| **Cable for wide-range power supply** | ► | **6GT2 491-1HH50** |
| 24 V DC, length 5 m | | |
| **24 V connector (M12 socket)** | ► A | **6GT2 390-1AB00** |
| For ASM 424/724/754, SLG Ux (over PC connecting cable) | | |
| **CD "RFID Systems Software & Documentation"** | ► | **6GT2 080-2AA10** |
| FB/FC for SIMATIC, 3964R driver for DOS/WINDOWS 95/NT/2000/XP, C libraries, PC presentation program. RFID documentation | | |

A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

### Dimensions



## Overview

The STG U is a powerful mobile hand-held terminal with integral read/write antenna for applications in the field of production, logistics and service. In addition, it is an indispensable tool for commissioning and testing.

## Design

The STG U mobile hand-held terminal comprises a basic unit (based on the PSION Workabout$^{mx}$) and an antenna of the MOBY U type. It has a splash-proof housing (IP54), LCD display with 240 × 100 pixels, alphanumeric keypad and various interfaces (for EEPROM card, charging the battery, RS 232/TTL for the MOBY U antenna, battery charger interface incl. RS 232 for connecting to the PC, etc.).

## Function

The supplied MOBY software (memory card) provides service and test functions for reading, writing, etc. of the MOBY U data memory:

- Reading data from the data memory
- Writing data to the data memory
- Reading and displaying the ID number of the data memory
- Reading MDS status
- Reading data from OTP memory
- Writing data to OTP memory
- Displaying and editing the data in hexadecimal, ASCII, decimal and binary formats
- Activating/deactivating password protection

On the basis of the optional C library, custom applications including a customized mask interface for the reading/writing of data memories can be very easily programmed. Various optional development tools for the PC and a wide selection of accessories are available directly from PSION. This solution opens up new applications in the field of logistics and distribution.
The hand-held terminal for example allows for the offline recording and processing of commissioning data, which can then be forwarded to a PC/computer with a defined time delay.

## Selection and Ordering data

| | | Order No. |
|---|---|---|
| **STG U mobile hand-held terminal**<br>MOBY U hand-held terminal STG U, complete (PSION Workabout$^{mx}$), antenna STG U, battery, EEPROM card. With MOBY software, operating instructions, without power pack for STG U | ► D | **6GT2 503-0AA00** |
| ***Accessories*** | | |
| **STG U antenna**<br>For basic unit (PSION Workabout $^{mx}$) | ► | **6GT2 503-1AA00** |
| **STG U power supply unit**<br>Wide-range power supply unit 90 … 264 V AC, with cable switch, for the antenna STG U and the mobile hand-held terminal STG U, with charging adapter | ► | **6GT2 503-1DA00** |
| **STG software**<br>For MOBY D, E, F, I and U, incl. operating instructions, 1 MB EEPROM card | ► A | **6GT2 303-1CA00** |
| **CD: "RFID Systems Software & Documentation"**<br>FB/FC for SIMATIC, 3964R driver for DOS/Windows 95/NT/2000/XP, C libraries, PC presentation program. MOBY documentation | ► | **6GT2 080-2AA10** |

A: Subject to export regulations AL = N and ECCN = EAR99H
D: Subject to export regulations AL = N and ECCN = 4A994X
► Preferred type, available from stock.

***For optional components visit http://www.psionteklogix.com***

- "3link" connecting cable to the PC for easy exchange of data between the PC and PSION Workabout$^{mx}$
- PSION Workabout$^{mx}$ basic unit with large-area function keys and number pad
- Additional memory card with up to 8 MB memory
- Docking station including rapid charger and software for convenient exchange of data between the PSION Workabout$^{mx}$ and the PC.

Technical specifications: See following page.

## STG U mobile hand-held terminal

### Technical specifications

| STG U mobile hand-held terminal | |
|---|---|
| RAM/ROM | 2 MB/2 MB |
| User program | 1 MB (with MOBY service and test program) |
| Screen | Graphic LCD screen with 240 × 100 pixels; gray scale; selectable backlighting |
| Keyboard | Alphanumeric with 57 keys |
| Sound | Piezzo signal transmitter |
| Power supply | NiCd battery pack with 2 type AA cells (850 mAh); fast-charging; automatic shutdown<br>Operating time: approx. 20 hours (antenna inactive, display unlit) |
| Dimensions | 282 mm x 235 mm x 93 mm (incl. MOBY U antenna) |
| Weight | Approx. 1450 g (incl. MOBY U antenna) |
| Operating/storage temperature | –20 … +60 °C/<br>–25 … +70 °C (without battery) |
| Relative humidity | 0 … 90%, no condensation |
| Degree of protection | IP54 (splashproof); for STG U only as complete unit |
| Impact resistance | Max. drop onto concrete: 0.5 m |
| EMC | EN 55022 |
| Electrostatic; RF; EFT | IEC 801-2; IEC 801-3; IEC 801-4 |

| MOBY U antenna | Air interface to the MDS |
|---|---|
| Transmission frequency | 2.4 to 2.4835 GHz in the ISM band |
| Bandwidth | 2 x 1 MHz within 83 MHz |
| Gross bit rate of the radio channel | 384 Kbit/s |
| Data rate (read/write) (net) | Approx. 8 / 4.8 KB/s without bulk |
| Antenna | |
| • Direction of radiation | Perpendicular to the rear panel of the MOBY U antenna |
| • Aperture angle | Approx. 70° (conical antenna field) |
| • Polarization | Circular |
| • Radiant power | < 50 mV/m at a distance of 3 m |
| • Radiation density | < 0.5 µW/cm$^2$ at a distance of 1 m |
| Range (read/write) | 150 … 3,000 mm |
| Local resolution | Adjustable in steps of 0.5 m by means of range limitation |
| MDS recording time | Approx. 3 s for 1 MDS (after actuation of the communication key) |
| Power supply | • Lithium-ion battery pack 2SIP CGR18650 HG<br>• 7.2 V 1.8 Ah<br>• Fast charging, automatic cutout, Service life approx. 500 charging cycles |
| Power consumption (antenna on) | • < 800 mA |

| MOBY U antenna | Air interface to the MDS |
|---|---|
| Operating time | > 2 months (antenna inactive)<br>2 hours (antenna active)<br>The antenna is switched on by means of the communication key only for communication and automatically switched off after the function has been performed. |
| The operating time corresponds to the ON time of the antenna; this means for every MDS function the time between pressing the communication key and closing or terminating the selected MDS function. | |
| Operating modes | |
| • Off | Antenna switched off |
| • Search | Ready to receive and evaluate search information sent by the MDS |
| • Communication | Communication with the MDS: Write, read or initialize |
| Minimum distance to an SLG U92 or another STG U | > (set range + 0.5 m) |
| Serial interface (to basic unit) | RS 232/115.2 Kbaud/3964R |
| Interface for battery charging | 4-pin socket for connecting the STG U power supply unit |
| • Voltage / current | 12 V DC / 1.225 A |
| • Charging period | > 1.5 h (Lion battery pack 2SIP CGR18650 HG) |
| Control element | Communication key (for triggering the communication) |
| Display elements | LEDs |
| • LED for loading the batteries | |
| - Lights up | Power supply unit connected<br>• Red: device is defective<br>• Yellow: batteries are being charged<br>• Green: batteries are fully charged |
| - Does not light up | Power supply unit is not connected |
| • LEDs for communication | |
| - Lights up | Communication key pressed and communication not complete<br>• Red: battery capacity insufficient for communication<br>• Yellow: antenna is switched to active |
| - Does not light up | Communication terminated or not yet started |
| Enclosure | |
| • Color | Black |
| • Material | VALOX® 357X |
| Approvals | RF: EN 300 440-2<br>SAR: EN 50 371<br>Safety: EN 60 950-1<br>EMC:<br>• EN 301 489-01<br>• EN 301 489-03<br>• ENV 50 204<br>FCC Part 15C<br>UL/CSA<br>Not critical with regard to heart pacemakers |
| Programming | Standard user interface for reading/writing of data memories, etc. |

## Overview

### Note

Detailed information (clearance from metal, SLG – SLG clearance etc.) can be found in the "MOBY U Manual for Configuration, Assembly and Service".

### Field characteristics (battery-saving mode)

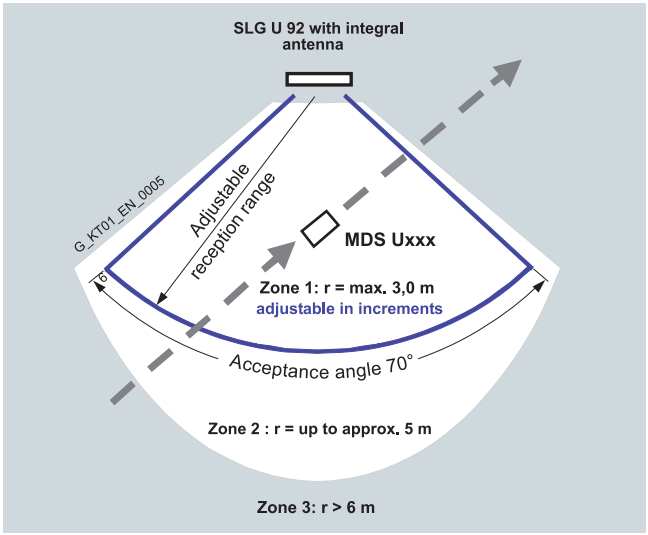
In contrast to the inductive RFID systems, UHF systems exhibit transmission behavior like electromagnetic waves. The wave length is approx. 13 cm. Metal surfaces reflect the waves and cannot be penetrated.

Despite a low radiation output, UHF systems have a relatively long range. The emission field has a directional characteristic which depends, however, on the antenna design. In order to keep the energy requirement low for the MDS and to make the determination of the location comprehensible, MOBY U has various function areas that are dependent on direction and distance. The three different zones of the transmission field are identified by different states and reactions of the components affected.

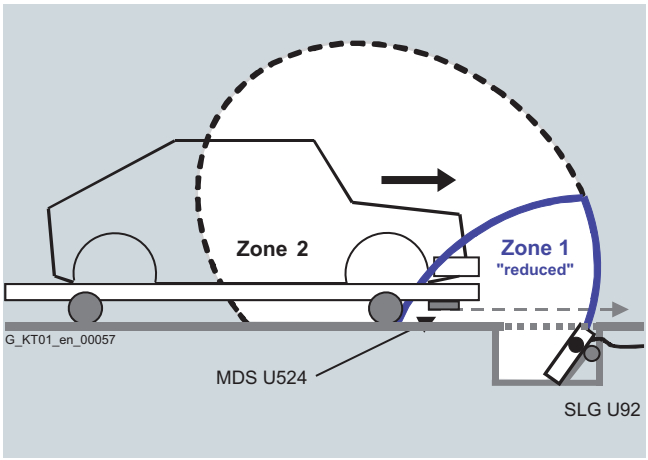
Put simply, Zone 3 is an SLG-field-free area. The MDS "sleeps" and only listens momentarily every 0.5 s for a sign of life from an SLG. This means that the power consumption is very low. If other UHF users in the vicinity are occupying the same frequency band, it has no effect on the MDS, as the latter requires a special code to wake it up. If the MDS in the vicinity of an active SLG then receives this special code, it enters Zone 2 (see Fig.). It immediately accepts the SLG and responds briefly with its own identification. The SLG however ignores every MDS unless it is in Zone 1, whose radius parameter can be set in stages in the SLG. The power consumption in Zone 2 is not significantly higher than in Zone 3.

If the MDS enters Zone 1, it is duly registered by the SLG and the data exchange can begin. Now all read and write functions can be performed. However, as the transmission rate at the air interface is very high (80 Kbit/s), the overall communication time is very short. For example, all bytes of the 32 KB memory are read in about 8 seconds. This means that the data exchange imposes hardly any load on the battery.

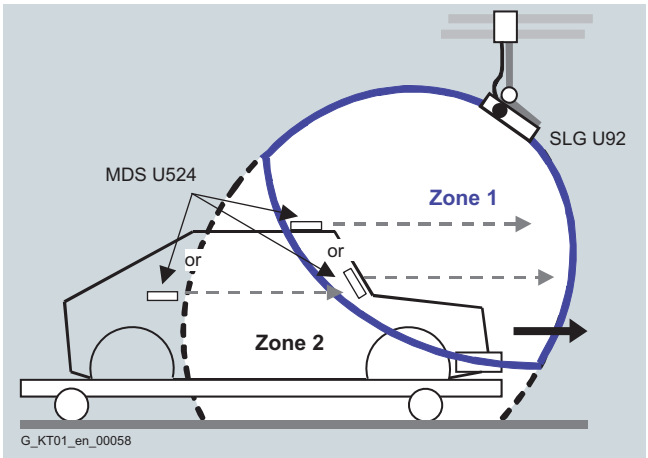
### SLG U92 with integral antenna




### Example: Car body identification




### Example: Skid identification

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## RFID systems for logistics – Identifying potential for optimization

RFID systems have been setting new standards in control and management tasks in distribution and logistics for a number of years, especially in terms of reliability with applications ranging from the identification of containers and recognition of textiles in dispatch centers and even in frozen storage. The rewritable, low-cost data memories as well as SmartLabels can be reliably identified and read, even through dirt.

Systems are based on the ISO 15693 standard as well as EPCglobal and ISO/IEC 18000-6, so SmartLabels from different manufacturers can be used. With the "electronic delivery note", you always have all the information at hand. Simple as well as complex tasks are performed quickly and reliably. Whatever the requirements, the optimal system is available. Additional equipment such as a mobile hand-held terminal provide additional flexibility in operation.

### *Application*

- Dispatch warehouse including order picking ("brown goods", foodstuffs, tires, etc.).
- Cold-storage depots (including order picking)
- Container or vessel identification
- Identification of load carriers, pallets, cases or mini-load containers
- Distribution and loading control with electronic delivery note
- Parts identification for textiles (e.g. professional rental clothing, operating room textiles) in laundries
- Identification of window parts, items of furniture etc. in the logistics chain
- Parts identification in the clothing industry (e.g. shirts, suits, medical stockings)
- Production and shipping
- Goods distribution in open distribution chains, e.g. in parcel and postal services, mail order companies or freight forwarders
- Luggage transport and tracking
- Machine and plant construction
- Industrial production
- Laboratory and test equipment

## Highlights

- Manage your procedures with rewritable electronic data storage units/SmartLabels
- Wide range of data storage units
- Mobile and flexible with hand-held terminals
- Customized SmartLabel/Antenna for high-volume applications

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| | Logistics | |
|---|---|---|
| | MOBY D | SIMATIC RF600 |
| **Read/write distance** | Up to 0.9 m | Up to 5.0 m (two antennas side by side)<br>Up to 10.0 m (antennas in gate arrangement) |
| **Frequency** | 13.56 MHz | 865 … 868 MHz (Europe)<br>902 … 928 MHz (North America) |
| **Standards** | ISO 15693<br>ISO 18000-3 | EPCglobal<br>ISO 18000-6B, ISO 18000-6C |

## Technical specifications

| | MOBY D | SIMATIC RF600 |
|---|---|---|
| |  |  |
| Read/write distance | Up to 680 mm (900 mm with customer-specific antenna) | Up to 5 m (up to 10 m for gate arrangement) |
| Data transmission rate | ≥ 3.5 ms/byte reading,<br>≥ 9.5 ms/byte writing | Up to 320 KB/s reading,<br>up to 128 KB/s writing |
| Memory | EEPROM | |
| Standards | ISO 15693 | EPC Gen 1, EPC Gen 2, ISO 18000-6B, ISO 18000-6C |
| Approvals | EN 300330 (Europa), FCC, IC | ETSI EN 302208, FCC |
| Bulk capability | • (PC version with RS 232) | • |
| Multitag capability | • (PC version with RS 232) | • |
| Frequency | 13.56 MHz | adjustable: 865 … 868 MHz (Europe),<br>902 … 928 MHz (U.S.A.) |

| **Mobile data storage units (tags/labels)** | **Name** | **Memory size** | **Operating temperature** | **Degree of protection** | **Name[1)]** | **Memory size** | **Operating temperature** | **Degree of protection** |
|---|---|---|---|---|---|---|---|---|
| | MDS D160 | 112 byte | -25 ... +175 °C | IP68 | RF620L | EPC 96 Bit | -20 ... +70 °C | none |
| | MDS D100 | 112 byte | -25 ... +80 °C | IP68 | RF630L | EPC 96 Bit | -40 ... +85 °C | According to version, none or IP65 |
| | MDS D124 | 112 byte | -25 ... +125 °C | IP67 | | | (+80 °C cycl.) | |
| | MDS D139 | 44 byte | -25 ... +200 °C | IP68 | | | | |
| | MDS D324 | 992 byte | -25 ... +125 °C | IP67 | | | | |
| | Smart Label | 112/256 byte | -25 ... +85 °C | IP68 | RF640T | 216 byte | -25 ... +85 °C | IP68 |

| **Read/write devices** | **Name** | **Operating temperature** | **Degree of protection** | **Name** | **Operating temperature** | **Degree of protection** |
|---|---|---|---|---|---|---|
| Stationary, with detached antenna | SLG D10 | -20 ... +55°C | IP65 | RF660R | -25 ... +55 °C | IP65 |
| | SLG D10S | -20 ... +55°C | IP65 | | | |
| | SLG D11 ANT D5 | -25 ... +70°C | IP65 | | | |
| | SLG D11S ANT D5 | -25 ... +70°C | IP65 | | | |
| Stationary, with integrated antenna | SLG D12 | -25 ... +70°C | IP65 | | | |
| | SLG D12S | -25 ... +70°C | IP65 | | | |
| Mobile hand-held terminal with integrated antenna | STG D | -20 ... +50 °C | IP54 | | | |

| **Antennas** | **Name** | **Operating temperature** | **Degree of protection** | **Name** | **Operating temperature** | **Degree of protection** |
|---|---|---|---|---|---|---|
| | ANT D2 | -20 ... +70 °C | IP65 | RF660A | -25 ... +75 °C | IP67 |
| | ANT D5 | -20 ... +55 °C | IP65 | | | |
| | ANT D6 | -20 ... +55 °C | IP65 | | | |
| | ANT D10 | -20 ... +55 °C | IP65 | | | |

| **Connection to the automation system** | **directly** | **via communication module (ASM)** | **directly** | **via communications module (ASM)[2)]** |
|---|---|---|---|---|
| SIMATIC S7-300, S7-400 | | • | | • |
| PROFIBUS DP | | • | | • |
| PROFINET | | • | | |
| Ethernet (TCP/IP) | | | • | |
| Serial interface to other controllers, PCs, any other systems | • | | • | |
| **Page** | **5/68** | | **5/97** | |

1) Further tags and SmartLabels will be available soon

2) This feature will be available in the future

## Introduction

### Overview

MOBY D is a new RF identification system based on the Standard 15693 in the 13.56 MHz range. For the first time, the standard creates a common basis for SmartLabels from different manufacturers (e.g. I-Code, Tag-it).

Due to the reasonable prices of the SmartLabels in large volume applications and the simple system integration, MOBY D is the ideal identification system for the above applications.

Depending on the read/write distance, various read/write devices are available with integral or separate antennas.

***The MOBY D identification system boasts the following features:***

- 13.56 MHz identification system for SmartLabels/data storage based on I-Code 1 or ISO/IEC 15693 (I-Code SLI, Tag-it HFI) with a read/write clearance of up to 900 mm (MDS-/SLG-dependent)
- Special heat-resistant data storage (44-byte EEPROM) for paintshops up to +200 °C
- Very high level of reliability even in the presence of contamination, temperature fluctuations and electromagnetic interference
- Can be connected via serial interface to any system, e.g. PC with Windows 9x/NT
- Simple integration into SIMATIC and the PROFIBUS DP

### Benefits

Worldwide support, configuration and service support.

### Application

***Main applications of MOBY D:***

Applications extend from simple identification, such as electronic barcode substitution, supplementation, or delivery note in harsh environments, storage and distribution logistics, right up to product identification.

The design of the transponder permits a variety of flexible designs, guaranteeing optimum dimensioning for the widest variety of applications.

Low-cost SmartLabels for large volume applications:

- Container and box identification in open systems
- Distribution logistics and goods identification
- Parcel and mail services, mail order businesses and freight carriers
- Baggage check-in and baggage tracking
- Protection against plagiarism and theft

Advantages of SmartLabels over conventional barcode labels

- Rugged and reliably recognizable, even when contaminated (moisture, dust, etc.)
- Maintenance-free and resistant to aging
- Identification even of packages made of non-metallic materials
- Rewritable (unlimited read cycles, write cycles typically 1 000 000)

As many as 20 SmartLabels per second can be detected simultaneously (serial numbers in the case of bulk recognition). The data can be processed selectively in multitag mode.

Hardened data stores (closed systems)

- Container and box identification in logistics and distribution
- Production logistics and in assembly lines with higher temperature requirements (e.g. paintshops, temperature range up to +200°C)
- Parts identification (e.g. data storage is attached directly to product/pallet).

### Function

MOBY identification systems ensure that important data accompanies a product from the very start.
Due to their extremely attractive price, SmartLabels can be universally implemented as "an electronic barcode substitute" or as a "delivery note".

Using stationary as well as mobile read/write devices (SLGs), the necessary information (production data, transport routes, etc.) can be read without contact (inductively), and even be supplemented or modified without the need for a direct line-of-sight link.

## Technical specifications

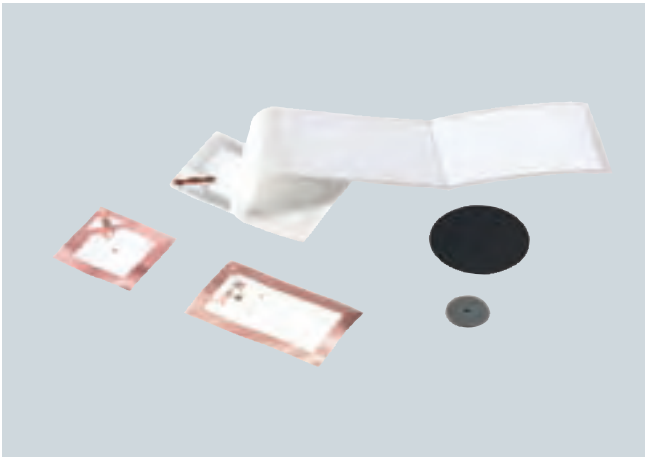
| MOBY D | |
|---|---|
| Type | Contactless RF identification system |
| Transmission frequency data/energy | 13.56 MHz |
| Memory capacity | Dependent on chip used:<br>• I-Code 1: 44-byte user memory<br>• I-Code SLI: 112 byte user memory (ISO 15693)<br>• my-d<br>992 byte user memory (ISO 15693)<br>8 byte fixed code as serial number |
| Memory type | EEPROM |
| Read/write cycles | > 1 000 000/unlimited |
| Data management | 4 byte, block by block |
| Data transmission rate MDS – SLG | Approx. 3.5 ms/byte (reading); approx. 9.5 ms/byte (writing) |
| Read/write distance | Up to 680 mm (900 mm with customer-specific antenna[1)]) |
| Operating temperature (MDS) | -25 … +80 °C, +125 °C, +175 °C, +200 °C |
| Degree of protection | up to IP68 |
| Can be connected to | PC with Windows 98/NT,<br>PLC SIMATIC S7,<br>PROFIBUS DP |
| Special features | • For SmartLabels/data storage based on I-Code 1 or ISO/IEC 15693, e.g. I-Code SLI, Tag-it HFI<br>• CRC checksums for secure data transmission<br>• Bulk recognition and multitag function |
| Approvals | CE, EN 300330, FCC, IC |

1) On request

# MOBY D mobile data storage unit

## Introduction

### Overview



| Type | Features |
|---|---|
| **MDS D...** | Customer-specific SmartLabel, e.g. in check card format:<br>• 112/256 byte EEPROM<br>• Degree of protection up to IP68<br>• Temperature range up to +80 °C<br>• Typ. dimensions in mm: 55 x 55, 86 x 54<br>• Max. read/write distance up to 900 mm (large customer-specific antenna/SmartLabel) |
| **MDS D100** | Universally usable data storage in check card format:<br>• 112 byte EEPROM<br>• Degree of protection IP68<br>• Temperature range up to +80 °C<br>• Max. read/write distance: 650 mm |
| **MDS D124** | Rugged data memory for deployment in harsh industrial environments and under extreme environmental conditions:<br>• 112 byte EEPROM<br>• Degree of protection IP67<br>• Temperature range up to +125 °C<br>• Max. read/write distance: 180 mm |
| **MDS D139** | Re-usable data memory for use in paintshops or applications with high temperatures (44 byte EEPROM (Ø 85 mm x 15 mm):<br>• 44 byte EEPROM<br>• Degree of protection IP68<br>• Temperature range up to +200 °C<br>• Max. read/write distance: 550 mm |
| **MDS D160** | The EEPROM data memory (Ø 16 mm x 3 mm) has been specially designed for harsh environments in the laundry and cleaning industry.<br>• Main applications include:<br>- Rented work clothing<br>- Rented laundry<br>- OP textiles, hospital clothing<br>- Hotel laundry<br>- Dirt collection mats<br>• 112 byte EEPROM<br>• Degree of protection IP68<br>• Temperature range up to +175 °C<br>• Max. read/write distance 160 mm |
| **MDS D324** | Rugged data memory for deployment in harsh industrial environments and under extreme environmental conditions:<br>• 992 byte EEPROM<br>• Degree of protection IP67<br>• Temperature range up to +125 °C<br>• Max. read/write distance: 180 mm |

#### *Customer-specific data memory*

Customer-specific data memory (packaging, temperature range, geometry etc.) on request.

### Design

The MOBY D data storage unit/SmartLabel mainly comprises logic with an integrated EEPROM memory and an antenna.

### Function

If an MDS moves into the transmission field of the SLG, the necessary power for all circuit components is generated and monitored by means of the energy supply unit. The pulse-coded information is prepared in such a way that it can be processed further as pure digital signals. The handling of data, including check routines, is performed by the control unit (SLG) which also manages the user memory.

## Technical specifications

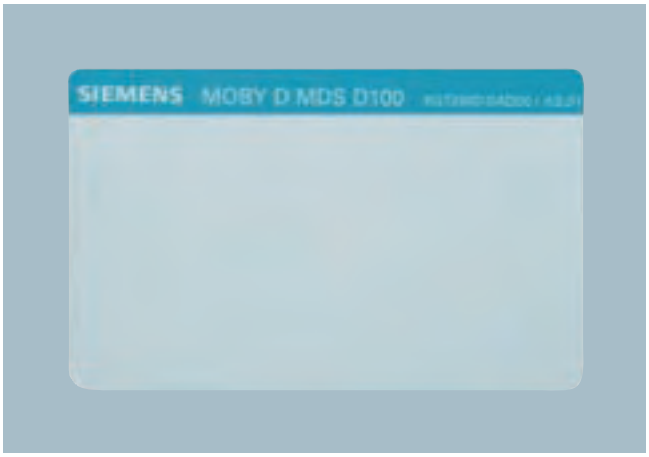
### *Field data (operating/limit distance) of MDS and SLG (all dimensions in mm)*

The field data (unaffected by metal) for all MOBY D components of the MDS and SLG are shown in the table below. Thus it becomes particularly easy to select the right MDS and SLG. The listed technical data are typical values and are valid for a room temperature of +25 °C and a supply voltage of 24 V DC.

| Type | MDS D... customer-specific, e.g. with SmartLabel 86 x 54 | MDS D100 | MDS D124 | MDS D139 | MDS D160 | MDS D324 |
|---|---|---|---|---|---|---|
| **SLG D12/D12S** | 0 ... 150 | 0 ... 120 / 160 | 0 ... 50 / 70 | 0 ... 120 / 150 | 0 ... 45 / 65 | 0 ... 60 / 80 |
| **SLG D11/D11S ANT D5** | 0 ... 300 | 0 ... 300 / 380 | 0 ... 70 / 110 | 0 ... 240 / 300 | 0 ... 65 / 90 | 0 ... 100 / 150 |
| **SLG D10/D10S ANT D5** | 0 ... 500 | 0 ... 400 / 480 | 0 ... 130 / 180 | 0 ... 380 / 450 | 0 ... 120 / 160 | 0 ... 160 / 220 |
| **SLG D10/D10S ANT D6** | 0 ... 650 | 0 ... 550 / 650 | 0 ... 130 /180 | 0 ... 480 / 550 | 0 ... 120 / 160 | 0 ... 160 / 220 |
| **SLG D10/D10S ANT D10** | 0 ... 500 | 0 ... 400 / 480 | 0 ... 130 /180 | 0 ... 380 / 450 | 0 ... 120 / 160 | 0 ... 160 / 220 |

# MDS D100

## Overview




This mobile data storage unit is a passive, maintenance-free transponder based on ISO 15693 with I-Code SLI technology.

## Application

Applications extend from simple identification, such as electronic bar code substitution or supplementation, over storage and distribution logistics, to product identification.

This mobile data storage unit can also be used without any difficulty under harsh environmental conditions (e.g. at a temperature up to +80 °C).

## Technical specifications

| MDS D100 mobile data storage unit | |
|---|---|
| Memory size | 112 byte EEPROM available<br>8-byte serial number (read-only code) |
| Protocol | to ISO 15693 |
| MTBF at +40 °C | 2000000 h |
| Read cycles | Unlimited |
| Write cycles, min. | 100000 |
| Write cycles, typical | 1000000 |
| Data retention time | 10 years (at < +40 °C) |
| Read/write distance, max. | 650 mm (see field data) |
| Memory organization | 4 byte, block by block |
| Multitag capability | Yes, depending on SLG |
| Energy source | Inductive power transmission (without battery) |
| Vibration | ISO 10 373/ISO 7810 |
| Torsion and bending load | ISO 10 373/ISO 7816-1 |
| Mounting | Fixing lug/adhesive |
| Recommended spacing from metal | 25 mm (approx. 30% reduction of the field data) |
| Degree of protection to EN 60529 | IP68 |
| Enclosure | Laminated plastic card, printable on both sides |
| • Dimensions (L x W x H) in mm | 85.6 x 54 x 0.9 |
| • Color/material | White/petrol / PC |
| Ambient temperature | |
| • Operation | -25 … +80 °C |
| • Transport and storage | -25 … +80 °C |
| Weight, approx. | 5 g |

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### *Field data in mm – without metallic influence*

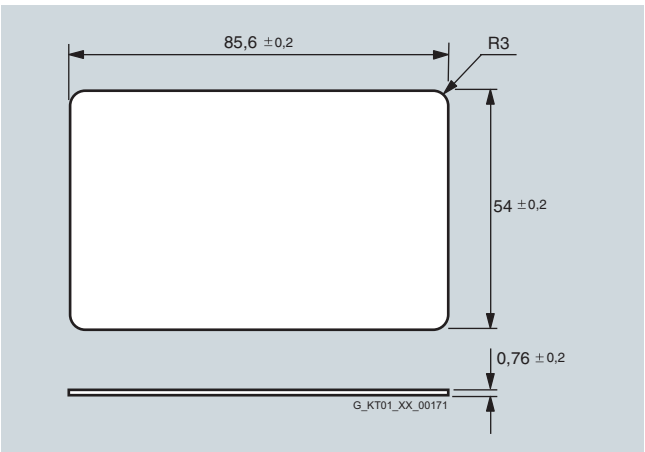
| MDS D100 to: | SLG D12/D12S | SLG D11/D11S ANT D5 | SLG D10/D10S ANT D5 | SLG D10/D10S ANT D6 | SLG D10/D10S ANT D10 |
|---|---|---|---|---|---|
| Operating distance ($S_a$) | 0 ... 120 | 0 ... 300 | 0 ... 400 | 0 ... 550 | 0 ... 400 |
| Limit distance ($S_g$) | 160 | 380 | 480 | 650 | 480 |
| Transmission window (L) | 120 | Ø 300 | Ø 320 | 520 | 1050 |
| Minimum distance from MDS to MDS | ≥ 500 | ≥ 1000 | ≥ 1000 | ≥ 1500 | ≥ 200 |

## Selection and Ordering data

| | | Order No. |
|---|---|---|
| **MDS D100 mobile data storage unit**<br>112 byte EEPROM;<br>IP68, max. + 80 °C | ► A | **6GT2 600-0AD10** |
| ***Accessories*** | | |
| **Fixing lug**<br>for MDS D100 | ► | **6GT2 190 0AB00** |
| **Spacers**<br>For fixing lug, thickness 20 mm<br>The purpose of the spacer is to maintain the recommended distance to the metal when installing the tag. | ► | **6GT2 190-0AA00** |

A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

## Dimensions



## Overview


The MDS D124 is a passive, maintenance-free transponder based on ISO 15693 with I-Code SLI technology.

## Application

This mobile data storage can also be used without any difficulty under harsh environmental conditions (e.g. at a temperature up to +125 °C).

## Technical specifications

| MDS D124 mobile data storage unit | |
|---|---|
| Memory size | 112 byte EEPROM available<br>8-byte serial number |
| Protocol | to ISO 15693 |
| MTBF | 1500000 hours |
| Read cycles | Unlimited |
| Write cycles, at +70 °C min. | 100000 |
| • at ≤ 40 °C, typical | 1000000 |
| Data retention time | > 10 years (at < +40 °C) |
| Read/write distance, max. | 180 mm (see field data) |
| Memory organization | Block by block access |
| Multitag capability | Yes, depending on SLG |
| Energy source | Inductive power transmission (without battery) |
| Shock/vibration-resistant to EN 60721-3-7, Class 7 M3 | See configuration manual |
| Torsion and bending load | Not permissible continuously |
| Mounting | Adhesive, screws |
| Recommended spacing from metal | > 25 mm |
| Degree of protection to EN 60529 | IP67 |
| Resistance to chemicals | See configuration manual |
| Enclosure | |
| • Dimensions | Ø 27 mm x 4 mm |
| • Color/material | Black/epoxy resin |
| Ambient temperature | |
| • Operation | -25 … +125 °C |
| • Transport and storage | -40 … + 150 °C |
| Weight, approx. | 5 g |

*Field data in mm – without metallic influence*

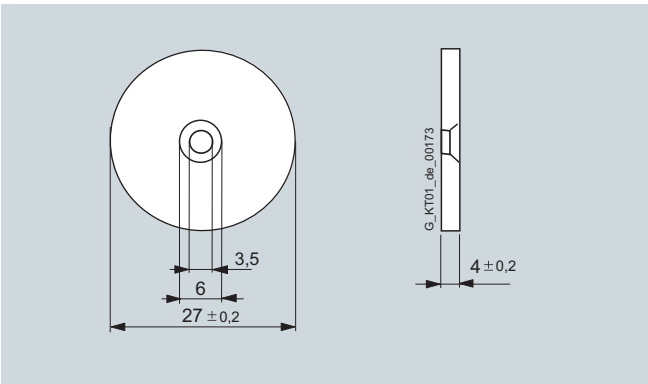
| MDS D124 to: | SLG D12/D12S | SLG D11/D11S ANT D5 | SLG D11/D11S ANT D2 | SLG D10/D10S ANT D5 | SLG D10/D10S ANT D6 | SLG D10/D10S ANT D10 |
|---|---|---|---|---|---|---|
| Operating distance ($S_a$) | 0 … 50 | 0 … 70 | 30 … 50 | 0 … 130 | 0 … 130 | 0 … 130 |
| Limit distance ($S_g$) | 70 | 110 | 60 | 180 | 180 | 180 |
| Transmission window (L) | 120 | Ø 300 | 50 | Ø 320 | 440 | 980 |
| Minimum distance from MDS to MDS | ≥ 300 | ≥ 800 | ≥ 400 | ≥ 800 | ≥ 1200 | ≥ 1800 |

## Selection and Ordering data

| | Order No. |
|---|---|
| **MDS 124 mobile data storage unit**<br>112 byte EEPROM, IP67, max. + 150 °C | **6GT2 600-0AC00** |

► Preferred type, available from stock.

## Dimensions



# MOBY D mobile data storage unit

## MDS D139

### Overview

The MDS D139 is a passive, maintenance-free transponder based on the I-Code 1 technology.

### Application

Low-cost, heat-resistant transponder for use in production logistics and assembly lines with high temperatures (max. +200 °C, e.g. in paintshops).

### Technical specifications

| MDS D139 mobile data storage unit | |
|---|---|
| Memory size | 44 byte EEPROM available<br>8-byte serial number |
| Protocol | I-Code 1 |
| MTBF | 2,000,000 h |
| Read cycles | Unlimited |
| Write cycles, at +70 °C min. | 10000 |
| • at ≤ 40 °C, typical | 500000 |
| Data retention time | > 10 years (at < +40 °C) |
| Read/write distance, max. | 550 mm (see field data) |
| Memory organization | Block by block access |
| Multitag capability | Yes, depending on SLG |
| Energy source | Inductive power transmission (without battery) |
| Shock/vibration-resistant to EN 60721-3-7,Class 7 M3 | 50 *g*/20 *g* |
| Torsion and bending load | Not permissible |
| Mounting | M5 screw |
| Recommended distance to metal | > 30 mm |
| Degree of protection to EN 60529 | IP68 |
| Ex approval | ATEX Zone 2G |
| Resistance to chemicals | See configuration manual |
| Enclosure | |
| • Dimensions | Ø 85 mm x 15 mm |
| • Color/material | Black/plastic PPS |
| Ambient temperature | |
| • During operation | -25 … +140 °C[1)]<br>• +200 °C max. (tested up to 4000 h continuous temperature, 1500 temperature cycles)<br>• +220 °C temporarily |
| • During transportation and storage | -40 … +100 °C |
| Weight, approx. | 50 g |
| Special features | No silicone |

*Field data in mm – without metallic influence*

| MDS D139 to: | SLG D12/D12S | SLG D11/D11S ANT D5 | SLG D10/D10S ANT D5 | SLG D10/D10S ANT D6 | SLG D10/D10S ANT D10 |
|---|---|---|---|---|---|
| Operating distance ($S_a$)[1)] | 0 ... 120 | 0 ... 240 | 0 ... 380 | 0 ... 480 | 0 ... 380 |
| Limit distance ($S_g$)[1)] | 150 | 300 | 450 | 550 | 450 |
| Transmission window (L) | 120 | Ø 300 | Ø 320 | 520 | 1050 |
| Minimum distance from MDS to MDS | ≥ 500 | ≥ 1000 | ≥ 1000 | ≥ 1500 | ≥ 2000 |

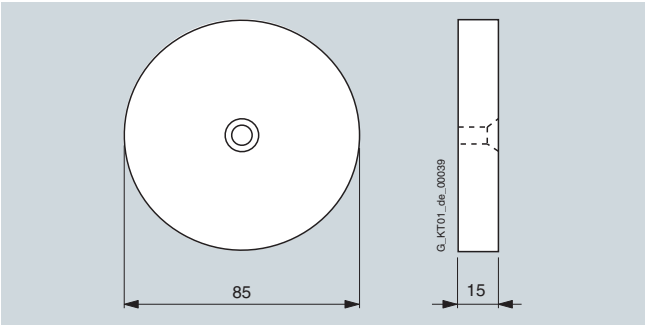
1) Reduction of the operating/limit distance by about 20% above 100 °C. At 200 °C processing is not possible.

### Selection and Ordering data

| | Order No. |
|---|---|
| **MDS 139 mobile data storage unit** ► | **6GT2 600-0AA00** |
| 44 byte EEPROM, IP68, max. +200 °C | |
| ***Accessories*** | |
| **Spacer** ► | **6GT2 690-0AA00** |

► Preferred type, available from stock.

### Dimensions



## Overview

## Application

Typical applications include:

- Rented work clothing
- Hotel laundry
- Surgical textiles
- Hospital clothing
- Dirt collection mats
- Clothing for nursing homes/hostels

## Technical specifications

| MDS D160 mobile data storage unit | |
|---|---|
| Memory size | 112 byte EEPROM available<br>8-byte serial number |
| Protocol | to ISO 15693 |
| MTBF | 2,500,000 h |
| Read cycles | unlimited |
| Write cycles, at +70°C min. | 10000 |
| • at ≤ 40 °C, typical | 1000000 |
| Data retention time | > 10 years (at < +40 °C) |
| Read/write distance, max. | 160 mm (see field data) |
| Memory organization | Block by block access |
| Multitag capability | Yes, depending on SLG |
| Energy source | Inductive power transmission (without battery) |
| Shock/vibration to EN 60721-3-7, Class 7 M3 | See configuration manual |
| Torsion and bending load | Not permitted continuously |
| Mounting | Patch, sew, glue |
| Recommended distance to metal | > 25 mm |
| Degree of protection to EN 60529 | IP68 (2 m, 24 hours) |
| Resistance to chemicals | All chemicals normally used in the washing process |
| Enclosure | |
| • Dimensions | Ø 16 mm x 3 mm ± 0.1 mm |
| • Color/material | Beige/PPA |
| Ambient temperature | |
| • During operation | -25 … +85 °C<br>• Up to +120°C [1] for 1000 h<br>• Up to +160 °C [1] for 35 h<br>• Up to +175 °C for 10 minutes |
| • During transportation and storage | -40 … + 85 °C |
| Weight, approx. | 1.2 g |
| Special features | at least 100 wash cycles<br>24 hour regeneration time required between wash cycles |

*Field data in mm – without metallic influence*

| MDS D160 to: | SLG D12/D12S | SLG D11/D11S ANT D5 | SLG D11/D11S ANT D2 | SLG D10/D10S ANT D5 | SLG D10/D10S ANT D6 | SLG D10/D10S ANT D10 |
|---|---|---|---|---|---|---|
| Operating distance ($S_a$)[1] | 0 … 45 | 0 … 65 | 35 … 55 | 0 … 120 | 0 … 120 | 0 … 100 |
| Limit distance ($S_g$)[1] | 65 | 90 | 65 | 160 | 160 | 160 |
| Transmission window (L) | 120 | 280 | 50 | Ø 300 | 480 | 980 |
| Minimum distance from MDS to MDS | ≥ 300 | ≥ 800 | ≥ 400 | ≥ 800 | ≥ 1200 | ≥ 1800 |

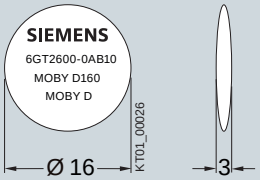
1) Reduction of the operating/limit distance by about 20% above 100 °C. At 140 °C processing is not possible.

## Selection and Ordering data

| | | Order No. |
|---|---|---|
| **MDS D160 mobile data storage unit**<br>112 byte EEPROM, IP68, max. +175 °C, momentary | ► A | **6GT2 600-0AB10** |

A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

## Dimensions



# MDS D324

## Overview


The MDS D324 is a passive, maintenance-free transponder based on the ISO standard 15693 with my-d technology. It was developed for the application areas in production and distribution logistics as well as product identification.

For the user, the usable application memory amounts to 992 byte.

This mobile data storage unit can also be easily used in harsh environments under extreme environmental conditions (e.g. with higher temperature load).

## Technical specifications

| MDS U324 mobile data storage unit | |
|---|---|
| Memory size | 992 byte EEPROM available<br>8 byte serial number |
| Protocol | According to ISO 15693 |
| MTBF | 1500000 h |
| Read cycles | unlimited |
| Write cycles, at +70 °C, min. | 10000 |
| • at ≤ 40 °C, typical | 1000000 |
| Data retention time | > 10 years (at < +40 °C) |
| Read/write distance, max. | 220 mm (see field data) |
| Memory organization | Block-by-block access |
| Multitag capability | Yes, depending on SLG |
| Energy source | Inductive energy transfer (without battery) |
| Shock/vibration to EN 60721-3-7, Class 7 M3 | See configuration manual |
| Torsion and bending load | No continuous load permissible |
| Mounting | glue, screw |
| Recommended distance to metal | > 25 mm |
| Degree of protection to EN 60529 | IP67 |
| Resistance to chemicals | See configuration manual |
| Enclosure | |
| • Dimensions | Ø 27 mm x 4 mm |
| • Color/material | Black/epoxy resin |
| Ambient temperature | |
| • During operation | -25 ... +125 °C |
| • During transportation and storage | -40 ... + 150 °C |
| Weight, approx. | 5 g |

*Field data in mm – without metallic influence*

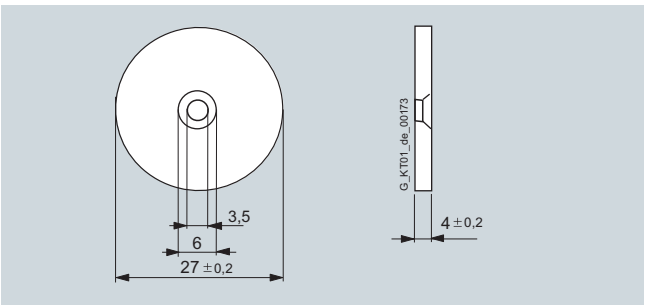
| MDS D324 to: | SLG D12/D12S | SLG D11/D11S ANT D5 | SLG D11/D11S ANT D2 | SLG D10/D10S ANT D5 | SLG D10/D10S ANT D6 | SLG D10/D10S ANT D10 |
|---|---|---|---|---|---|---|
| Operating distance ($S_a$) | 0 … 60 | 0 … 100 | 35 … 60 | 0 … 160 | 0 … 160 | 0 … 160 |
| Limit distance ($S_g$) | 80 | 150 | 70 | 220 | 220 | 220 |
| Length of transfer window (L or $L_x$/$L_y$) | 120/60 | Ø 300 | 50 | Ø 320 | 500/400 | 1000/280 |
| Width of transfer window (B or $B_x$/$B_y$) | 48/24 | 120 | 50 | 128 | 200/160 | 400/112 |
| Minimum distance from MDS to MDS | ≥ 300 | ≥ 800 | ≥ 400 | ≥ 800 | ≥ 1200 | ≥ 1800 |

## Selection and Ordering data

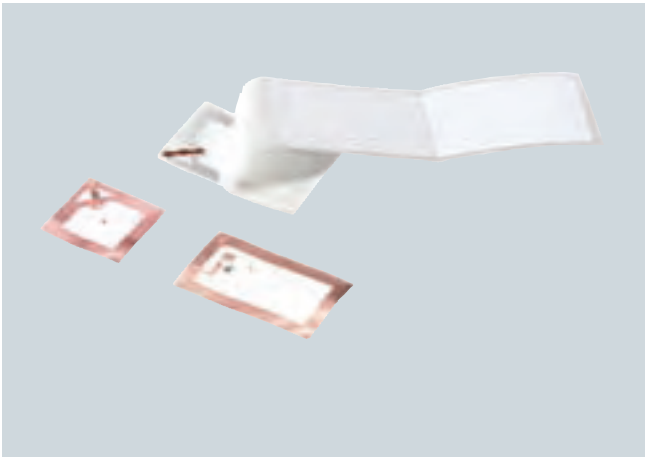
| | Order No. |
|---|---|
| **MDS U324 mobile data storage unit** ► | **6GT2 600-3AC00** |
| Button, 992 byte EEPROM user memory, max. +125 °C | |

► Preferred type, available from stock.

## Dimensions



## Overview



## Application

Thanks to their very reasonable price, the SmartLabels can be used universally as electronic "barcode substitutes" or "delivery notes".

## Design

The design of the customer-specific SmartLabels permits a variety of flexible designs, ensuring optimum dimensioning for the widest variety of applications.

## Technical specifications

| SmartLabel | |
|---|---|
| Memory size (for I-code), e.g. | 112 or 256 byte EEPROM available<br>8-byte serial number |
| Protocol | to ISO 15693 |
| Read cycles | Unlimited |
| Write cycles at ≤ 40 °C, typical | > 1000000 |
| Data retention time | > 10 years (at < +40 °C) |
| Read/write distance, max. | 900 mm (see field data) |
| Memory organization | Block by block access |
| Multitag capability | Yes, depending on SLG |
| Energy source | Inductive power transmission |
| Mounting | E.g. single-sided adhesive attachment |
| Recommended spacing from metal | > 10 mm |
| Degree of protection to EN 60529 | Up to IP68 |
| Resistance to chemicals | On request |
| Enclosure | |
| • Dimensions in mm | E.g. 86 x 54 or 55 x 55 |
| • Color/material | E.g. upper side plastic<br>Lower side double-sided transfer adhesive on silicon Paper |
| Ambient temperature | |
| • Operation | E.g. -25 … +85 °C |
| • Storage temperature | +20 … +30 °C |
| Weight, approx. | E.g. 3 g |
| Special features | • Temperature range, size, degree of protection, mounting, operating distance etc. all depend on the customer-specific design of the SmartLabels<br>• High-volume applications<br>• On request |

## Selection and Ordering data

| | Order No. |
|---|---|
| **MDS D261 SmartLabel** ► | **6GT2600-1AA00-0AX0** |
| PET, 256 byte, -25 ... 85 °C, dimensions in mm: 55 x 55 x 0.3<br>Price valid for one piece. Packaging volume is 1,250 pcs. | |
| **MDS D165 SmartLabel** ► | **6GT2600-1AB00-0AX0** |
| 112 byte, -25 ... 85 °C, Dimensions in mm: 86 x 54 x 0.3<br>Price valid for one piece. Packaging volume is 1,250 pcs. | |

► Preferred type, available from stock.

## Introduction

### Overview

The read/write device (SLG) ensures inductive communication and power supply to the MDS and for the serial connection (RS 232 or RS 422) to various systems (PC, PLC).

Read/write devices in the upper, medium and lower performance ranges are available to users for integration into SIMATIC S7 and PROFIBUS DP V1. The MOBY communication modules are used for connecting the read/write devices to SIMATIC and PROFIBUS DP V1.

Various different SLGs are available for small, medium and large distances to the MDS to satisfy customer requirements.

A rugged housing or antenna enclosure and a high degree of protection allow the use under tough environmental conditions and guarantees a high resistance to many chemical substances. New applications are opened up by the support of SmartLabels on the basis of the ISO/IEC 15693 standard, multitag capability, etc.

| Type | Features |
|---|---|
| **SLG D10 basic unit** | Read/write device with plug for connection of an external antenna (ANT D5 / ANT D6 / ANT D10)<br>• Degree of protection IP65<br>• Temperature range up to +55 °C<br>• RS 232 interface for connection to PC/PLC |
| **SLG D10 ANT D5** | Universal read/write device with detached antenna ANT D5 (340 mm x 325 mm x 38 mm)<br>• Max. read/write distance: 480 mm<br>• Degree of protection IP65<br>• Temperature range up to +55 °C<br>• With RS 232 interface for connection to PC/PLC |
| **SLG D10S basic unit** | Read/write device with plug for connection of an external antenna (ANT D5 / ANT D6 / ANT D10)<br>• Degree of protection IP65<br>• Temperature range up to 55 °C<br>• RS422 interface for connection to SIMATIC S7/ PROFIBUS via ASM 452, ASM 456, ASM 473 or ASM 475 |
| **SLG D10S ANT D5** | Like SLG D10 ANT D5, but with RS422 interface for connection to SIMATIC S7/ PROFIBUS via ASM 452, ASM 456, ASM 473 or ASM 475 |
| **SLG D11 basic unit** | Read/write device with plug for connection of an external antenna (ANT D2 / ANT D5)<br>• Degree of protection IP65<br>• Temperature range up to 55 °C<br>• RS232 interface for connection to a standard PC or external controllers |
| **SLG D11 ANT D5** | Universal read/write device with detached antenna ANT D5 (340 mm x 325 mm x 38 mm)<br>• Max. read/write distance: 380 mm<br>• Degree of protection IP65<br>• Temperature range up to +55 °C<br>• With RS 232 interface for connection to PC/PLC |
| **SLG D11S basic unit** | Read/write device with plug for connection of an external antenna (ANT D2 / ANT D5)<br>• Degree of protection IP65<br>• Temperature range up to 55 °C<br>• RS422 interface for connection to SIMATIC S7 / PROFIBUS DP-V1 / PROFINET via ASM 452, ASM 456, ASM 473 or ASM 475, RF170C, RF180C |
| **SLG D11S ANT D5** | Like SLG D11 ANT D5, but with RS422 interface for connection to SIMATIC S7/ PROFIBUS via ASM 452, ASM 456, ASM 473 or ASM 475 |
| **SLG D12** | Universal read/write device with integral antenna (160 mm x 80 mm x 40 mm)<br>• Max. read/write distance: 160 mm<br>• Degree of protection IP65<br>• Temperature range up to +55 °C<br>• With RS 232 interface for connection to PC/PLC |
| **SLG D12S** | Like SLG D12, but with RS422 interface for connection to SIMATIC S7/ PROFIBUS via ASM 452, ASM 456, ASM 473 or ASM 475 |
| **ANT D2** | Universal antenna (75 mm x 75 mm x 40 mm), connectable to basic units SLG D11/SLG D11S<br>• Degree of protection IP65<br>• Temperature range up to 70 °C<br>• Cable length 3.3 m (for plugging in at both ends) |
| **ANT D5** | Universal antenna (340 mm x 325 mm x 38 mm), connectable to basic units SLG D10/SLG D10S<br>• Degree of protection IP65<br>• Temperature range up to 55 °C<br>• Cable length 3.6 m (permanently connected on antenna side) |
| **ANT D6** | Universal antenna (580 mm x 480 mm x 110 mm), connectable to basic units SLG D10/SLG D10S<br>• Degree of protection IP65<br>• Temperature range up to 55 °C<br>• Cable length 3.3 m (connectable at both ends, included in scope of delivery) |

| Type | Features |
|---|---|
| **ANT D10** | Antenna (1150 mm x 365 mm x 115 mm) for storage, logistics and distribution. Ideally suited to the clothing industry/laundries. For connection to SLG D10 and D10S. Advantageous geometry for small tags and a long transmission field.<br>Main areas of application: Container identification, goods identification, package and postal services, dispatch, haulage, clothing industry, laundries<br>• Degree of protection IP65<br>• Temperature range up to 55 °C<br>• Cable length 3.3 m (connectable at both ends, included in scope of delivery)<br>• Cover included in scope of supply |

## Design

The following serial interfaces including software tools (on the "RFID-Systems Software & Documentation" CD) are available for quick and easy integration into the application:

- RS232 with binary protocol
  - For serial interface to any system (PC/PLC)
  - C++ library MDWAPI (for Windows 9x/2000/NT) with extended range of functions including password protection, access authorization and multitag operation
- RS422 with 3964R protocol
  - For serial interface to the MOBY interface modules (ASM 450, ASM 452, ASM 473, ASM 475, RF170C and RF180C) or any systems, e.g. gateways
  - FC45 (without multitag, etc.) for SIMATIC S7-300/400, S7 PROFIBUS master

## Function

The SLG converts the commands (read MDS etc.) received by the PC or interface module (ASM) and generates by means of the antenna a magnetic alternating field for the contactless communication and power transmission to the MDS.

Failsafe protocols and access mechanisms achieve a high degree of data security and guarantee fast, secure and noise-resistant communication. The transmittable volume of data between SLG/antenna and MDS depends on:

- the speed at which the MDS moves through the transmission window of the antenna
- the length of the transmission window

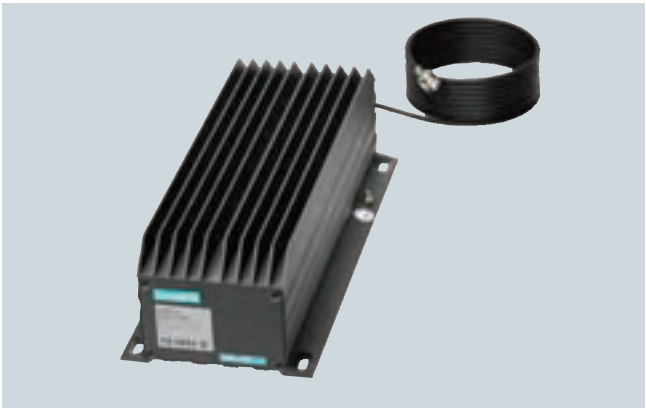
## Technical specifications

### *Field data*

| Minimum distance from SLG to SLG | | |
|---|---|---|
| SLG D12 / SLG D12S | SLG D12 / SLG D12S | > 600 mm |
| SLG D11 ANT D5 / SLG D11S ANT D5 | SLG D11 ANT D5 / SLG D11S ANT D5 | > 1,200 mm |
| SLG D11 ANT D2 / SLG D11S ANT D2 | SLG D11 ANT D2 / SLG D11S ANT D2 | > 500 mm |
| SLG D10 ANT D5 / SLG D10S ANT D5 | SLG D10 ANT D5 / SLG D10S ANT D5 | > 2000 mm |
| SLG D10 ANT D6 / SLG D10S ANT D6 | SLG D10 ANT D6 / SLG D10S ANT D6 | > 2000 mm |
| SLG D10 ANT D10 / SLG D10S ANT D10 | SLG D10 ANT D10 / SLG D10S ANT D10 | > 2000 mm |

# SLG D10/SLG D10S basic unit for ANT D5, ANT D6 and ANT D10 antennas

## Overview



The SLG D10 / SLG D10S basic units are read/write devices in the upper performance range and can be operated with the ANT D5, ANT D6 and ANT D10 antennas.

The read/write devices are equipped with an RS232 serial interface for connection to PCs/PLCs or RS422 interface which permits communication via the communications modules ASM 456, ASM 475, RF170C and RF180C to SIMATIC S7 or PROFIBUS/PROFINET.

Connectable switch and antennas:

### *Antenna switch*

The antenna switch enables several individual antennas or portal solutions to be operated with only one read/write device (SLG D10 / SLG D10S).

### *ANT D5*

An antenna for universal applications designed for warehouse, logistics and distribution applications. The high degree of protection (IP65) enables the antenna to be used under harsh industrial conditions.

### *ANT D6*

An antenna in the upper performance range, designed for warehouse, logistics and distribution applications. It can be used wherever high speeds are required together with a large read/write distance.

### *ANT D10*

The ANT D10 is suitable for use in warehouses, logistics and distribution. An antenna with this geometry is required in the clothing industry and laundries in particular.

## Technical specifications

| Basic units | SLG D10 | SLG D10S |
|---|---|---|
| Inductive interface to the MDS | Remote antenna | |
| Transmission frequency (energy/data) | 13.56 MHz; ISO/IEC 15693 | |
| Data memories / transponders supported | For SmartLabels based on standard ISO/IEC 15693 e.g.: I Code SII, Tag-it Hfi, plus I-Code 1 | |
| Multitag capability | Yes, approx. 20 data memories/s | No |
| Read/write distance, max. | see MDS field data | |
| Transmit power | Up to 10 W | |
| Serial interface | RS232 to PC/SPS | RS422 to ASM 475 |
| Max. cable length at 24 V DC | 30 m | 300 m |
| Connector | 9-pin subminiature connector (pin) | |
| Data transmission rate | 1200 baud … 115.2 Kbaud (adjustable) | Up to 115.2 Kbaud (depending on ASM) |
| Procedure | Binary with CRC 16-security | 3964R protocol |
| Software functions | | |
| • Programming | C library for PCs with Windows 9x/2000 and NT | FB/FC45 for S7 |
| • Commands | Read data from MDS, write data to MDS, access rights, multitag, etc. | Read data from MDS, write data to MDS |
| Rated supply voltage value/permissible range | via 4-pin connector M12 (IP65) 24 V DC/20 V – 30 V DC | |
| Power consumption (at room temperature) | | |
| • Inrush current, momentary | Up to 2.8 A/50 ms | |
| • Operation | Typ. 0.9 A | |
| Enclosure | | |
| • Dimensions (in mm) for electronics without connector | 320 x 145 x 100 | |
| • Color/Material | Anthracite/Aluminum | |
| Degree of protection to EN 60529 | IP65 | |
| Shock-resistant acc. to EN 60721-3-7, Class 7M2 | 30 *g* | |
| Vibration-resistant acc. to EN 60721-3-7, Class 7M2 | 1 *g* (9 … 200 Hz), 1.5 *g* (200 … 500 Hz) | |
| Attachment of enclosure | 4 x M6 screws | |
| Ambient temperature | | |
| • Operation | -20 … +55 °C | |
| • Transport and storage | -25 … +70 °C | |
| MTBF | 75000 h | |
| Weight | 3.5 kg | |

## SLG D10/SLG D10S basic unit for ANT D5, ANT D6 and ANT D10 antennas

| Antenna | ANT D5 | ANT D6 | ANT D10 |
|---|---|---|---|
| |  |  |  |
| Inductive interface to the MDS | 13.56 MHz | | |
| Read/write distance, max. | See field data | | |
| Interface to SLG D10 / SLG D10S | | | |
| • Plug connection | TNC | | |
| • Antenna cable length (included in scope of delivery) | 3.6 m (plugs into SLG) | 3.3 m (connectable on both sides) | |
| Antenna dimensions in mm | 340 x 325 x 38 (without range adjustment kit) | 580 x 480 x 110 (without cover) | 1150 x 365 x 115 (with cover) |
| • Antenna color | Black | Black/gray | Pastel turquoise |
| • Antenna material | Plastic ASA | Aluminum/plastic | |
| Degree of protection to EN 60529 | IP65 | | |
| Shock-resistant acc. to EN 60721-3-7, Class 7M2 | 30 *g* | | |
| Vibration-resistant acc. to EN 60721-3-7, Class 7M2 | 1 *g* (9 … 200 Hz); 1.5 *g* (200 … 500 Hz) | | |
| Attachment of the antenna | 4 x M5 screws | 4 x M6 screws | |
| Ambient temperature | | | |
| • Operation | -20 … +55 °C | | |
| • Transport and storage | -25 … +70 °C | | |
| MTBF | 300000 h | | |
| Weight | 1.0 kg | 3.3 kg | 10 kg |

| Antenna switch | |
|---|---|
| |  |
| Max. input power | 10 W |
| Transmission frequency | 13.56 MHz |
| Power supply | Not required |
| Connector (inputs and outputs) | TNC |
| Dimensions (L x W x H) in mm | 160 x 80 x 40 without connector |
| • Color | Anthracite |
| • Material | Plastic PA 12 |
| • Mounting | 2 x M5 screws |
| Vibration-resistant to EN 60721-3-7, Class 7 M2 | 1 *g* (9 … 200 Hz)<br>1.5 *g* (200 … 500 Hz) |
| Shock-resistant to EN 60721-3-7, Class 7 M2 | 30 *g* |
| Degree of protection to EN 60529 | IP65 |
| Resistance to chemicals | On request |
| Ambient temperature | |
| • Operation | -25 … +65 °C |
| • Transport and storage | -25 … +75 °C |
| MTBF | 300000 h |
| Weight, approx. | 400 g |
| Approval | CE |

## SLG D10/SLG D10S basic unit for ANT D5, ANT D6 and ANT D10 antennas

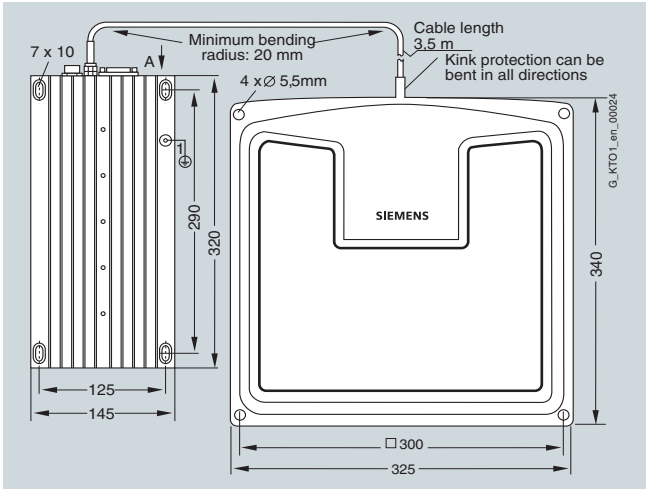
### Selection and Ordering data

| | | Order No. |
|---|---|---|
| **SLG D10 read/write device**<br>Basic unit (without antenna) with RS 232 serial interface for connection to PC/PLC | ▶ A | **6GT2 698-1AA00** |
| **SLG D10S read/write device**<br>Basic unit (without antenna) with RS 422 serial interface for connection to SIMATIC S7/PROFIBUS via ASM 456 or ASM 475 | ▶ A | **6GT2 698-2AA00** |
| *Accessories* | | |
| **Antenna ANT D5**<br>For SLG D10 / SLG D10S basic units | ▶ A | **6GT2 698-5AA00** |
| **Range adjustment kit for ANT D5** | ▶ | **6GT2 690-0AB00** |
| **Antenna ANT D6**<br>For SLG D10 / SLG D10S basic units | ▶ A | **6GT2 698-5AB00** |
| **Covering hood for ANT D6**<br>Serves as protection against contact | ▶ | **6GT2 690-0AD00** |
| **Antenna ANT D10**<br>For SLG D10 / SLG D10S basic units, cover and antenna cable included in scope of supply | ▶ | **6GT2 698-5AF00** |
| **Antenna switch**<br>For connecting several antennas (ANT D5 or ANT D6) to one SLG D10 / SLG D10S, IP65, -25 … +65 °C | ▶ A | **6GT2 690-0AC00** |
| **MOBY D cables** | | |
| • Cable between ANT D6 and SLG D10/SLG D10S, antenna switch; length 3.3 m | ▶ A | **6GT2 691-0CH33** |
| • Cable between ANT D6 and SLG D10/SLG D10S, antenna switch; length 10 m | ▶ A | **6GT2 691-0CN10** |
| • Cable extension between ANT D6 and SLG D10/SLG D10S, antenna switch; length 7.2 m | ▶ A | **6GT2 691-0DH72** |
| **RS232 connecting cable**<br>Between the PC and SLG D10 | | |
| • 5 m | ▶ | **6GT2 691-0BH50** |
| • 20 m | ▶ | **6GT2 691-0BN20** |
| **Connector for SLG and SIM of MOBY D**<br>Degree of protection IP65, 9-pin sub D connector | ▶ | **6GT2 490-1AA00** |
| **SLG cable**<br>Without connector between ASM and SLG; 6 x 0.25 $mm^2$ | | |
| • 50 m | ▶ A | **6GT2 090-0AN50** |
| • 120 m | ▶ A | **6GT2 090-0AT12** |
| • 800 m | A | **6GT2 090-0AT80** |

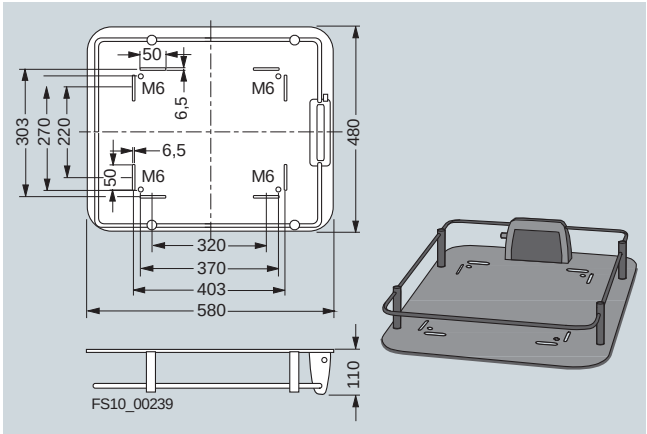
| | | Order No. |
|---|---|---|
| **Varying-voltage power supply**<br>Primary side: 100 ... 240 V AC, 120 ... 353 V DC, secondary side: 24 V DC, 3 A, with no-load protection, with continuous short-circuit protection | | |
| • EU connector version | ▶ A | **6GT2 898-0AA00** |
| • UK connector version | ▶ A | **6GT2 898-0AA10** |
| • US connector version | ▶ A | **6GT2 898-0AA20** |
| **Cable for varying-voltage power supply**<br>24 V DC, 5 m in length | ▶ | **6GT2 491-1HH50** |
| **24 V connector (M12 socket)**<br>For ASM 424/724/754, SLG Ux (over PC connecting cable) | ▶ A | **6GT2 390-1AB00** |
| **CD "RFID Systems Software & Documentation"**<br>FB/FC for SIMATIC, 3964R driver for DOS/Windows 95/NT/2000/XP, C libraries, PC presentation program. RFID documentation | ▶ | **6GT2 080-2AA10** |

A: Subject to export regulations AL = N and ECCN = EAR99H
▶ Preferred type, available from stock.

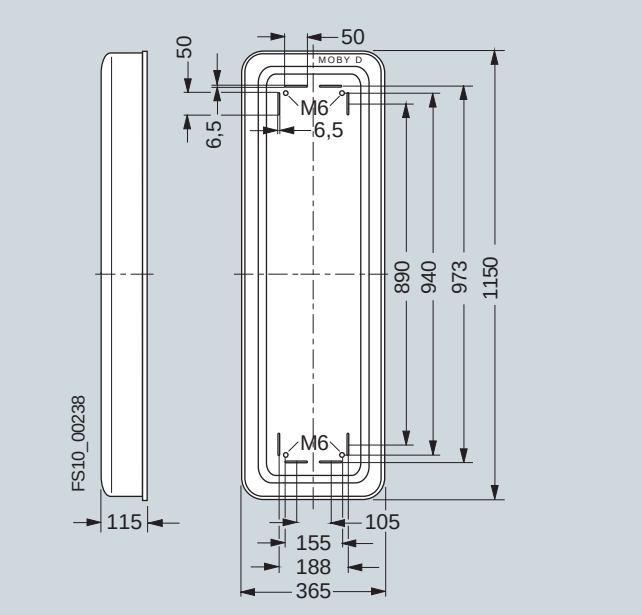
### Dimensions




Basic unit (left), antenna ANT D5 (right)




Antenna ANT D6




Antenna ANT D10

## SLG D10 ANT D5/SLG D10S ANT D5

### Overview

### Technical specifications

| Type | SLG D10 ANT D5 | SLG D10S ANT D5 |
|---|---|---|
| Inductive interface to the MDS | Remote antenna | |
| Transmission frequency (energy/data) | 13.56 MHz; ISO/IEC 15693 | |
| Data memories / transponders supported | For SmartLabels based on standard ISO/IEC 15693 e.g.: I Code Sli, Tag-it HFi | |
| Multitag capability | Yes, approx. 20 data memories/s | Available soon |
| Read/write distance, max. [1] | 480 mm, see MDS field data | |
| Antenna cable length (included in scope of delivery) | 3.6 m | |
| Transmit power | Up to 4 W | |
| Serial interface | RS232 to PC/SPS | RS422 to ASM 456, ASM 475, RF170C, RF180C |
| Max. cable length at 24 V DC | 30 m | 300 m |
| Connector | 9-pin subminiature connector (pin) | |
| Data transmission rate | 1200 baud … 115.2 Kbaud (adjustable) | Up to 115.2 Kbaud (depending on ASM) |
| Procedure | Binary with CRC 16-security | 3964R protocol |
| Software functions | | |
| • Programming | C library for PCs with Windows 9x/2000 and NT | FB/FC45 for S7 |
| • Commands | Read data from MDS, write data to MDS, access rights, multitag, etc. | Read data from MDS, write data to MDS |
| Rated supply voltage value/permissible range | Via 4-pin device connector M12 (IP65) 24 V DC/20 V – 30 V DC | |
| Power consumption (at room temperature) | | |
| • Inrush current, momentary | Up to 2.8 A/50 ms | |
| • Operation | Typ. 0.9 A | |
| Enclosure | | |
| • Dimensions in mm | | |
| - For antenna | 340 x 325 x 38 | |
| - For electronics without connector | 320 x 145 x 100 | |
| • Color of antenna/SLG enclosure | Black/anthracite | |
| • Material antenna/SLG enclosure | Plastic ASA/aluminum | |
| Degree of protection to EN 60529, enclosure/antenna (front) | IP65/IP65 | |
| Antenna connector (connectable to SLG) | TNC connector | |
| Shock resistant to EN 60721-3-7 | 30 *g*, Class 7M2 | |
| Vibration resistant to EN 60721-3-7 | 1 *g* (9 … 200 Hz) 1.5 *g* (200 … 500 Hz), Class 7M2 | |
| Attachment of enclosure | 4 x M6 screws | |
| Attachment of the antenna | 4 x M5 screws | |

| Type | SLG D10 ANT D5 | SLG D10S ANT D5 |
|---|---|---|
| Ambient temperature | | |
| • Operation | -20 ... + 55 °C | |
| • Transport/storage | -25 ... + 70 °C | |
| MTBF | | |
| • Readers | 75000 h | |
| • Antenna | 300000 h | |
| Weight | | |
| • Basic unit | 3.5 kg | |
| • Antenna | 1 kg | |

1) In order to guarantee optimum field data in metallic environments, the antenna is calibrated at the factory at a distance of 100 mm from metal (see clearance kit 6GT2 690-0AB00).

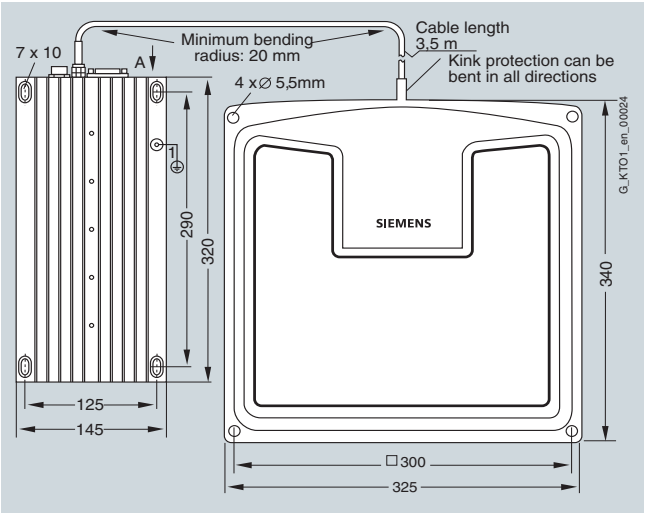
## Selection and Ordering data

| | | Order No. |
|---|---|---|
| **SLG D10 ANT D5 read/write device**<br>With RS 232 serial interface | ▶ A | **6GT2 601-0AA00** |
| **SLG D10S ANT D5 read/write device**<br>With RS 422 serial interface | ▶ A | **6GT2 602-0AA00** |
| ***Accessories*** | | |
| **Range adjustment kit for ANT D5** | ▶ | **6GT2 690-0AB00** |
| **Antenna switch**<br>For connecting several antennas (ANT D5 or ANT D6) to one SLG D10 / SLG D10S, IP65, -25 … +65 °C | ▶ A | **6GT2 690-0AC00** |
| **RS232 connecting cable**<br>Between the PC and SLG D10 | | |
| • 5 m | ▶ | **6GT2 691-0BH50** |
| • 20 m | ▶ | **6GT2 691-0BN20** |
| **Connector for SLG and SIM of MOBY D**<br>IP65 degree of protection, 9-pin sub D connector | ▶ | **6GT2 490-1AA00** |
| **SLG cable**<br>Without connector between ASM and SLG; 6 x 0.25 $mm^2$ | | |
| • 50 m | ▶ A | **6GT2 090-0AN50** |
| • 120 m | ▶ A | **6GT2 090-0AT12** |
| • 800 m | A | **6GT2 090-0AT80** |

| | | Order No. |
|---|---|---|
| **Varying-voltage power supply**<br>Primary side: 100 ... 240 V AC, 120 ... 353 V DC, secondary side: 24 V DC, 3 A, with no-load protection, with continuous short-circuit protection | | |
| • EU connector version | ▶ A | **6GT2 898-0AA00** |
| • UK connector version | ▶ A | **6GT2 898-0AA10** |
| • US connector version | ▶ A | **6GT2 898-0AA20** |
| **Cable for varying-voltage power supply**<br>24 V DC, 5 m in length | ▶ | **6GT2 491-1HH50** |
| **24 V connector (M12 socket)**<br>For ASM 424/724/754, SLG Ux (over PC connecting cable) | ▶ A | **6GT2 390-1AB00** |
| **CD "RFID Systems Software & Documentation"**<br>FB/FC for SIMATIC, 3964R driver for DOS/Windows 95/NT/2000/XP, C libraries, PC presentation program. RFID documentation | ▶ | **6GT2 080-2AA10** |

A: Subject to export regulations AL = N and ECCN = EAR99H
▶ Preferred type, available from stock.

## Dimensions




5

# SLG D11/SLG D11S basic unit for ANT D2 and ANT D5 antennas

## Overview

The SLG D11/SLG D11S basic units are read/write devices in the mid-performance range and can be operated with the ANT D2 and ANT D5 antennas.

### *SLG D11*

Equipped with RS232 serial interface for connection to PC/PLC

### *SLG D11S*

Equipped with a serial RS422 interface that permits communications with SIMATIC S7 and PROFIBUS/PROFINET by means of the ASM 452, ASM 456, ASM 473, ASM 475, RF170C and RF180C.

Connectable antennas:

### *ANT D2*

Designed for transponders that are directed sideways past the antenna. This antenna is specially designed for high speeds, e.g. in overhead conveyors, assembly lines, production and order picking It can be mounted directly onto metal surfaces

### *ANT D5*

An antenna for universal applications designed for warehouse, logistics and distribution applications. The high degree of protection (IP65) enables the antenna to be used under harsh industrial conditions. A range adjustment kit is required for mounting on metal surfaces.

## Technical specifications

| Basic units | SLG D11 | SLG D11S |
|---|---|---|
| Inductive interface to the MDS | Separate antenna ANT D2 or ANT D5 (to be ordered separately) | |
| Transmission frequency (energy/data) | 13.56 MHz, ISO/IEC 15693 | |
| Data memories/transponders supported | For SmartLabels based on the ISO/IEC 15693 standard, e.g. I-Code SLI, Tag-it HFI, Tag-it; additionally I-Code 1 | |
| Multitag capability | Yes, approx. 20 data memories/s | No |
| Read/write distance, max. [1] | see MDS field data | |
| Antenna cable length | | |
| • ANT D2 | 3.3 m | |
| • ANT D5 | 3.6 m | |
| Transmit power | | |
| • ANT D2 | max. 4 W | |
| • ANT D5 | 1 W | |
| Serial interface | RS232 to PC/PLC | RS422 to ASM 452, ASM 456, ASM 473, ASM 475, RF170C, RF180C |
| Communication | with a PC or third-party controllers | with communication modules for SIMATIC S7 and PROFIBUS DP-V1/PROFINET |
| Max. cable length for 24 V DC | 30 m | 300 m |
| Connector | 9-pin subminiature connector (pin) | |
| Transfer rate | 1200 baud … 38.4 Kbaud (adjustable) | Up to 38.4 Kbaud |
| Procedure/data backup | Binary with CRC 16-security | 3964R protocol |
| Software functions | | |
| • Programming | C library for PCs with Windows 9x/2000, NT or XP | FB/FC45 for S7 |
| • Commands | Read data from MDS, write data to MDS, access rights, multitag, etc. | Read data from MDS, write data to MDS |
| Rated supply voltage value/permissible range | via 4-pin connector M12 (IP65) 24 V DC / 20 V – 30 V DC | |
| Power consumption (at room temperature) | | |
| • Starting current, momentary | Up to 600 mA/50 ms | |
| • Operation | typ. 150 mA | |

| Basic units | SLG D11 | SLG D11S |
|---|---|---|
| Housing | | |
| • Dimensions in mm | | |
| - For antenna ANT D2 | 75 x 75 x 40 | |
| - For antenna ANT D5 | 340 x 325 x 38 | |
| - For basic unit | 160 x 80 x 40 (without connector) | |
| • Color of antenna/SLG enclosure | Black/anthracite | |
| • Material antenna/SLG enclosure | Plastic ASA/plastic PA 12 | |
| Antenna connector (connectable to SLG) | TNC connector | |
| Degree of protection to EN 60529, enclosure/antenna (front) | IP65 | |
| Shock resistant to EN 60721-3-7, Class 7M2 Total shock response spectrum, Type II | 30 *g* | |
| Vibration-resistant according to EN 60721-3-7, Class 7M2 | 1 *g* (9 … 200 Hz); 1.5 *g* (9 … 500 Hz) | |
| Mounting of enclosure | 2 x M5 screws | |
| Attachment of the antenna | | |
| • ANT D2 | 2 x M5 screws | |
| • ANT D5 | 4 x M5 screws | |
| Ambient temperature | | |
| • Operation | -25 ... +55 °C | |
| • Storage and transport | -25 ... +70 °C | |
| MTBF | | |
| • Reader | 200000 h | |
| • Antenna ANT D2 | 2 x $10^7$ h | |
| • Antenna ANT D5 | 300000 h | |
| Weight | | |
| • Basic unit | Approx. 0.6 kg | |
| • Antenna ANT D2 | 260 g | |
| • Antenna ANT D5 | Approx. 1 kg | |

1) In order to guarantee optimum field data in metallic environments, the antenna is calibrated at the factory at a distance of 100 mm from metal (see range adjustment kit 6GT2 690-0AB00).

| Antenna | ANT D2 | ANT D5 |
|---|---|---|
| Inductive interface to the MDS | 13.56 MHz | 13.56 MHz |
| Read/write distance, max. | See field data for the respective data memories | |
| Interface to SLG D10/SLG D10S | | |
| • Plug connection | TNC | TNC |
| • Antenna cable length (included in scope of delivery) | 3.3 m (connectable on both sides) | 3.6 m (plugs into SLG) |
| Antenna dimensions in mm | 75 x 75 x 40 | 340 x 325 x 38 (without range adjustment kit) |
| Antenna color | Anthracite | Black |
| Antenna material | Plastic PA 12 | Plastic ASA |
| Degree of protection according to EN 60529 | | IP65 |
| Shock-resistant according to EN 60721-3-7, Class 7M2 | 50 *g* | 30 *g* |
| Vibration-resistant according to EN 60721-3-7, Class 7M2 | 10 *g* | 1 *g* (9 … 200 Hz); 1.5 *g* (200 … 500 Hz) |
| Attachment of the antenna | 2 x M5 screws | 4 x M5 screws |
| Mounting directly on metal surfaces | permitted | Mounting on metal surfaces with range adjustment kit only |
| Ambient temperature | | |
| • Operation | -20 ...+70 °C | -20 ... + 55 °C |
| • Storage and transport | -25 ...+85 °C | -25 ... + 70 °C |
| MTBF | 2 x $10^7$ h | 300000 h |
| Weight | 260 g | 1.0 kg |

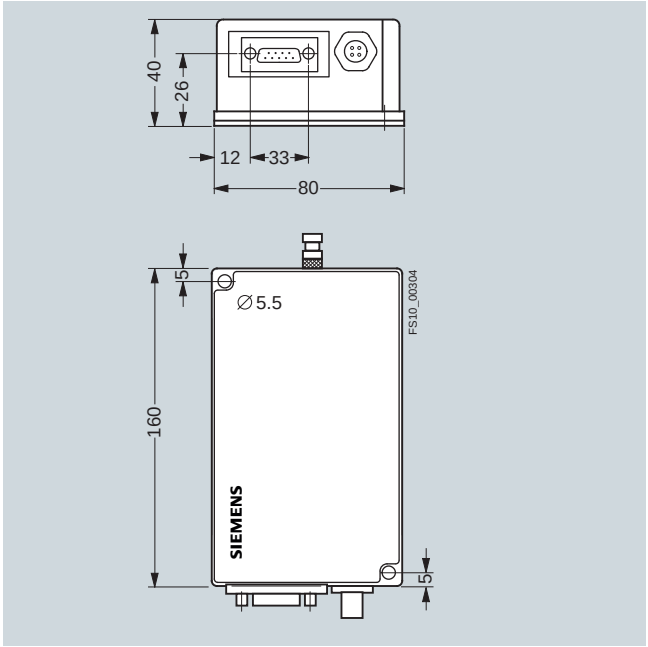
## SLG D11/SLG D11S basic unit for ANT D2 and ANT D5 antennas

### Selection and Ordering data

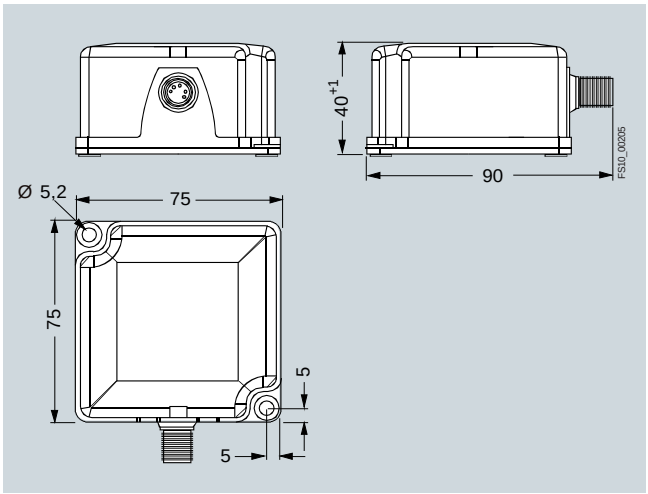
| | | Order No. |
|---|---|---|
| **SLG D11 read/write device**<br>Basic unit (without antenna) with RS 232 serial interface for connection to PC/PLC | ► A | **6GT2 698-1AC00** |
| **SLG D11S read/write device**<br>Basic unit (without antenna) with RS 422 serial interface for connection to SIMATIC S7/ PROFIBUS/PROFINET via ASM | ► A | **6GT2 698-2AC00** |
| *Accessories* | | |
| **Antenna ANT D2**<br>For SLG D11 / SLG D11S basic units incl. antenna cable (3.3 m) | ► A | **6GT2 698-5BB00** |
| **Antenna ANT D5**<br>For SLG D11 / SLG D11S basic units | ► A | **6GT2 698-5AA00** |
| **Wide-range power supply 100 ... 240 V AC / 24 V DC, 3 A** | | |
| • With EU plug | ► A | **6GT2 898-0AA00** |
| • With UK plug | ► A | **6GT2 898-0AA10** |
| • With US plug | ► A | **6GT2 898-0AA20** |
| **Connecting cable for 24 V DC**<br>For wide-range power supply unit, 5 m | ► | **6GT2 491-1HH50** |
| **RS232 cable for SLG D11** | | |
| 5 m | ► | **6GT2 691-0BH50** |
| 20 m | ► | **6GT2 691-0BN20** |
| **ASM – SLG D11S connecting cables** | | |
| • ASM 456, RF170C, RF180C, 2 m | ► A | **6GT2 891-0JH20** |
| • ASM 475, 2 m | ► A | **6GT2 891-0EH20** |
| • ASM 475, 5 m | ► A | **6GT2 891-0EH50** |
| • ASM 473, ASM 452, 2 m | ► A | **6GT2 891-1CH20** |
| • ASM 473, ASM 452, 5 m | ► A | **6GT2 891-1CH50** |
| **Extension cable for ASM 456** | | |
| • 2 m | ► A | **6GT2 891-0FH20** |
| • 5 m | ► A | **6GT2 891-0FH50** |
| • 10 m | ► A | **6GT2 891-0FN10** |
| • 20 m | ► A | **6GT2 891-0FN20** |
| • 50 m | ► A | **6GT2 891-0FN50** |
| **CD "RFID Systems Software & Documentation"**<br>FB/FC for SIMATIC, 3964R driver for DOS/Windows 95/NT/2000/XP, C libraries, PC demonstration program. RFID documentation | ► | **6GT2 080-2AA10** |

A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

### Dimensions



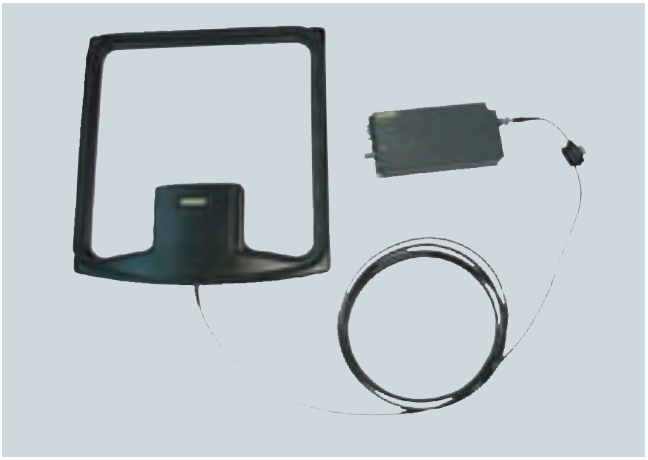

SLG D11/SLGD11S basic unit




Antenna ANT D2

Dimensions for antenna ANT D5 refer to "SLG D10/D10S basic unit for antenna ANT D5", page 5/82.

## Overview



## Technical specifications

| Type | SLG D11 ANT D5 | SLG D11S ANT D5 |
|---|---|---|
| Inductive interface to the MDS | Remote antenna ANT D5 | |
| Transmission frequency (energy/data) | 13.56 MHz; ISO/IEC 15693 | |
| Data memories / transponders supported | For SmartLabels based on the ISO/IEC 15693 standard, e.g. I Code Sli, Tag-it HFI, Tag-it, additional I-Code 1 | |
| Multitag capability | Yes, approx. 20 data memories/s | no |
| Read/write distance, max. [1] | 380 mm, see MDS field data | |
| Antenna cable length | 3.6 m | |
| Transmit power | 1 W | |
| Serial interface | RS232 to PC/SPS | RS422 to ASM 452, ASM 456, ASM 473, ASM 475, RF170C, RF180C |
| Max. cable length at 24 V DC | 30 m | 300 m |
| Connector | 9-pin subminiature connector (pin) | |
| Data transmission rate | 1200 baud … 38.4 Kbaud (adjustable) | Up to 38.4 Kbaud |
| Procedure/data backup | Binary with CRC 16-security | 3964R protocol |
| Software functions | | |
| • Programming | C library for PCs with Windows 9x/2000 and NT | FB/FC45 for S7 |
| • Commands | Read data from MDS, write data to MDS, access rights, multitag, etc. | Read data from MDS, write data to MDS |
| Rated supply voltage value/permissible range | Via 4-pin device connector M12 (IP65) 24 V DC/20 V – 30 V DC | |
| Power consumption (at room temperature) | | |
| • Inrush current, momentary | Up to 600 mA/50 ms | |
| • Operation | Typ. 150 mA | |
| Enclosure | | |
| • Dimensions in mm | | |
| - For antenna | 340 x 325 x 38 | |
| - For the electronics | 160 x 80 x 40 without connector | |
| • Color of antenna/SLG enclosure | Black/anthracite | |
| • Material antenna/SLG enclosure | Plastic ASA/plastic PA 12 | |
| Antenna connector (connectable to SLG) | TNC connector | |
| Degree of protection to EN 60529, enclosure/antenna (front) | IP65 | |
| Shock resistant to EN 60721-3-7, Class 7M2 Total shock response spectrum, Type II | 30 *g* | |
| Vibration-resistant acc. to EN 60721-3-7, Class 7M2 | 1 *g* (9 ... 200 Hz); 1.5 *g* (9 ... 500 Hz) | |

## SLG D11 ANT D5/SLG D11S ANT D5

| Type | SLG D11 ANT D5 | SLG D11S ANT D5 |
|---|---|---|
| Attachment of enclosure | 2 x M5 screws | |
| Attachment of the antenna | 4 x M5 screws | |
| Ambient temperature | | |
| • Operation | -25 ... +55 °C | |
| • Transport and storage | -25 ... +70 °C | |
| MTBF | | |
| • Readers | 200000 h | |
| • Antenna | 300000 h | |
| Weight | | |
| • Basic unit | Approx. 0.6 kg | |
| • Antenna | Approx. 1 kg | |

1) In order to guarantee optimum field data in metallic environments, the antenna is calibrated at the factory at a distance of 100 mm from metal (see clearance kit 6GT2 690-0AB00).

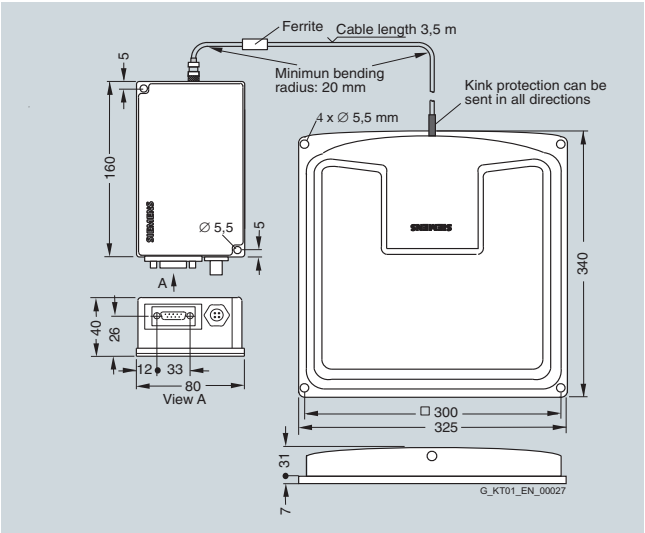
### Selection and Ordering data

| | | Order No. |
|---|---|---|
| **SLG D11 read/write device**<br>With remote antenna ANT D5<br>With RS232 serial interface | ▶ A | **6GT2 601-0AC00** |
| **SLG D11S read/write device**<br>With remote antenna ANT D5<br>With RS422 serial interface | ▶ A | **6GT2 602-0AC00** |
| ***Accessories*** | | |
| **Range adjustment kit for ANT D5** | ▶ | **6GT2 690-0AB00** |
| **RS232 connecting cable**<br>Between the PC and SLG D11 | | |
| • 5 m | ▶ | **6GT2 691-0BH50** |
| • 20 m | ▶ | **6GT2 691-0BN20** |
| **Connector for SLG and SIM of MOBY D**<br>Degree of protection IP65, 9-pin Sub-D connector | ▶ | **6GT2 490-1AA00** |
| **SLG cable**<br>Without connector between ASM and SLG; 6 x 0.25 mm$^2$ | | |
| • 50 m | ▶ A | **6GT2 090-0AN50** |
| • 120 m | ▶ A | **6GT2 090-0AT12** |
| • 800 m | A | **6GT2 090-0AT80** |
| **Varying-voltage power supply**<br>Primary side: 100 ... 240 V AC, 120 ... 353 V DC, secondary side: 24 V DC, 3 A, with no-load protection, with continuous short-circuit protection | | |
| • EU connector version | ▶ A | **6GT2 898-0AA00** |
| • UK connector version | ▶ A | **6GT2 898-0AA10** |
| • US connector version | ▶ A | **6GT2 898-0AA20** |

| | | Order No. |
|---|---|---|
| **Cable for varying-voltage power supply**<br>24 V DC, 5 m in length | ▶ | **6GT2 491-1HH50** |
| **24 V connector (M12 socket)**<br>For ASM 424/724/754, SLG Ux (over PC connecting cable) | ▶ A | **6GT2 390-1AB00** |
| **CD "RFID Systems Software & Documentation"**<br>FB/FC for SIMATIC, 3964R driver for DOS/Windows 95/NT/2000/XP, C libraries, PC presentation program. RFID documentation | ▶ | **6GT2 080-2AA10** |

A: Subject to export regulations AL = N and ECCN = EAR99H
▶ Preferred type, available from stock.

### Dimensions



## Overview

## Technical specifications

| Type | SLG D12 | SLG D12S |
|---|---|---|
| Inductive interface to the MDS | Integrated antenna | |
| Transmission frequency (energy/data) | 13.56 MHz; ISO/IEC 15693 | |
| Data memories / transponders supported | For SmartLabels based on the ISO/IEC 15693 standard e.g. I-Code SLI, Tag-it HFI, additional I-Code 1 | |
| Multitag capability | Yes, approx. 20 data memories/s | Yes, available soon |
| | Max. 160 mm, see MDS field data | |
| Serial interface | RS232 to PC/SPS | RS422 to ASM 456, ASM 475, RF170C, RF180C |
| Max. cable length at 24 V DC | 30 m | 300 m |
| Connector | 9-pin subminiature connector (pin) | |
| Data transmission rate | 1200 baud … 38.4 Kbaud (adjustable) | Up to 38.4 Kbaud |
| Procedure | Binary with CRC 16-security | 3964R protocol |
| Software functions | | |
| • Programming | C library for PCs with Windows 9x/2000 and NT | FB/FC45 for S7 |
| • Commands | Read data from MDS, write data to MDS, access rights, multitag, etc. | Read data from MDS, write data to MDS |
| Rated supply voltage value/permissible range | Via 4-pin device connector M12 (IP65) 24 V DC/20 V – 30 V DC | |
| Power consumption (at room temperature) | | |
| • Inrush current, momentary | Max. 600 mA | |
| • Operation | Typ. 150 mA | |
| Enclosure | | |
| • Dimensions in mm | 160 x 80 x 40 | |
| • Color | Anthracite | |
| • Material | Plastic PA 12 | |
| • Attachment of enclosure | 2 x M5 screws | |
| Degree of protection to EN 60529 | IP65 | |
| Shock-resistant acc. to EN 60721-3-7, Class 7M2 | 30 *g* | |
| Vibration-resistant to EN 60721-3-7, Class 7M2 | 1,0 *g* (9 … 200 Hz); 1.5 *g* (200 … 500 Hz) | |
| Ambient temperature | | |
| • Operation | -25 … +55 °C | |
| • Transport and storage | -25 … +70 °C | |
| MTBF | 200000 h | |
| Weight, approx. | 0.5 kg | |

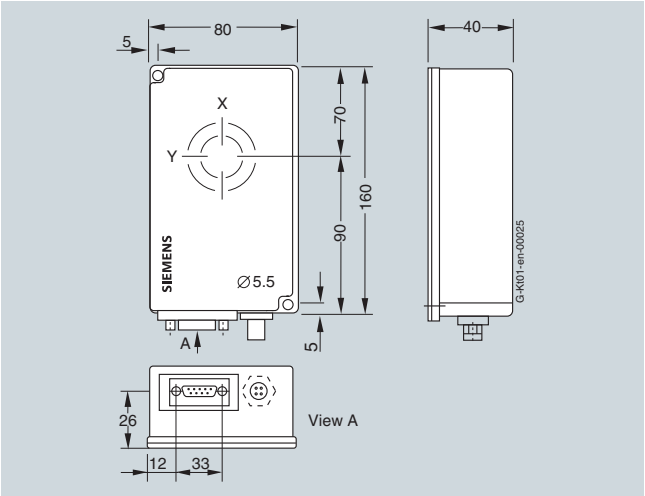
## SLG D12/SLG D12S

### Selection and Ordering data

| | | Order No. |
|---|---|---|
| **SLG D12 read/write device**<br>With RS232 serial interface and integrated antenna | ► A | **6GT2 601-0AB00** |
| **SLG D12S read/write device**<br>With RS422 serial interface and integrated antenna | ► A | **6GT2 602-0AB00** |
| **SLG D12S read/write device, for direct ASM connection**<br>With RS422 serial interface and integrated antenna. Only one connector for data and voltage supply. Power supply via interface module (ASM).<br>Connector:<br>8-pin M12 connector (pin) | A | **6GT2602-0AB10-0AX0** |
| ***Accessories*** | | |
| **RS232 connecting cable**<br>Between the PC and SLG D12 | | |
| • 5 m | ► | **6GT2 691-0BH50** |
| • 20 m | ► | **6GT2 691-0BN20** |
| **Connector for SLG and SIM of MOBY D**<br>IP65 degree of protection, 9-pin sub D connector | ► | **6GT2 490-1AA00** |
| **SLG cable**<br>Without connector between ASM and SLG; 6 x 0.25 $mm^2$ | | |
| • 50 m | ► A | **6GT2 090-0AN50** |
| • 120 m | ► A | **6GT2 090-0AT12** |
| • 800 m | A | **6GT2 090-0AT80** |
| **Wide-range power supply**<br>Primary side: 100 ... 240 V AC, 120 ... 353 V DC, secondary side: 24 V DC, 3 A, with no-load protection, with continuous short-circuit protection | | |
| • EU connector version | ► A | **6GT2 898-0AA00** |
| • UK connector version | ► A | **6GT2 898-0AA10** |
| • US connector version | ► A | **6GT2 898-0AA20** |
| **Cable for wide-range power supply**<br>24 V DC, length 5 m | ► | **6GT2 491-1HH50** |
| **24 V connector (M12 socket)**<br>For ASM 424/724/754, SLG Ux (over PC connecting cable), SLG D1x | ► A | **6GT2 390-1AB00** |
| **CD "RFID Systems Software & Documentation"**<br>FB/FC for SIMATIC, 3964R driver for DOS/Windows 95/NT/2000/XP, C libraries, PC demonstration program. RFID documentation | ► | **6GT2 080-2AA10** |

A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

### Dimensions




Read/write device SLG D12

## Overview

The STG D is a powerful mobile hand-held terminal with integrated read/write antenna for applications in the field of production logistics, distribution and service. In addition, it is an indispensable tool for commissioning and testing.

## Design

The STG D mobile hand-held terminal consists of one basic unit (Basis PSION Workabout PRO) and a removable compact read/write head. It has a splashwater-proof enclosure (IP54), LCD color monitor 1/4 VGA, 320 x 240 pixels, TFT portrait format, alphanumeric keyboard and various interfaces (for SD memory card, charging batteries, USB, Bluetooth, etc.).

## Function

The pre-installed MOBY software provides service and test functions for reading, writing, etc. of the MOBY data memory:

- Reading data from the data memory
- Writing data to the data memory
- Reading and displaying the ID number of the data memory (to the extent available)
- Displaying and editing the data in hexadecimal, ASCII, decimal and binary formats
- Activate/deactivate password

User applications that were developed for the predecessor model Workabout MX can be transferred to this terminal with little effort. For this purpose, various optional development tools for the PC are available directly from PSION. This is opening up new applications in the field of logistics and distribution, for example, the hand-held terminal enables commissioning data to be recorded or processed offline and forwarded to the PC/computer with a time delay.

## Technical specifications

| STG D mobile hand-held terminal | |
|---|---|
| Processor | 400 MHz Intel Xscale PXA255 |
| Operating system | Microsoft Windows CE .NET 4.20 |
| RAM/Flash EEPROM memory | 128 MB/32 MB |
| User program | MOBY standard application |
| Screen | TFT color touch display, ¼ VGA 320 x 240 (portrait format); adjustable backlighting |
| Keyboard | alphanumeric |
| Sound | Piezo signal transmitter |
| Power supply | • Lithium-ion battery (3.7 V; 3000 mAh)<br>• Quick charging possible (automatic shut-off) or 3 x 1.5 V type AA<br>• Backup battery: 3 V ML 2032 lithium cell |
| Interfaces | • LIF interface (low insertion force interface) for battery charging and communication with the PC using a docking and loading station (USB)<br>• CF interface for expansion cards (e.g. WLAN) |
| Ambient temperature | |
| • During operation | -10 ...+50 °C |
| • Storage (without batteries) | -25 ...+60 °C |
| Relative humidity, non-condensing | 5 ... 90 % |
| Degree of protection | IP54 (splashwater proof) |
| EMC | EN 55022, EN 55024 |
| Dimensions | 305 x 90 x 44 [mm] |
| Weight (incl. battery) | Approx. 0.5 kg |

| Integral read/write head, inductive interface to MDS | for MOBY D |
|---|---|
| Read/write distance to MDS | up to 80 mm, depending on MDS |
| Energy/data transmission frequency | 13.56 MHz |
| Serial interface (to basic unit) | TTL, 3964R protocol |
| Functionality of the SW application | Standard user interface for reading/writing of data memories, etc. |

## STG D mobile hand-held terminal

### Selection and Ordering data

| | | Order No. |
|---|---|---|
| **STG D mobile hand-held terminal with MOBY D read/write head**<br>Basic unit (PSION Workabout PRO) with MOBY D read/write, battery, standard software pre-installed, without loading/docking station | ► D | **6GT2 603-0AA10** |
| ***Accessories*** | | |
| **Loading/docking station**<br>For a mobile hand-held terminal as well as a spare battery, incl. wide-range plug-in power supply 100 ... 240 V AC and country-specific adapters as well as USB cable | ► A | **6GT2 898-0BA00** |
| **MOBY D read/write head**<br>For basic unit (PSION Workabout mx and PSION Workabout PRO) | ► A | **6GT2 603-1AA10** |
| **Basic unit**<br>Basic unit (PSION Workabout PRO) with adapter for MOBY RFID read/write heads | ► D | **6GT2 003-0AA10** |
| **Spare battery**<br>For basic unit (PSION Workabout PRO), High Capacity 3000 mAh, Li-ion | ► A | **6GT2 898-0CA00** |
| **CD "RFID Systems Software & Documentation"**<br>FB/FC for SIMATIC, 3964R driver for DOS/Windows 95/NT/2000/XP, C libraries, PC demonstration program. RFID documentation | ► | **6GT2 080-2AA10** |

A: Subject to export regulations AL = N and ECCN = EAR99H
D: Subject to export regulations AL = N and ECCN = 4A994X
► Preferred type, available from stock.

### Accessories

***For optional components, please visit***
http://www.psionteklogix.com

For example:

- SD expansion cards
- Handles, belt loops
- Vehicle holder with charging function

## Overview

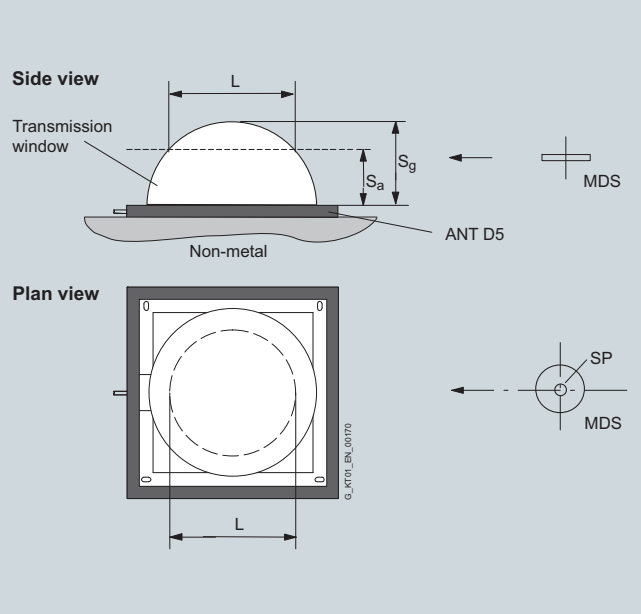
### Note

Detailed configuration and commissioning data is contained in the “Manual for Configuration, Assembly and Service”.

### Transmission window

The read/write device generates an inductive alternating field. The field is at its strongest near the antenna and declines considerably as the distance from the antenna increases. The distribution of the field depends on the structure and geometry of the antennas in the read/write device and MDS.

A prerequisite for the function of the MDS is a minimum field strength at the MDS that is achieved at a distance $S_g$ from the read/write device. The picture below shows the transmission window between MDS and SLG:




*$S_a$: Operating distance between MDS and SLG*

*$S_g$: Limit distance (maximum clear distance between upper surface of antenna and MDS, at which the transmission can still function under normal conditions)*

*L: Length of a transmission window*

*SP: Intersection of the axes of symmetry of the MDS*

The transmittable quantity of information between SLG and MDS depends on:

- the speed at which the MDS passes the antenna ("passing speed")
- Length of the inductive alternating field of the SLG, through which the MDS moves ("transmission window").

### Communication between SLG and MDS

The communication between SLG and MDS is asynchronous.

| SLG – MDS data transmission rate | |
|---|---|
| Read | ≥ 3.5 ms/byte |
| Write | ≥ 9.5 ms/byte |
| Transmission time of ID number | |
| • SLG D10 ANT D5, ANT D6, ANT D10 | 30 ms (8 byte at 115.2 kbit/s) |
| • SLG D11S ANT D5 | |
| • SLG D12S ANT D5, ANT D6, ANT D10 | 90 ms (8 byte at 19.2 kbit/s) |
| • SLG D11S ANT D5 | |
| • SLG D12 ANT D5, ANT D6, ANT D10 | 60 ms (8 byte at 38.4 kbit/s) |
| • SLG D11 ANT D5 | |

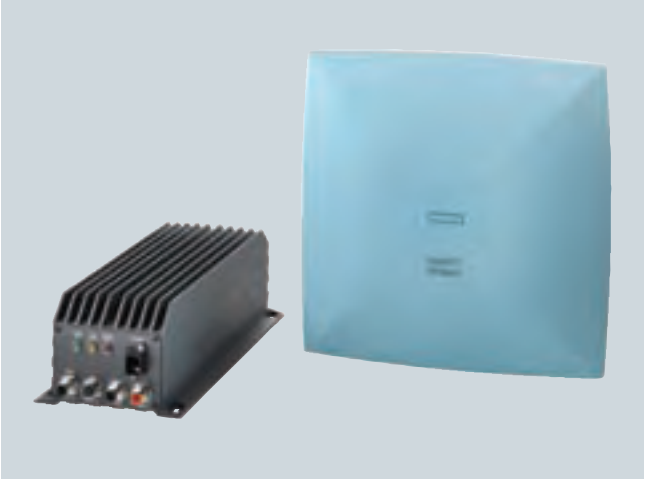
## Configuring instructions

***Speed at which SLG passes over (for a transponder in the field)***

| Type | SLG D10 ANT D10 | SLG D10 ANT D6 | SLG D10 ANT D5 | SLG D11 ANT D5 | SLG D12 |
|---|---|---|---|---|---|
| UID number (8 byte) | ≤ 15 m/s | ≤ 8.0 m/s | ≤ 5.0 m/s | ≤ 3.5 m/s | ≤ 2.5 m/s |
| ***I-Code 1, e.g. MDS D139*** | | | | | |
| Read (with 4 byte of user data) | ≤ 10 m/s | ≤ 6.5 m/s | ≤ 3.5 m/s | ≤ 3.0 m/s | ≤ 2.0 m/s |
| Write (with 4 byte of user data) | ≥ 7.5 m/s | ≤ 5.0 m/s | ≤ 2.8 m/s | ≤ 2.5 m/s | ≤ 1.5 m/s |
| Read (with 44 byte of complete user data) | ≤ 6 m/s | ≤ 3.8 m/s | ≤ 2.0 m/s | ≤ 1.8 m/s | ≤ 1.0 m/s |
| Write (with 44 byte of complete user data) | ≤ 2.5 m/s | ≤ 1.4 m/s | ≤ 0.8 m/s | ≤ 0.6 m/s | ≤ 0.3 m/s |
| ***I-Code SLI, e.g. MDS D100*** | | | | | |
| Read (with 4 byte of user data) | ≤ 10 m/s | ≤ 6.0 m/s | ≤ 3.5 m/s | ≤ 1.6 m/s | ≤ 1.4 m/s |
| Write (with 4 byte of user data) | ≤ 9 m/s | ≤ 5.5 m/s | ≤ 3.0 m/s | ≤ 1.2 m/s | ≤ 1.2 m/s |
| Read (with 112 byte of complete user data) | ≤ 7.5 m/s | ≤ 4.0 m/s | ≤ 2.4 m/s | ≤ 1.4 m/s | ≤ 1.0 m/s |
| Write (with 112 byte of complete user data) | ≤ 2 m/s | ≤ 1.0 m/s | ≤ 0.6 m/s | ≤ 0.4 m/s | ≤ 0.2 m/s |

| Type | SLG D10S ANT D10 | SLG D10S ANT D6 | SLG D10S ANT D5 | SLG D11S ANT D5 | SLG D12S |
|---|---|---|---|---|---|
| UID number (8 byte) | ≤ 6 m/s | ≤ 3.8 m/s | ≤ 2.0 m/s | ≤ 1.0 m/s | ≤ 0.8 m/s |
| ***I-Code 1, e.g. MDS D139*** | | | | | |
| Read (with 4 byte of user data) | ≤ 5.5 m/s | ≤ 3.5 m/s | ≤ 1.8 m/s | ≤ 1.0 m/s | ≤ 0.8 m/s |
| Write (with 4 byte of user data) | ≤ 4.5 m/s | ≤ 2.5 m/s | ≤ 1.4 m/s | ≤ 0.8 m/s | ≤ 0.6 m/s |
| Read (with 112 byte of complete user data) | ≤ 4.5 m/s | ≤ 2.8 m/s | ≤ 1.5 m/s | ≤ 0.7 m/s | ≤ 0.6 m/s |
| Write (with 112 byte of complete user data) | ≤ 2.2 m/s | ≤ 1.2 m/s | ≤ 0.7 m/s | ≤ 0.5 m/s | ≤ 0.3 m/s |
| ***I-Code SLI, e.g. MDS D100*** | | | | | |
| Read (with 4 byte of user data) | ≤ 6.5 m/s | ≤ 4.0 m/s | ≤ 2.2 m/s | ≤ 3.0 m/s | ≤ 1.2 m/s |
| Write (with 4 byte of user data) | ≤ 5.5 m/s | ≤ 3.4 m/s | ≤ 1.8 m/s | ≤ 2.8 m/s | ≤ 1.0 m/s |
| Read (with 112 byte of complete user data) | ≤ 5.0 m/s | ≤ 3.0 m/s | ≤ 1.6 m/s | ≤ 2.2 m/s | ≤ 0.8 m/s |
| Write (with 112 byte of complete user data) | ≤ 2.0 m/s | ≤ 1.0 m/s | ≤ 0.6 m/s | ≤ 0.5 m/s | ≤ 0.2 m/s |

## Overview



SIMATIC RF600 is a contact-free operating RFID system (RFID: Radio Frequency Identification), which was designed both for use in logistics and supply chain management applications as well as for production-specific logistics and materials flow applications. Different readers are available for varying applications.

SIMATIC RF600 works in the UHF frequency range and is designed, among others, for identifying tags according to the EPCglobal standard. It is therefore the ideal system for storing, reading and transferring information in the EPC format (EPC: Electronic Product Code) on inexpensive SmartLabels (one-time data carriers) for further processing to higher-ranking software systems or directly to the automation environment (PLC).

## Benefits

The discontinuation of manual counting, recording and downstream processes has resulted in cost benefits with a simultaneous reduction in detection errors.

Using inexpensive, passive SmartLabels allows the goods to be identified automatically along the entire logistics chain. This means incorrect information on the goods transfers can be avoided and the consistency of data and information ensured.

By simultaneously detecting numerous items, the flow rate in the supply chain increases and leads to greater productivity.

SIMATIC RF600 opens up opportunities for integration into downstream software systems. This means the link between goods and information flows is made possible "in real time". As soon as data belonging to a product are read, e.g. when the product has passed a loading gate, the Supply Chain Management information can be automatically updated and, for example, a repeat order issued.

By tracking and tracing products, transparency increases throughout the entire flow of goods: the path of any product can be tracked at any time.

By integrating SIMATIC RF communication modules, applications in the material flow control system or production-specific logistics applications that require a controller (PLC) can be efficiently realized.

## Application

SIMATIC RF600 is primarily used for the contact-free identification of containers or pallets and to identify goods in bulk. As a rule, these applications are open loops in which passive SmartLabels on goods, products, bulk containers or transport units are used. In this case, the system distinguishes itself due to its high reading speeds, large data transmission rates and the fact that it can handle long reading distances.

In addition, the system is suitable for reading and writing reusable data carriers (industrial tags) as they are used in closed loops.

The main applications range from the recognition of goods at loading gates to goods receipt and dispatch, through product flow control on conveyer belts, up to deployment in warehouses or distribution centers and high-bay inventory control. Industrial use in factories, e.g. in paintshops or on assembly lines in the automotive industry, is also possible. Connecting to a controller (PLC) is no problem thanks to the connection ports on the SIMATIC RF communication modules.

## Function

SIMATIC RF identification systems ensure that important data accompanies the product from the very beginning.

Different tags are used to store product-specific data and information: depending on the field of application, SmartLabels or Industrial Tags.

In the case of tags to the EPCglobal standard, information regarding the manufacturer of the goods, the article class and the respective serial number is coded in 96 bits (EPC Gen1). Tags of the second generation of the EPCglobal standard (EPC Gen2) allow customer or product information to be stored additionally.

In the case of tags based on the ISO 18000-6B standard (reusable data carriers), data volumes up to 216 byte can be stored which can be freely defined by the user.

In the case of tags according to the EPC Global Class 1 Gen 2 or ISO 18000-6C standard, a data volume of up to 96 bits + 64 byte user memory (e.g. for SIMATIC RF640T Gen2 Tool Tags, SIMATIC RF630T Powertrain Tags and SIMATIC RF680T Heat Resistant Tags equipped with NXP UCODE G2XM chips).

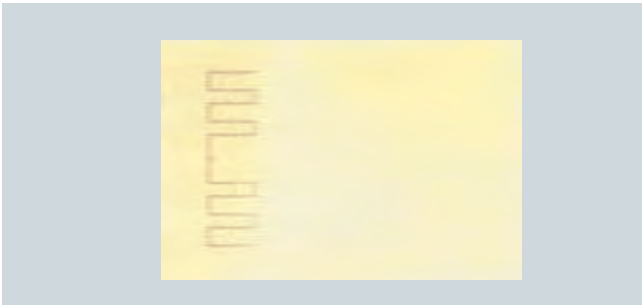
## Technical specifications

| Type | SIMATIC RF600 |
|---|---|
| Conformity | ETSI EN 302208, FCC |
| Area of application | Europe, U.S.A. |
| Frequency range (adjustable) | • 865 ... 868 MHz (Europe)<br>• 902 ... 928 MHz (U.S.A.) |
| Transmit power (adjustable) | • 0.1 … 2 W ERP (Europe)<br>• 0.4 … 4 W EIRP (U.S.A.) |
| Tag read range | Up to 5 m<br>Up to 10 m<br>(with portal arrangement) |
| Standards supported | EPC Gen 1, EPC Gen 2,<br>ISO 18000-6B |
| Interfaces | RS232, RS422 [1],<br>ETHERNET, DI/DO |
| Certification | CE, UL, FCC |

1) This interface will only be available in the future.

## SIMATIC RF620L

### Overview



The SIMATIC RF620L Smartlabel is passive and maintenance-free based on UCODE technology (EPC V1.19).

### Application

Due to their structure, the Smartlabels are suitable for different applications. The application areas range from simple identification such as electronic barcode replacement/supplementation, through warehouse and distribution logistics, right up to product identification.

### Function

The purpose of the Smartlabel is to save the "Electronic Product Code" (EPC).

### Technical specifications

| Type | SmartLabel SIMATIC RF620L |
|---|---|
| IC type | UCODE EPC V1.19 |
| Frequency | |
| • Europe | 865 ... 668 MHz |
| • U.S.A. | 902 ... 928 MHz |
| EPC code | 96 bit |
| Protocol | as per ISO18000-6B |
| Multitag | Yes |
| Data retention | 10 years |
| Power supply | Electromagnetic emission, power transmission without battery |
| Typical read/write distance | 0 ... 4 m |
| Created for fixing on | Paper, box<br>Not suitable for fixing on metal or liquid containers |
| Type of installation | Adhesive on one side (self-adhesive labels) |
| Antenna size | 20 x 88 mm |
| Antenna material | Copper |
| Dimensions | 101 x 152 mm (4" x 6") |
| Material | Paper |
| Color | White |
| Printability | with thermotransfer procedure |
| Delivery format | Minimum order amount 1500 items (500 on one roll) |
| Operating temperature | -20 … +70 °C |
| Storage temperature | +15 … +25 °C |
| Storage life | < 2 years, determined by the shelf life of the adhesive |
| Degree of protection | None, Smartlabel should be protected from humidity |

### Selection and Ordering data

| | Order No. |
|---|---|
| **Smartlabel SIMATIC RF620L** ► | **6GT2810-1AB00** |
| for paper and cardboard | |
| Minimum order quantity 1500 pieces (500 pieces on one roll) | |

► Preferred type, available from stock.

## Overview

The SIMATIC RF620T transponder is passive and maintenance-free on the basis of UHF Class 1 Gen2 technology for saving the "Electronic Product Code" (EPC) of 96 bit.

This container tag is designed for the 868 MHz frequency band (Europe) / 915 MHz (U.S.A.).

## Benefits

The container tag for industrial applications is rugged and highly resistant to cleaning agents.

It is designed for application to plastic, wood, glass; e.g. containers, pallets, drums and trolleys.

It will also function on metal and plastic ESD containers if a spacer is used.

## Application

- RF identification of pallets and containers in the warehouse and transport field
- Can be mounted on metal, ideally with spacer (up to 4 m)
- Due to the plastic's compliance with food hygiene regulations, it is also suitable for the food & beverage sectort

## Technical specifications

| Container tag | SIMATIC RF620T |
|---|---|
| IC type | EPC Glass 1 Gen2 |
| European frequency band (865 … 868 MHz) | • |
| U.S.A. frequency band (902 … 928 MHz) | • |
| Protocol | according to ISO 18000-6C |
| Memory | EPC 96 bit |
| Read cycles | unlimited |
| Write cycles | min. 100,000 |
| Data retention time | 10 years |
| With SIMATIC RF660R reader and SIMATIC RF660A antenna | |
| • Reading distance | 0.2 … 6 m (see field data) |
| • Write distance | 0.2 … 4 m (see field data) |
| Designed for application on | • non-metallic carriers (e.g. plastic, dry wood, glass, etc.)<br>• Conductive plastic using spacers<br>• Metal using spacers |
| Multitag | Yes |
| Mechanical stress in accordance with EN 60721-3-7 Class 7 M3 | |
| • Shock | 100 *g* |
| • Vibration | 50 *g* |
| Torsion and bending stress | Not permitted continuously |
| Mounting | Gluing, screwing |
| Material | PP (polypropylene) |
| Color | Anthracite |
| Ambient temperature | |
| • During operation | -25 ...+80 °C |
| • During transportation and storage | -40 ...+80 °C |
| Dimensions (L x W x H) | |
| • Transponder | 127 x 38 x 6 |
| • Spacer | 155 x 39 x 12 |
| Degree of protection to EN 60529 | IP67 |
| Resistance to chemicals | See configuration manual |
| Weight | |
| • Transponder | Approx. 18 g |
| • Spacer | Approx. 22 g |
| Approvals | CE/FCC |

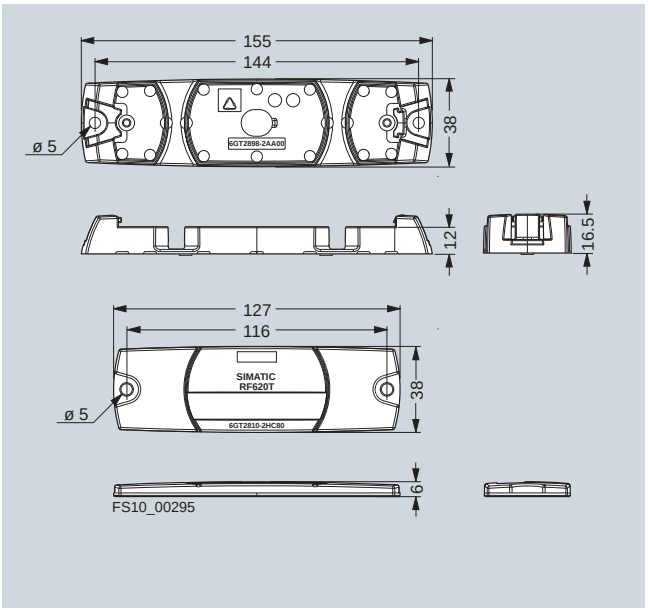
## SIMATIC RF620T

### Selection and Ordering data

| | | Order No. |
|---|---|---|
| **SIMATIC RF620T container tag** | ► A | **6GT2810-2HC80** |
| *Accessories* | | |
| **Spacer for SIMATIC RF620T** | ► A | **6GT2898-2AA00** |
| For mounting on metal; dimensions (L x W x H in mm) 155 x 38 x 12 | | |

A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

### Dimensions

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## Overview

6GT2810-2AB00

The SIMATIC RF630L smart labels are designed to be passive and maintenance-free based on the UHF Class 1 Gen2 technology.

6GT2810-2AB01

6GT2810-2AB02

6GT2810-2AB03

## Application

The application areas range from simple identification, such as an electronic substitute for a barcode or supplement to a barcode through storage and distribution logistics as far as product identification.

## Function

The Smartlabel is used to save the "Electronic Product Code" (EPC).

## Technical specifications

| IC type /technology | EPC Class 1 Gen2 | EPC Class 1 Gen2 | EPC Class 1 Gen2 | EPC Class 1 Gen2 |
|---|---|---|---|---|
| **Order No.** | **6GT2810-2AB00** | **6GT2810-2AB01** | **6GT2810-2AB02** | **6GT2810-2AB03** |
| Frequency for Europe (865-868 MHz) | • | | | |
| Frequency for U.S.A. (902-928 MHz) | • | | | |
| Protocol acc. to ISO 18000-6C | • | | | |
| EPC code | 96 bit | | | |
| Additional user memory | No | | | |
| Multitag | Yes | | | |
| Write cycles | 100000 | | | |
| Data retention at +25 °C | 10 years | | | |
| Power supply | Electromagnetic emission, power transfer without battery | | | |

## SIMATIC RF630L

| IC type /technology | EPC Class 1 Gen2 | EPC Class 1 Gen2 | EPC Class 1 Gen2 | EPC Class 1 Gen2 |
|---|---|---|---|---|
| **Order No.** | **6GT2810-2AB00** | **6GT2810-2AB01** | **6GT2810-2AB02** | **6GT2810-2AB03** |
| Typical read/write distance | | | | |
| • Paper/cardboard | 0.2 ... 8 m | | | 0.2 ... 3 m |
| • Plastic sheet | 0.2 ... 8 m | | | 0.2 ... 3 m |
| • Plastic (boxes, surface resistance >10 MOhm | 0.2 ... 4 m | | | 0.2 ... 2 m |
| • Wood (dry, < 30% residual moisture) | 0.2 ... 4 m | | | 0.2 ... 2 m |
| • Glass | 0.2 ... 4 m | | | 0.2 ... 2 m |
| Designed for mounting on | Paper/cardboard (not suitable for fixing directly onto metal) | | Plastic/foil (not suitable for fixing directly onto metal) | |
| Type of mounting | Single-sided adhesive (self-adhesive label) | | Single-sided adhesive (self-adhesive inlay) | |
| Type of antenna | Shortened dipole | | | |
| Antenna material | Aluminium | | | |
| Dimensions | 101 mm x 152 mm (4" x 6") | 101 mm x 50 mm (approx. 4" x 2") | 97 mm x 27 mm (approx. 3.8" x 1.1") | 54 mm x 34 mm (approx. 2.1" x 1.3") |
| Material surface | Paper | | Plastic PET | |
| Color | White | | Clear | |
| For printing | Yes, heat transfer method | | Yes, heat transfer method (currently only using Toshiba B-SX4T) | Non-printing |
| Type of delivery | Min. order quantity 1600 units (800 units on a roll) | Min. order quantity 1000 units (1000 units on a roll) | Min. order quantity 2000 units (2000 units on a roll) | |
| Operating temperature | -40 … +65 °C, up to +80 °C (200 cyles) | | | |
| Storage temperature, recommended | +15 ... +25 °C | | | |
| Storage humidity, recommended | 40 ... 60% | | | |
| Storage capability | 2 years, determined by durability of the adhesive | | | |
| Degree of protection | The label must be protected from damp | | IP65 | |

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### Selection and Ordering data

| | | Order No. |
|---|---|---|
| **SIMATIC RF630L Smartlable**<br>For storing the "Electronic Product Code" (EPC).<br>Prices apply to one Smartlable. | | |
| • Paper, glued on one side, 100 mm x 150 mm (4" x 6"); minimum order quantity 1600 units (800 units on a roll) | ► A | **6GT2810-2AB00** |
| • Paper, glued on one side, 101 mm x 55 mm (4" x 2"); minimum order quantity 1000 units (1000 units on a roll) | ► A | **6GT2810-2AB01** |
| • Plastic PET, glued on one side, 97 mm x 27 mm (3.8" x 1.1"); Minimum order quantity 2000 units (2000 units on a roll) | ► A | **6GT2810-2AB02** |
| • Plastic PET, glued on one side, non-printing, 54 mm x 34 mm (2.1" x 1.3"); minimum order quantity 2000 units (2000 units on a roll) | ► A | **6GT2810-2AB03** |

A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

## Overview


The target applications for SIMATIC RF640T are industrial asset management, RF identification of tools, containers and metallic equipment.

This tool tag is available in two frequency variants: 868 MHz (Europe) and 915 MHz (U.S.A.).

## Benefits

- Small, intelligent and rugged for industrial applications
- Ideal for attaching directly to metal surfaces, without spacer (e.g. containers, boxes, tools and toolholders)
- High degree of protection and resistant to mineral oils, lubricants and cleaning solvents

## Application

- For direct mounting onto metal surfaces with a typical detection range of 1.8 m. Up to 216 byte of user data can be stored in addition to 8-byte ID numbers.
- Machine and plant construction
- Industrial production
- Laboratory and test equipmen

## Technical specifications

| Type | RF640T |
|---|---|
| IC type | UCODE HSL |
| Frequency | |
| • Version for Europe | 865 … 868 MHz |
| • Version for U.S.A. | 902 … 928 MHz |
| Serial number UID | 8 byte |
| User memory | 216 byte |
| Lock information (write protection) | 28 byte |
| Protocol | in acc. with ISO 18000-6B |
| Data retention | 10 years |
| Read cycles | unlimited |
| Write cycles | |
| • minimum | 100000 |
| • typical | 500000 |
| Read distance (with reader RF660R and antenna RF660A) | |
| • minimum | 0.2 …1.5 m |
| • typical | 0.2 … 2.0 m |
| write distance (with reader RF660R and antenna RF660A) | |
| • minimum | 0.2 …1.2 m |
| • typical | 0.2 … 1.5 m |
| Designed for attaching to | Metal |
| Mounting | 2 x M4 screws |
| Dimensions (H x D) | 50 x 8 |
| Material | Plastic PA12 |
| Color | anthracite |
| Ambient temperature | |
| • Operation | -25 … 85 °C |
| • Storage | -40 … +125 °C |
| Mechanical stress (to EN 60721-3-7, class 7 M3) | |
| • Shock | 100 *g* |
| • Vibration | 20 *g* |
| • Torsion | not permissible |
| Degree of protection to DIN EN 60529 (45 min immersion in water; water depth 1 m from top edge of housing at +20°C) | IP68 |
| Resistance to chemicals | as for PA 12 |
| Ex approval | ATEX Zone II 2GD; Ex ib IIC T6 to T3 |
| Approvals | CE/FCC |

## Selection and Ordering data

| | | Order No. |
|---|---|---|
| **SIMATIC RF640T** | | |
| For attaching to metal surfaces | | |
| • for Europe (868 MHz frequency) | ► A | **6GT2 810-0DC00** |
| • for the U.S.A. (915 MHz frequency) | ► A | **6GT2 810-0DC10** |

A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

# SIMATIC RF660R
# SIMATIC RF660A

## Overview

The UHF portal reader SIMATIC RF660R uses the two, three or four SIMATIC RF660A antennas connected to read the tag data and supplies it to downstream systems through the system interfaces (Ethernet or RS422[1]). Alternatively, XML command sequences can be used to instruct the reader to pass the data on to a client application. For further details on configuration and the runtime response of the SIMATIC RF660R, please refer to the associated documentation.

At least two, but up to four, SIMATIC RF660A antennas must be connected for correct operation of the SIMATIC RF660R. Different antennas must be used depending on the installation location (U.S.A. or Europe):

- Europe: SIMATIC RF660A (EU) Order No. 6GT2812-0AA00
- U.S.A.: SIMATIC RF660A (U.S.A.) Order No. 6GT2812-0AA01

Optional: Flexible installation of antenna with articulated bracket thanks to the Antenna Mounting Kit. The package includes a 75 mm x 75 mm Vesa adapter.

The frequency bands approved for the respective region must be set on the reader by means of software configuration.

The reader can be easily configured using the SIMATIC RF660R configuration software. This is available on the CD "RFID Systems Software & Documentation" that can be ordered separately (Order No. 6GT2080-2AA10).

For proper functioning of the SIMATIC RF660R, the corresponding SIMATIC RF660A antennas and the appropriate Siemens antennas and interface cables must be used (see ordering data).

## Benefits

Technical characteristics of the SIMATIC RF660 system:

- UHF frequencies support new applications in logistics and throughout the complete delivery chain.
- The standards implemented in the system in accordance with EPCglobal and ISO 18000-6B allow different protocols to be used between the reader and tag. Tags based on different standards can, at the same time, also be detected and processed by the system.
- Implementation of the EPCglobal standards of Generation 2 (EPC Gen2) provides investment security and high performance.
- Large read distances, high tag detection rates despite high traversing speeds of the goods to be identified in the field secures SIMATIC RF660 a place in the high-end range of today's RFID systems.
- Thanks to problem-free bulk detection of tagged goods, SIMATIC RF660 is suitable for identification tasks in non-homogeneous goods flows.
- The two serial interfaces and Ethernet ensure that it can be integrated into different system landscapes (IT and automation).
- Three digital inputs and outputs support the direct connection of process-related devices such as optical and acoustic signal encoders, proximity switches, light barriers, etc.
- The ruggedness of the overall system guarantees problem-free, flexible operation under a wide range of different ambient conditions.
- For companies globally active in manufacturing, logistics and trade, the ability to operate the system in both the European and US UHF frequency bands means easier implementation and less complexity in the system landscape

## Application

The stationary UHF portal reader SIMATIC RF660R complete with up to four antennas of the SIMATIC RF660A type is suitable for applications in logistics and supply chain management.

The system operates in the European and US UHF frequency band and is designed for identifying tags based on the EPCglobal standard

## Function

SIMATIC RF660 allows rewritable data carriers to be read and written which, in accordance with the UCODE specification, can also store large volumes of data. The system is therefore also suitable for use in so-called closed applications that are found typically in the industrial environment. The high degree of protection of the complete system ensures problem-free operation even under harsh industrial conditions.

Thanks to the two system interfaces (Ethernet and RS422[1]) and the RS232 interface that is intended for configuration and diagnostic purposes, SIMATIC RF660 is a universally implementable system. Easy connection to LAN networks with the TCP/IP protocol is just as possible as integration in an existing Siemens automation landscape.

SIMATIC RF Communication Modules are used to connect to SIMATIC controllers and they can be directly connected to the system through the RS422 interface[2].

1) This interface will be available in the future.
2) This feature will be available in the future.

## Technical specifications

| UHF stationary portal reader | SIMATIC RF600R |
|---|---|
| Frequency range (adjustable) | |
| • Europe | 865 … 868 MHz |
| • U.S.A. | 902 … 928 MHz |
| Transmit power (adjustable in steps of 100 mW) | |
| • Europe | 0.1 … 2 W ERP |
| • U.S.A. | 0.4 … 4 W ERP |
| Tag read range | |
| • With 2 x 2 antennas, mounted opposite each other | 10 m max. |
| • With 2 antennas, antennas mounted side by side | 5 m max. |
| Number of antennas | 2 … 4 (configurable) |
| Impedance (nominal) | 50 Ω |
| Standards | • EPC Gen 1<br>• EPC Gen 2<br>• ISO 18000-6B / ISO 18000-6C<br>• Mixed mode operation |
| Number of tags read per second | |
| • EPC Gen 2 | 100 read actions/s |
| • ISO 18000-6B | > 50 read actions/s |
| Simultaneous reading of several tags (bulk reading capacity), number of tags | |
| • EPC Gen 2 | max. 110 tags |
| • ISO 18000-6B | max. 75 tags |
| Data transmission rate for reading | |
| • EPC Gen 2 | max. 160 Kbit/s |
| • ISO 18000-6B | max. 160 Kbit/s |
| Data transmission rate for writing | |
| • EPC Gen 2 | max. 128 Kbit/s |
| • ISO 18000-6B | max. 40 Kbit/s |
| Tag reading rate (%) | |
| • EPC Gen 2 | > 99,9% |
| • ISO 18000-6B | > 99,9% |
| Additional functions | • Read triggered through digital input<br>• Data buffer<br>• Configuration by means of software<br>• Firmware update |
| Interfaces | |
| • Antenna | 2 … 4 |
| • RS232 | 1 |
| • RS422 | 1 |
| • Ethernet RJ 45 | 1 (according to IEC 24702) |
| • Digital in/out | 3 x 24 V DC, 0.5 A each |
| Certification | • CE<br>• UL |
| Conformity | ETSI EN 302208, FCC |
| Area of application | Europe, U.S.A. |
| Antenna connection | 4 antennas, reverse polarity TNC |

| UHF stationary portal reader | SIMATIC RF600R |
|---|---|
| Ambient temperature | |
| • During operation | -25 … +55 °C |
| • During transportation and storage | -40 … +85 °C |
| Degree of protection | IP65 |
| Dimensions L x B x H (in mm) | 320 x 145 x 100 |

| Antenna for use in Europe | SIMATIC RF660A-UHF antenna |
|---|---|
| Impedance (nominal) | 50 Ohm |
| Polarization | Circular |
| Frequency band | 865 … 868 MHz |
| Conformity | ETSI ES 302208 |
| Mounting | Optional: Flexible mounting with jointed arm by means of antenna mounting kit<br>Various mounting possibilities with supplied mounting adapter plate Vesa 75 x 75 mm |
| Color | Pastel turquoise |
| Ambient temperature | |
| • During operation | -25 … +75 °C |
| • During transportation and storage | -40 … +85 °C |
| Degree of protection | IP67 |
| Dimensions L x H x B (in mm) | 313 x 313 x 80 |
| Weight | 1.6 kg |

| Antenna for use in U.S.A. | SIMATIC RF660A-UHF antenna |
|---|---|
| Impedance (nominal) | 50 Ohm |
| Polarization | Circular |
| Frequency band | 902 … 928 MHz |
| Wiring | Reverse polarity TNC |
| Conformity | FCC Title 47, Part 15.247 |
| Mounting | Optional: Flexible mounting with jointed arm by means of antenna mounting kit<br>Various mounting possibilities with supplied mounting adapter plate Vesa 75 x 75 mm |
| Color | Pastel turquoise |
| Ambient temperature | |
| • During operation | -25 … +75 °C |
| • During transportation and storage | -40 … +85 °C |
| Degree of protection | IP67 |
| Dimensions L x B x H (in mm) | 313 x 313 x 80 |
| Weight | 1.5 kg |

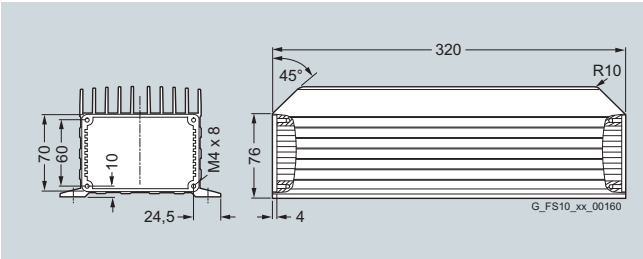
## Selection and Ordering data

| | | Order No. |
|---|---|---|
| **SIMATIC RF660R reader**<br>UHF stationary portal reader for UHF frequencies 865 … 868 MHz and 902 … 928 MHz | ▶ A | **6GT2 811-0AA00** |
| **SIMATIC RF660A antenna for Europe**<br>Circular polarized antenna for UHF frequency 865 … 868 MHz | ▶ A | **6GT2 812-0AA00** |
| **SIMATIC RF660A antenna for U.S.A.**<br>Circular polarized antenna for UHF frequency 902 … 829 MHz | ▶ A | **6GT2 812-0AA01** |
| ***Accessories*** | | |
| Note:<br>For proper functioning of the SIMATIC RF660R reader and the SIMATIC RF660A antenna, the appropriate antenna and interface cables must be used as well as the corresponding power supply. | | |
| **Antenna cable**<br>PE material, UV-resistant, halogen-free, 50 Ω impedance, reverse polarity TNC, internal contact as socket | | |
| • Length 10 m, Ø 5 mm, UL certified | ▶ A | **6GT2 815-0BN10** |
| • Length 20 m, Ø 7.6 mm | ▶ A | **6GT2 815-0AN20** |
| • Length 20 m, Ø 7.6 mm, UL certified, exclusively for U.S.A. | ▶ A | **6GT2 815-0BN20** |
| **Interface cable RS232, RS422**<br>Material PUR, UV-resistant, halogen-free, PVC-free, with UL approval, M12 socket, 8-pole to sub-D socket, 9-pole | | |
| • RS232, length 5 m, Ø 5.3 mm | ▶ A | **6GT2 891-0GH50** |
| • RS232, length 10 m, Ø 5.3 mm | ▶ A | **6GT2 891-0GN10** |
| • RS422, length 2 m, Ø 5.3 mm | ▶ A | **6GT2 891-0FH20** |
| • RS422, length 5 m, Ø 5.3 mm | ▶ A | **6GT2 891-0FH50** |
| • RS422, length 10 m, Ø 5.3 mm | ▶ A | **6GT2 891-0FN10** |
| • RS422, length 20 m, Ø 5.3 mm | ▶ A | **6GT2 891-0FN20** |
| • RS422, length 50 m, Ø 5.3 mm | ▶ A | **6GT2 891-0FN50** |
| **Interface cable Ethernet**<br>Material PVC, UV-resistant, halogen-free, impedance 100 Ω ± 15 Ω, symmetrical (1 … 100 MHz), RJ45 to RJ45, IP67, CAT5e | | |
| • Ethernet length 10 m, Ø 6.5 mm | ▶ A | **6GT2 891-0HN10** |
| • Ethernet, length 20 m, Ø 6.5 mm | ▶ A | **6GT2 891-0HN20** |
| DI/DO cable, PUR material, black, shielded, M12, 8 x 0.25 mm², length 5 m | ▶ | **3RX8000-0CD81-1GF0** |

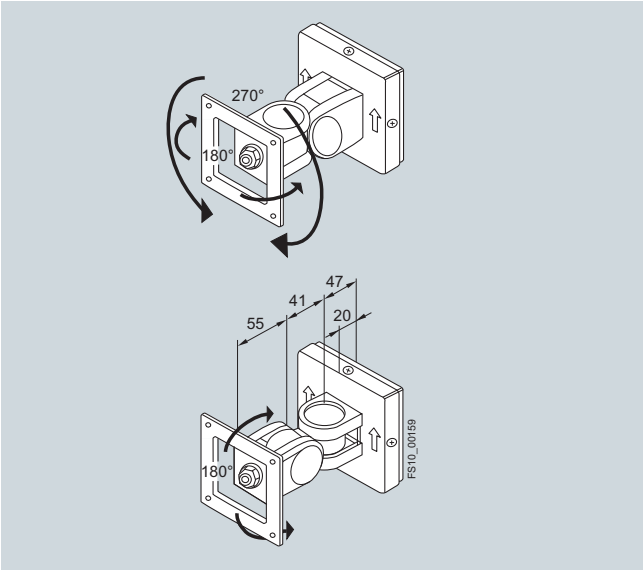
| | | Order No. |
|---|---|---|
| **Antenna mounting kit**<br>For flexible mounting with articulated bracket, VESA adapter 75 x 75 mm is supplied | ▶ A | **6GT2 890-0AA00** |
| **Wide-range power supply**<br>Primary side: 100 … 240 V AC, 120 … 353 V DC, secondary side: 24 V DC, 3 A, with no-load protection, with continuous short-circuit protection | | |
| • EU connector version | ▶ A | **6GT2 898-0AA00** |
| • UK connector version | ▶ A | **6GT2 898-0AA10** |
| • US connector version | ▶ A | **6GT2 898-0AA20** |
| **Cable for wide-range input power supply**<br>24 V DC, length 5 m | ▶ | **6GT2 491-1HH50** |
| **Tags**<br>Customized variant for high-volume applications | | On request |
| **CD "RFID Systems Software & Documentation"**<br>SIMATIC RF660R configuration software, RFID documentation | ▶ | **6GT2 080-2AA10** |

A: Subject to export regulations AL = N and ECCN = EAR99H.
▶ Preferred type, available from stock.

## Dimensions




Reader SIMATIC RF660R




Antenna Mounting Kit

## Overview

SIMATIC RF610M is a high-performance, mobile, hand-held terminal with an read/write antenna that has been adapted for applications in the fields of production logistics, warehouse management, inventories and service. It is also an important tool for commissioning and testing of RFID systems.

## Design

The SIMATIC RF610M mobile hand-held terminal comprises a basic unit (based on the PSION Workabout PRO) and a read/write unit for RF600 transponders and SmartLabels.
It has a rugged, splashproof housing, an LCD color display with touch functionality and an alphanumeric keyboard with function keys.

## Function

The supplied and pre-installed RF600 software provides service and test functions for reading and writing the RF600 data storage units and Smart Labels. Data that have been read can be saved in file structures.

In addition, an already installed API library is included. This allows the customer to program his/her own RFID applications for the mobile hand-held terminal. For the actual programming, a Software Development Kit (SDK) can be ordered from PSION Teklogix.

Based on the operating system and communication standards (WIN CE), the device ensures easy integration in existing or planned IT networks or in the process infrastructure. For this purpose, various optional development tools are available for the PC as well as a wide range of accessories directly from PSION Teklogix and MICROSOFT.

## Technical specifications

| Mobile hand-held terminal | SIMATIC RF610M |
|---|---|
| Processor | PXA270, 32 bit RISC CPU |
| Operating system | Microsoft Windows. CE 5.0 |
| RAM/Flash EEPROM memory | 128 MB / 128 MB |
| User program | RF610M application and API interface |
| Screen | Color display TFT, ¼ VGA 320 x 240 (portrait format) with touch function and adjustable backlighting |
| Keyboard | Alphanumeric plus function keys and touch screen |
| Sound | Piezo sensor |
| Power supply | • Lithium-ion battery (3.7 V; 3000 mAh), fast charging capability (automatic shutdown) or<br>• 3 x 1.5 V batteries of Type AA<br>• Back-up battery: 3 V lithium cell ML 2032 |
| Interfaces | LIF interface (LIF: Low Insertion Force) for battery charging and communication with the PC over a USB interface; additional CF slot for expansion cards (e.g. WLAN) |
| Dimensions (in mm) without barcode scanner | 265 x 92 x 42 |
| Weight (incl. battery) | approx. 0.6 kg |
| Temperature | |
| • Operation | -10 ... +50 °C |
| • Storage | -25 ... +60 °C (without batteries) |
| Relative humidity, non-condensing | 5 ... 95 % |
| Degree of protection | IP54 (splashwater proof) |
| EMC | EN 55022; FCC Part 15 |
| Electrostatic; RF; EFT | IEC 801-2; IEC 801-3; IEC 801-4 |

## SIMATIC RF610M mobile hand-held terminal

| Mobile hand-held terminal | SIMATIC RF610M |
|---|---|
| **Integrated read/write unit UHF module with antenna** | |
| Read/write distance | Up to 600 mm depending on the transponder type |
| Transmission frequency energy/data, UHF frequency band | |
| • Europe | 868 MHz |
| • U.S.A. | 912,5 ... 917 MHz |
| Functionality of the SW application | Standard user interface for reading/writing data storage units and for saving the data |

### Selection and Ordering data

| | | Order No. |
|---|---|---|
| **RF610M mobile hand-held terminal (Europe)**<br>Basic unit (PSION Workabout PRO) with adapted UHF module (ISO 18000-6B/ -6C), battery, standard software pre-installed, without loading/docking station<br>European frequency band (868 MHz) | ► A | **6GT2813-0AB00** |
| **RF610M mobile hand-held terminal (U.S.A.)**<br>Basic unit (PSION Workabout PRO) with adapted UHF module (ISO 18000-6B/ -6C), battery, standard software pre-installed, without loading/docking station<br>Frequency band U.S.A./Canada (912.5 … 917 MHz) | ► A | **6GT2813-0AB10** |
| *Accessories* | | |
| **Barcode scanner with pistol grip**<br>Barcode module for mounting on RF610M with pistol grip and release button. | ► A | **6GT2898-0DB00** |
| **WLAN module**<br>WLAN interface for mounting in the CF slot. Communication to IEEE 802.11 b/g | ► A | **6GT2898-0DA00** |
| **Loading/docking station**<br>For a mobile hand-held terminal as well as for spare batteries. Including a plug-in power supply with a wide-range input of 100 … 240 V AC and country-specific adapters as well as USB interface and USB cable. | ► A | **6GT2898-0BA00** |
| **"RFID Systems Software & Documentation" CD**<br>FB/FC for SIMATIC, 3964R driver for DOS/Windows 95/NT/2000/XP, C libraries, PC presentation program. MOBY documentation | ► | **6GT2080-2AA10** |

A: Subject to export regulations AL = N and ECCN = EAR99H.
► Preferred type, available from stock.

### *Additional accessories*

For information about optional components, see the Internet at www.psionteklogix.com

## RFID systems for locating – Localizing, responding and optimizing in real-time

From vehicle location in the automotive industry to tracking and separating materials in the chemical industry to complex materials management and shipping systems in logistics: The MOBY R RFID System gives you an overview in any industry. This real-time detection and localization system in the field of identification systems opens up for you completely new options in shaping your process flows economically.

You can find the best ordering options for MOBY R products in the Mall
www.siemens.com/automation/mall

and in the CA01 electronic catalog.

### Application

- Transparent localization in real-time
- Wireless material call system
- Stacker/vehicle localization and control
- Localization of maintenance personnel
- Localization of boxes of materials and containers
- Tracking of supplier vehicles, e.g. haulage vehicles
- Safety functions such as access control
- Vehicle or personnel tracking

## Highlights

- Fast, up-to-date and precise: Localization in realtime mode
- Limitless overview: Visualization online
- More efficient process procedures for greater efficiency
- For large areas indoors and outdoors

| | Location |
|---|---|
| | MOBY R |
| **Read/write distance** | Up to 300 m |
| **Frequency** | 2.4 GHz |
| **Standards** | FCC Part 15 Class B<br>EN 55022, EN 55024<br>German Technical Inspectorate GS acc. to EN 60950<br>EMC Guideline 89/336/EEC |

## Technical specifications

| | MOBY R | | | |
|---|---|---|---|---|
| |  | | | |
| Locating distance | 100 m indoors, 300 m outdoors | | | |
| Max. locating accuracy | 3 m | | | |
| Reading distance | 200 m indoors, 1000 m outdoors | | | |
| Read cycles | unlimited | | | |
| Memory | 32 bits | | | |
| Approvals | FCC Part 15 Class B, EN 55022, EN 55024, TÜV GS to EN 60950, EMC Guideline 89/336/EEC | | | |
| Frequency | 2.4 … 2.483 GHz | | | |
| **Mobile data storage units (tags)** | **Name** | **Memory size** | **Operating temperature** | **Degree of protection** |
| Standard data storage<br>Pushbutton data storage<br>Reference/wireless time data storage | MDS R202<br>MDS R207<br>MDS R200 | 32-bit fixed code<br>32-bit fixed code<br>– | -25 … +65 °C<br>-25 … +50 °C<br>-25 … +65 °C | IP67<br>IP54<br>IP67 |
| **Read/write devices** | **Name** | **WLAN integrated** | **Operating temperature** | **Degree of protection** |
| | SLG R21<br>SLG R23 | –<br>● | -40 … +50 °C | IP55 NEMA 3 and NEMA 12 |
| Mobile hand-held terminal with integrated antenna | STG R2 | | -20 … +50 °C | IP64 |
| **Traverse sensor** | TRIG R201 | | -30 … +60 °C | IP65 |
| Write distance | Selectable in 8 steps from 1.1 … 7.5 m | | | |
| Approvals | FCC Part 15 Class B; EN 55022 Class B; EN 55024; TÜV GS to EN 60950; EMC guideline 89/336/EEC; ETS 300683; EN 300330 | | | |
| Software | Visibility server software | | | |
| Required basic software | Microsoft Server operating system and Microsoft SQL database | | | |
| **Antenna** | **Outdoors** | **Indoors** | | **Transmission angle** |
| Circular beam antenna set outdoors | ● | ● | | 360° |
| Circular beam antenna set, indoors | – | ● | | 360° |
| Flat beam antenna set | ● | ● | | 180° |
| **Connection to the automation system** | **directly** | | | |
| SIMATIC S7-300, S7-400 | | | | |
| PROFIBUS DP | | | | |
| Ethernet (TCP/IP) | | ● | | |
| WLAN | | ● | | |

## Overview

MOBY R is a real-time locating system with a range of up to 300 m in the open and 100 m in buildings, with an accuracy of up to 3 m for identifying and locating objects.

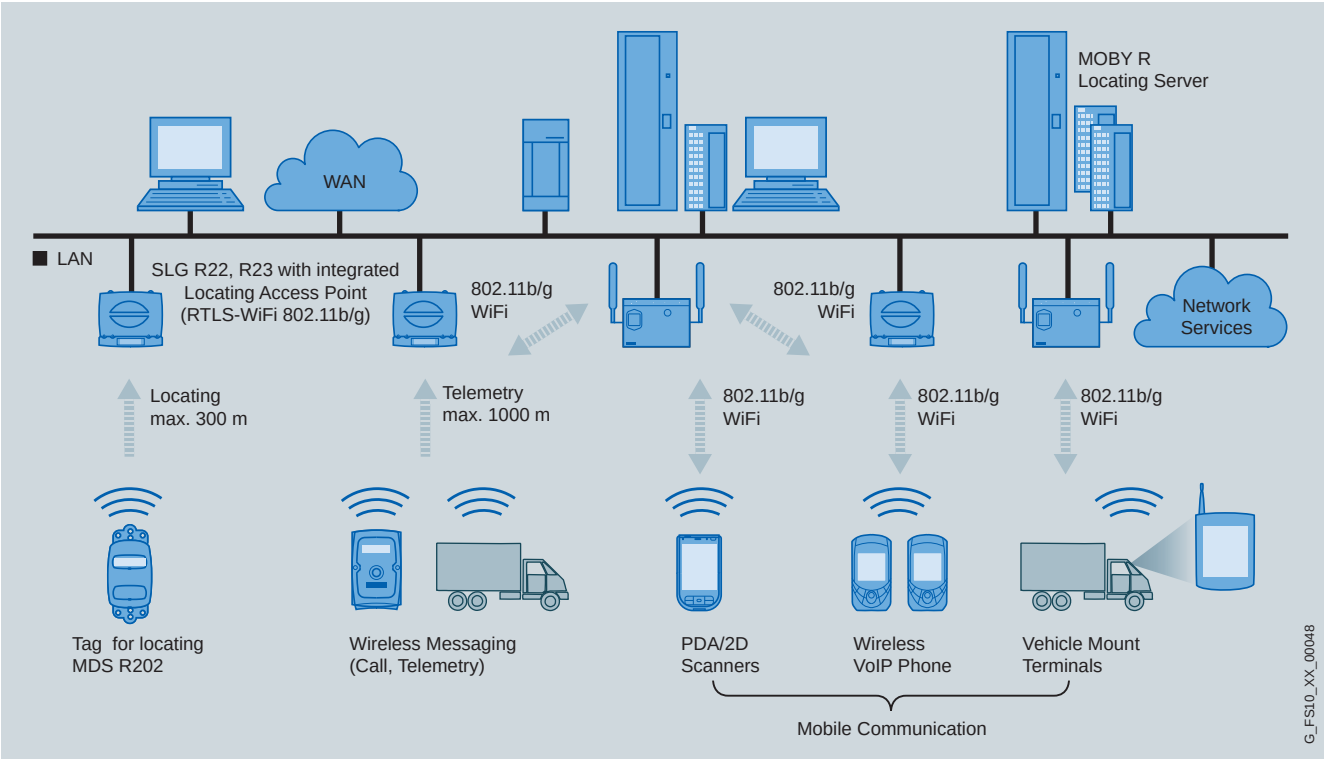
## Application

The MOBY R system is suitable not only for real-time locating of the widest variety of objects of almost any quantity and the widest range of different formats (e.g. material boxes, containers, etc.), but also for large areas (e.g. airports, rental car operators, car manufacturers, etc.).

***Main applications of MOBY R:***

- Vehicles -> locating, tracking
- Containers -> locating, tracking, protection against theft
- Access and vehicle access control
- Loading monitoring
- Trucks, semitrailers -> locating
- Vehicle control
- Material tracking/requirements -> hospitals, production lines

## Integration




***The road to a functioning real-time locating system with MOBY R***

A real-time-locating application requires a certain degree of technical knowledge for successful implementation and start-up throughout all phases of the project. Reading the technical documentation with product introduction is not sufficient for acquiring the necessary technical knowledge. For this reason, a MOBY R project sequence is broken down into three steps:

1. Creation of a proposal for the system design

This is a qualified assessment of the customer requirements and their fulfillment with MOBY R. Several discussions with the customer are necessary for this purpose. A CAD drawing of the area to be covered is necessary. If environmental conditions are ambiguous, an on-site visit is necessary. Charging for the travel costs for an on-site visit has to be clarified in advance with A&D SC SM (Regions Manager) After this work, an approx. estimate of the project costs (budget plan) can be passed on to the customer. A proposal for the system design is also prepared. The system design (2nd step) has to be ordered by the customer.

## Introduction

2. System design

For the system design, the areas where the hardware has to be mounted have to be defined right down to the exact centimeter in a plan and per photo. Locating accuracy, cabling, and connection of the software to the company network are also clarified. All relevant information is compiled into one document and serves as a basis for system implementation (3rd step). For larger systems, under certain circumstances, a period of several weeks is necessary for the system design. Once the system design is completed, a precise proposal of the total costs can be prepared for the customer. The system design is also the basis of a project contract with the customer. That is particularly important because later structural changes can lead to delicate cost changes.

3. System implementation (assembly and commissioning)

During installation, it is particularly important to implement the system design correctly. On the software side, verification is provided to the customer that localization in the defined areas functions with guaranteed reliability and precision.

Order and project execution

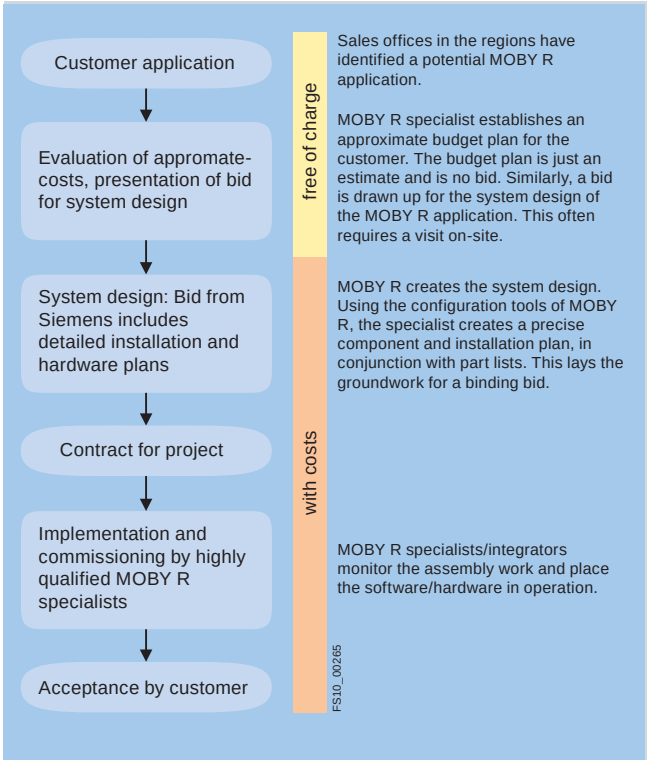
To ensure that MOBY R projects are successfully completed, we place the highest value on MOBY R specialists being informed of the real-time-locating projects. They also initiate the internal order process and the delivery of MOBY R components and provide support with technical clarifications.

### *Specialists for MOBY R*

Below you will find the address of our MOBY R specialist. It is essential that the MOBY R projects are communicated and released through this address, otherwise the components will not be delivered.

I IA AS MES DS DI 4
Hans-Jürgen Buchard
Tel.: +49 (0) 911 895-2068
hans-juergen.buchard@siemens.com

### *Roadmap for a MOBY R application*




### *National certification and operation of MOBY R components:*

Certifications for the MOBY R system are available for the following countries:

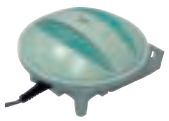
Austria, Belgium, Canada, Czech Republic, Denmark, France, Germany, Hungary, Ireland, Italy, Netherlands, Portugal, Spain, Sweden, UK, U.S.A..

MOBY R components are only permitted to be operated in the countries listed.

## Technical specifications

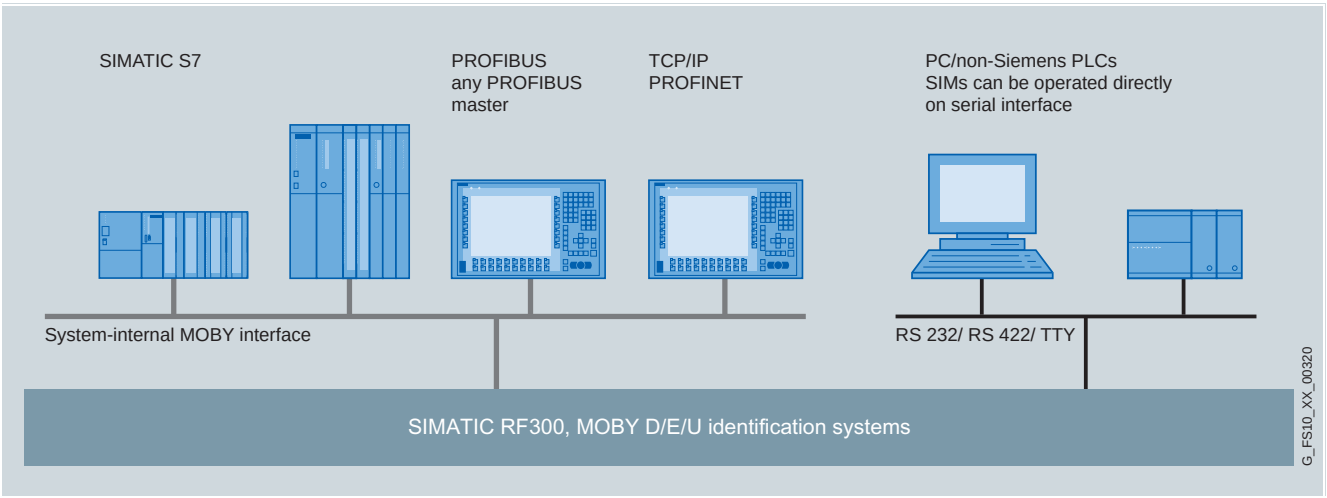
| | |
|---|---|
| Data transmission frequency | 2.4 … 2.483 GHz |
| Memory capacity | 32 bit |
| Read cycles | unlimited |
| Locating distance | 100 m indoors – 300 m outdoors |
| Max. locating accuracy | 3 m |
| Reading distance | 200 m indoors – 1000 m outdoors |
| Operating temperature range | -25 … +65 °C |
| Degree of protection | IP67 |
| Can be connected to | 10BT / 100 BTx / Wireless LAN |
| Special features | User-configurable flashing rate<br>Flashing activation can be changed by means of MDS trigger<br>128 barcode with fixed code no. |
| Approvals | FCC Part 15 Class B<br>EN 55022, EN 55024<br>TÜV GS to EN 60950<br>EMC Guideline 89/336/EEC |

## Selection and Ordering data

| MOBY R components and accessories | | Order No. |
|---|---|---|
| **Mobile data storage unit** | | |
|  **MDS R200 mobile data storage unit**<br>consisting of two MDS R202 and an aluminum bracket<br>One MDS R200 works as a reference data memory, the second as a time-synchronization data memory of the SLG R21 / R22 / R23 antennas in order to synchronize them in terms of time via the air interface. | F | **6GT2 700-0FE10** |
|  **MDS R202 mobile data storage unit**<br>32-bit fixed code, silicon-free, IP67, with battery, housing type W.<br>Typical read distance in buildings of 200 m, outside 1000 m.<br>User-configurable blink rate between 5 s and 9 h. | F | **6GT2 700-0FE00** |
|  **MDS R207 mobile data storage unit**<br>32-bit fixed code, mobile data storage unit with call button and display for the time since the last activation. Typical read distance in buildings 100 m, outside 300 m. User-configurable blink rate between 5 s and 1 h. | F | **6GT2 700-0FH43** |
| **Accessories for mobile data storage units** | | |
| **MOBY R mirror clamp**<br>for secure attachment of the MDS R202 | A | **6GT2 790-0AD00** |
| **Read/write devices** | | |
|  **SLG R21 read/write device**<br>for 802.3 LAN cabling, incl. power pack and license | F | **6GT2 701-1AA10** |
| **SLG R23 read/write device**<br>for 802.3 LAN cabling and CISCO 802.11B/G wireless LAN, incl. power pack and license | F | **6GT2 701-1AF10** |
|  **Trig R201 read/write device**<br>The TRIG R201 field is almost sphere-shaped and can be adjusted up to a range of 6 meters in stages. For very long transitions, it is possible to interconnect up to 3 TRIG R201. The TRIG R201 MDS Trigger momentarily trips pre-defined blinking in an MDS R202. | F | **6GT2 704-1AA10** |
|  **STG R2 Mobile Hand-held Terminal**<br>with barcode reader for configuring MDS R202, TRIG R201 and SLG | F | **6GT2703-0AA10** |
| **Accessories for read/write devices** | | |
| **Universal omni-directional antenna set**<br>for SLG R21/R23, for indoor and outdoor use | F | **6GT2 701-0AC00** |
| **Omni-directional antenna set**<br>for SLG R21/R23, for indoor use only | F | **6GT2 701-0AD00** |
| **Flat panel directional antenna set**<br>for SLG R21/R23, for indoor and outdoor use | F | **6GT2 701-0AE00** |
| **Antenna support**<br>for SLG R21/R23 on masts | F | **6GT2 790-0AE00** |
| **Extension cable**<br>15 m for SLG R21/R23 power supply | F | **6GT2 791-0AN15** |
| **CD MOBY R Visibility Server Software** | | **6GT2 781-1AE00** |
| **CD MOBY R development software (SDK)** | G | **6GT2 781-0BE00** |
| **CD MOBY R Trigger XML Publisher** | G | **6GT2 781-0CE00** |
| **MOBY R services** | | |
| **MOBY R services** | | |
| • MOBY R DEMO Test setting | | **6GT2 794-0AC00** |
| • MOBY R SD system design; price is per person and day | | **6GT2 794-0AB00** |
| • MOBY R SI system implementation; price applies per SLG | | **6GT2 794-0AB01** |
| **MOBY R training** | | **6GT2 794-0AD00** |

A: Subject to export regulations AL = N and ECCN = EAR99H
F: Subject to export regulations AL = N and ECCN = 5A991X
G: Subject to export regulations AL = N and ECCN = 5D991A1

## Introduction




There are various powerful communication modules (ASM) for integrating MOBY identification systems in SIMATIC, SINUMERIK, SIMOTION, PROFIBUS and PROFINET.

### *Selection assistance for communication modules and software*

| System | ASM without file handler | RFID system | Available software |
|---|---|---|---|
| SIMATIC S7-300 (direct), S7-300/400, PC with SIMATIC WinAC via ET 200M, SINUMERIK 840D/810D | ASM 475 | RF300, E, U, D | FC/FB45; FC55 (multitag) |
| | ASM 470 | E | FC47 |
| Serial link [1], to PCs, PLCs, any other systems | Direct via SLG Dx, | D | MOBY D MDWAPI, MOBY API, C library incl. drivers for Windows 98/NT/2000/XP |
| | Direct via SIM 7x, | E | |
| | Direct via SLG U92 | U | |
| | directly via RF3xxR (RS 422) | RF 300 | |
| | ASM 424 | E | MOBY API, C library incl. drivers for Windows 98/NT/2000/XP |
| | ASM 724 | E (SLA7x only) | |
| PROFIBUS DP[1] (SIMATIC S7; PC, any systems) | ASM 450 | E | FC44 for S7-300/400, PC with SIMATIC WinAC |
| SIMATIC S7-300/-400, PC with SIMATIC WinAC, via ET 200pro | RF170C | RF300, E, U, D | FC/FB45; FC55 (multitag) |
| PROFIBUS DP-V1[1] (SIMATIC S7; PC, any systems) | ASM 456 | RF300, E, U, D | FC/FB45 for S7-300/400, PC with SIMATIC WinAC, FC55 (multitag, ASM 456), FB101/116/132 (ASM 456 only) |
| | ASM 754 | E (SLA7x only) | |
| PROFINET IO | RF180C | RF300, E, U, D | FB45 |

| System | ASM with file handler | MOBY system | Available software |
|---|---|---|---|
| SIMATIC S7; PC, any system, SIMOTION SCOUT | ASM 456 | U | FC56/FB101/116/132 |
| SIMATIC S7-300 (direct), SIMATIC S7-300/400, via ET 200M | ASM 475 | U | FC56 |
| SIMATIC S7-300/400, PC with SIMATIC WinAC, via ET 200pro | RF170C | U | FC56 |

1) The programming interface is described for connecting to any system.

## Function

Corresponding software blocks (FB, FC, libraries) ensure simple and quick integration into the application.

As many as four read/write devices can be connected in series to one ASM communication module (depending on the type of ASM), with a maximum connecting cable length of 1000 m (depending on the ASM, SLG, etc.). Corresponding procedures guarantee a very high reliability of data transmission.

The following options exist for the serial connection of MOBY to any system (PC, PLC, etc.):

- Via a communication module to which the read/write devices (SLG) or read/write antenna (SLA) are connected.
- Direct via a read/write device with a serial interface (SIM or SLG Ux, SLG Dx)

***Notes on software and licensing:***

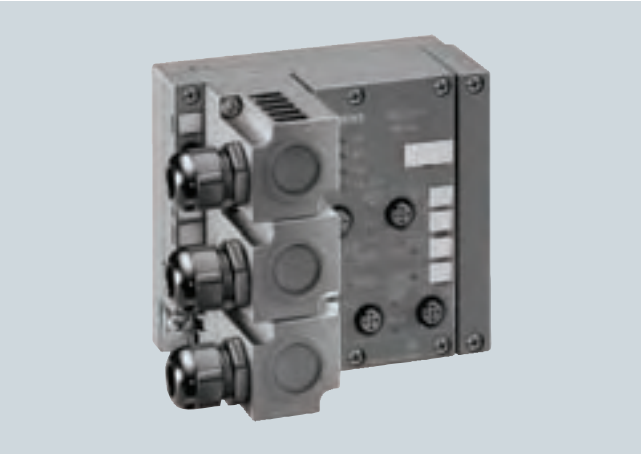
When purchasing a communication module or SIM x/SLG x, no software or documentation is supplied. The CD "RFID systems Software & Documentation" contains all the available FBs/FCs for SIMATIC, C libraries for Windows 95/98/NT/2000/XP, demo programs, etc. and is to be ordered separately. In addition, the CD contains the complete RFID documentation (German and English) in PDF format.

The purchase of a communication module or SIM/SLG includes a payment for the use of the software, including documentation, on the CD "RFID Systems Software&Documentation" and the purchaser acquires the right to make copies (copy license) insofar as they are required as part of the project for the plant.

The contract pertaining to the use of software products against a one-off payment shall apply.

# ASM 450

## Overview

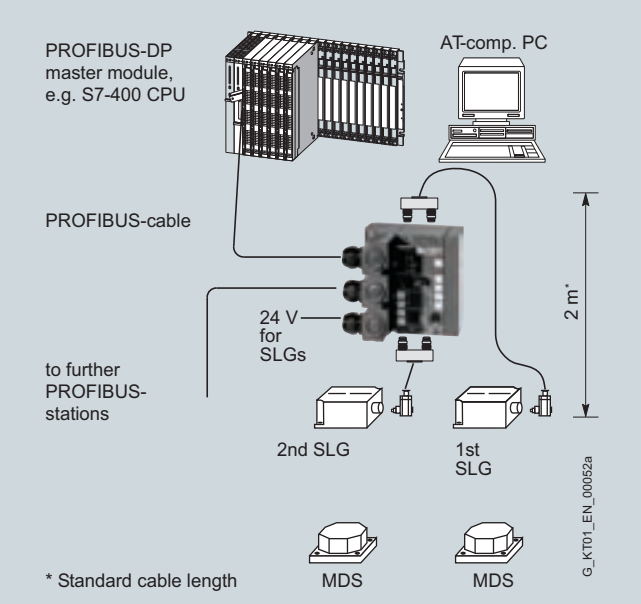


The low-cost communications module ASM 450 is an autonomous PROFIBUS DP slave for the operation of MOBY components via the PROFIBUS DP:

- SIMATIC S7 (including FB/FC software)
- SINUMERIK
- SICOMP IMC, PC, PLC

Thanks to their high degree of protection and ruggedness, they are particularly suitable for machine-level use.

## Design




Configuration

The ASM communications modules are mounted on the ET 200X standard module. The relevant configuration and mounting instructions should be referred to in the ET 200X manual. Expansion modules from the ET 200X spectrum cannot be used.

## Function

The PROFIBUS DP procedure according to EN 50170 Vol. 2 PROFIBUS for the communication between ASM and SIMATIC S5/S7 (or any PROFIBUS master) and the MOBY-specific procedures for communication between ASM and SLG are implemented on the ASMs.

The data in the MDS is accessed as follows:

- Direct addressing via absolute addresses

On the PROFIBUS DP, the ASM occupies a node address on the bus that is set on the basic module. The ASM is integrated into the hardware configuration by means of a device master (GSD) file. Then the ASM can be configured by means of the software tool HW_Config of the SIMATIC Manager or another PROFIBUS tool.

Error messages and operating states (MDS in the field, transmission, etc.) are indicated additionally by means of LEDs and simplify commissioning and service.

For the connection to any PROFIBUS DP master, the software interface is disclosed in the documentation.

The **IP67 connectors (Order No. 6ES7194-1AA01-0XA0)** are to be ordered separately!

### *ASM 450 (for MOBY E)*

The ASM 450 has two SLG interfaces. When using two SLG interfaces, the module operates in multiplex mode so that the MDS can only be read reliably when it is not moving. The data in the MDS is accessed direct by means of absolute addresses.

Using the software functions FC44 for the SIMATIC S7, the ASM operates in cyclic mode, i.e. the data throughput depends among other things on the size of the address window (max. 208 byte), number of slaves, etc.

## Technical specifications

| Communication modules | ASM 450 |
|---|---|
| **Serial interface to user** | PROFIBUS DP |
| Procedure conforms to: | EN 50170 Vol. 2 PROFIBUS |
| Connection to PROFIBUS | PG 11 gland (3 x 6ES7194-1AA01-0XA0, not included in scope of delivery) |
| Data transmission rate | 9.6 Kbaud to 12 Mbaud (automatic detection) |
| Max. block length | 208 byte |
| **Serial interface to SLG** | M12 connector |
| Max. cable length | 500 m, SLG-dependent, (standard length 2 m) |
| Connectable SLGs | SLG 7x or SLG 4x; in multiplex mode |
| Data transmission rate | 19.2 Kbaud … 57.6 Kbaud (depending on the MOBY family) |
| Programming | Depending on the PROFIBUS DP master |
| **Function blocks** | |
| SIMATIC S7 | FC44 |
| MDS addressing | Direct via addresses |
| Commands | Initialize MDS, read data, write data, etc. |
| Digital inputs/outputs | 2/2 |
| Galvanic isolation | Yes |
| **Power supply** | |
| Permissible range | 20 … 30 V DC (rated value 24 V DC) |
| Current consumption | Max. 180 mA; typ. 130 mA (without SLG) |
| **Ambient temperature** | |
| Operation | 0 … +55 °C |
| Transport and storage | -40 … +70 °C |
| Degree of protection | IP67 |
| Dimensions (W x H x D) in mm | 134 x 110 x 55 (without bus connector) |
| Weight, approx. | 0.5 kg |

## Selection and Ordering data

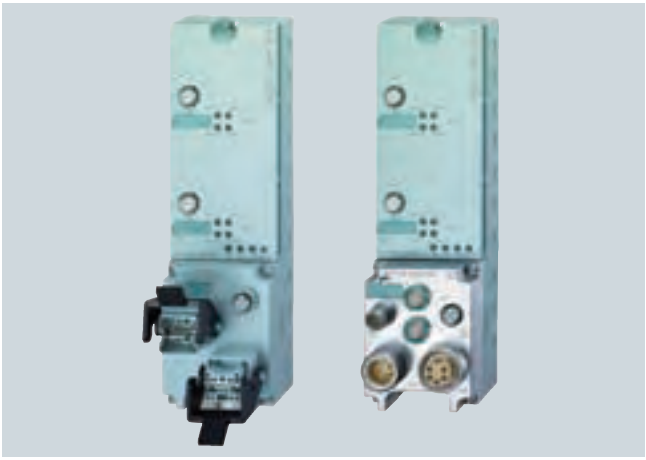
| | | Order No. |
|---|---|---|
| **ASM 450 communication module**<br>Max. 2 SLGs can be connected in multiplex mode, without connectors | ► | **6GT2 002-0EB00** |
| ***Accessories*** | | |
| **Connector**<br>For ASM 450 for the PROFIBUS DP interface and 24 V supply, 3 units per ASM 450 are necessary | ► | **6ES7194-1AA01-0XA0** |
| **Integrated plug connector**<br>for ASM 450; T functionality; spare part | ► | **6ES7 194-1FC00-0XA0** |
| **MOBY M12 dual-pin connector for ASM 450**<br>For mounting individual ASM SLG, without cable | ► | **6GT2 090-0BC00** |
| **MOBY E, U connecting cable**<br>Preassembled, between ASM 450 and SLG, angled connector, in the following lengths: | | |
| 2 m (preferred length) | ► | **6GT2 091-1CH20** |
| 5 m | ► A | **6GT2 091-1CH50** |
| 10 m | ► A | **6GT2 091-1CN10** |
| 20 m | ► A | **6GT2 091-1CN20** |
| 50 m | ► | **6GT2 091-1CN50** |
| Preassembled, between ASM 450 and SLG, angled connector 2 m long | ► A | **6GT2 091-2CH20** |
| **MOBY D connecting cable for SLG D1xS** | | |
| 2 m | ► A | **6GT2 491-1CH20** |
| 5 m | ► | **6GT2 491-1CH50** |
| 20 m | ► A | **6GT2 491-1CN20** |
| **CD "RFID Systems Software & Documentation"**<br>FB/FC for SIMATIC, 3964R driver for DOS/Windows 95/NT/2000/XP, C-libraries, PC presentation program, RFID documentation | ► | **6GT2 080-2AA10** |

A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

5

# ASM 456

## Overview



The cost-effective ASM 456 communication module is a stand-alone PROFIBUS DP slave used to operate the RFID systems MOBY D/E/U and SIMATIC RF300 via PROFIBUS DP/DP-V1:

- SIMATIC S7 (including FB/FC software)
- SINUMERIK
- SICOMP IMC, PC, PLC
- SIMOTION (with integrated software library)

Thanks to their high degree of protection and ruggedness, they are particularly suitable for machine-level use. The modular structure with different PROFIBUS connection systems allows them to be used in all applications. The system-wide, plug-in connection technique ensures rapid start-up.

## Benefits

- Two parallel MOBY channels ensure real-time mode at dynamic read points.
- Modular design with different bus interfacing possibilities ensures universal implementation.
- SLG connection using an 8-pin M12 connector for quick mounting of all components.
- Easy changeover from ASM 452 to ASM 456 thanks to 100% software compatibility.
- High-performance hardware ensures fast data exchange with the SLG (reader). Consequently the data are available for the application even faster.
- Easy downloading of firmware via SIMATIC Manager for function expansions and error rectification ensure high-availability of the RFID system.
- The parameterizable MOBY-specific PROFIBUS diagnostics facilitate start-up and troubleshooting.
- A wide selection of pre-assembled PROFIBUS connecting cables can be ordered for ASM 456. This saves time and money during installation and assures better quality.

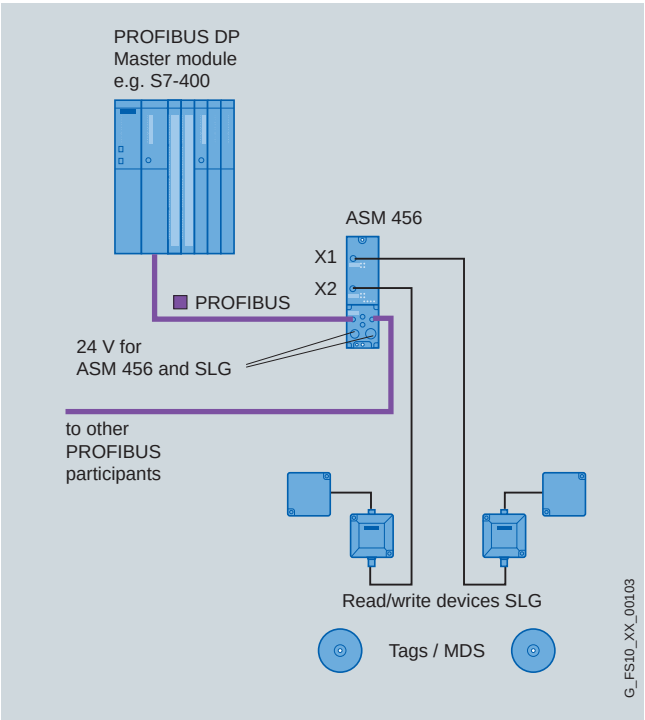
## Application

The ASM 456 communication module has been specially designed for a wide range of applications in industrial automation and logistics. Thanks to the high degree of protection of IP67, the ASM 456 can be installed in the process without a control cabinet.

Used primarily for the ASM 456:

- Mechanical engineering, automation systems, conveyor systems
- Ancillary assembly lines in the automobile industry/suppliers
- Small assembly lines
- Production, packaging, textile, plastics and printing machines SIMOTION

## Design



## Function

The ASM 456 comprises a basic module and a connection block that must be ordered separately. When connecting PROFIBUS, the customer can choose between ECOFAST connections and M12, 7/8" connections.

One or two read/write devices are connected to the ASM with a read/write device cable pre-assembled and ready to use. The standard length of the cable is 2 m. If other cable lengths to the SLG are required, an extension cable measuring between 2 m and 50 m can be used. The cable can also be assembled by the customer as required.

The PROFIBUS DP procedure according to EN 50170 Vol. 2 PROFIBUS for the communication between ASM and SIMATIC S5/S7 (or any PROFIBUS master) and the MOBY-specific procedures for communication between ASM and SLG are implemented on the ASMs.

In principle, access to the data in the MDS can take place as follows:

- Direct addressing via absolute addresses
- Conveniently via the MOBY file handler (MOBY I/U only) using file names

On the PROFIBUS DP/DP-V1, the ASM occupies a node address on the bus that is set on the connection block. The ASM is integrated into the hardware configuration by means of a device master (GSD) file. Then the ASM can be configured by means of the software tool HW_Config of the SIMATIC Manager or another PROFIBUS tool.

Error messages and operating states (MDS in the field, transmission, etc.) are indicated additionally by means of LEDs and simplify commissioning and service.

The ASM 456 has two SLG interfaces. The data in the MDS can be directly accessed by means of absolute addresses (FB/FC45, FC55) or more conveniently using the MOBY file handler (FC 56) by means of the file names. The ASM is operated in non-cyclic mode over PROFIBUS DP V1. Consequently, a very large amount of data can be transferred to/from the ASM without overloading the PROFIBUS cycle. This has advantages when transferring large volumes of data. In addition, the ASM can process concatenated MDS commands very quickly in this mode.

Function blocks FB101/116/132 in the SIMATIC S7 are available for the "RFID standard profile" mode. The data in the MDS can be addressed either via absolute addresses or via the file handler. This mode additionally integrates the communication module in SIMOTION.

## Technical specifications

| Communication module | ASM 456 |
|---|---|
| Ambient temperature | |
| • During operation | • 0 … 55 °C temperature change 10 K/h, all mounting positions<br>• Or -25 … 60 °C |
| • Storage | -40 … +70 °C 20 K/h |
| Relative humidity | |
| • During operation | 15 up to max. 95 %, no condensation |
| • Storage | 5 up to max. 95 %, no condensation |
| Atmospheric pressure | |
| • During operation | 1080 … 795 hPa (corresponds to altitude of -1000 … 2000 m) |
| • Storage | 1080 to 660 hPa (corresponds to altitude of -1000 … 3500 m) |
| Contaminant concentration | $SO_2$: < 0.5 ppm (rel. humidity < 60 %, no condensation)<br>$H_2S$: < 0.1 ppm (rel. humidity < 60 %, no condensation) |
| Power supply | Rated value: 24 V DC<br>Permissible range: 20 … 30 V DC |
| Current consumption | • Max. 200 mA without read/write device<br>• Typ. 80 mA without read/write device<br>• Max. 800 mA with two read/write devices |
| Degree of protection | IP67 |
| Housing color | IP Basic 714 |
| Dimensions (W x H x D) in mm | |
| • ASM 456 only | 60 x 210 x 30 |
| • ASM 456 with ECOFAST connection block | 60 x 210 x 60 |
| Weight (without connection block) | Approx. 210 g |
| Fixing | 2 screws M5 x 20 mm |
| PROFIBUS | EN 50170 |
| • Transmission rate | 9.6 kbit/s … 12 Mbit/s |
| • Protocol | DP-V1 |
| Serial SLG interface (gross transmission rate) | • MOBY I/E: 19200 bit/s<br>• MOBY U/D: 19200, 38400, 57600, 115200 bit/s<br>• SIMATIC RF300: 19200, 57600, 115200 bit/s |
| Cable length to read/write device | |
| • Standard length | 2 m |
| • Optional preassembled cable | 5 m, 10 m, 20 m, 50 m |
| • Cable for self-assembly | Depending on read/write device, up to 1000 m |
| Supply voltage to read/write device | 24 V / up to 0.3 A per read/write device |

## ASM 456

### Selection and Ordering data

| | | Order No. |
|---|---|---|
| **ASM 456 communication module** | ▶ A | **6GT2002-0ED00** |
| For connection of 2 read/write devices | | |
| ***Accessories ECOFAST Anschluss*** | | |
| ECOFAST connection block | ▶ A | **6ES7194-3AA00-0AA0** |
| PROFIBUS ECOFAST HYBRID plug 180 | | |
| • With male insert (5 per pack) | ▶ | **6GK1 905-0CA00** |
| • With socket insert (5 per pack) | ▶ | **6GK1 905-0CB00** |
| PROFIBUS ECOFAST termination plug with terminating resistors | ▶ | **6GK1 905-0DA10** |
| ECOFAST hybrid cable (pre-assembled) | | **6XV1 830-7Bxxx[1)]** |
| ECOFAST hybrid cable (non-assembled) | ▶ | **6XV1 830-7AH10** |
| ***Accessories M12, 7/8" connection*** | | |
| M12, 7/8" connection block | ▶ | **6ES7194-3AA00-0BA0** |
| M12 terminating resistor for PROFIBUS (5 per pack) | ▶ | **6GK1 905-0EC00** |
| PROFIBUS cable with pre-assembled M12 connectors | | **6XV1 830-3Dxxx[1)]** |
| Cable for supply voltage with pre-assembled 7/8" connectors | | **6XV1 822-5Bxxx[1)]** |
| PROFIBUS FC standard cable non-assembled | ▶ | **6XV1 830-0EH10** |
| PROFIBUS M12 connecting plug (5 per pack) | | |
| • With pin insert | ▶ | **6GK1 905-0EA00** |
| • With socket insert | ▶ | **6GK1 905-0EB00** |
| Connecting plug 7/8" for voltage (5 per pack) | | |
| • With pin insert | ▶ | **6GK1 905-0FA00** |
| • With socket insert | ▶ | **6GK1 905-0FB00** |
| Sealing caps 7/8" for unused 24 V loop-through (1 pack = 10 units) | ▶ | **6ES7 194-3JA00-0AA0** |

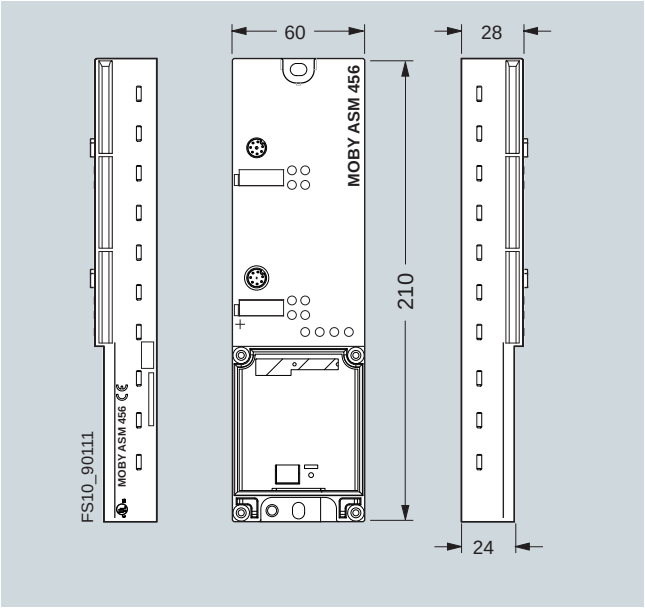
| | | Order No. |
|---|---|---|
| ***Accessories*** | | |
| SLG cable for MOBY E/U; 2 m | ▶ A | **6GT2091-0FH20** |
| SLG cable for MOBY E/U; 5 m | ▶ A | **6GT2091-0FH50** |
| SLG cable for MOBY D; 2 m | ▶ A | **6GT2691-0FH20** |
| SLG cable RF300 Extension cable MOBY E/U/D and SIMATIC RF300; 2 m | ▶ A | **6GT2891-0FH20** |
| SLG cable RF300 Extension cable MOBY E/U/D and SIMATIC RF300; 5 m | ▶ A | **6GT2891-0FH50** |
| SLG cable RF300 Extension cable MOBY E/U/D and SIMATIC RF300; 10 m | ▶ A | **6GT2891-0FN10** |
| SLG cable RF300 Extension cable MOBY E/U/D and SIMATIC RF300; 20 m | ▶ A | **6GT2891-0FN20** |
| SLG cable RF300 Extension cable MOBY E/U/D and SIMATIC RF300; 50 m | ▶ A | **6GT2891-0FN50** |
| M12 connecting cable, pre-assembled, between ASM 456 and SIMATIC RF300 reader, 2 m, plug on reader angled | ▶ A | **6GT2 891-0JH20** |
| M12 sealing caps, for unused reader connections (10 units) | ▶ | **3RX9 802-0AA00** |

1) This cable is available in different lengths (see FDB or Catalog IK PI).

▶ Preferred type, available from stock.

A: Subject to export regulations AL = N and ECCN = EAR99H

### Dimensions

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## Overview

The SIMATIC RF180C is a communication module for direct connection of Siemens RFID systems to PROFINET IO. The readers (SLGs) of the RFID systems MOBY E, D, U and SIMATIC RF300 can be operated on the SIMATIC RF180C.

Due to the high degree of protection and its ruggedness, SIMATIC RF180C is ideally suited to use at machine level. The uniform plug-in connection system ensures rapid commissioning.

## Benefits

- Two parallel MOBY channels ensure real-time operation of the dynamic read points
- Reader connection with an 8-pole M12 connector for rapid assembly of all components
- Different connection systems to suit any application
  - M12, 7/8", the well-proven round connectors
  - Push-pull connectors for quick assembly with RJ45 data connectors
- Easy changeover from PROFIBUS applications to PROFINET with SIMATIC RF180C thanks to software compatibility
- The integrated switch allows several PROFINET modules to be installed in star or bus topology. Each application can then be built up quickly and inexpensively
- Powerful hardware ensures rapid data communication with the reader (SLG). So that the data are available to the application more quickly
- Simple firmware downloading in the case of function expansions and error rectification ensures high availability of the RFID system
- Adjustable and parameterizable RFID-specific diagnostics facilitate commissioning and troubleshooting
- A broad selection of pre-assembled connecting cables can be ordered for connecting PROFINET and readers to SIMATIC RF180C. This saves time and money during installation and increases the quality

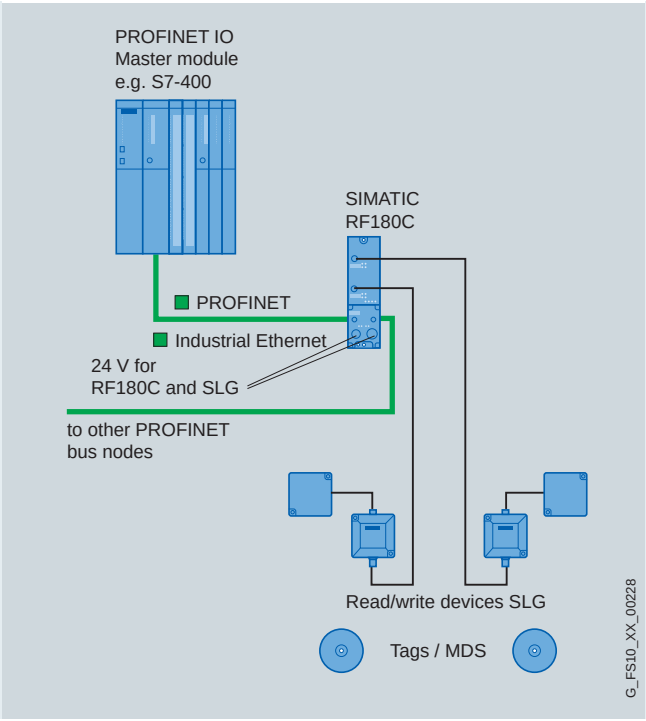
## Application

The PROFINET communication module SIMATIC RF180C has been specially designed for a wide range of applications in industrial automation and logistics. Due to the high degree of protection IP67, SIMATIC RF180C can be installed in the process outside the control cabinet.

Main applications for SIMATIC RF180C:

- Machine manufacturing, automation systems, conveyor systems
- Ancilliary assembly lines in the automotive industry / suppliers
- Small assembly lines

## Design




## Function

The SIMATIC RF180C comprises a basic module and a connection block that must be ordered separately.

The connection block is available in two versions:

- M12, 7/8":
  PROFINET is connected through an M12 plug, the supply voltage is connected through a 7/8" plug. There are 2 connections for PROFINET as well as for the power supply. This ensures that SIMATIC RF180C can be connected to additional bus stations without the need for external distribution devices. The removable connection block allows a base module to be replaced without interrupting the supply voltage to other bus stations.
- Push-pull connector:
  PROFINET and the power supply are connected over a push-pull connector. There are 2 connections for PROFINET as well as for the power supply. This ensures that SIMATIC RF180C can be connected to additional bus stations without the need for external distribution devices. The supply voltage connectors can conduct currents of up to 12 A (1L+ and 2L+). The removable connection block allows a base module to be replaced without interrupting the supply voltage to other bus stations.

SIMATIC RF180C is integrated in SIMATIC STEP 7 via the GSDML file. SIMATIC RF180C can then be configured via the SW tool HW Config of SIMATIC Manager or another PROFINET tool.

## SIMATIC RF180C

A pre-assembled reader cable is used to connect one or two readers to the communication module. The standard cable length is 2 m. If other reader cable lengths are required, an extension cable from 2 to 50 m in length can be used. The cable can also be assembled by the customer as required.

The data in the transponder can be accessed in the following manner: Direct addressing via absolute addresses.

Error messages and operating states (tag in field, transfer, etc.) are also displayed on LEDs and support commissioning and service.

SIMATIC RF180C has two reader interfaces from which the readers are also supplied with voltage. There is a solid-state fuse in SIMATIC RF180C for the reader power supply. The maximum current permitted for the readers per SIMATIC RF180C is 1 A. It is not important here whether the current is drawn by 1 or 2 readers.

The application accesses the tag via FB45. FB45 accesses the tag via absolute addresses. For large volumes of data and complex tag operations, the FB45 can process chained commands.

Data is exchanged between SIMATIC RF180C and the application by means of acyclic data records. This ensures that a large quantity of data can be transferred from/to SIMATIC RF180C without loading the bus cycle. This is advantageous when large volumes of data are being transferred. SIMATIC RF180C can also process chained tag commands in this mode extremely quickly.

### Technical specifications

| Type | SIMATIC RF180C |
|---|---|
| Supply voltage | |
| • Nominal value | 24 V DC |
| • Permissible range | 20 … 30 V DC |
| Current consumption | |
| • Without reader, typ. | 100 mA |
| • With two readers, max. | 1000 mA |
| Serial reader interface (gross transmission rate) | |
| • MOBY E | 19200 bit/s |
| • MOBY U/D, RF300 | 19200, 57600, 115200 bit/s |
| Cable connector for reader | 2 x connector plug M12, 8-pin |
| Cable length to reader | |
| • Standard length | 2 m |
| • Optional preassembled cables | 5 m, 10 m, 20 m, 50 m |
| Self-assembled cables | Reader/SLG-dependent. Up to 1000 m |
| Supply voltage to reader | 24 V |
| Max. current per reader | |
| • 2 readers connected | 0.5 A |
| • 1 reader connected | 1.0 A |
| Ambient temperature | |
| • Operation | -0 ... 60 °C |
| • Storage | -40 ... +70 °C, 20 K/h |
| Shock load during operation acc. to IEC 61131-2 | 30 *g* |
| Vibratory load during operation acc. to IEC 61131-2 | 0.75 mm (10 … 58 Hz)<br>10 *g* (58 … 150 Hz) |
| Enclosure | |
| • Material | Thermoplastic (fiberglass reinforced) |
| • Color | IP Basic 714 |
| • Degree of protection | IP67 |
| Dimensions (W x H x D) in mm | |
| • SIMATIC RF180C without connection block | 60 x 210 x 30 |
| • SIMATIC RF180C with M12, 7/8" connection block | 60 x 210 x 54 |
| • SIMATIC RF180C with push pull connection block | 60 x 216 x 100 |
| Weight | |
| • Base module only | 210 g |
| • M12, 7/8" connection block only | 230 g |
| • Push pull connection block only | 120 g |

## Selection and Ordering data

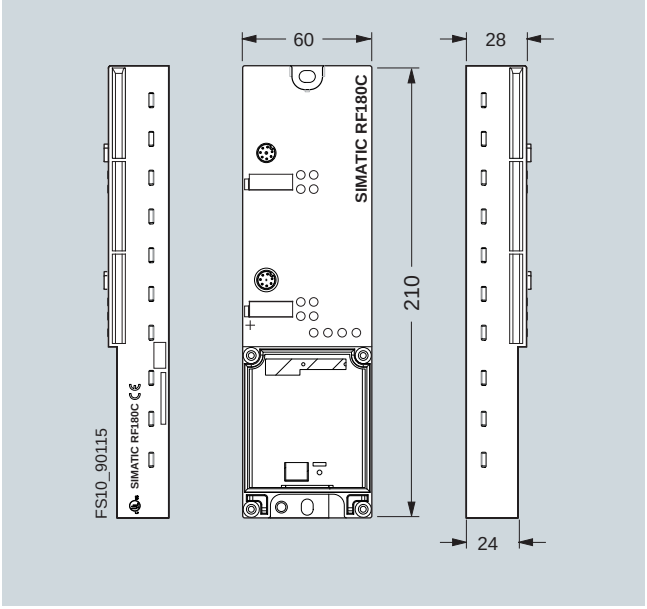
| | | Order No. |
|---|---|---|
| **SIMATIC RF180C communication module** | ► A | **6GT2 002-0JD00** |
| For PROFINET, for connecting 2 readers; without a connection block | | |
| **PROFINET connection block for SIMATIC RF180C, M12 d-coded, 7/8"** | ► A | **6GT2 002-1JD00** |
| **PROFINET connection block for SIMATIC RF180C, push pull RJ45** | ► A | **6GT2 002-2JD00** |
| ***Accessories MOBY*** | | |
| SLG cable for MOBY E/U; 2 m | ► A | **6GT2 091-0FH20** |
| SLG cable for MOBY E/U; 5 m | ► A | **6GT2 091-0FH50** |
| SLG cable for MOBY D; 2 m | ► A | **6GT2 691-0FH20** |
| SLG cable RF300 Extension cable MOBY E/U/D, SIMATIC RF300; 2 m | ► A | **6GT2 891-0FH20** |
| SLG cable RF300 Extension cable for MOBY I/E/U/D/RF300; 5 m | ► A | **6GT2 891-0FH50** |
| SLG cable RF300 Extension cable MOBY E/U/D, SIMATIC RF300; 10 m | ► A | **6GT2 891-0FN10** |
| SLG cable RF300 Extension cable MOBY E/U/D, SIMATIC RF300; 20 m | ► A | **6GT2 891-0FN20** |
| SLG cable RF300 Extension cable MOBY E/U/D, SIMATIC RF300; 50 m | ► A | **6GT2 891-0FN50** |
| SLG cable RF300 Connector on reader angled; 2 m | ► | **3RX9 802-0AA00** |
| ***Accessories for M12, 7/8" network connection*** | | |
| PROFINET cable with M12 connectors, pre-assembled; for trailing | | **6XV1 870-8Axxx**[1] |
| Cable for supply voltage pre-assembled with 7/8" connectors | | **6XV1 822-5Bxxx**[1] |
| PROFINET M12 plug connector; rugged metal housing; fast connect system; D-coded (pack of 1) | ► | **6GK1 901-0DB10-6AA0** |
| 7/8" cable connector; for voltage (pack of 5) | | |
| • With pin insert | ► | **6GK1 905-0FA00** |
| • With socket insert | ► | **6GK1 905-0FB00** |
| IE M12 cabinet bushing for conversion from M12 (D-coded) to RJ45; (pack of 5) | ► A | **6GK1 901-0DM20-2AA5** |
| IE FC RJ45 PLUG 180 RJ45 plug connector with rugged metal housing and FC connection system; straight cable outlet (pack of 1) | ► | **6GK1 901-1BB10-2AA0** |
| Sealing caps 7/8" (10 units) | ► | **6ES7 194-3JA00-0AA0** |
| ***Accessories for push pull RJ45 network connection*** | | |
| Push-pull cable connector for 1L+/ 2L+, not pre-assembled | ► | **6GK1 907-0AB10-6AA0** |
| Push-pull cable connector for RJ45, not pre-assembled | ► | **6GK1 901-1BB10-6AA0** |
| Cover caps for push pull sockets (1L+/ 2L+), 5 units per pack | | **6ES7 194-4JA50-0AA0** |
| Cover caps for push pull sockets RJ45, 5 units per pack, | | **6ES7 194-4JD50-0AA0** |
| ***Accessories for network connection cable*** | | |
| PROFINET standard cable 2x2, Type A, not pre-assembled; minimum order quantity 20 m | ► | **6XV1 840-2AH10** |
| Energy cable 5 x 1.5; not pre-assembled, stranded wire, trailing capability; minimum order quantity 20 m | ► | **6XV1 830-8AH10** |

1) This cable is available in different lengths (see key length in the appendix or IK PI Catalog)

A: Subject to export regulations AL = N and ECCN = EAR99H

► Preferred type, available from stock.

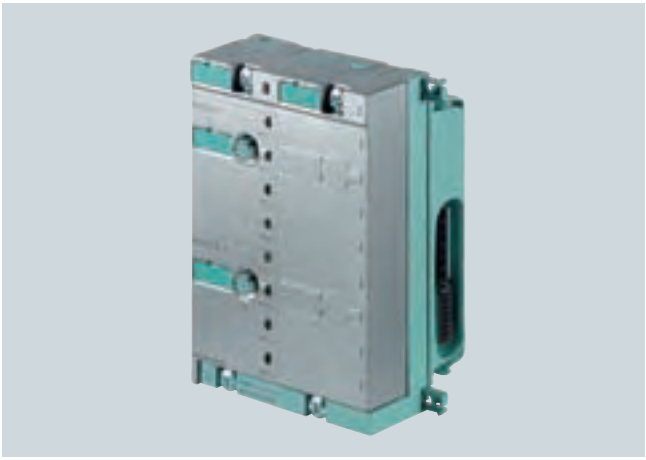
## Dimensions




5

# SIMATIC RF170C

## Overview



The SIMATIC RF170C is a communication module for connecting the Siemens RFID systems to the ET 200pro distributed I/O system. The readers (SLGs) of all RFID systems can be operated on the SIMATIC RF170C.

Thanks to its high degree of protection and ruggedness, ET 200pro is particularly suitable for machine-level use. The modular structure with PROFIBUS and PROFINET connection systems allows them to be used in all applications. The system-wide, plug-in connection technique ensures rapid start-up.

## Benefits

- Two parallel MOBY channels ensure real-time mode at dynamic read points.
- By selecting the relevant header module, the RFID systems can be connected via PROFIBUS or PROFINET.
- The modular design with interface modules for PROFIBUS and PROFINET supports universal implementation.
- Reader connection using an 8-pin M12 connector for fast installation of all components.
- Easy changeover from ET 200X with ASM 473 to ET 200pro with SIMATIC RF170C thanks to 100% software compatibility.
- High-performance hardware ensures fast data exchange with the SLG (reader). Consequently the data are available for the application even faster.
- Easy downloading of firmware via SIMATIC Manager for function expansions and error rectification ensure high-availability of the RFID system.
- The parameterizable RFID-specific diagnostics support start-up and troubleshooting
- A wide selection of pre-assembled connecting cables can be ordered for ET 200pro and SIMATIC RF170C. This saves time and money during installation and assures better quality.

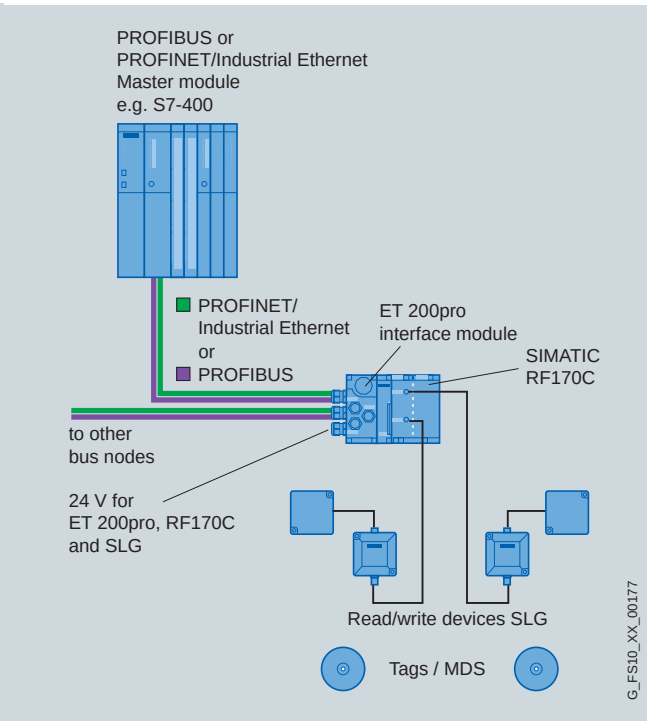
## Application

The ET 200pro distributed I/O system with the SIMATIC RF170C communication module has been specially designed for a wide range of applications in industrial automation and logistics. Thanks to the high degree of protection of IP67, the SIMATIC RF170C can be installed without a control cabinet.

Used primarily for the SIMATIC RF170C:

- Mechanical engineering, automation systems, conveyor systems
- Ancillary assembly lines in the automobile industry/suppliers
- Small assembly lines

## Design




## Function

The SIMATIC RF170C comprises an electronics module and a connection block that must be ordered separately. The interface module is available in the PROFIBUS or PROFINET variants. For the PROFIBUS connection, you can choose from the connection systems of ECOFAST, M12, 7/8", or screwed cable gland. For the PROFINET interface module, M12, 7/8" connection is available.

Integration of SIMATIC RF170C into SIMATIC STEP 7 is achieved by means of an object manager (OM). The GSD file of the ET 200pro system is available for integration into non-Siemens systems. Then the SIMATIC RF170C can be configured by means of the software tool HW_Config of the SIMATIC Manager or another PROFIBUS/PROFINET tool.

A pre-assembled reader cable is used to connect one or two readers to the communication module. The standard length of the cable is 2 m. If other cable lengths to the reader are required, an extension cable measuring between 2 m and 50 m can be used. The cable can also be assembled by the customer as required.

In principle, access to the data in the transponder can take place as follows.

- Direct addressing via absolute addresses
- Conveniently via the MOBY file handler (MOBY U only) using file names

Error messages and operating states (tag in the field, transmission, etc.) are indicated additionally by means of LEDs and simplify commissioning and service.

The SIMATIC RF170C has two reader interfaces from which the readers are also supplied with power. In the SIMATIC RF170C, the power supply for the readers has an electronic fuse. The maximum permissible current per SIMATIC RF170C for the readers is 0.8 A. It is of no importance here whether the current is drawn by one or two readers.

The data in the MDS can be directly accessed by means of absolute addresses (FB/FC45, FC55) or more conveniently using the MOBY file handler (FB, FC 56) by means of the file names. When the ET 200pro is operated with a PROFINET interface, use of the FB (FB45, FB56) is mandatory.

Communication between the SIMATIC RF170C and the controller is acyclic. Consequently, a very large amount of data can be transferred to/from the SIMATIC RF170C without overloading the bus cycle. This has advantages when transferring large volumes of data. In addition, the SIMATIC RF170C can process concatenated tag commands very quickly in this mode.

## Technical specifications

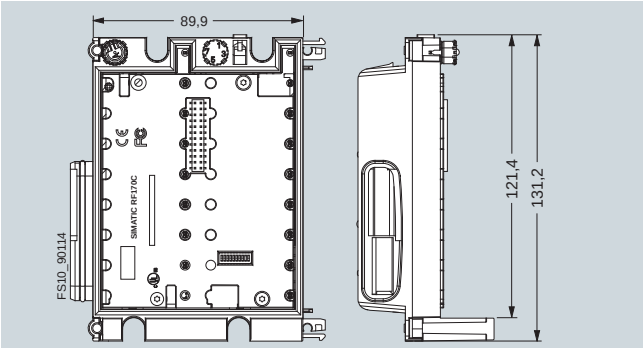
| Communication module | SIMATIC RF170C |
|---|---|
| Ambient temperature | |
| • During operation | -25 … +55 °C |
| • During storage | -40 … +70 °C 20 K/h |
| Relative humidity | 5 … max. 100% |
| Atmospheric pressure | from 795 … 1080 hPa |
| Resistance to shock | as for ET 200pro |
| Vibration | as for ET 200pro |
| Power supply | |
| • Nominal value | 24 V DC |
| • Permissible range | 20.4 … 28.8 V DC |
| Current consumption | |
| • Without reader | Typ. 130 mA |
| • With 2 readers | Max. 1000 mA |
| Enclosure | |
| • Degree of protection | IP67 |
| • Enclosure material | Thermoplastic (fiberglass reinforced) |
| • Housing color | IP Basic 714 |
| Dimensions (W x H x D) in mm | |
| • SIMATIC RF170C without connection block | 90 x 130 x 35 |
| • SIMATIC RF170C with connection block | 90 x 130 x 60 |
| Weight | |
| • Without connection block | Approx. 270 g |
| • With connection block | Approx. 770 g |
| Serial reader interface (gross transmission rate) | MOBY E: 19200 baud<br>MOBY U/D, RF300: 19200, 57600, 115200 baud |
| Connectors | 2 x connector plug M12, 8-pin |
| Cable length to reader | |
| • Standard length | 2 m |
| • Optional preassembled cables | 5 m, 10 m, 20 m, 50 m |
| • Self-assembled cables | Depends on SLG, up to 1000 m |
| Supply voltage to reader | 24 V |
| Max. current; 2 readers connected | 0.4 A per reader |
| Max. current; 1 readers connected | 0.8 A per reader |

## Selection and Ordering data

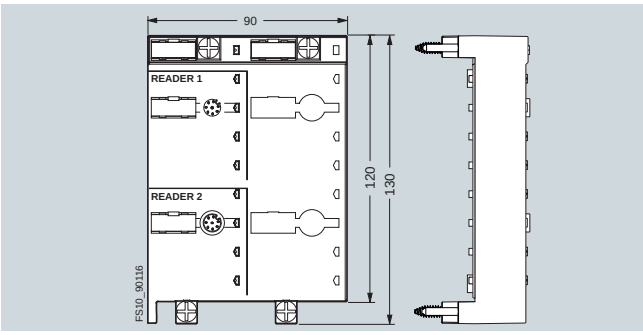
| | | Order No. |
|---|---|---|
| **SIMATIC RF170C communication module**<br>For connecting to the distributed I/O system ET 200pro | ► A | **6GT2 002-0HD00** |
| ***Accessories*** | | |
| Connection block for SIMATIC RF170C, for connection of 2 readers using M12 connectors | ► A | **6GT2 002-1HD00** |
| SLG cable for MOBY I/E/U; 2 m | ► A | **6GT2 091-0FH20** |
| SLG cable for MOBY I/E/U; 5 m | ► A | **6GT2 091-0FH50** |
| SLG cable for MOBY D; 2 m | ► A | **6GT2 691-0FH20** |
| SLG cable RF300 extension cable MOBY I/E/U/D and SIMATIC RF300; 2 m | ► A | **6GT2891-0FH20** |
| SLG cable RF300 extension cable MOBY I/E/U/D and SIMATIC RF300; 5 m | ► A | **6GT2891-0FH50** |
| SLG cable RF300 extension cable MOBY I/E/U/D and SIMATIC RF300; 10 m | ► A | **6GT2891-0FN10** |
| SLG cable RF300 extension cable MOBY I/E/U/D and SIMATIC RF300; 20 m | ► A | **6GT2891-0FN20** |
| SLG cable RF300 extension cable MOBY I/E/U/D and SIMATIC RF300; 50 m | ► A | **6GT2891-0FN50** |
| M12 connecting cable, preassembled, between SIMATIC RF170C and SIMATIC RF300 reader; 2 m, angled plug on the reader | ► A | **6GT2 891-0JH20** |
| M12 sealing caps for unused reader connections (10 units) | ► | **3RX9 802-0AA00** |

A: Subject to export regulations AL = N and ECCN = EAR99H.
► Preferred type, available from stock.

## Dimensions




SIMATIC RF170C communication module




Connector block for SIMATIC RF170C

# ASM 470/475

## Overview

The ASM 470 and 475 are low-cost modules for connecting the MOBY D, E, U and RF300 identification systems to the S7-300 and ET 200M.

## Application

The ASM 470 and ASM 475 communications modules integrate the MOBY identification systems into the following systems:

- SIMATIC S7-300
- S7-400, PC (CP5412 (A2)) via ET 200M
- SINUMERIK 840D/810D

A maximum of two SLGs can be connected and operated in parallel mode (ASM 470 only in multiplex mode).

## Function

As many as eight ASM communication modules can be plugged into one SIMATIC S7-300 rack and operated. In a configuration with several racks (max. 4), the ASMs can be plugged into and operated on any rack. This means that as many as 32 ASMs can be operated in the maximum configuration of a SIMATIC S7-300. The electrical isolation between SLG and SIMATIC S7-300 bus ensures a noise-resistant setup.

Error messages and operating states (MDS in field, command active etc.) are indicated using LEDs.

Communication between the ASM 475 and S7-CPU takes place by means of acyclic message frames of the P-bus, so that the useful data (max. 238 byte) is transmitted very quickly and effectively. The ASM 475 is fully integrated into the diagnostics of the SIMATIC Manager by means of an Object Manager (OM). Depending on the PROFIBUS master, as many as 126 ET 200M modules can be operated on one PROFIBUS line.

### *ASM 470 (for MOBY E)*

The data in the MDS is accessed direct by means of physical addresses using the ASM 470. Communication with the ASM takes place in the process image in blocks of 12 byte and is slower than with the ASM 475. Via ET 200M, it can be operated on any non-Siemens PROFIBUS master.

### *ASM 475 (for MOBY E/U/D/RF300)*

The data in the MDS is accessed direct by means of physical addresses using the ASM 475. The data is transferred between FC/FB45, FC55 and ASM at great speed and without placing a great load on the CPU. In the MOBY I/U mode, the ASM can also be operated with the FC56 (file handler).

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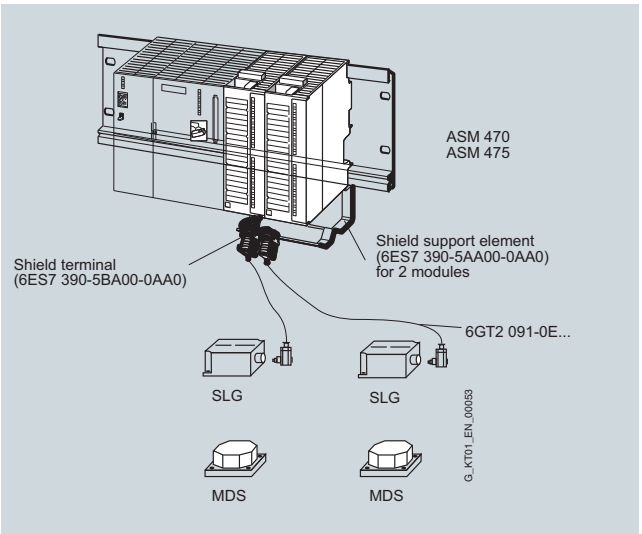
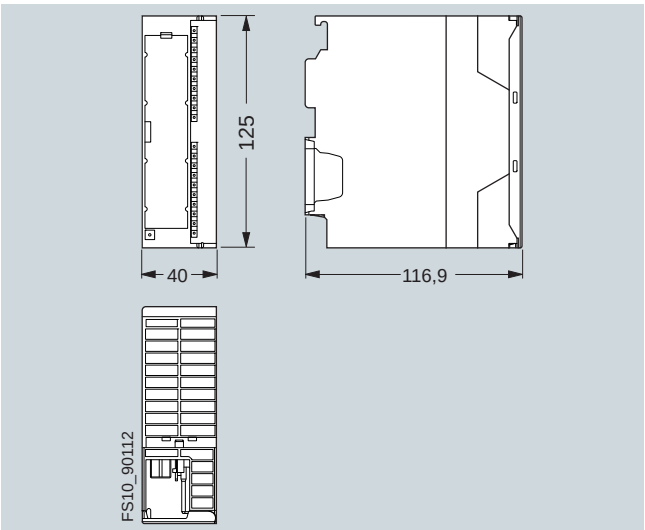
## Design




Configuration

## Dimensions




ASM 475 communication module

*Technical specifications und Selection and Ordering data: See following page.*

## Technical specifications

| Communication modules | ASM 470 | ASM 475 | ASM 475 (with MOBY U file handler) |
|---|---|---|---|
| Serial interface to SLG | RS422 | | |
| SLG connection point | Max. 2 units via screw terminals in front connector | | |
| Interface/cable length, max. connectable length | RS422/1000 m, depending on SLG and cable type | | |
| Connectable SLGs | MOBY E (multiplex mode) | MOBY E/U/D/SIMATIC RF300 | MOBY U |
| Interface for 24 V DC | Via screw terminals in front connector | | |
| **Function blocks** | | | |
| SIMATIC S7 | FC47 | FC/FB45, FC55 (multitag) | FC56 |
| MDS addressing | Direct access via addresses | | Access via DOS-like file system |
| Commands | Initialize MDS, read data from MDS, write data to MDS, etc. | | Format MDS, read file, write file, etc. |
| **Power supply** | | | |
| • Nominal value | 24 V DC | | |
| • Permitted range | 20 ... 30 V DC | | |
| Electrical isolation between S7-300 and MOBY | Yes | | |
| Current consumption from S7 bus terminal, max. | 100 mA | | |
| Power loss, typically | 1 W | | |
| **Ambient temperature** | | | |
| Operation | | | |
| • Horizontal configuration of SIMATIC | 0 ... +60 °C | | |
| • Vertical configuration of SIMATIC | 0 ... +40 °C | | |
| Transport and storage | -40 ... +70 °C | | |
| Dimensions (W x H x D) in mm | 40 x 125 x 120 | | |
| Weight, approx. | 0.2 kg | | |

## Selection and Ordering data

| | | Order No. |
|---|---|---|
| **MOBY communication module ASM 470** | ► | **6GT2 002-0FA10** |
| For SIMATIC S7-300 and ET 200M | | |
| **MOBY communication module ASM 475** | ► | **6GT2 002-0GA10** |
| For SIMATIC S7-300 and ET 200M, parameterizable | | |
| ***Accessories*** | | |
| **Front connector (1 x per ASM)** | ► | **6ES7 392-1AJ00-0AA0** |
| **MOBY E, U connecting cable** | | |
| Pre-assembled, between ASM 470/475 and read/write device, angled connector, in the following lengths: | | |
| 2 m | ► | **6GT2 091-0EH20** |
| 5 m | ► A | **6GT2 091-0EH50** |
| 10 m | ► A | **6GT2 091-0EN10** |
| 20 m | ► A | **6GT2 091-0EN20** |
| 50 m | ► A | **6GT2 091-0EN50** |
| Pre-assembled, between ASM 470/475 and read/write device, straight connector, in the following lengths: | | |
| 2 m | ► A | **6GT2 091-2EH20** |
| 5 m | ► A | **6GT2 091-2EH50** |
| 10 m | ► | **6GT2 091-2EN10** |
| 50 m | ► | **6GT2 091-2EN50** |

| | | Order No. |
|---|---|---|
| **MOBY D connecting cable** | | |
| Pre-assembled, between the ASM 475 and SLG D1xS, 9-pin sub-D connector in the following lengths: | | |
| 5 m | ► A | **6GT2 491-0EH50** |
| 20 m | ► A | **6GT2 491-0EN20** |
| 50 m | ► | **6GT2 491-0EN50** |
| **SIMATIC RF300 connecting cable** | | |
| Pre-assembled, between ASM 452/473/475 and RF3xxR, IP65, straight connector, in the following lengths[1]: | | |
| 2 m | ► A | **6GT2 891-0EH20** |
| 5 m | ► A | **6GT2 891-0EH50** |
| **CD: "RFID Systems Software & Documentation"** | ► | **6GT2 080-2AA10** |
| FB/FC for SIMATIC, 3964R driver for DOS/Windows 95/NT/2000/XP, C-libraries, PC presentation program, RFID documentation | | |

A: Subject to export regulations AL = N and ECCN = EAR99H
► Preferred type, available from stock.

1) The connecting cables can be extended using the RF300 connecting cable for the ASM 456. These connecting cables are supplied in the lengths 2 m, 5 m, 10 m, 20 m and 50 m (6GT2 891-0Fxxx)

# ASM 424, ASM 754/724

## Overview

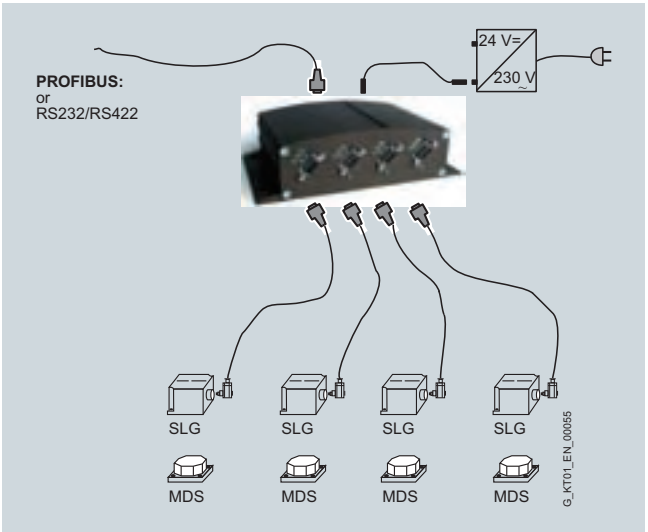
Up to 4 read/write devices or antennas can be connected **in parallel** to the low-cost connection modules. The user can select between two interfaces:

- PROFIBUS DP-V1 (ASM 754)
- RS232/RS422; serial interface to PC/PLC (ASM 424, ASM 724)

## Design

### *Mounting*

For easy mounting on a standard rail, an optional adapter is available




Configuration

## Function

Up to four read/write devices or antennas from the corresponding MOBY system can be connected to the rugged housing. Data in the MDS is accessed directly over the physical addresses. The extended MOBY E functions (multitag, access rights, password, etc.) are not supported.

Error messages and operating states (MDS in the field, transmission, etc.) are indicated additionally by means of LEDs and simplify commissioning and service.

### *PROFIBUS DP-V1 interface (ASM 754)*

Communication to the application uses the acyclic protocol service of PROFIBUS DP-V1. The station address on PROFIBUS is set directly on the ASM by means of a DIP switch.

The function **FC45 or FC55 (multitag)** is available to SIMATIC S7 users for easy integration in the application. The ASM is integrated into the hardware configuration via a GSD file. The ASM can then be configured via the SW tool HW_Config of SIMATIC Manager or another PROFIBUS tool.

For connection to any PROFIBUS DP-V1 master, the programming interface is described in the FC45 documentation.

### *RS232/RS422 interface (ASM 424, ASM 724)*

A WINDOWS 98/NT/2000 C library (**MOBY API**, DLL functions) incl. 3964R driver with basic functions (open/close channel, read data from data memory, etc.) is available to the PC user for his application.

### *MOBY E*

Up to four **SLA 7x** can be connected in parallel to the **ASM 754/724** which, however, operate internally in multiplex mode. If more than one SLA 7x is connected, the **MOBY E** data memory can only be reliably read or written in the stationary state.

Up to four **SLG 4x** or **SLG 7x** can be connected in parallel to the **ASM 424**. MOBY data memories can be read or written simultaneously on all 4 SLGs

## Technical specifications

| Communication module | ASM 754 | ASM 424, ASM 724 |
|---|---|---|
| **Serial interface to user** | PROFIBUS DP-V1,<br>9-pin submin. D-connector<br>(Order No. 6ES7 972-0BA 12-0AX0) | RS232/RS422<br>9-pin submin. D-connector |
| Cable length, max | See PROFIBUS | 30 m for RS232,<br>500 m for RS422 |
| Procedure/protocol | EN 50170 Vol. 2 PROFIBUS | 3964 R |
| Data transmission rate | 9600 Kbit/s up to 12 Kbit/s<br>(automatic detection) | 38.4 bit/s |
| Block length, max | 4 words cyclic/ 238 byte acyclic | 238 byte |
| **Serial interface to SLA/SLG** | 4 x 9-pin submin. D socket | |
| Cable length, max | 55 m to SLA; 1000 m to SLG | |
| Connectable SLG/SLA | MOBY E: max. 4 x SLG 4x or SLG 7x (parallel mode)<br>MOBY E: max. 4 x SLA 7x (multiplex mode)<br>Note: Mixed mode is not possible | |
| **Software function** | | |
| Programming | Depending on the PROFIBUS DP-V1 master | Depending on the PC/PLC |
| Available software (CD "RFID Systems Software & Documentation") | FC45 for SIMATIC S7-300/400 | C library MOBY API for PC with Windows 89/NT |
| • MDS addressing | Access directly via addresses | |
| • Commands | Initialize MDS, read data from MDS, write to MDS, etc. | |
| **Power supply** | | |
| • Rated value | 24 V DC (separate connector) | |
| • Permissible range | 20 ... 30 V DC | |
| Current consumption | 250 mA | |
| Starting current, max. | 1.1 A (without SLA) | |
| Mounting | 4 x M5 screws | |
| Degree of protection | IP40 (higher degree of protection on request) | |
| MTBF (at 40 °C) | 100,000 hours | |
| **Housing** | | |
| • Dimensions (W x H x D) in mm | 205 x 130 x 60 (without connector) | |
| • Material | Aluminum | |
| • Color | Anthracite | |
| **Ambient temperature** | | |
| • Operation | -25 ... +55 °C (condensation not permitted) | |
| • For transport and storage | -40 ... +85 °C (condensation not permitted) | |
| Weight, approx. | 1.3 kg | |

## ASM 424, ASM 754/724

### Selection and Ordering data

| | | Order No. |
|---|---|---|
| **ASM 424 communication module**<br>With serial interface RS232/RS422, max. 4 SLG 4x or 4 SLG 7x can be connected | ▶ | **6GT2 002-2CE00** |
| **ASM 724 communication module**<br>With serial interface RS 232/RS422, max. 4SLA 7x can be connected | ▶ A | **6GT2 302-2CE00** |
| **ASM 754 communication module**<br>With PROFIBUS DP-V1 interface, max. 4 SLG 7x can be connected | ▶ | **6GT2 302-2EE00** |
| ***Accessories*** | | |
| **SLG connecting cable, pre-assembled for MOBY E/U** | | |
| Between ASM 424 and SLG | | |
| • SLG connector, angled | | |
| - 5 m | ▶ A | **6GT2 091-0AH50** |
| - 10 m | ▶ A | **6GT2 091-0AN10** |
| - 20 m | ▶ A | **6GT2 091-0AN20** |
| - 50 m | ▶ | **6GT2 091-0AN50** |
| • SLG connector, straight | | |
| - 10 m | ▶ | **6GT2 091-2AN10** |
| - 50 m | ▶ A | **6GT2 091-2AN50** |
| **SLA connecting cable** | | |
| Between SLA 71 and ASM 724/754, length 5 m | ▶ | **6GT2 391-1AH50** |
| **Extension cable for SLA connecting cable 6GT2 391-1AH50** | | |
| 10 m | ▶ | **6GT2 391-1BN10** |
| 25 m | ▶ | **6GT2 391-1BN25** |
| **RS232 connecting cable** | | |
| Between PC and ASM 424/724 | | |
| 5 m | ▶ | **6GT2 391-0BH50** |
| 20 m | ▶ | **6GT2 391-0BN20** |
| **Connector, ASM side**<br>9-pin Sub-D connector (male) with screw locking for connecting cable between an ASM 424/724/754 and SLG | | |
| • 1 unit | ▶ | **6GT2 090-0BB00** |
| • 10 units | ▶ | **6GT2 090-0BB10** |
| **Adapter base plate**<br>For standard rail mounting, implementable for ASM 424/724/754 | ▶ | **6GT2 390-0BA00** |
| **Wide-range power supply**<br>Primary side: 100 ... 240 V AC, 120 ... 353 V DC, secondary side: 24 V DC, 3 A, with no-load protection, with continuous short-circuit protection | | |
| • EU connector version | ▶ A | **6GT2 898-0AA00** |
| • UK connector version | ▶ A | **6GT2 898-0AA10** |
| • US connector version | ▶ A | **6GT2 898-0AA20** |

| | | Order No. |
|---|---|---|
| **Cable for wide-range power supply**<br>24 V DC, length 5 m | ▶ | **6GT2 491-1HH50** |
| **24 V connector (M12 socket)**<br>For ASM 424/724/754, SLG Ux (over PC connecting cable), SLG D1x | ▶ A | **6GT2 390-1AB00** |
| **CD "RFID Systems Software & Documentation"**<br>FB/FC for SIMATIC, 3964R driver for DOS/Windows 95/NT/2000/XP, C-libraries, PC presentation program, RFID documentation | ▶ | **6GT2 080-2AA10** |

A: Subject to export regulations AL = N and ECCN = EAR99H
▶ Preferred type, available from stock.

## Overview

*SIMATIC RF-MANAGER*

The SIMATIC RF-MANAGER is a software tool designed for the fast and simple creation and commissioning of RFID applications as well as their smooth operation. It is linked with a higher-level enterprise system or connected SIMATIC S7 controllers.

The current RF-MANAGER 2008 version supports stationary RF660R read/write devices and mobile RF610M hand-held terminals. Depending on the scope of the RFID application, various software packages are available which differ in the number of supported readers (maximum 50).

## Benefits

- Management and operation of readers (read/write devices)
- Collection, visualization and preprocessing of RFID data
- Transmission of RFID data to higher-level enterprise systems
- Linking of RFID data with the automation data of the S7 controller

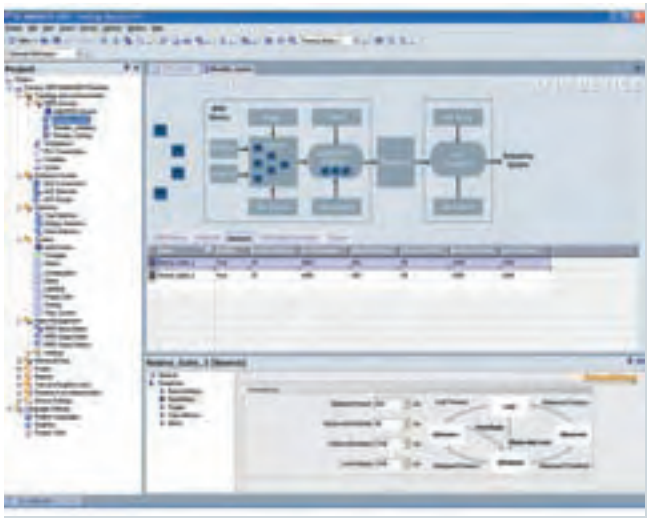
## Application

The RF-MANAGER supports read/write devices of types RF660R and RF610M. Both reader types can be jointly used in applications.

The main areas of application of the RF600 Readers range from the recognition of goods at loading gates to goods receipt and dispatch, through product flow control on conveyer belts, up to deployment in warehouses or distribution centers and high-bay inventory control. Industrial use in factories, e.g. in paintshops or on assembly lines in the automotive industry, is also possible.

# SIMATIC RF-MANAGER

## Overview



SIMATIC RF-MANAGER is data & device management software for RFID applications:

- For the quick and easy creation and commissioning of RFID applications
- For smooth operation of the connected readers (read/write devices)
- For preprocessing and transmission of RFID data to a higher-level enterprise system
- For linking of RFID data with automation data of SIMATIC S7 control systems

The current RF-MANAGER 2008 version supports stationary RF660R read/write devices and mobile RF610M hand-held terminals.

The RF-MANAGER comprises the Engineering System and Runtime components. With the help of the Engineering System, all necessary configuration tasks are performed and the components involved are parameterized. The RFID project created in this manner is subsequently executed in the Runtime system. The Runtime can run on the same PC as the Engineering System or on a different PC or a Microbox 420/427B.

Depending on the scope of the RFID application, different software packages are available. Every product version contains both an Engineering System and a Runtime. The packages only differ with regard to the number of readers supported by Runtime. Several Runtime licenses can also be added.

The following RF-MANAGER packages are available:

- SIMATIC RF-MANAGER 2008 – 1 Reader
- SIMATIC RF-MANAGER 2008 – 5 Readers
- SIMATIC RF-MANAGER 2008 – 20 Readers
- SIMATIC RF-MANAGER 2008 – 50 Readers

In addition, every package is also offered as an upgrade version. For this purpose an older version of the RF-MANAGER must already be available.

## Benefits

- Configuring instead of programming and therefore easy and convenient creation of RFID applications.
- Fast commissioning and diagnosis of complex RFID systems with ready-made solution aids.
- Standardized, consistent operation of the RF660R and RF610M read/write devices facilitates joint processing of bar-codes and RFID data.
- Preprocessing / filtering of the RFID data make special preparation of the data in the enterprise system superfluous.
- More independence from the Enterprise System used thanks to an open interface (ALE)[1].
- Linking of RFID data with automation data by connecting SIMATIC S7 controllers (e.g. point control dependent on the read RFID data).
- Future-oriented thanks to EPCglobal[2] compatible software architecture.
- Hardware and software from a single source and therefore perfectly interacting components.

## Application

The RF-MANAGER can be used together with RF600 read/write devices to implement the most diverse scenarios. For example, identification of products, automatic acquisition of goods flow or RFID-supported asset management

The focus is on the following areas of application:

- Asset management
- Incoming and outgoing goods
- Internal logistics / production logistics
- Warehouse management
- Tracking & tracing
- Material handling control

Depending on the application, commissioning, monitoring and diagnosis of the readers is considerably simplified by using RF-MANAGER.

## Function

Engineering System for configuration of RFID applications:

- Efficient mass data editors
- Clearly comprehensible graphical editors
- Multi-language user interface
- Project assistant with different scenarios

Management of RFID readers (read/write devices):

- Support of up to 50 readers in parallel operation
- Universal support of the RF660R and RF610M readers
- Special online dialogs for fine tuning and monitoring of the RFID application
- Display of status information and error messages
- Support for maintenance scenarios (e.g. expansion of the plant without downtime)

1) Application Level Events
2) Non-profit organization which defines commercial and technical standards for EPC networks.

Preprocessing of RFID data:

- Multilevel filters, from sorting of non-relevant read events to filtering according to EPC criteria
- Reading, writing, display and transfer of RFID data
- Linking of RFID and automation data via connection to S7 controllers

Connection to the higher-level enterprise level:

- Provision of preprocessed RFID data
- Transmission of application-internal information (e.g. messages)

EPCglobal[1] compatible:

- Implementation of the EPCglobal reader protocol layer for communication with the readers

Open ALE[2] interface for communication with higher-level enterprise systems

## Technical specifications

| SIMATIC RF-MANAGER | |
|---|---|
| **General data** | |
| Current version | 2008 |
| Supported devices | • SIMATIC RF660R<br>• SIMATIC RF610M |
| Target systems | • Standard PC<br>• SIMATIC Microbox PC 420<br>• SIMATIC Microbox PC 427B |
| Functions | • Commissioning, management and diagnosis of RFID devices<br>• Collection, filtering, displaying and writing of RFID data<br>• Preparation and forwarding of RFID data to higher-level applications and S7 controllers |
| Type of delivery | |
| • Product CD | • RF-MANAGER configuring software<br>• RF-MANAGER Runtime<br>• Automation License Manager<br>• Documentation as PDF<br>• Getting Started project<br>• ALE Demo Client<br>• RF660R Configuration Software |
| • Licenses on the USB stick (for Automation License Manager) | • Floating license for configuring software<br>• Single license for Runtime (as countable licenses) |
| Packages | • RF-MANAGER 2008 – 1 Reader<br>• RF-MANAGER 2008 – 5 Readers<br>• RF-MANAGER 2008 – 20 Readers<br>• RF- MANAGER 2008 – 50 Readers<br>The packages are available both as complete versions and upgrades. |

1) Non-profit organization which defines commercial and technical standards for EPC networks

2) Application Level Events

| SIMATIC RF-MANAGER | |
|---|---|
| Languages | |
| • Documentation | German, English |
| • Configuring software | German, English |
| • Runtime software | German, English |
| **Hardware requirements** | |
| Configuring software | |
| • Processor | Pentium IV with 1.6 GHz processor or higher |
| • Graphics | • Resolution: 1024 x 768 or higher / 1280 x 1024 recommended<br>• Colors: At least 256 |
| • Main memory | At least 1.0 GB / 2.0 GB recommended |
| • Memory space required on the hard disk | At least 1.5 GB |
| • Additional hardware | • CD-ROM drive (for installing the software)<br>• USB connection (for transfer of licenses) |
| Runtime software | |
| • Processor | Pentium III with 933 MHz processor or higher |
| • Graphics | • Resolution: 640 x 480 or higher<br>• Colors: At least 256 |
| • Main memory | 512 MB minimum / 1024 MB recommended |
| • Memory space required on the hard disk | • Standard-PC: at least 256 MB, without the archives<br>• Microbox: Compact Flash card with at least 512 MB |
| • Additional hardware | • CD-ROM drive (for installing the software)<br>• USB connection (for transfer of licenses) |
| **Software requirements** | |
| Operating system | • Standard-PC: Windows XP Professional + SP2<br>• Microbox: Windows XP Embedded + SP2 |
| Additional software | • Microsoft Internet Explorer V6.0 SP1 / SP2<br>• Adobe Acrobat Reader 5.02 |

## Selection and Ordering data

| | | Order No. |
|---|---|---|
| **SIMATIC RF-MANAGER** | | |
| Data & Device Management Software for RFID applications, Version 2008 | | |
| Complete version: | ► C | **6GT2080-3CA00-8AA5** |
| • License for one reader | ► C | **6GT2080-3CC00-8AA5** |
| • License for 5 readers | ► C | **6GT2080-3CE00-8AA5** |
| • License for 20 readers | ► C | **6GT2080-3CG00-8AA5** |
| Upgrade: | | |
| • License for one reader | ► C | **6GT2080-3CA00-8AE5** |
| • License for 5 readers | ► C | **6GT2080-3CC00-8AE5** |
| • License for 20 readers | ► C | **6GT2080-3CE00-8AE5** |
| • License for 50 readers | ► C | **6GT2080-3CG00-8AE5** |

C: Subject to export regulations AL = N and ECCN = EAR99S
► Preferred type, available from stock.

**Notes**