PRODUCT INFORMATION


# RFID

## INTELLIGENT IDENTIFICATION

RFH6xx, RFU62x, RFU63x

SICK
Sensor Intelligence.

# SIMPLE AND CLEVER IDENTIFICATION WITH RFID

The high impetus in global markets produces an ever-increasing competitive pressure. Stringent standards, more and more compact product lifecycles and individual customer requests place high demands on data transparency within a company – RFID from SICK meet these demands.

Increasingly, global networks are replacing closed added-value chains. The goal here is to achieve best possible efficiency over the entire production and distribution path by means of gap-free data transparency. This is possible using RFID technology (Radio Frequency Identification), which is today defining the trends in contemporary factory and logistics automation. This is how it works: a memory chip that is identified per radio frequency is attached to an object. The data on the chip can be output and re-written as required.

Using RFID technology brings numerous benefits. It accelerates logistics processes are automates identification procedures. The result: a clear reduction in the manual steps that were required previously. Data acquisition is carried out without error and also enables additional data to be recorded. This makes for enhanced process transparency overall.

In **factory automation**, the required information is handled remotely on the object and provides up-to-date information about the steps being performed in the current production flow. This allows an increase in the number of variants and permits a flexible design of production processes.

In **logistics automation**, centralized data management and current data standards ensure transparency along the entire supply chain. They provide common access to important information concerning production-related questions, and span location, national and company boundaries.



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## Features of RFID

**Read without visual contact**

Radio-based identification is not adversely affected, not even in contaminated and iced environments.

**(Re-)writable data media**

Process-relevant data are modified directly at the object and/or stored on the data medium.

**Bulk reading**

Simultaneous automatic identification of several objects.

**Maintenance-free**

Contamination or wear poses no problem for identification.

**Long service life**

Identification technology without mechanical and optical components ensure prolonged service life.

## Good reasons for RFID from SICK

**Secure investment**

Proven global standards adopted.

**Compact devices**

All devices with integrated antenna, integrated evaluation unit (signal and data processing) and integrated connectivity.

**High functionality**

- Flexible trigger options and output formats
- Event-independent output behavior (GoodRead/NoRead)
- Digital switching inputs and outputs
- Concept for parameter cloning
- Single configuration software SOPAS

### RFH620 ▸ Page 10

- Cost-efficient compact device

### RFH630 ▸ Page 10

- 1 W transmitting power for large reading range
- Connection for external antenna

### RFU62x ▸ Page 16

- Optimized reading field for applications up to 1 m
- Suitable for deep-freezing down to –40 °C
- Connection type PoE

### RFU63x ▸ Page 22

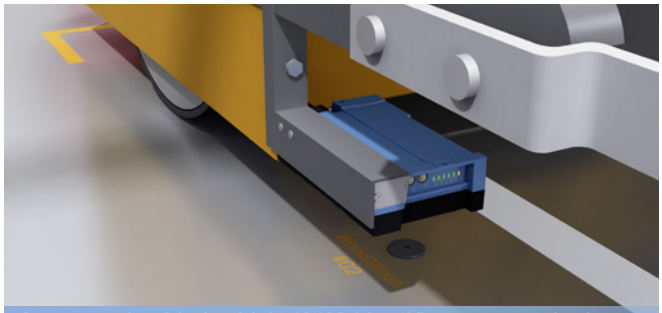
- 2 W (ERP) transmitting power for large scanning ranges
- Connections for external antennas for gate solutions

| Technology | HF (High Frequency) | UHF (Ultra High Frequency) |
|---|---|---|
| **Products from SICK** | **RFH620 and RFH630** | **RFU62x and RFU63x** |
| **Frequency** | Uniform worldwide:<br>13.56 MHz | Regional variance, e. g.:<br>865–868 MHz (Europe)<br>902–928 MHz (North America)<br>920–925 MHz (China)<br>916–920 MHz (Japan) |
| **Standard** | ISO 15693 / ISO 18000-3 | ISO 18000-6C |
| **Transmission principle** | Load modulation in the near field by means of inductive coupling<br>⊕ Very well-defined reading range<br>⊖ Low scanning range | Backscattering in the far field by means of capacitive coupling<br>⊕ High scanning ranges<br>⊖ Overranges possible |
| **Scanning range** | Up to 0.3 m [1] | Up to 5 m [1] |
| **Data format** | Unique ID directly available on each transponder using ISO standard 15693 | GS1 data standards<br>Electronic Product Code (EPC) |
| **Data quantity (transponder)** | Typical 64 bit (8 bytes) / max. 64 Kbit (8 Kbytes) | Typical 96 bit (12 bytes) / max. 32 Kbit (4 Kbytes) |
| **Typical application processes** | Closed circuits with decentralized data management; e. g.: process control within the production line | Open added-value chain; e. g. supply chain over several locations with central database concept |
| **Influencing factors** | | |
| Transponder in water | Full functionality | High attenuation, comprehensive reduction in range |
| Transponder in metal environment | Full functionality while maintaining a minimum distance of 20 mm or when using an on-metal transponder | |

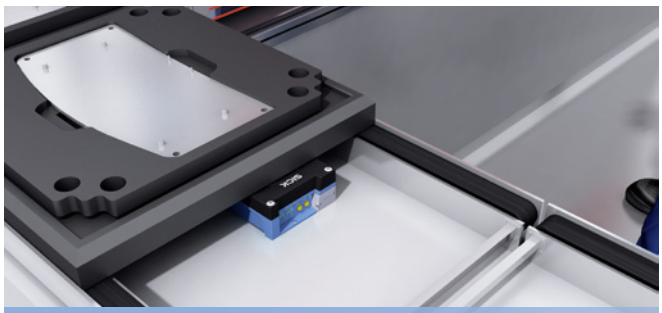
[1] Depending on the transponder used and ambient conditions.

The RFID read/write devices from SICK provides the perfect identification solution for various applications, including production control, component detection or logistics and the control of material flow. Always with a focus on high flexibility, verifiability and efficient system management.

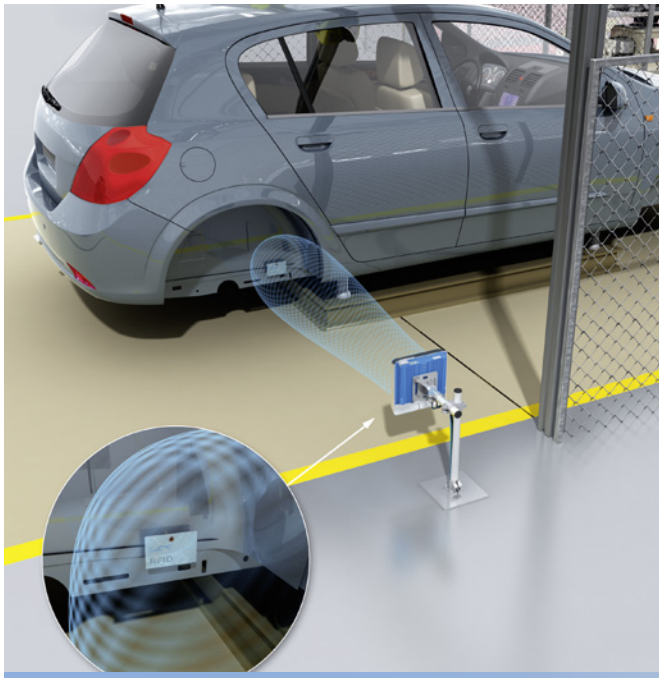
## FACTORY AUTOMATION



Automated guided vehicle (AGV) identifies transponder in floor to detect position ➜ RFH6xx



Identification of work piece carrier ➜ RFH620



Car body identification in automotive production ➜ RFU63x

Motor block identification for production control ➜ RFU62x



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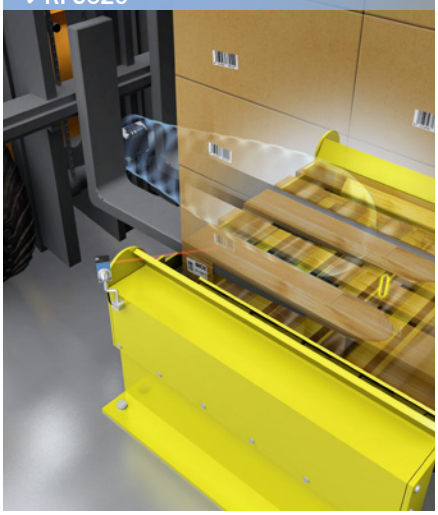
# LOGISTICS AUTOMATION


Data merging from bar code to RFID ➜ CLV6xx and RFU620

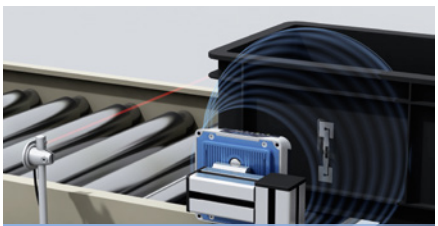
Identification of storage locations ➜ RFU620

Driver assistance in narrow aisle ➜ RFH630

Pallet identification at the fork lift truck ➜ RFU620

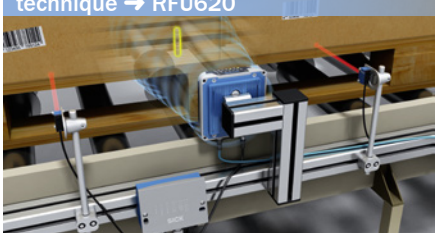



Identification on suspended conveyor systems ➜ RFH620



Container identification for conveyor technique ➜ RFU620

Pallet identification for conveyor technique ➜ RFU620



# ID*pro* CONNECTS

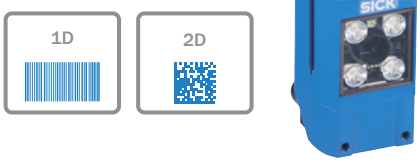

RFID

**Interchangeable**

Identification solutions with
- identical connection systems
- identical user interfaces
- identical accessories

CAMERA

LASER SCANNER







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A single source for all your technology needs

# ALL YOU CAN READ

Ensure your investment over the long term

ID*pro* represents SICK's expertise in all three automatic identification technologies: **laser scanner, camera** and **RFID.**

All ID*pro* devices are compatible and interchangeable via our standardized ID*pro* platform. To elp you choose the ideal identification technology, we will provide you with comprehensive information to determine the best technology choice.

As the market leader with the largest number of worldwide installations, we have the experience and widest range of solutions that provide maximum uptime and reduced costs.

## The benefits of ID*pro* devices

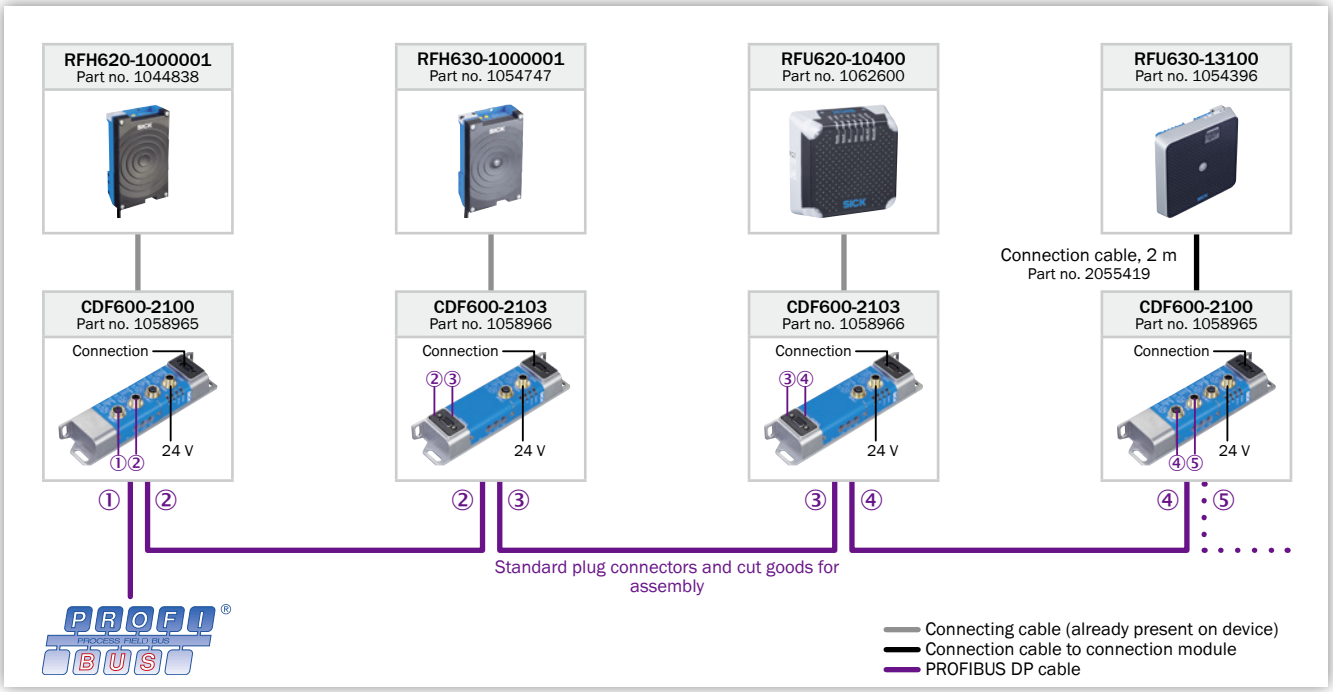
- **Reduced integration effort**
  thanks to standardized ID*pro* platform
- **Simple commissioning**
  even with cross-technology applications
- **Maximum process reliability**
  through the use of common industry standards in the connection systems
- **Fast and flexible exchanging**
  due to standardized connection systems
- **Low-cost maintenance**
- **Fast training in the three identification technologies**
  thanks to the standardized operating concept with a single operation software
- **Investment security**
  due to the ability to easily switch between technologies with the same connection systems
- **Low storage effort, low storage costs**
  due to fewer components and accessories
- **Information from a single source**
  cross-technology and comprehensive

# MODULAR CONNECTORS ALL FROM A SINGLE SOURCE

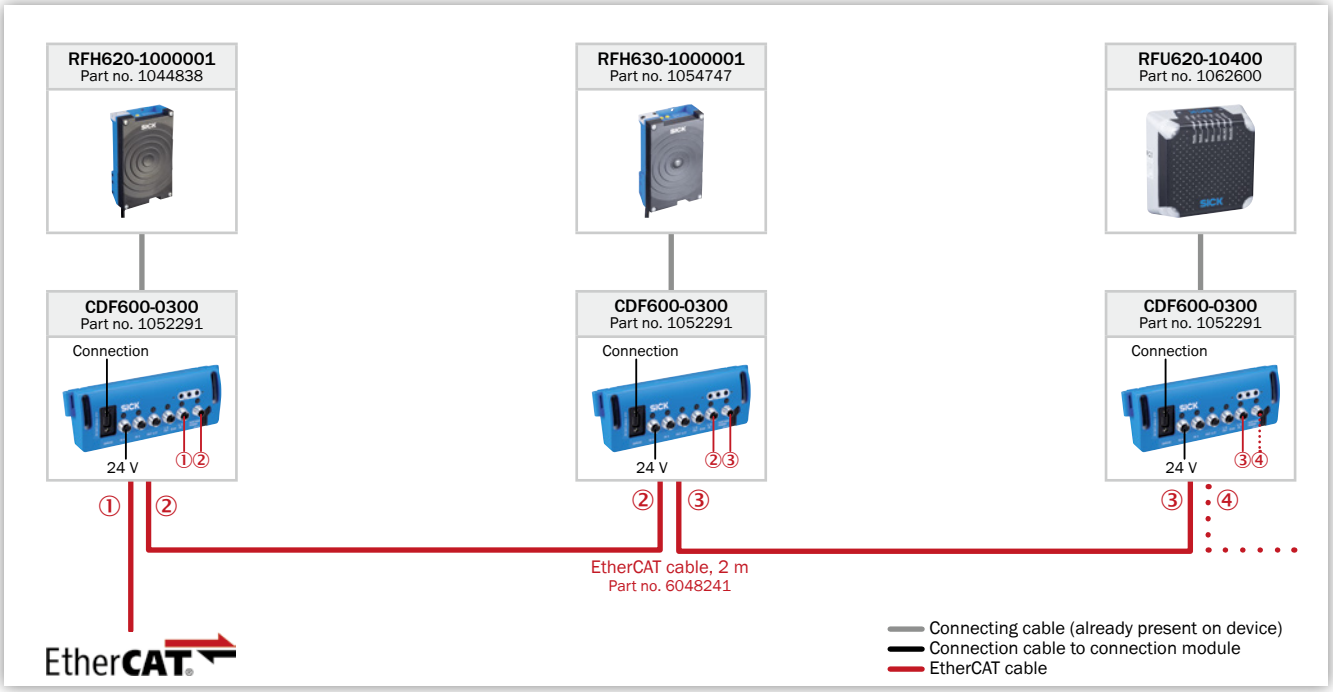
The ability to network auto-ID sensors is becoming particularly important in the light of demands for cost-effective solutions. SICK has the tools to stand up to this challenge: Through the IDpro platform, it offers a product portfolio that is perfect for fieldbus systems.

It gives you the freedom to select the identification technology you require, and enables flexible connection to numerous fieldbus technologies with very little cabling work. The function blocks, available free of charge, keep the amount of work required for integration and programming in the PLC to a minimum.

## PROFIBUS DP




## EtherCAT



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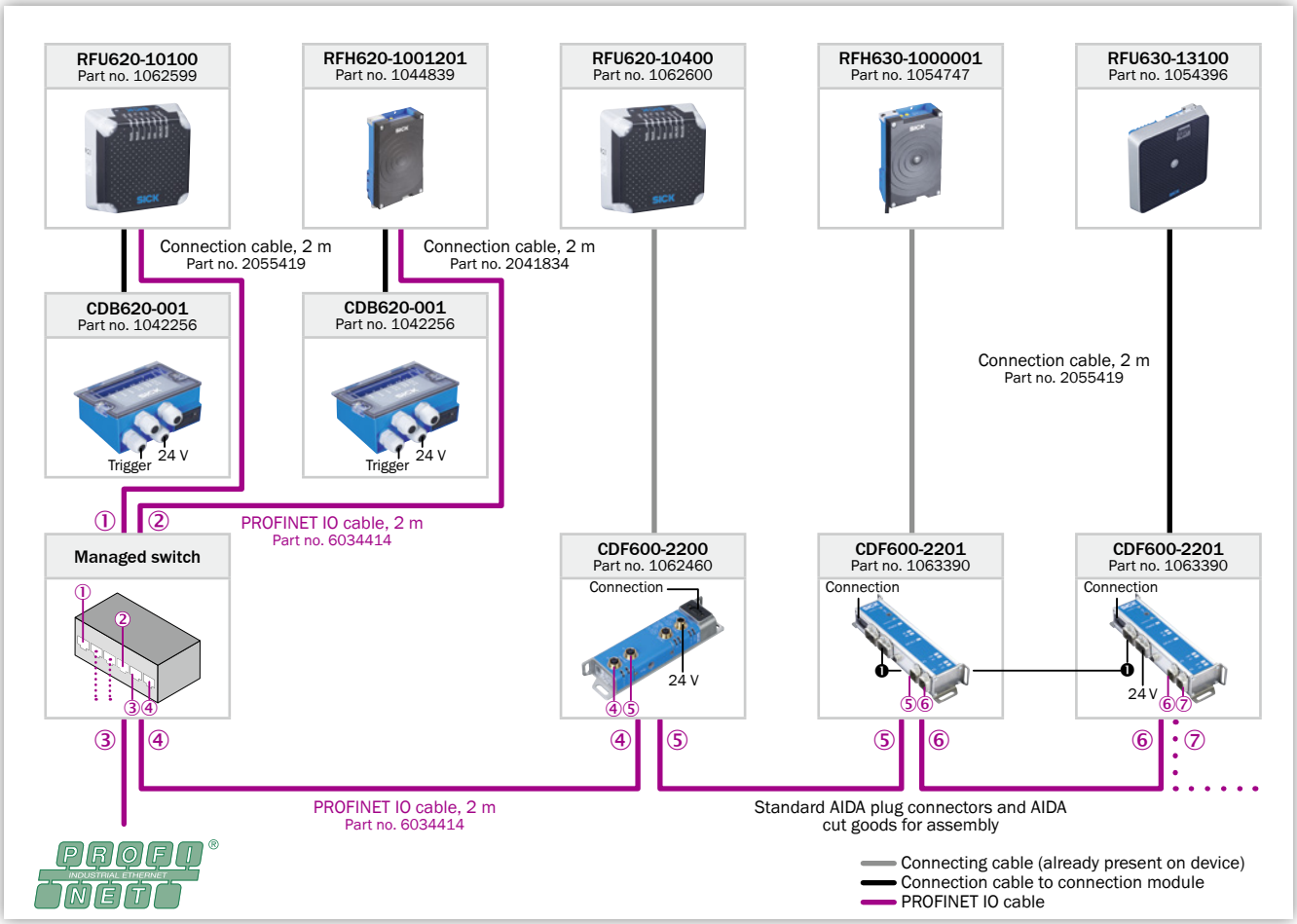
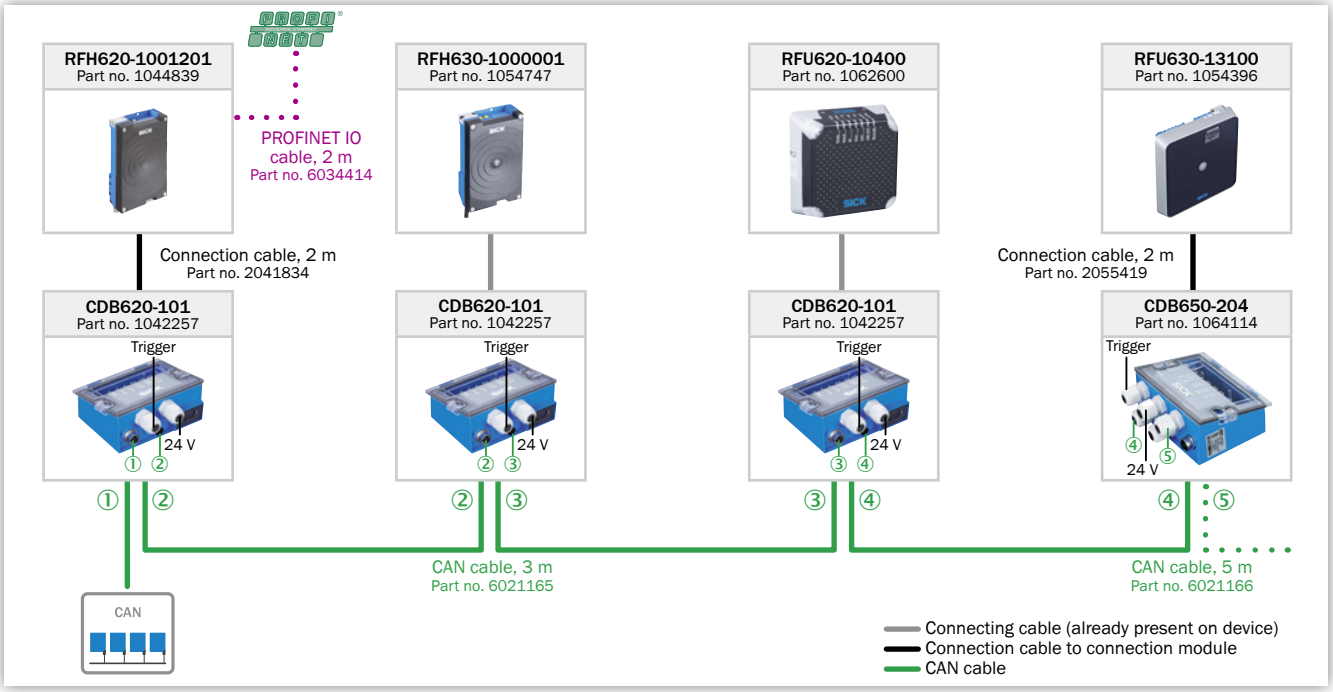
## PROFINET IO




## SICK CAN sensor network



# INTELLIGENT RFID COMMUNICATION


## Product description

The RFH6xx is a compact, high frequency (HF) read/write device for ranges up to 240 mm. It is compatible with ISO/IEC 15693. Thanks to its compact design and integrated antenna, it is a cost-effective and flexible solution for logistics. Integrated signal and data processing ensure extremely high identification process speeds. Trigger signals and output control enable use as a locally controlled unit. Compatible with all ID*pro* accessories, such as CMC600, and uses SOPAS operating software.

## At a glance

- 13.56 MHz RFID write/read device for ranges up to 240 mm
- Transponder communication according to ISO/IEC 15693 standard
- Compact, industrial design with integrated antenna
- Embedded protocols allow interfacing with standard industrial fieldbus technologies
- Powerful micro-processor executes internally configurable logic
- Flexible trigger control
- Supports parameter cloning via microSD memory card
- Built-in diagnostics

## Your benefits

- Reliable identification ensures maximum throughput
- Adapts to changing needs, ensures investment over the long term
- Simple integration saves installation time
- A wide range of functionality ensures flexible solutions
- Maintenance-free
- Uses same connectivity and configuration software as SICK's bar code scanners and image-based code readers – compatible through standardized ID*pro* platform

## Additional information

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→ www.mysick.com/en/RFH6xx

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



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## Detailed technical data

### Features

| | RFH620 Short Range | RFH630 Mid Range |
|---|---|---|
| **Carrier frequency** | 13.56 MHz | |
| **Output power** | 200 mW | 1,000 mW |
| **RFID standard** | ISO/IEC 15693, ISO 18000-3 Mode 1 | |
| **Scanning range** | Max. 150 mm [1)] | Max. 240 mm [1)] |
| **Antenna** | Integrated | Integrated / integrated, additional connection for external antenna (depending on type) |
| **Further functions** | Freely programmable data output format, heartbeat, diagnosis, cloning function (microSD memory card or system), updatable firmware, triggering | |
| **Typical access times** | Read UID (64 bit/8 Byte): 18 ms<br>Read 1 block (32 bit/4 Byte): 13 ms<br>Write 1 block (32 bit/4 Byte): 16 ms<br>Read 28 blocks (896 bit/112 Byte): 64 ms<br>Write 28 blocks (896 bit/112 Byte): 442 ms | |
| **Data transmission rate** | 26 kbit/s (default) | |

[1)] With RFID ISO card transponder in plane parallel alignment to read/write device antenna; depending on dimensions and quality of transponder.

### Interfaces

| | RFH620 Short Range | RFH630 Mid Range |
|---|---|---|
| **Serial (RS-232, RS-422)** | ✔ | |
| Data transmission rate | 0.3 kBaud ... 500 kBaud | |
| **Ethernet** | – / ✔ (depending on type) | |
| Data transmission rate | 10/100 Mbit | |
| Protocol | TCP/IP, EtherNet/IP, PROFINET (optional via external connection module CDM), EtherCAT (optional via external connection module CDF600)<br>(depending on type) | |
| **CAN bus** | ✔ | |
| Data transmission rate | 20 kbit/s ... 1,000 kbit/s | |
| Protocol | CANopen, CSN (SICK CAN Sensor Network) | |
| **PROFIBUS DP** | ✔, optional via external connection module (CDF) | |
| **DeviceNet** | ✔, optional available externally | |
| **Switching inputs** | | |
| Cable | 4 (“Sensor 1”, “Sensor 2”, 2 inputs via optional CMC600 in CDB620/CDM420) | |
| Ethernet | 3 (“Sensor 1”, 2 inputs via optional CMC600 in CDB620/CDM420) | 4 (“Sensor 1”, “Sensor 2”, 2 inputs via optional CMC600 in CDB620/CDM420) |
| **Switching outputs** | | |
| Cable | 4 (“Result 1”, “Result 2”, 2 outputs via optional CMC600 in CDB620/CDM420) | |
| Ethernet | 2 (via CMC600 in CDB620/CDM420) | 4 (“Result 1”, “Result 2”, 2 outputs via optional CMC600 in CDB620/CDM420) |
| **Optical indicators** | 6 LEDs (Ready, Result, RF, Data, CAN, LNK TX) | 7 LEDs (feedback LED, status displays, Ready, Result, RF, Data, CAN, LNK TX) |
| **Acoustic indicators** | 1 beeper (to confirm reading, adjustable) | |

## Mechanics/electronics

| | RFH620 Short Range | RFH630 Mid Range |
|---|---|---|
| **Electrical connection** | | |
| Cable | 1 cable with 15-pin D-sub HD plug | |
| Ethernet | 1 swivel connector with 4-pin M12 female connector and 12-pin M12 male connector | 1 swivel connector with 4-pin M12 female connector and 17-pin M12 male connector |
| **Operating voltage** | 10 V DC ... 30 V DC | |
| **Power consumption** | Typ. 5 W | Typ. 8 W |
| **Housing color** | Blue, black | |
| **Enclosure rating** | IP 67 | |
| **Protection class** | III | |
| **Weight** | | |
| Cable | 520 g, with connecting cable | 760 g, with connecting cable |
| Ethernet | 450 g | 710 g |
| **Dimensions** | 147 mm x 88 mm x 39 mm [1] (depending on type) | |

[1] Swivel connector is 15 mm longer.

## Ambient data

| | RFH620 Short Range | RFH630 Mid Range |
|---|---|---|
| **Electromagnetic compatibility (EMC)** | EN 301489-3 V1.4.1 Receiver Class 2 | |
| **Vibration resistance** | EN 60068-2-6 | |
| **Shock resistance** | EN 60068-2-27 | |
| **Ambient operating temperature** | –20 °C ... +60 °C | –20 °C ... +50 °C |
| **Storage temperature** | –25 °C ... +70 °C | |
| **Permissible relative humidity** | 95 %, non-condensing | |

## Ordering information

- **Product category:** write/read device with integrated antenna
- **Frequency band:** HF (13.56 MHz)
- **Radio equipment type approval:** global (EN 300330-2 V1.5.1, FCC Part 15)

| Version | Connection type | Model name | Part no. |
|---|---|---|---|
| RFH620 Short Range | Cable | RFH620-1000001 | 1044838 |
| | Ethernet | RFH620-1001201 | 1044839 |
| RFH630 Mid Range | Cable | RFH630-1000001 | 1054747 |
| | Ethernet | RFH630-1102101 | 1054746 |


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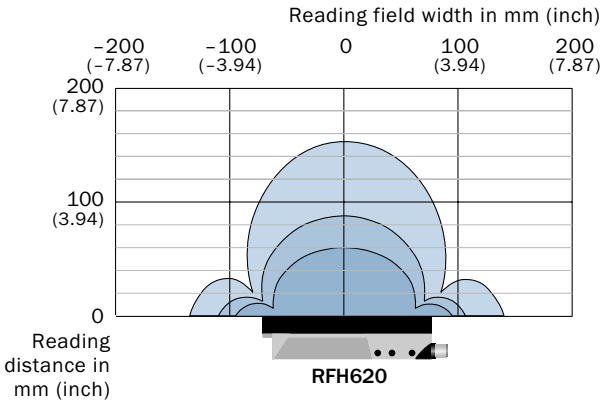
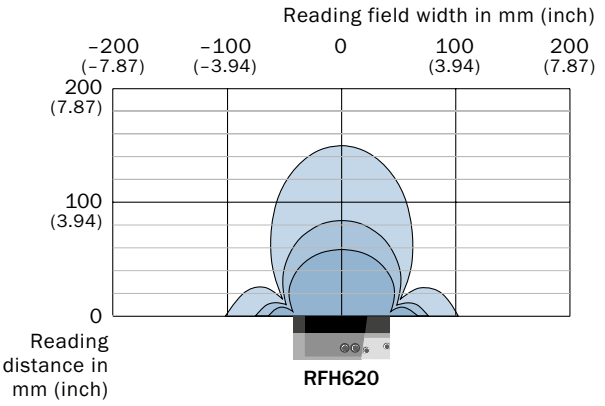
## Reading field diagrams

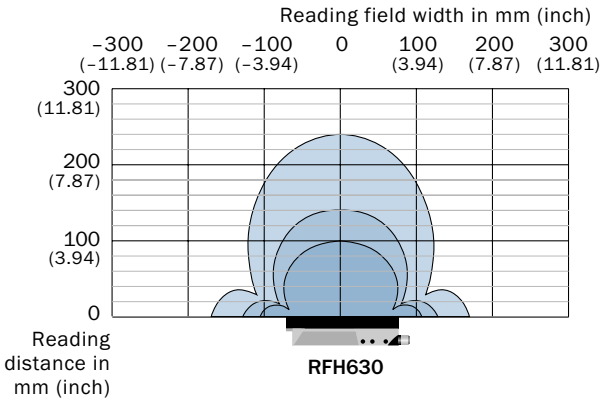
RFH620

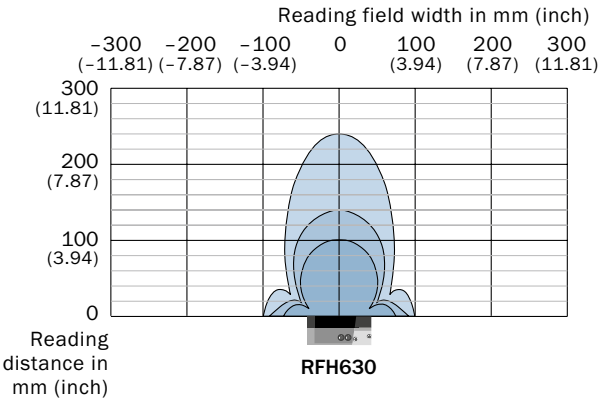



ISO Card
Disc 30
Coin 16

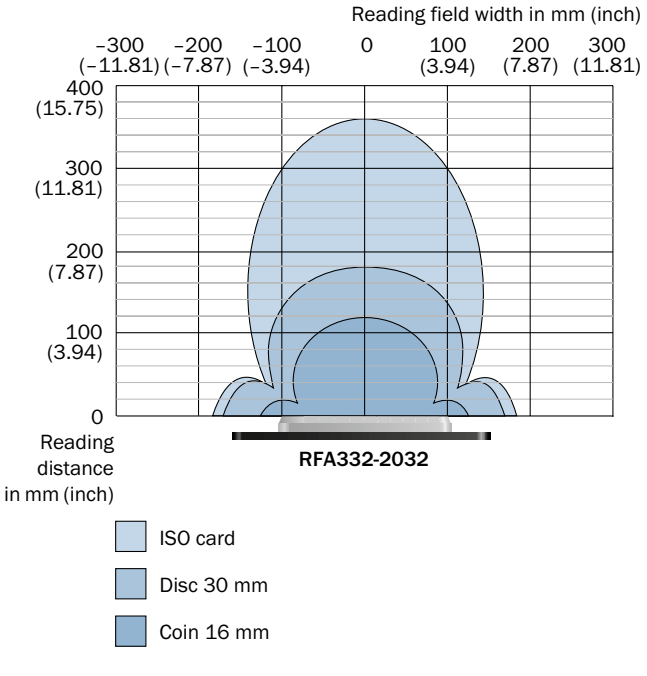
RFH630

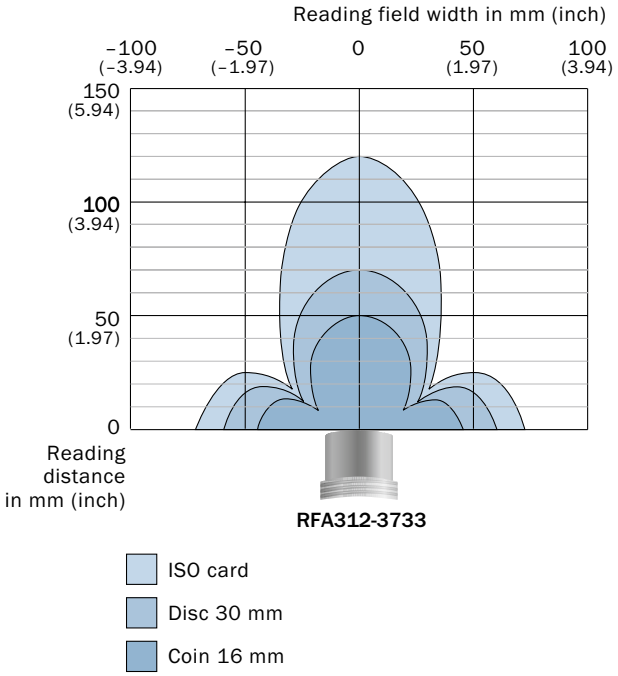



ISO Card
Disc 30
Coin 16

RFH630 with external antennas

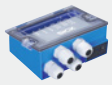



## Recommended accessories

### Connection systems

Modules

| | Brief description | Type | Part no. | RFH620 Cable | RFH620 Ethernet | RFH630 Cable | RFH630 Ethernet |
|---|---|---|---|---|---|---|---|
|  | Small connection module for one sensor, 4 cable glands, base for CMC600 | CDB620-001 | 1042256 | ● | ● | ● | ● |
|  | Fieldbus proxy/gateway for connecting identification sensors to PROFIBUS-DP networks (PROFIBUS interface: 2 x M12, male connector/female connector, 5-pin) | CDF600-2100 | 1058965 | ● | ● | ● | ● |
|  | Fieldbus proxy/gateway for connecting one identification sensor to PROFINET-IO networks (interface 2 x M12, female connector/female connector, 4-pin) | CDF600-2200 | 1062460 | ● | ● | ● | ● |



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Plug connectors and cables

| | Signal type/ application | Connection type head A | Connection type head B | Cable | Cable length | Part no. | RFH620 Cable | RFH620 Ethernet | RFH630 Cable | RFH630 Ethernet |
|---|---|---|---|---|---|---|---|---|---|---|
|  | Power, serial, CAN, digital I/Os | Female connector, M12, 12-pin, straight | Male connector, D-Sub-HD, 15-pin, straight | To connection module CDx (except CDB650) | 2 m | 2041834 | – | ● | – | – |
|  | Power, serial, CAN, digital I/Os | Female connector, M12, 17-pin, straight | Male connector, D-Sub-HD, 15-pin, straight | To connection module CDx (except CDB650) | 2 m | 2055419 | – | – | – | ● |
|  | Ethernet | Male connector, M12, 4-pin, straight, D-coded | Male connector, RJ45, 8-pin, straight | – | 2 m | 6034414 | – | ● | – | ● |

## Mounting systems

Mounting brackets/plates

| | Brief description | Part no. | RFH620 Cable | RFH620 Ethernet | RFH630 Cable | RFH630 Ethernet |
|---|---|---|---|---|---|---|
|  | Mounting bracket | 2048551 | ● | ● | ● | ● |

## Other accessories

RFID transponder

| | Brief description | Part no. | RFH620 Cable | RFH620 Ethernet | RFH630 Cable | RFH630 Ethernet |
|---|---|---|---|---|---|---|
|  | HF transponder, PA 6, diameter 50 mm, NXP ICODE SLIX | 6033781 | ● | ● | ● | ● |

➜ For additional accessories, please see page 27

# SHORT-RANGE ULTRA HIGH FREQUENCY SCANNER


## Product description

The RFU62x is a UHF RFID read/write device suitable for scanning ranges of up to 1 m. Transponder communication is compliant with the ISO/IEC18000-6C (EPC Class 1 Gen 2) standard. The device can be configured to operate from the SOPAS user interface or by sending ASCII commands directly. The well-defined, characteristic read/write range is particularly well-suited for automatic identification over small object distances, e.g., in conveyor technique.

## At a glance

- Compact UHF RFID read/write device with integrated antenna for scanning ranges of less than 1 m
- Standard-compatible transponder interface (ISO/IEC 18000-6C / EPC C1G2)
- Supports industry-standard data interfaces and fieldbuses, as well as PoE
- MicroSD memory card for parameter cloning
- Extensive diagnostic and service functions

## Your benefits

- Correct assignment and no overshoot thanks to the well-defined read/write range and intelligent filter functions
- Integrated process logic for remote solutions saves additional control and programming effort
- Can be easily integrated into industrial networks thanks to IDpro compatibility
- Firmware upgrades and industry-standard compliance ensure long-term reliability
- Minimum changeover times in case of failure thanks to cloning
- RFU62x can be mounted to metal directly – no loss of range
- Easy operation and installation with SOPAS user interface

IDpro

IP67

RoHS 2011/65/EU

## Additional information

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Radiation pattern . . . . . 19
Recommended accessories . . . . . 19

→ www.mysick.com/en/RFU62x

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



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## Detailed technical data

### Features

| | |
|---|---|
| **Version** | Mid Range |
| **Carrier frequency** | |
| Europe | 865 MHz ... 868 MHz |
| North America | 902 MHz ... 928 MHz |
| **Output power** | 250 mW (ERP, 24 dBm) |
| **RFID standard** | EPCglobal UHF Class 1 Generation 2, ISO/IEC 18000-6 C |
| **MTBF** | 23 years |
| **Heating** | |
| Cable | Yes |
| Ethernet | No |
| PoE | No |
| **Scanning range** | Max. 1 m [1] |
| **Antenna** | |
| Europe | Integrated (circular polarized, axial ration typ. 2 dB, 100° field opening, front to back ratio > 7 dB) |
| North America | Integrated (circular polarized, axial ration typ. 3 dB, 100° field opening, front to back ratio > 7 dB) |
| **Service functions** | Parameter cloning with integrated microSD memory card slot or externally via CMC module in CDB620 |
| **Further functions** | Cloning function (microSD memory card or system), diagnosis, updatable firmware, freely programmable data output format, heartbeat, triggering |

[1] Depending on transponder used and ambient conditions.

### Interfaces

| | |
|---|---|
| **Serial (RS-232, RS-422)** | ✔ / – (depending on type) |
| Function | Host, AUX (only RS-232) |
| Data transmission rate | 300 Baud ... 115.2 kBaud, AUX: 57.6 kBaud (RS-232) |
| **USB** | ✔, USB 2.0 |
| Function | AUX |
| **Ethernet** | – / ✔ (depending on type) |
| Function | Host, AUX, PoE (depending on type) |
| Data transmission rate | 10/100 Mbit |
| Protocol | TCP/IP, EtherNet/IP, PROFINET |
| **CAN bus** | ✔ / – (depending on type) |
| Function | Host |
| Protocol | CSN (SICK CAN Sensor Network) |
| **PROFIBUS DP** | ✔, optional via external connection module (CDF) |
| **DeviceNet** | ✔, optional available externally |
| **Switching inputs** | |
| Cable | 4 (“Sensor 1”, “Sensor 2”, 2 inputs via optional CMC600 in CDB620/CDM420) |
| Ethernet | 4 (“Sensor 1”, “Sensor 2”, 2 inputs via optional CMC600 in CDB620/CDM420) |
| PoE | 0 |

| | |
|---|---|
| **Switching outputs** | |
| Cable | 4 (“Result 1”, “Result 2”, 2 outputs via optional CMC600 in CDB620/CDM420) |
| Ethernet | 4 (“Result 1”, “Result 2”, 2 outputs via optional CMC600 in CDB620/CDM420) |
| PoE | 0 |
| **Optical indicators** | 11 LEDs (function configurable via SOPAS, alternatively controlling with sw commands, status displays) |

## Mechanics/electronics

| | |
|---|---|
| **Electrical connection** | |
| Cable | 1 15-pin D-sub HD male connector |
| Ethernet | 1 x M12, 17-pin male connector<br>1 x M12, 4-pin female connector Ethernet<br>Cylindrical connectors |
| PoE | 1 x M12, 18-pin male connector |
| **Operating voltage** | 10 V DC ... 30 V DC [1]<br>(depending on type) |
| **Power consumption** | 8 W, with activated heating for temperatures below –20 °C + 12 W, standby 3 W<br>(depending on type) |
| **Housing** | Die-cast aluminum<br>Plastic (PPS) |
| **Enclosure rating** | IP 67 |
| **Protection class** | III |
| **Weight** | 780 g |
| **Dimensions** | 137 mm x 131 mm x 56 mm |

[1] With heating 20 V DC ... 30 V DC.

## Ambient data

| | |
|---|---|
| **Electromagnetic compatibility (EMC)** | EN 61000-6-3 (2007)/A1 (2011) / EN 61000-6-2 (2005) |
| **Vibration resistance** | EN 60068-2-6 (2008-02) |
| **Shock resistance** | EN 60068-2-27 (2009-05) |
| **Ambient operating temperature** | |
| Cable | –25 °C ... +50 °C |
| Ethernet | –40 °C ... +50 °C |
| PoE | –25 °C ... +50 °C |
| **Storage temperature** | –40 °C ... +70 °C |
| **Permissible relative humidity** | 90 %, non-condensing |

## Ordering information

- **Product category:** write/read device with integrated antenna
- **Version:** Mid Range
- **Frequency band:** UHF (860 ... 960 MHz)

| Connection type | Radio approval [1] | Model name | Part no. |
|---|---|---|---|
| Cable | Europe (EN 302 208-2 V1.4.1) | RFU620-10400 | 1062600 |
| | USA, Canada (FCC Part 15) | RFU620-10401 | 1062603 |
| Ethernet | Europe (EN 302 208-2 V1.4.1) | RFU620-10100 | 1062599 |
| | USA, Canada (FCC Part 15) | RFU620-10101 | 1062602 |
| PoE | Europe (EN 302 208-2 V1.4.1) | RFU620-10500 | 1062601 |
| | USA, Canada (FCC Part 15) | RFU620-10501 | 1062604 |

[1] Further radio approvals in preparation or on request.


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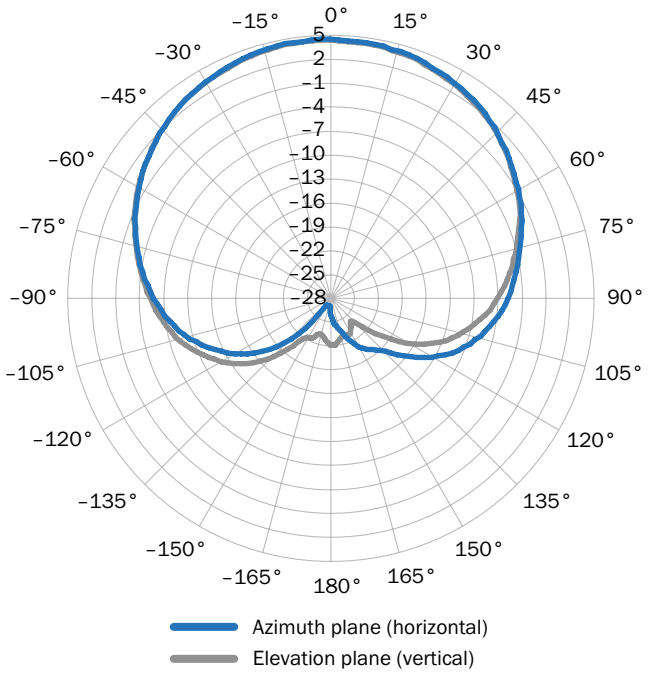
## Radiation pattern

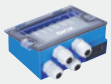
Measured antenna gain in dBic at 886.5 MHz,
RHCP (right-hand circular polarized)




## Recommended accessories

### Connection systems

Modules

| | Brief description | Type | Part no. | RFU62x Cable | RFU62x Ethernet | RFU62x PoE |
|---|---|---|---|---|---|---|
|  | Small connection module for one sensor, 4 cable glands, base for CMC600 | CDB620-001 | 1042256 | ● | ● | – |
|  | Fieldbus proxy/gateway for connecting identification sensors to PROFIBUS-DP networks (PROFIBUS interface: 2 x M12, male connector/female connector, 5-pin) | CDF600-2100 | 1058965 | ● | ● | – |
|  | Fieldbus proxy/gateway for connecting one identification sensor to PROFINET-IO networks (interface 2 x M12, female connector/female connector, 4-pin) | CDF600-2200 | 1062460 | ● | ● | – |

Plug connectors and cables

| | Signal type/ application | Connection type head A | Connection type head B | Cable | Cable length | Part no. | RFU62x Cable | RFU62x Ethernet | RFU62x PoE |
|---|---|---|---|---|---|---|---|---|---|
|  | Power, serial, CAN, digital I/Os | Female connector, M12, 17-pin, straight | Male connector, D-Sub-HD, 15-pin, straight | To connection module CDx (except CDB650) | 2 m | 2055419 | – | ● | – |
|  | Ethernet | Male connector, M12, 4-pin, straight, D-coded | Male connector, RJ45, 8-pin, straight | – | 2 m | 6034414 | – | ● | – |
|  | Gigabit Ethernet/ PoE | Male connector, M12, 8-pin, straight, X-coded | Male connector, RJ45, 8-pin, straight | – | 2 m | 6049728 | – | – | ● |
|  | USB 2.0 | Male connector, USB-A | Male connector, Micro-B | – | 2 m | 6036106 | ● | ● | ● |

## Mounting systems

Mounting brackets/plates

| | Brief description | Part no. | RFU62x Cable | RFU62x Ethernet | RFU62x PoE |
|---|---|---|---|---|---|
|  | Simple mounting bracket | 2071067 | ● | ● | ● |

## Other accessories

RFID transponder

| | Brief description | Type | Part no. | RFU62x Cable | RFU62x Ethernet | RFU62x PoE |
|---|---|---|---|---|---|---|
|  | UHF transponder, global, thermoplastic, 51.5 mm x 47.5 mm x 10 mm, Impinj Monza 4 QT | On-metal Transponder (52 mm x 48 mm x 10 mm) | 6052346 | ● | ● | ● |

➜ For additional accessories, please see page 27



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# INTELLIGENT TECHNOLOGY ENSURES EASY INTEGRATION

## Product description

The RFU63x is an ultra-high frequency (UHF) RFID solution for industrial environments. Via integrated application management software, the RFU63x is able to solve common industrial applications without any external “middleware” and can, therefore, be used as a stand-alone solution. This is possible due to an integrated filter and data management system. With ID*pro* compatibility, the RFU63x is easy and cost-efficient to integrate in common industrial environments. Different options for parameter cloning between systems (e.g., integrated microSD memory card feature) reduce maintenance time. The integrated feedback LED can be used to read diagnostic or process feedback.

## At a glance

- UHF RFID read/write unit for industrial applications
- With or without integrated antenna, depending on the type (up to four external antennas can be connected)
- Standard-compliant transponder interface (ISO/IEC 18000-6C/EPC G2C1)
- Supports common industrial data interfaces and fieldbuses
- MicroSD memory card for device parameter cloning
- Several diagnostic and service options available

## Your benefits

- Intelligent technology allows stand-alone usage
- Highest reading/writing performance
- Flexible integration in common industrial fieldbuses via ID*pro* compatibility
- Less maintenance time due to an integrated cloning back-up system using microSD memory card
- Easily adapts to application requirements via SOPAS parameter setting tool
- Free usable feedback LED quickly provides read results and diagnostic information directly to the user

## Additional information

Detailed technical data . . . . . 23
Ordering information . . . . . .24
Radiation pattern . . . . . .25
Recommended accessories . . . . . .25

→ www.mysick.com/en/RFU63x

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



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## Detailed technical data

### Features

| | Write/read device with integrated antenna | Write/read device without integrated antenna |
|---|---|---|
| **Version** | Long Range | |
| **Carrier frequency** | | |
| Europe | 865 MHz ... 868 MHz | |
| North America | 902 MHz ... 928 MHz | |
| Australia | 920.25 MHz ... 925.75 MHz | – |
| China | 920.625 MHz ... 924.375 MHz | – |
| **Output power** | | |
| Europe | 2 W (ERP, for integrated antenna, alternatively 30 dBm at external antenna ports, output power adjustable) | 30 dBm at external antenna ports, output power adjustable |
| North America | 4 W (EIRP, for integrated antenna, alternatively 30 dBm at external antenna ports, output power adjustable) | 30 dBm at external antenna ports, output power adjustable |
| Australia | 4 W (EIRP, for integrated antenna, alternatively 30 dBm at external antenna ports, output power adjustable) | – |
| China | 2 W (ERP, for integrated antenna, alternatively 30 dBm at external antenna ports, output power adjustable) | – |
| **RFID standard** | EPCglobal UHF Class 1 Generation 2, ISO/IEC 18000-6 C | |
| **MTBF** | 14 years | |
| **Scanning range** | Typ. 5 m [1] | |
| **Antenna** | Integrated (circular polarized, axial ration typ. 2 dB, 72° field opening, front to back ratio > 17 dB), additionally 3 external antenna ports | 4 external antenna ports |
| **Service functions** | Parameter cloning with integrated microSD memory card slot or externally via CMC module in CDB620 | |
| **Further functions** | Cloning function (microSD memory card or system), diagnosis, updatable firmware, freely programmable data output format, heartbeat, triggering | |

[1] Depending on transponder used and ambient conditions.

### Interfaces

| | |
|---|---|
| **Serial (RS-232, RS-422/485)** | ✔ |
| Function | Host, AUX |
| Data transmission rate | 300 Baud ... 115.2 kBaud, AUX: 57.6 kBaud (RS-232) |
| **USB** | ✔, USB 2.0 |
| Function | AUX |
| **Ethernet** | ✔ |
| Function | Host, AUX |
| Data transmission rate | 10/100 Mbit |
| Protocol | TCP/IP, EtherNet/IP, PROFINET |
| **CAN bus** | ✔ |
| Function | Host |
| Protocol | CSN (SICK CAN Sensor Network) |
| **PROFIBUS DP** | ✔, optional via external connection module (CDF) |
| **DeviceNet** | ✔, optional available externally |
| **Switching inputs** | 4 (“Sensor 1”, “Sensor 2”, 2 inputs via optional CMC600 in CDB620/CDM420) |

| | |
|---|---|
| **Switching outputs** | 4 (“Result 1”, “Result 2”, 2 outputs via optional CMC600 in CDB620/CDM420) |
| **Optical indicators** | 8 LEDs, one of them multi-colored (function configurable via SOPAS, alternatively controlling with sw commands, status displays) |
| **Acoustic indicators** | 1 beeper/buzzer (can be switched off, can be allocated as a result indication function) |
| **Control elements** | 2 buttons (choose and start/stop functions) |

## Mechanics/electronics

| | |
|---|---|
| **Electrical connection** | 1 x M12, 17-pin male connector<br>1 x M12, 4-pin female connector Ethernet<br>Cylindrical connectors |
| **Operating voltage** | 12 V DC ... 30 V DC |
| **Power consumption** | < 20 W, with switching outputs not connected and full transmit power |
| **Housing** | Die-cast aluminum |
| **Housing color** | Blue, black, silver |
| **Enclosure rating** | IP 67 |
| **Protection class** | III |
| **Weight** | 3.5 kg |
| **Dimensions** | 239 mm x 239 mm x 64 mm |

## Ambient data

| | |
|---|---|
| **Electromagnetic compatibility (EMC)** | EN 61000-6-4 (2007-09) / EN 61000-6-2 (2009-05) |
| **Vibration resistance** | EN 60068-2-6 (2008-02) |
| **Shock resistance** | EN 60068-2-27 (2009-05) |
| **Ambient operating temperature** | –25 °C ... +50 °C |
| **Storage temperature** | –30 °C ... +70 °C |
| **Permissible relative humidity** | ± 90 %, non-condensing |

## Ordering information

- **Version:** Long Range
- **Frequency band:** UHF (860 ... 960 MHz)

| Product category | Radio approval [1] | Model name | Part no. |
|---|---|---|---|
| Write/read device with integrated antenna | Europe, South Africa, Saudi Arabia (EN 302 208-2 V1.4.1) | RFU630-13100 | 1054396 |
| | USA, Canada, México (FCC Part 15) | RFU630-13101 | 1054397 |
| | Australia (AS/NZ4268) | RFU630-13102 | 1058775 |
| | China (SRRC) | RFU630-13105 | 1057943 |
| Write/read device without integrated antenna | Europe (EN 302 208-2 V1.4.1) | RFU630-04100 | 1058117 |
| | USA, Canada (FCC Part 15) | RFU630-04101 | 1059999 |

[1] Further radio approvals in preparation or on request.



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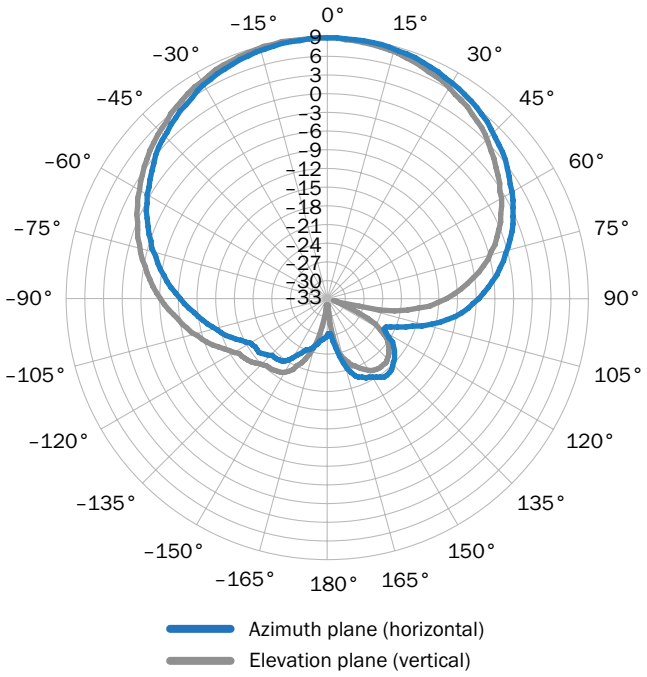
## Radiation pattern

Measured antenna gain in dBic at 886.5 MHz,
RHCP (right-hand circular polarized)




## Recommended accessories

### Connection systems

Modules

| | Brief description | Type | Part no. |
|---|---|---|---|
|  | Connection device basic for connecting one sensor with 2 A fuse, 5 cable glands and RS-232 interface to sensor via M12, 17-pin female connector, all outputs available on screw/spring-loaded terminals | CDB650-204 | 1064114 |
|  | Fieldbus proxy/gateway for connecting identification sensors to PROFIBUS-DP networks (PROFIBUS interface: 2 x M12, male connector/female connector, 5-pin) | CDF600-2100 | 1058965 |
|  | Fieldbus proxy/gateway for connecting identification sensors to PROFIBUS-DP networks (PROFIBUS interface: 1 x D-Sub, female connector, 9-pin) | CDF600-2103 | 1058966 |
|  | Fieldbus proxy/gateway for connecting one identification sensor to PROFINET-IO networks (interface 2 x M12, female connector/female connector, 4-pin) | CDF600-2200 | 1062460 |

Plug connectors and cables

| | Signal type/ application | Connection type head A | Connection type head B | Cable | Cable length | Part no. |
|---|---|---|---|---|---|---|
|  | Power, serial, CAN, digital I/Os | Female connector, M12, 17-pin, straight | Male connector, D-Sub-HD, 15-pin, straight | To connection module CDx (except CDB650) | 0.9 m | 2049764 |
|  | Ethernet | Male connector, M12, 4-pin, straight, D-coded | Male connector, RJ45, 8-pin, straight | – | 2 m | 6034414 |
|  | USB 2.0 | Male connector, USB-A | Male connector, Micro-B | – | 2 m | 6036106 |

Power supply units/power cord connectors

| | Brief description | Part no. |
|---|---|---|
|  | Power supply unit with pre-assembled M12 female connector, 17-pin | 2062249 |

## Mounting systems

Mounting brackets/plates

| | Brief description | Part no. |
|---|---|---|
|  | Mounting bracket for wall mounting, incl. assembly material | 2060912 |

## Other accessories

RFID transponder

| | Brief description | Type | Part no. |
|---|---|---|---|
|  | UHF transponder, global, thermoplastic, 51.5 mm x 47.5 mm x 10 mm, Impinj Monza 4 QT | On-metal Transponder (52 mm x 48 mm x 10 mm) | 6052346 |

➜ For additional accessories, please see page 27



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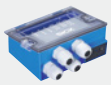
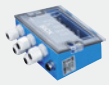
## Accessories

### Connection systems

#### Modules

| | Brief description | Type | Part no. | RFH620 cable | RFH620 Ethernet | RFH630 cable | RFH630 Ethernet | RFU62x cable | RFU62x Ethernet | RFU62x PoE | RFU63x |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Small connection module for one sensor, 4 cable glands, base for CMC600 | CDB620-001 | 1042256 | ● | ● | ● | ● | ● | ● | – | – |
|  | Small connection module for one sensor, 2 cable glands, 2 x M12 connector/female connector for CAN, base for CMC600 | CDB620-101 | 1042257 | ● | ● | ● | ● | ● | ● | – | – |
|  | Small connection module for a sensor, 5 cable glands, female connector for CMC cloning module | CDB620-201 | 1042258 | ● | ● | ● | ● | ● | ● | – | – |
|  | Connection device basic for connecting one sensor with 2 A fuse, 5 cable glands and RS-232 interface to sensor via M12, 17-pin female connector, all outputs available on screw/spring-loaded terminals | CDB650-204 | 1064114 | – | – | – | – | – | – | – | ● |
|  | Fieldbus proxy/gateway for connecting identification sensors to PROFIBUS-DP networks (PROFIBUS interface: 2 x M12, male connector/female connector, 5-pin) | CDF600-2100 | 1058965 | ● | ● | ● | ● | ● | ● | – | ● |
|  | Fieldbus proxy/gateway for connecting identification sensors to PROFIBUS-DP networks (PROFIBUS interface: 1 x D-Sub, female connector, 9-pin) | CDF600-2103 | 1058966 | ● | ● | ● | ● | ● | ● | – | ● |
|  | Fieldbus proxy/gateway for connecting one identification sensor to PROFINET-IO networks (interface 2 x M12, female connector/female connector, 4-pin) | CDF600-2200 | 1062460 | ● | ● | ● | ● | ● | ● | – | ● |
|  | Fieldbus proxy/gateway for connecting one identification sensor to PROFINET-IO networks (interface 2 x RJ45 AIDA, female connector/female connector, 4-pin) | CDF600-2201 | 1063390 | ● | ● | ● | ● | ● | ● | – | ● |
|  | Fieldbus proxy/gateway to connect to a EtherCAT network | CDF600-0300 | 1052291 | ● | ● | ● | ● | ● | ● | – | – |
|  | Modular connection module for one sensor | CDM420-0001 | 1025362 | ● | ● | ● | ● | ● | ● | – | – |
|  | Modular connection module for two sensors | CDM420-0004 | 1028487 | ● | ● | ● | ● | ● | ● | – | – |
|  | Modular connection module for one sensor, 2 A fuse | CDM420-0006 | 1058634 | – | – | – | – | – | – | – | ● |
|  | Modular connection module for two sensors, 2 A fuse | CDM420-0007 | 1060324 | – | – | – | – | – | – | – | ● |
|  | Kit: modular connection module for one sensor, 2 A fuse,Host and AUX interface available on face plate, power supply CMP490, US power cord | CDM420-0108 | 1064248 | – | – | – | – | – | – | – | ● |
|  | External parameter memory for integration in CDB620/CDM42x | CMC600-101 | 1042259 | ● | ● | ● | ● | ● | ● | ● | ● |

Plug connectors and cables

| | Signal type/ application | Connection type head A | Connection type head B | Cable | Cable length | Part no. | RFH620 cable | RFH620 Ethernet | RFH630 cable | RFH630 Ethernet | RFU62x cable | RFU62x Ethernet | RFU62x PoE | RFU63x |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Power, serial, CAN, digital I/Os | Male connector, M12, 17-pin, straight, A-coded | Female connector, M12, 17-pin, straight, A-coded | To connection module CDB650, suitable for 2 A, Ecolab | 2 m | 6052286 | – | – | – | – | – | – | – | ● |
| | | | | | 3 m | 6051194 | – | – | – | – | – | – | – | ● |
| | | | | | 5 m | 6051195 | – | – | – | – | – | – | – | ● |
|  | Power, serial, CAN, digital I/Os | Female connector, M12, 17-pin, straight | Male connector, D-Sub, 15-pin, straight | To connection module CDx (except CDB650) | 0.35 m | 2056184 | – | – | – | ● | – | ● | – | ● |
| | | | | | 0.9 m | 2049764 | – | – | – | ● | – | ● | – | ● |
| | | | | | 2 m | 2055419 | – | – | – | ● | – | ● | – | ● |
| | | | | | 3 m | 2055420 | – | – | – | ● | – | ● | – | ● |
| | | | | | 5 m | 2055859 | – | – | – | ● | – | ● | – | ● |
|  Illustration may differ | Power, serial, CAN, digital I/Os | Female connector, M12, 17-pin, straight | Cable | 17-pole, drag chain use | 5 m | 6045141 | – | – | – | ● | – | ● | – | ● |
|  | Power, serial, CAN, digital I/Os | Female connector, M12, 17-pin, straight, A-coded | Cable | 17-pole, suitable for 2 A, adapted color coding of open conductor heads, drag chain use, Ecolab | 3 m | 2070425 | – | – | – | ● | – | ● | – | ● |
| | | | | | 5 m | 2070426 | – | – | – | ● | – | ● | – | ● |
| | | | | | 10 m | 2070427 | – | – | – | ● | – | ● | – | ● |
|  | Power, serial, CAN, digital I/Os | Female connector, M12, 12-pin, straight | Male connector, D-Sub-HD, 15-pin, straight | To connection module CDx (except CDB650) | 0.9 m | 2042916 | – | ● | – | – | – | – | – | – |
| | | | | | 2 m | 2041834 | – | ● | – | – | – | – | – | – |
| | | | | | 3 m | 2042914 | – | ● | – | – | – | – | – | – |
| | | | | | 5 m | 2042915 | – | ● | – | – | – | – | – | – |
|  | Power, serial, CAN, digital I/Os | Female connector, M12, 17-pin, straight | Male connector, D-Sub-HD, 15-pin, straight | To connection module CDx (except CDB650), drag chain use | 2 m | 2061480 | – | – | – | ● | – | ● | – | ● |
| | | | | | 3 m | 2061605 | – | – | – | ● | – | ● | – | ● |
| | | | | | 5 m | 2061481 | – | – | – | ● | – | ● | – | ● |
|  | Power, serial, CAN, digital I/Os | Female connector, M12, 17-pin, straight | Male connector, D-Sub-HD, 15-pin, straight | To connection module CDx (except CDB650), drag chain use | 2 m | 2061478 | – | ● | – | – | – | – | – | – |
| | | | | | 3 m | 2061604 | – | ● | – | – | – | – | – | – |
| | | | | | 5 m | 2061479 | – | ● | – | – | – | – | – | – |
|  Illustration may differ | Power, serial, CAN, digital I/Os | Female connector, M12, 17-pin, straight | Cable | 17-pole | 3 m | 6042772 | – | – | – | ● | – | ● | – | ● |
| | | | | | 5 m | 6042773 | – | – | – | ● | – | ● | – | ● |
| | | | | | 10 m | 6048817 | – | – | – | ● | – | ● | – | ● |
|  | Power, serial, CAN, digital I/Os | Female connector, M12, 12-pin, straight | Cable | 12-pole | 5 m | 6034605 | – | ● | – | – | – | – | – | – |
|  | Power, serial, CAN, digital I/Os | Female connector, M12, 12-pin, straight | Cable | 12-pole, drag chain use | 5 m | 6045140 | – | ● | – | – | – | – | – | – |
|  | Power, serial, CAN, digital I/Os | Female connector, D-Sub-HD, 15-pin, straight | Male connector, D-Sub-HD, 15-pin, straight | Extension cable | 2 m | 6034417 | ● | ● | ● | ● | ● | ● | – | ● |

| | Signal type/ application | Connection type head A | Connection type head B | Cable | Cable length | Part no. | RFH620 cable | RFH620 Ethernet | RFH630 cable | RFH630 Ethernet | RFU62x cable | RFU62x Ethernet | RFU62x PoE | RFU63x |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Power, serial, CAN, digital I/Os | Female connector, D-Sub-HD, 15-pin, straight | Male connector, D-Sub-HD, 15-pin, straight | Extension cable | 3 m | 6034418 | ● | ● | ● | ● | ● | ● | – | ● |
|  | Power, serial, CAN, digital I/Os | Female connector, D-Sub-HD, 15-pin, straight | Cable | Extension cable | 2 m | 2043413 | ● | ● | ● | ● | ● | ● | – | ● |
|  | Power | Female connector, M12, 17-pin | Cable | To connection module CDx (except CDB650) | 10 m | 6048319 | – | – | – | ● | – | ● | – | ● |
|  | Ethernet | Male connector, M12, 4-pin, straight, D-coded | Male connector, RJ45, 8-pin, straight | – | 2 m | 6034414 | – | ● | – | ● | – | ● | – | ● |
| | | | | | 3 m | 6044400 | – | ● | – | ● | – | ● | – | ● |
| | | | | | 5 m | 6034415 | – | ● | – | ● | – | ● | – | ● |
| | | | | | 10 m | 6030928 | – | ● | – | ● | – | ● | – | ● |
| | | | | | 20 m | 6036158 | – | ● | – | ● | – | ● | – | ● |
|  Illustration may differ | Ethernet | Male connector, M12, 4-pin, straight, D-coded | Male connector, RJ45, 8-pin, straight | Drag chain use, suitable for refrigeration, Ecolab | 2 m | 6050198 | – | ● | – | ● | – | ● | – | ● |
| | | | | | 3 m | 6050199 | – | ● | – | ● | – | ● | – | ● |
| | | | | | 5 m | 6050200 | – | ● | – | ● | – | ● | – | ● |
| | | | | | 10 m | 6050201 | – | ● | – | ● | – | ● | – | ● |
| | | | | | 20 m | 6050596 | – | ● | – | ● | – | ● | – | ● |
|  | Ethernet | Male connector, M12, 4-pin, D-coded | Male connector, M12, 4-pin, D-coded | – | 2 m | 6034420 | – | ● | – | ● | – | ● | – | ● |
| | | | | | 3 m | 6034421 | – | ● | – | ● | – | ● | – | ● |
| | | | | | 5 m | 6034422 | – | ● | – | ● | – | ● | – | ● |
|  | Gigabit Ethernet/PoE | Male connector, M12, 8-pin, straight, X-coded | Male connector, RJ45, 8-pin, straight | – | 2 m | 6049728 | – | – | – | – | – | – | ● | – |
| | | | | | 5 m | 6049729 | – | – | – | – | – | – | ● | – |
|  | Serial | Female connector, D-Sub, 9-pin, straight | Female connector, D-Sub, 9-pin, straight | – | 3 m | 2014054 | ● | ● | ● | ● | ● | ● | – | ● |
|  | RS-232, USB | Male connector, D-Sub, 9-pin, straight | Male connector, USB-A, straight | Converter RS-232 to USB (if no RS-232 interface is available with the PC) | – | 6042499 | ● | ● | ● | ● | ● | ● | – | ● |
|  | USB 2.0 | Male connector, USB-A | Male connector, Micro-B | – | 2 m | 6036106 | – | – | – | – | ● | ● | ● | ● |
|  | HF analog | Male connector, TNC | Male connector, TNC | Antenna connecting cable, power loss 1.5 dB | 2 m | 6049780 | – | – | – | – | – | – | – | ● |
| | | | | Antenna connecting cable, power loss 2.5 dB | 5 m | 6049781 | – | – | – | – | – | – | – | ● |
| | | | | Antenna connecting cable, power loss 3.5 dB | 10 m | 60497812 | – | – | – | – | – | – | – | ● |

| | Signal type/ application | Connection type head A | Connection type head B | Cable | Cable length | Part no. | RFH620 cable | RFH620 Ethernet | RFH630 cable | RFH630 Ethernet | RFU62x cable | RFU62x Ethernet | RFU62x PoE | RFU63x |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | HF analog | Male connector, TNC | Male connector, N | Antenna connection cable, power loss 1.5 dB | 2 m | 6034081 | – | – | – | – | – | – | – | ● |
| | | | | Antenna connection cable, power loss 2.5 dB | 5 m | 6034082 | – | – | – | – | – | – | – | ● |
| | | | | Antenna connection cable, power loss 3.5 dB | 10 m | 6034083 | – | – | – | – | – | – | – | ● |

Power supply units/power cord connectors

| | Brief description | Part no. | RFH620 cable | RFH620 Ethernet | RFH630 cable | RFH630 Ethernet | RFU62x cable | RFU62x Ethernet | RFU62x PoE | RFU63x |
|---|---|---|---|---|---|---|---|---|---|---|
|  | Power supply unit with pre-assembled M12 female connector | 2049552 | – | ● | – | – | – | – | – | – |
|  | Power supply unit with pre-assembled M12 female connector, 17-pin | 2062249 | – | – | – | ● | – | ● | – | ● |

## Mounting systems

Device protection (mechanical)

| | Brief description | Part no. | RFH620 cable | RFH620 Ethernet | RFH630 cable | RFH630 Ethernet | RFU62x cable | RFU62x Ethernet | RFU62x PoE | RFU63x |
|---|---|---|---|---|---|---|---|---|---|---|
|  | IP-65 sealing rubber for extension cables with 15-pin D-Sub male connector connection (6010075 and 6020092) | 4038847 | ● | ● | ● | ● | – | – | – | ● |

Mounting brackets/plates

| | Brief description | Part no. | RFH620 cable | RFH620 Ethernet | RFH630 cable | RFH630 Ethernet | RFU62x cable | RFU62x Ethernet | RFU62x PoE | RFU63x |
|---|---|---|---|---|---|---|---|---|---|---|
|  | Mounting bracket | 2048551 | ● | ● | ● | ● | – | – | – | – |
|  | Simple mounting bracket | 2071067 | – | – | – | – | ● | ● | ● | – |
|  | Frame bracket | 2071773 | – | – | – | – | ● | ● | ● | – |
|  | VESA adapter plate, incl. assembly material | 2071862 | – | – | – | – | ● | ● | ● | – |
| | | 2061688 | – | – | – | – | – | – | – | ● |



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| | Brief description | Part no. | RFH620 cable | RFH620 Ethernet | RFH630 cable | RFH630 Ethernet | RFU62x cable | RFU62x Ethernet | RFU62x PoE | RFU63x |
|---|---|---|---|---|---|---|---|---|---|---|
|  | Pivot mounting bracket, incl. assembly material | 2061737 | – | – | – | – | – | – | – | ● |
|  | Mounting bracket for wall mounting, incl. assembly material | 2060912 | – | – | – | – | – | – | – | ● |

Terminal and alignment brackets

| | Brief description | Part no. | RFH620 cable | RFH620 Ethernet | RFH630 cable | RFH630 Ethernet | RFU62x cable | RFU62x Ethernet | RFU62x PoE | RFU63x |
|---|---|---|---|---|---|---|---|---|---|---|
|  | Cross clamp | 5327612 | – | – | – | – | ● | ● | ● | ● |
|  | Base clamp | 5327611 | – | – | – | – | ● | ● | ● | ● |
|  | Pipe, diameter 30 mm, length 1 m | 5327610 | – | – | – | – | ● | ● | ● | ● |
|  | Sealing plug, diameter 30 mm | 5327613 | – | – | – | – | ● | ● | ● | ● |
|  | Link clamp with screws | 2068919 | – | – | – | – | ● | ● | ● | ● |
|  | Quick-action lock system | 2016110 | – | – | – | – | ● | ● | ● | – |

## Other accessories

RFID antennas

| | Brief description | Type | Part no. | RFH620 cable | RFH620 Ethernet | RFH630 cable | RFH630 Ethernet | RFU62x cable | RFU62x Ethernet | RFU62x PoE | RFU63x |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Industrial RFID HF antenna, cable length 3.62 m, diameter 30 mm, length 48 mm | RFA312-3733 | 1065473 | – | – | – | ● | – | – | – | – |
|  | Industrial RFID HF antenna, cable length 3.62 m, dimensions 300 mm x 210 mm x 33 mm | RFA332-2032 | 1054399 | – | – | – | ● | – | – | – | – |
|  | Industrial RFID UHF antenna, carrier frequency 865 ... 868 MHz (Europe), TNC male connector | RFA630-000 | 1058383 | – | – | – | – | – | – | – | ● |
| | Industrial RFID UHF antenna, carrier frequency 902 ... 928 MHz (North America), TNC male connector | RFA630-001 | 1058384 | – | – | – | – | – | – | – | ● |
|  | Industrial RFID UHF antenna, carrier frequency 860 ... 960 MHz (Europe and North America), N male connector | RFA641-3440 | 6034316 | – | – | – | – | – | – | – | ● |

RFID transponder

| | Brief description | Type | Part no. | RFH620 Cable | RFH620 Ethernet | RFH630 Cable | RFH630 Ethernet | RFU62x Cable | RFU62x Ethernet | RFU62x PoE | RFU63x |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  | HF transponder, modified thermoplastic, diameter 16 mm, NXP ICODE SLIX | Coin (16 mm) | 6041592 | ● | ● | ● | ● | – | – | – | – |
|  | HF transponder, PPS, diameter 22 mm, Texas Instruments Tag-it HF-I plus | Coin (22 mm) | 6033173 | ● | ● | ● | ● | – | – | – | – |
|  | HF transponder, PA 6, diameter 30 mm, NXP ICODE SLIX | Disc (30 mm) | 6034740 | ● | ● | ● | ● | – | – | – | – |
| | HF transponder, PA 6, diameter 30 mm, Fujitsu MB89R118 | Disc (30 mm) | 6043514 | ● | ● | ● | ● | – | – | – | – |
|  | HF transponder, PA 6, diameter 50 mm, NXP ICODE SLIX | Disc (50 mm) | 6033781 | ● | ● | ● | ● | – | – | – | – |
| | HF transponder, PA 6, diameter 50 mm, Fujitsu MB89R118 | Disc (50 mm) | 6042212 | ● | ● | ● | ● | – | – | – | – |
|  | HF transponder, LCP, diameter 53 mm, thickness 12 mm, NXP ICODE SLIX | Disc (High Temp) | 6041594 | ● | ● | ● | ● | – | – | – | – |
|  | HF transponder, ABS, diameter 30 mm, NXP ICODE SLIX | Disk low cost (30 mm) | 6051701 | ● | ● | ● | ● | – | – | – | – |
|  | HF transponder, PA9T, diameter 22 mm, NXP ICODE SLIX | Disk on-metal (22 mm) | 6052179 | ● | ● | ● | ● | – | – | – | – |
|  | HF transponder, glass, length 21.7 mm, diameter 4 mm, NXP ICODE SLIX | Glass transponder | 6039237 | ● | ● | ● | ● | – | – | – | – |
|  | HF transponder, PVC, 85.6 mm x 54 mm x 0.76 mm, NXP ICODE SLIX | ISO card | 6037848 | ● | ● | ● | ● | – | – | – | – |
| | HF transponder, PVC, 85.6 mm x 54 mm x 0.76 mm, Texas Instruments Tag-it-HF-I plus | ISO card | 6037846 | ● | ● | ● | ● | – | – | – | – |
| | HF transponder, PVC, 85,6 mm x 54 mm x 0,76 mm, NXP ICODE SLIX | ISO card (low cost) | 6042981 | ● | ● | ● | ● | – | – | – | – |
|  | HF transponder, ABS, 90 mm x 34 mm x 7 mm, NXP ICODE SLIX | On-metal transponder flat | 6047938 | ● | ● | ● | ● | – | – | – | – |
|  | HF transponder, polyamid, 25 mm x 12,5 mm x 5 mm, NXP ICODE SLI | On-metal transponder small | 6039051 | ● | ● | ● | ● | – | – | – | – |
|  | HF transponder, paper, 81 mm x 49 mm, NXP ICODE SLIX | Paper label | 6037763 | ● | ● | ● | ● | – | – | – | – |
|  Illustration may differ | HF transponder, paper, 36 mm x 18 mm, NXP ICODE SLIX | Paper label | 6052794 | ● | ● | ● | ● | – | – | – | – |
|  | HF transponder, nylon, length 30 mm, diameter 5 mm, NXP ICODE SLIX | Cylinder transponder | 6044368 | ● | ● | ● | ● | – | – | – | – |
|  | UHF transponder, PVC, 85.6 mm x 54 mm x 0.76 mm, Alien Higgs | ISO card | 6051820 | – | – | – | – | ● | ● | ● | ● |
| | UHF transponder, global, 110 mm x 70 mm x 0.42 mm, NXP UCODE G2XM | Label High Temp | On request | – | – | – | – | ● | ● | ● | ● |



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| | Brief description | Type | Part no. | RFH620 Cable | RFH620 Ethernet | RFH630 Cable | RFH630 Ethernet | RFU62x Cable | RFU62x Ethernet | RFU62x PoE | RFU63x |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  | UHF transponder, plastic, global, 27 mm x 27 mm x 6 mm, Impinj Monza 4QT | On-metal Transponder (27 mm x 27 mm x 6 mm) | 6052186 | – | – | – | – | ● | ● | ● | ● |
|  | UHF transponder, global, thermoplastic, 51.5 mm x 47.5 mm x 10 mm, Impinj Monza 4 QT | On-metal Transponder (52 mm x 48 mm x 10 mm) | 6052346 | – | – | – | – | ● | ● | ● | ● |
|  | UHF transponder, ETSI, PPA, Durchmesser 55 mm, Dicke 13 mm, NXP UCODE G2XM | On-metal Transponder ETSI Disk on spacer | 6051350 | – | – | – | – | ● | ● | ● | ● |
| | UHF transponder, FCC, PPA, diameter 55 mm, thickness 3 mm, NXP UCODE G2XM | On-metal Transponder FCC Disk on spacer | 6051351 | – | – | – | – | ● | ● | ● | ● |
|  | UHF Transponder, ETSI, Nylon, 51 mm x 36.3 mm x 7.5 mm, NXP G2XM | On-metal Transponder High Temp ETSI | 6050780 | – | – | – | – | ● | ● | ● | ● |
| | UHF Transponder, FCC, Nylon, 51 mm x 36.3 mm x 7.5 mm, NXP G2XM | On-metal Transponder High Temp FCC | On request | – | – | – | – | ● | ● | ● | ● |
|  | UHF transponder, plastic, ETSI, 224 mm x 24 mm x 8 mm, NXP UCODE G2XM | On-metal Transponder (224 mm x 24 mm x 8 mm) | 6034277 | – | – | – | – | ● | ● | ● | ● |

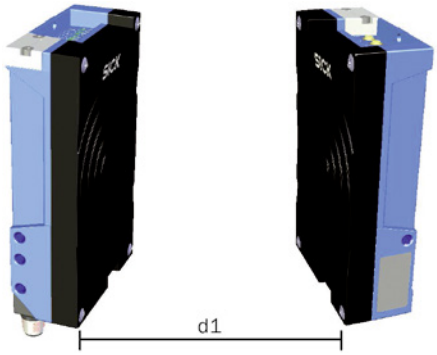
Storage mediums

| | Brief description | Part no. | RFH620 Cable | RFH620 Ethernet | RFH630 Cable | RFH630 Ethernet | RFU62x Cable | RFU62x Ethernet | RFU62x PoE | RFU63x |
|---|---|---|---|---|---|---|---|---|---|---|
|  Illustration may differ | MicroSD memory card with 1 GB for industrial use | 4051366 | ● | ● | ● | ● | ● | ● | ● | ● |

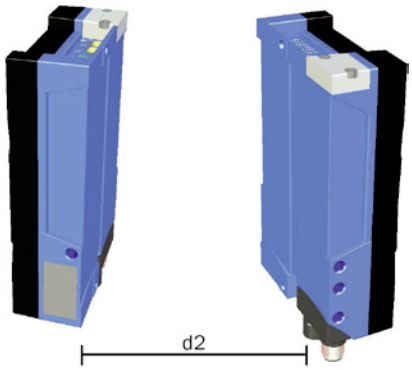
## Mounting distance

The relative arrangement of two RFH6xx can vary in three different ways, whereby the following installation distances must be maintained.

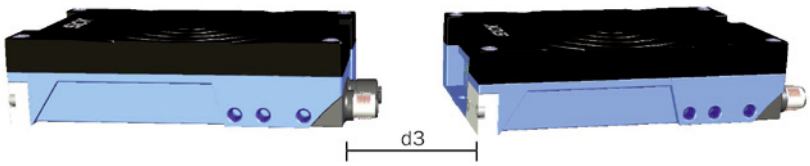
Face to face




Back to back




Side by side




| Version | d1 | d2 | d3 |
|---|---|---|---|
| RFH620 Short Range | 340 mm | 140 mm | 150 mm |
| RFH630 Mid Range | 1,700 mm | 1,200 mm | 1,300 mm |



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## Transponder HF

### Features

| | Description | Dimensions | | IC | Max. reading distance (mm) | Temperature range | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Ambient operating temperature | | Tested | |
| | | | | | | min. (°C) | max. (°C) | to (°C) | Duration (h) |
|  | Disc | Ø 30 mm | Cost-effective | NXP ICODE SLI | 70 RFH620<br>120 RFH630 | -20 | +85 | – | – |
|  | | Ø 30 mm | | NXP ICODE SLI | 85 RFH620<br>140 RFH630 | -25 | +85 | +140 | 100 |
|  | | Ø 30 mm | FRAM | Fujitsu MB89R118 | 80 RFH620<br>130 RFH630 | -25 | +85 | +140 | 100 |
|  | | Ø 50 mm | | NXP ICODE SLI | 120 RFH620<br>200 RFH630 | -25 | +85 | +140 | 100 |
|  | | Ø 50 mm | FRAM | Fujitsu MB89R118 | 110 RFH620<br>190 RFH630 | -25 | +85 | +140 | 100 |
|  | ISO card | 86 x 54 mm² | | NXP ICODE SLI | 150 RFH620<br>240 RFH630 | -25 | +50 | – | – |
|  | | 86 x 54 mm² | | TI Tag-it HF-I plus | 150 RFH620<br>240 RFH630 | -35 | +50 | – | – |
|  | ISO card low cost | 86 x 54 mm² | Cost-effective | NXP ICODE SLI | 110 RFH620<br>190 RFH630 | -25 | +50 | – | – |
|  | Coin | Ø 16 mm | | NXP ICODE SLI | 60 RFH620<br>100 RFH630 | -25 | +70 | +120 | 100 |
|  | | Ø 22 mm | | TI Tag-it HF-I plus | 65 RFH620<br>115 RFH630 | -25 | +90 | +160 | 50 |
|  | On-metal transponder | Ø 22 mm | On-metal | NXP ICODE SLI | 5 RFH620<br>50 RFH630 | -40 | +90 | +120 | 50 |
|  | | 90 x 34 x 7 mm³ | On-metal | NXP ICODE SLI | 65 RFH620<br>120 RFH630 | -20 | +85 | – | – |
|  | | 25 x 13 x 5 mm³ | On-metal | NXP ICODE SLI | 55 RFH620<br>110 RFH630 | -25 | +85 | – | – |
|  | High temp. transponder | Ø 53 mm 12 mm | High Temperature | NXP ICODE SLI | 60 RFH620<br>100 RFH630 | -40 | +140 | +250 | – |
|  | Glass transponder | Ø 4 mm 22 mm | | NXP ICODE SLI | 30 RFH620<br>90 RFH630 | -25 | +85 | +120 | 100 |

| | Description | Dimensions | | IC | Max. reading distance (mm) | Temperature range | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Ambient operating temperature | | Tested | |
| | | | | | | min. (°C) | max. (°C) | to (°C) | Dura-tion (h) |
|  | Cylinder transponder | Ø 5 mm 30 mm | Cost-effective | NXP ICODE SLI | 25 RFH620<br>45 RFH630 | –25 | +85 | – | – |
|  | Paper label | 81 x 49 mm² | Cost-effective | NXP ICODE SLI | 140 RFH620<br>230 RFH630 | –10 | +50 | – | – |
|  Illustration may differ | Paper label | 36 x 18 mm² | Cost-effective | NXP ICODE SLI | 55 RFH620<br>120 RFH630 | –10 | +50 | – | – |

Overview ISO 15693 transponder ICs – 13,56 MHz – HF

| Manufacturer | Type | UID [1] | AFI [2] | DSFID [3] | User memory | Block number | Block size |
|---|---|---|---|---|---|---|---|
| NXP | ICODE SLI SLI | ● | ● | ● | 896 bit | 28 | 4 Byte |
| | ICODE SLI-S | ● | ● | ● | 1.280 bit | 40 | 4 Byte |
| | ICODE SLI-L | ● | ● | ● | 256 bit | 8 | 4 Byte |
| Texas Instruments | Tag-it HF-I pro | ● | ● | ● | 256 bit | 8 | 4 Byte |
| | Tag-it HF-I plus | ● | ● | ● | 2.048 bit | 64 | 4 Byte |
| Infineon | SRF55V01P | ● | ● | – | 416 bit | 13 | 4 Byte |
| | SRF55V02P | ● | ● | – | 1.792 bit | 56 | 4 Byte |
| | SRF55V10P | ● | ● | – | 7.936 bit | 248 | 4 Byte |
| Fujitsu | MB89R118 | ● | ● | ● | 16.000 bit | 250 | 8 Byte |
| | MB89R112 | ● | ● | ● | 64.000 bit | 250 | 32 Byte |

[1] UID = Unique Identifier: Individual, not re-writable, not erasable 64 bit number e. g. E0 04 01 00 1a b2 3c 45.

[2] AFI = Application Family Identifier: 1 Byte used for filtering direct on the air interface to distinguish between different transponder populations.

[3] DSFID = Data Storage Format Identifier: 1 Byte used for filtering after read process to distinguish between different transponder populations.

Typical duration of read/write operations with RFH6xx and ISO 15693 Transponder (HF settings: 26 kbit/s)

Read UID [1]

| Number of transponders | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Time (ms) | 19 [2] | 54 | 60 | 67 |

[1] UID = Unique Identifier: Individual, not re-writable, not erasable 64 bit number e. g. E0 04 01 00 1a b2 3c 45.

[2] Single slot mode (no anticollision needed).

Read multiple blocks

| Number of blocks | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | ... |
|---|---|---|---|---|---|---|---|---|---|---|
| Time (ms) | 13 | 15 | 17 | 19 | 21 | 23 | 25 | 27 | 29 | ... |

Write multiple blocks

| Number of blocks | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | ... |
|---|---|---|---|---|---|---|---|---|---|---|
| Time (ms) | 16 | 32 | 48 | 64 | 80 | 96 | 112 | 128 | 144 | ... |



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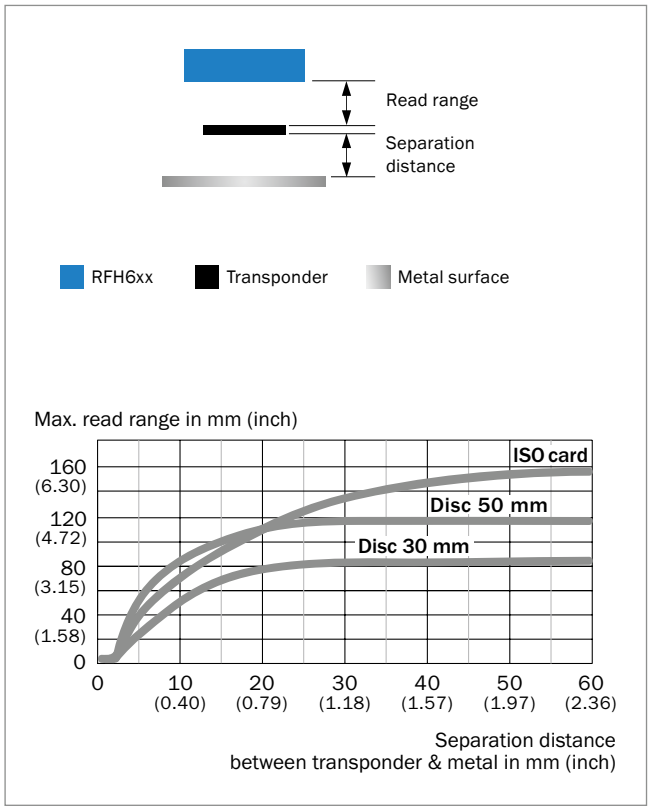
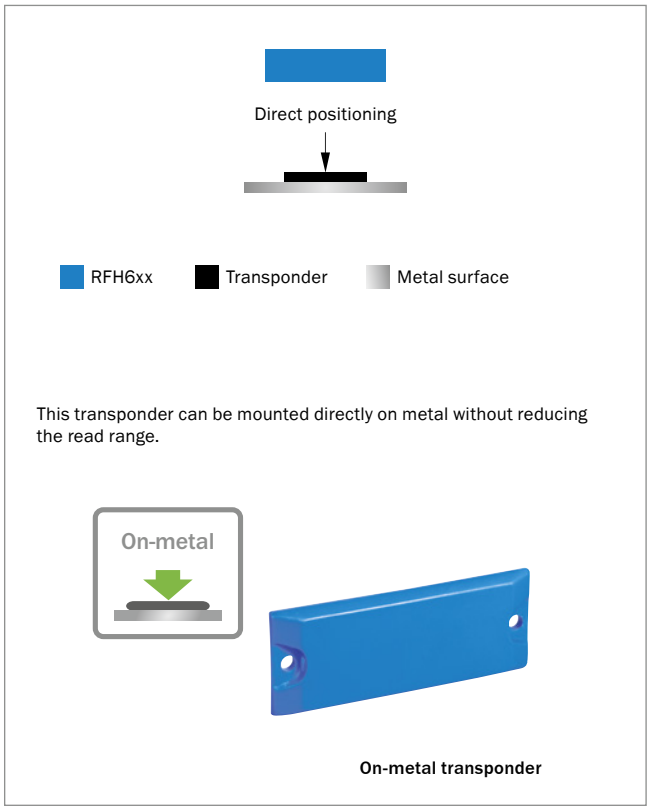
## Mounting on metal

The reading distance of standard transponders is reduced when in the vicinity of metal. The greater the distance between the transponder and the metal, the larger the maximum reading distance. The following diagram (on the left) displays the behavior of three transponders in a metallic environment. The recommended distance between the transponder and metal is 20 mm. In comparison, the disk transponder can achieve more than 90% of its reading distance in a non-metallic environment. The diagram on the right illustrates an alternative to directly positioning it on metal.

Mounting on metal with separation distance



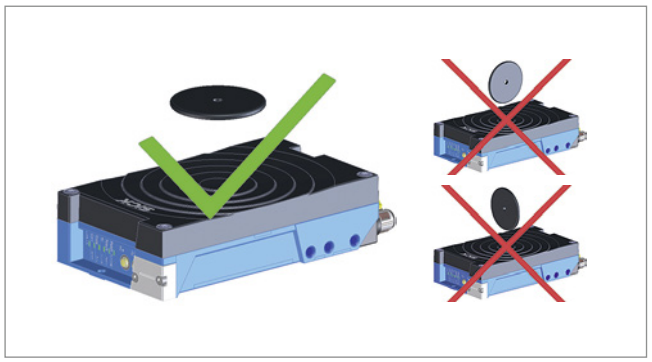

Mounting direct on metal




**On-metal transponder**

## Perfect orientation

For disc, coin and card transponder as well as on-metal transponder (6047938, 6052179)



For cylinder transponder and glass transponder as well as on-metal transponder (6039051)

## Transponder UHF

### Features

| | Description | Dimensions | | IC | Range [1] (Read) (m)<br>■ RFU62x, transmission power 250 mW (ERP)<br>■ RFU63x, transmission power 2 W (ERP)<br>■ Details transponder manufacturer [2]<br>0.1 0.2 0.5 1 2 5 10 | Temperature range<br>Ambient operating temperature<br>min. (°C) | max. (°C) | Tested<br>to (°C) | Duration (h) |
|---|---|---|---|---|---|---|---|---|---|
|  | On-metal transponder ETSI | Ø 55 mm | On-metal | NXP G2XM | | -20 | +85 | +140 | 100 |
|  | On-metal transponder FCC | Ø 55 mm | On-metal | NXP G2XM | | -20 | +85 | +140 | 100 |
|  | On-metal transponder global | 52 x 48 x 10 mm³ | On-metal | NXP G2XM | | -40 | +85 | +125 | 1 |
|  | On-metal transponder global | 27 x 27 x 6 mm³ | On-metal | Impinj QT Monza 4 | | -35 | +85 | – | – |
|  | On-metal transponder ETSI | 223 x 23 x 8 mm³ | On-metal | NXP G2XM | | -35 | +85 | – | – |
| | High temp. label | 110 x 70 mm² | High Temperature | NXP G2XM | | -40 | +85 | +220 | 0,8 |
|  | On-metal transponder High temp. ETSI | 51 x 37 x 8 mm³ | High Temperature | NXP G2XM | | -30 | +85 | +220 | 0,5 |
|  | On-metal transponder High temp. FCC | 51 x 37 x 8 mm³ | High Temperature | NXP G2XM | | -30 | +85 | +220 | 0,5 |
|  | ISO card | 86 x 54 mm² | | Alien Higgs 3 | | -10 | +50 | – | – |

[1] Read ranges are the theoretical values under laboratory conditions. Antenna is optimally aligned and used with maximum allowed transmission power according to ETSI EN 302 208 (2 W ERP). EU = 865 - 868 MHz, US = 902 - 928 MHz, JPN = 952 - 956 MHz. Different surface materials may have an effect on performance.

[2] Values are only indications. Not guaranteed ranges. Depending on environment. Recommended to test the application.

### Overview ISO 18000-6C transponder ICs – 860-960 MHz – UHF

| Manufacturer | Type | User memory | UII / EPC memory |
|---|---|---|---|
| Alien | Higgs 3 | 512 bit | 96-128 bit |
| Impinj | Monza 4 QT | 512 bit | bis 128 bit |
| | Monza 4 E | bis 128 bit | bis 496 bit |
| | Monza 5 | 0 bit | bis 128 bit |
| | Monza 3 | 0 bit | 96 bit |
| Tego | Tego Chip XL | 8 kbit | 96 bit |
| NXP | UCODE G2XM | 512 bit | 240 bit |
| | UCODE G2XL | 512 bit | 240 bit |
| | UCODE G2iL | 512 bit | 128 bit |



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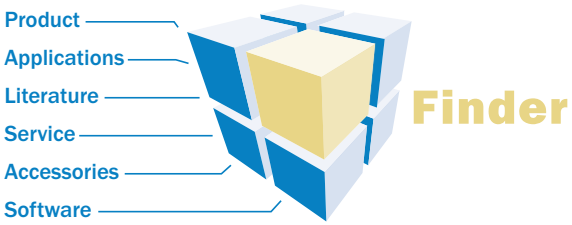


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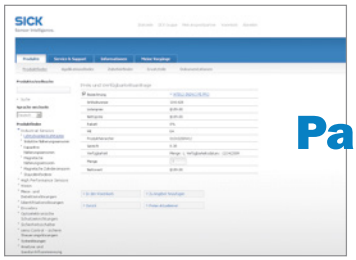

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