PRODUCT INFORMATION

RFID

INTELLIGENT IDENTIFICATION

RFH6xx, RFU62x, RFU63x

SICK
Sensor Intelligence.

Image-based code readers

Image-based code readers with camera technology are characterized by their flexibility in reading a variety of code types. In addition to reading 1D bar codes, they employ a range of image processing algorithms to identify 2D codes, such as the frequently used Data Matrix, QR, or MaxiCodes, as well as optical character recognition. They make light work of switching from bar codes to 2D codes.

Bar code scanners

Laser-based bar code scanners have an outstanding depth of field and are thus easily able to identify bar codes on objects of varying heights. Thanks to the wide aperture angles up to 60°, one device is able to cover most belt widths.

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→ www.sick.com/more-than-a-vision

MORE THAN A VISION

**Intelligent questions have more than one answer.
The best technology depends on the task at hand.**

In the real world, providing an effective solution for automatic identification requires more than just one technology. With SICK you have a choice. Three technologies, one philosophy: customer needs come first.

For every identification task, the same question is asked: Which technology is best? And as always in life, there is never just one answer for every question. The best possible solution is always tailored to the individual technical and economic conditions of the application.

Three identification technologies have dominated the market for many years: RFID, image-based code readers and laser-based bar code scanners. As the market leader in automatic identification, SICK has not only mastered all the main technologies, but also poses the right questions to ensure the right products are selected from its technology portfolio.

RFID

RFID is particularly well suited to harsh ambient conditions, for example extreme temperatures or identification objects under high physical stresses. Optical technologies require visual contact at all times in order to detect the code and are therefore more susceptible to wear or contamination.

- No visual contact of the RFID tag required
- Omnidirectional reading
- Reliable use under harsh ambient conditions
- Large distances between reader and object possible
- Short reading cycles and possibility of bulk detection
- Rewritable tags and high storage capacity
- Durable design for industrial use

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
- Same SOPAS ET configuration software in all cases

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

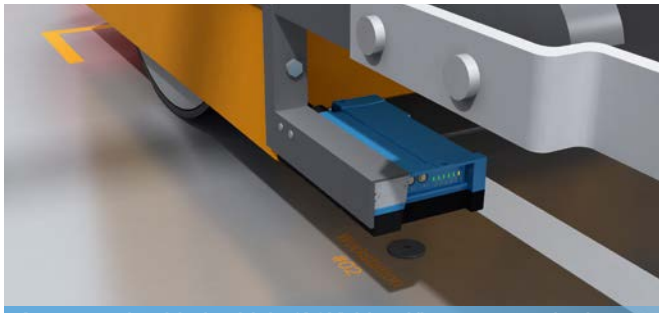
- 2 W (ERP) transmitting power for large scanning ranges
- Connections for external antennas for gate solutions

Technology	HF (High Frequency)	UHF (Ultra High Frequency)
Products from SICK	**RFH620 and RFH630**	**RFU62x and RFU63x**
Frequency	Uniform worldwide: 13.56 MHz	Regional variance, e. g.: 865–868 MHz (Europe) 902–928 MHz (North America) 920–925 MHz (China) 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 ⊕ Very well-defined reading range ⊖ Low scanning range	Backscattering in the far field by means of capacitive coupling ⊕ High scanning ranges ⊖ 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 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	

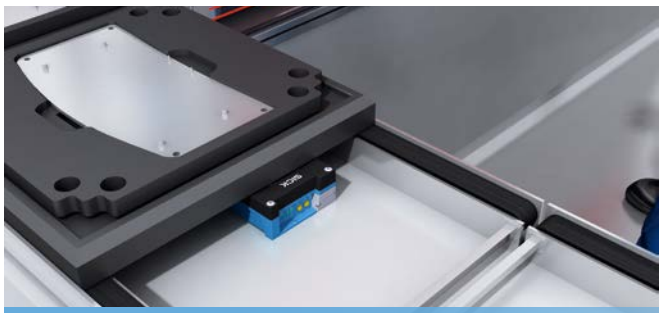
[1] Depending on the transponder used and ambient conditions.

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.

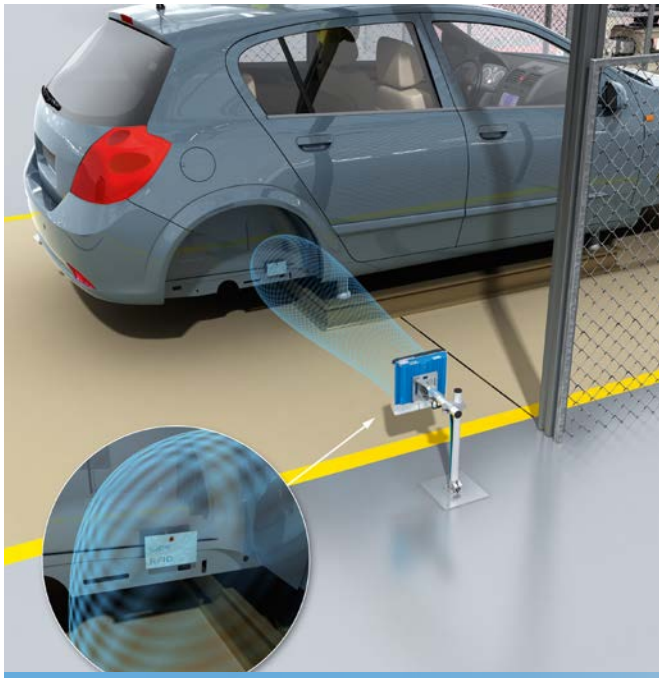
FACTORY AUTOMATION



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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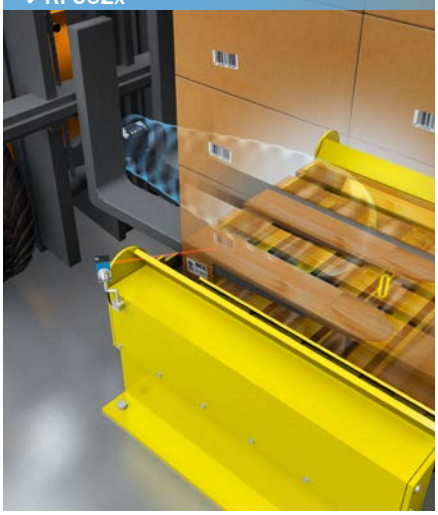
LOGISTICS AUTOMATION

Data merging from bar code to RFID ➜ CLV6xx and RFU62x

Identification of storage locations ➜ RFU62x

Driver assistance in narrow aisle ➜ RFH630

Pallet identification at the fork lift truck ➜ RFU62x



Identification on suspended conveyor systems ➜ RFH620

Container identification for conveyor technique ➜ RFU62x

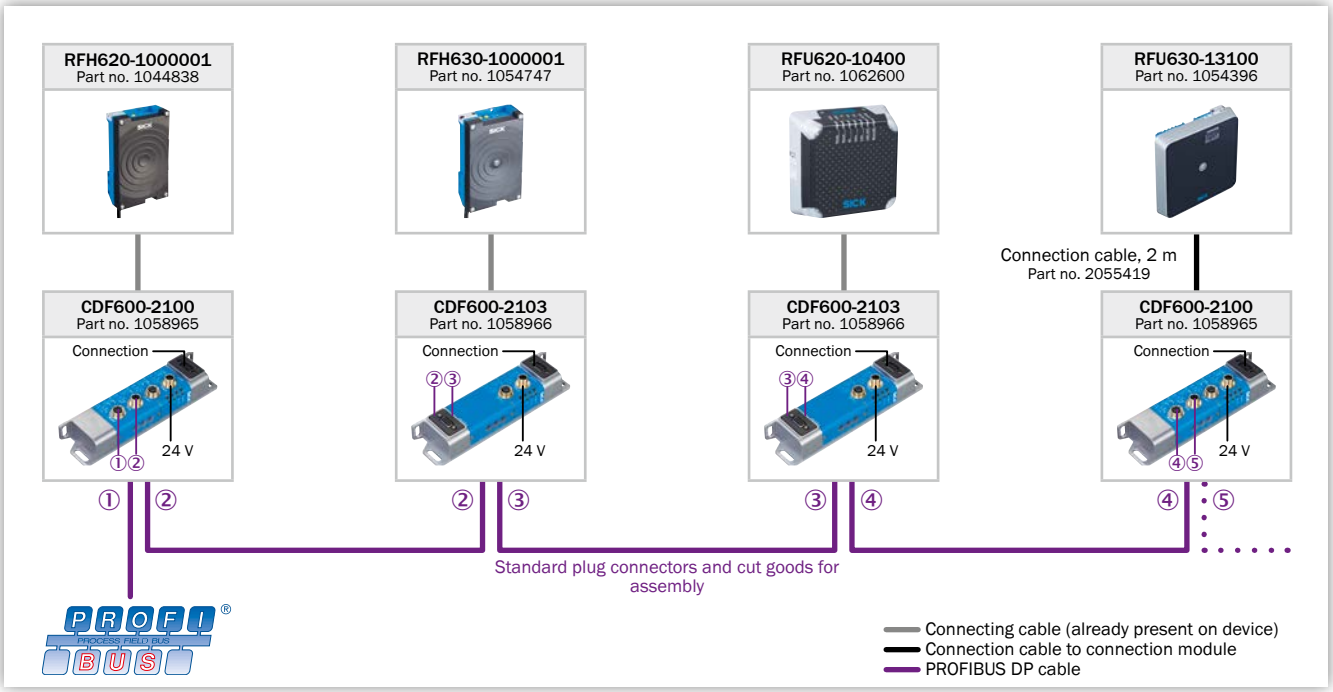
Pallet identification for conveyor technique ➜ RFU62x

MODULAR CONNECTORS ALL FROM A SINGLE SOURCE

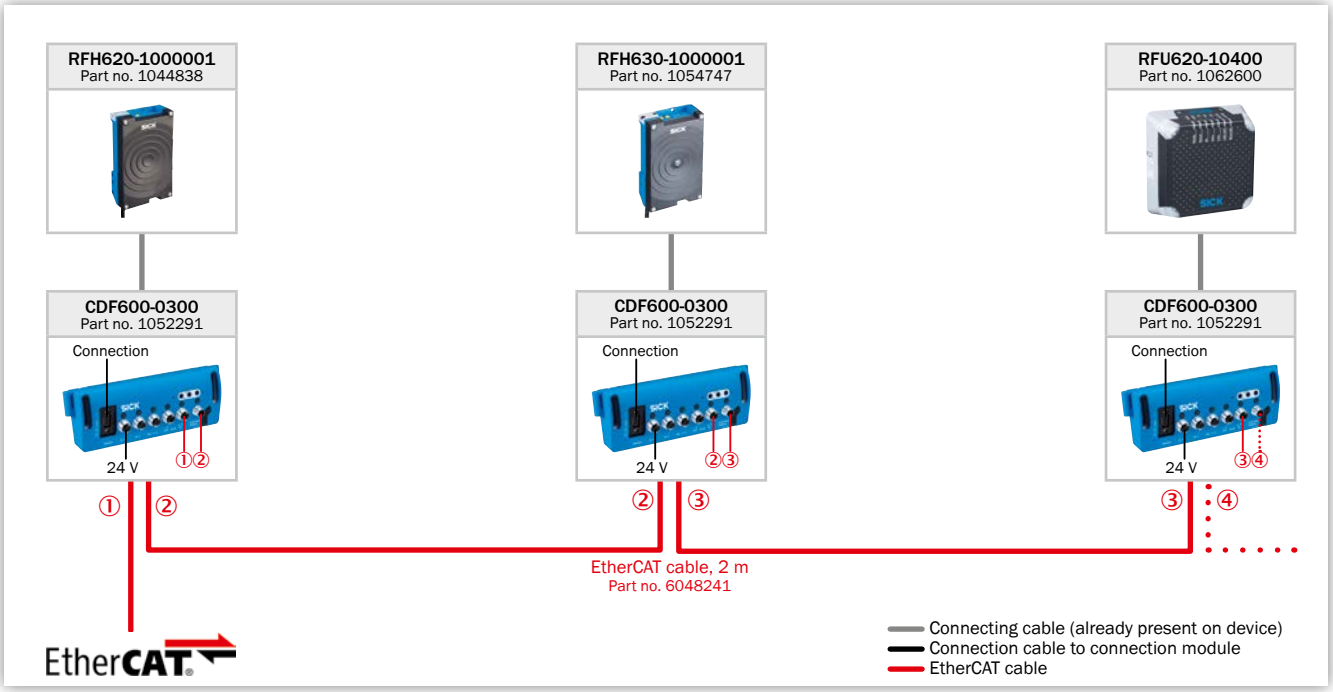
The ability to network sensors is becoming particularly important in the light of demands for cost-effective solutions. SICK has the tools to stand up to this challenge: Through the 4D*pro* platform, it offers a product portfolio that is perfect for fieldbus systems.

It gives you the freedom to select the identification and vision technology you require, and enables flexible integration into 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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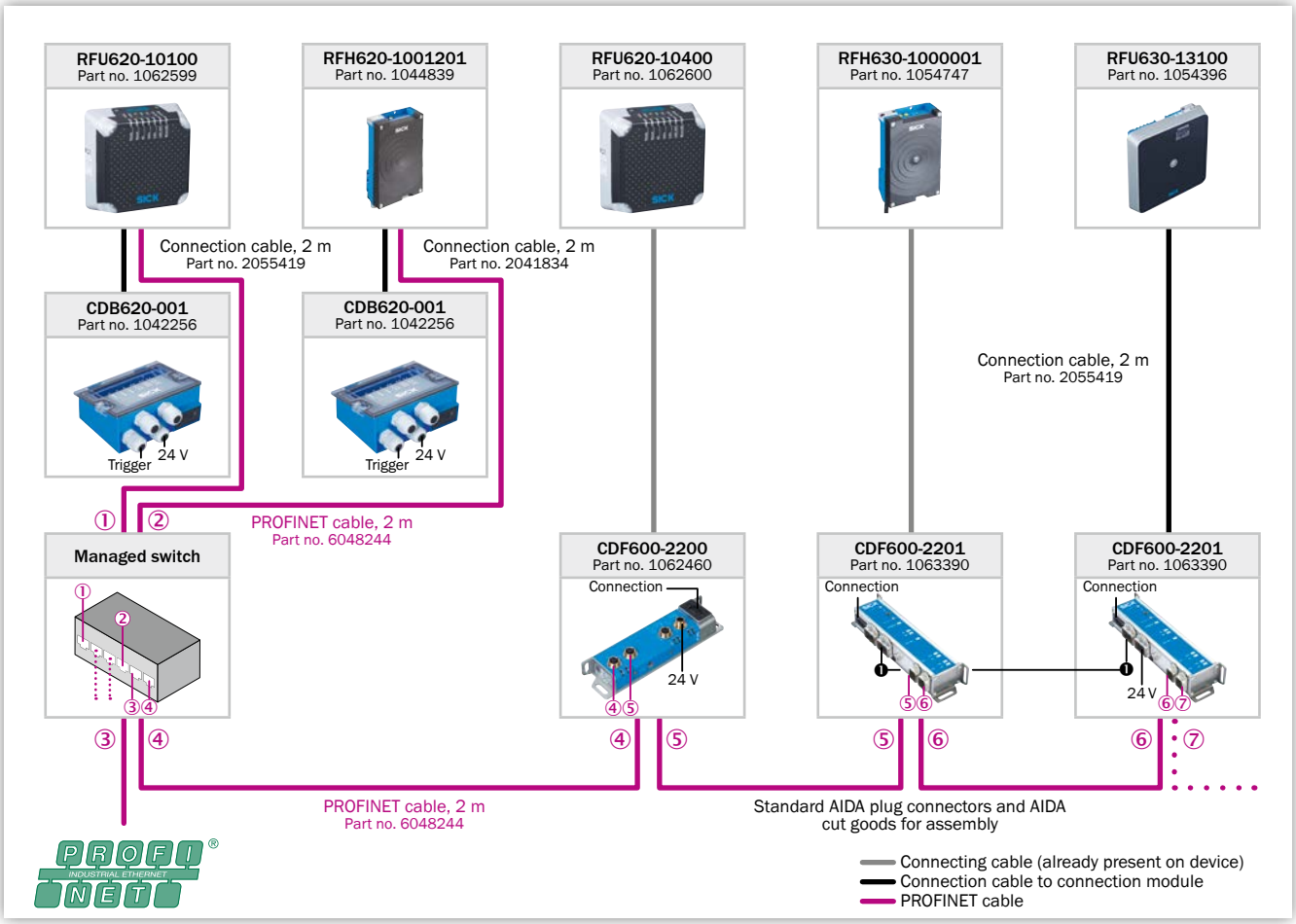
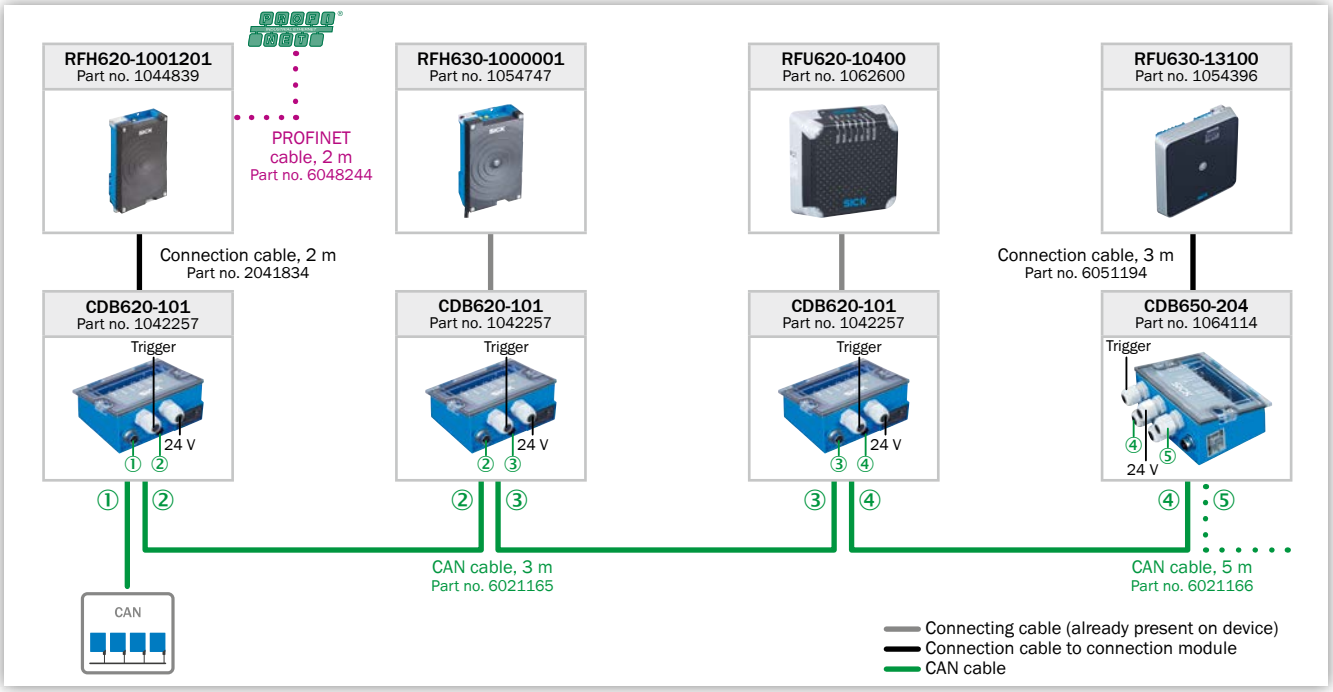
PROFINET



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 4D*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 4D*pro* platform

Additional information

➜ 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
Antenna	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 Read 1 block (32 bit/4 Byte): 13 ms Write 1 block (32 bit/4 Byte): 16 ms Read 28 blocks (896 bit/112 Byte): 64 ms Write 28 blocks (896 bit/112 Byte): 442 ms	
Data transmission rate	26 kbit/s (default)	

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, PROFINET Dual Port (optional via external connection module CDF600-2), EtherCAT (optional via external connection module CDF600)	
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 (CDF600-2)	
DeviceNet	✔, optional available externally	
Switching inputs		
Cable	4 (“Sensor 1”, “Sensor 2”, 2 inputs via optional parameter storage CMC600 in CDB620/CDM420)	
Ethernet	3 (“Sensor 1”, 2 inputs via optional parameter storage CMC600 in CDB620/CDM420)	4 (“Sensor 1”, “Sensor 2”, 2 inputs via optional parameter storage CMC600 in CDB620/CDM420)
Switching outputs		
Cable	4 (“Result 1”, “Result 2”, 2 outputs via optional parameter storage CMC600 in CDB620/CDM420)	
Ethernet	2 (via CMC600 in CDB620/CDM420)	4 (“Result 1”, “Result 2”, 2 outputs via optional parameter storage 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)	
Configuration software	SOPAS ET	

Mechanics/electronics

	RFH620 Short Range	RFH630 Mid Range
Electrical connection		
Cable	1 x Cable with 15-pin D-sub HD male connector	
Ethernet	1 x Swivel connector with 4-pin M12 female connector and 12-pin M12 male connector	1 x 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	450 g ... 520 g (depending on type)	710 g ... 760 g (depending on type)
Dimensions	147 mm x 88 mm x 39 mm [1]	

[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)
- **RFID standard:** ISO/IEC 15693, ISO 18000-3 Mode 1
- **Radio approval:** global (EN 300330-2 V1.5.1, FCC Part 15)

Version	Scanning range	Connection type	Type	Part no.
RFH620 Short Range	Max. 150 mm [1]	Cable	RFH620-1000001	1044838
		Ethernet	RFH620-1001201	1044839
RFH630 Mid Range	Max. 240 mm [1]	Cable	RFH630-1000001	1054747
		Ethernet	RFH630-1102101	1054746

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

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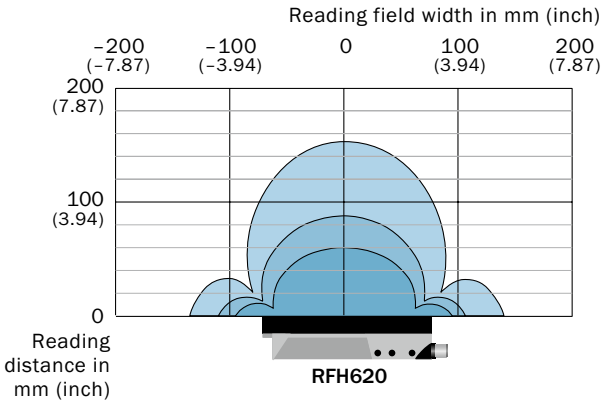
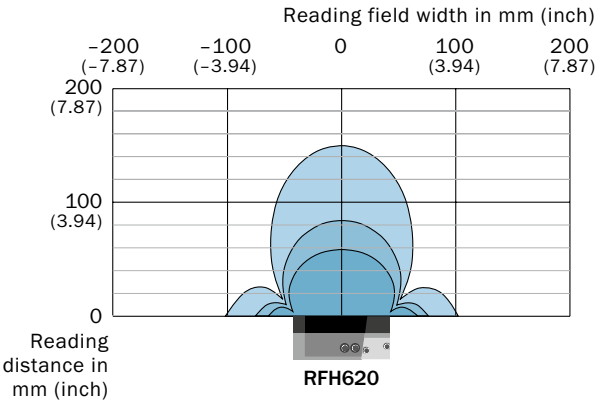
Reading field diagrams

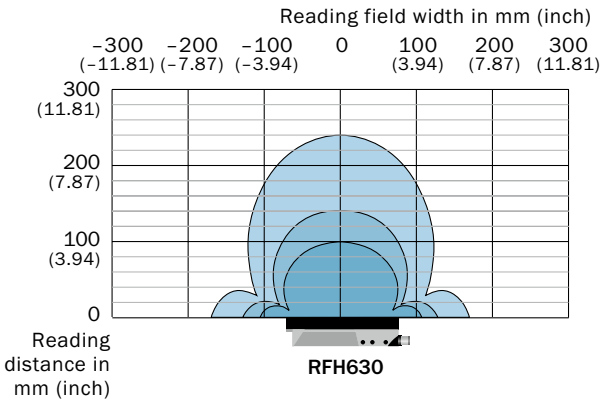
RFH620

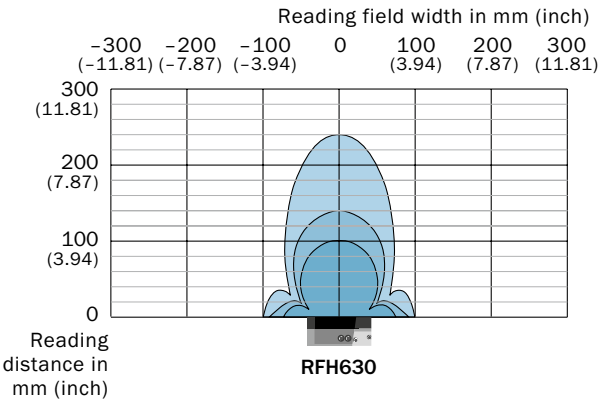




ISO Card
Disc 30
Coin 16

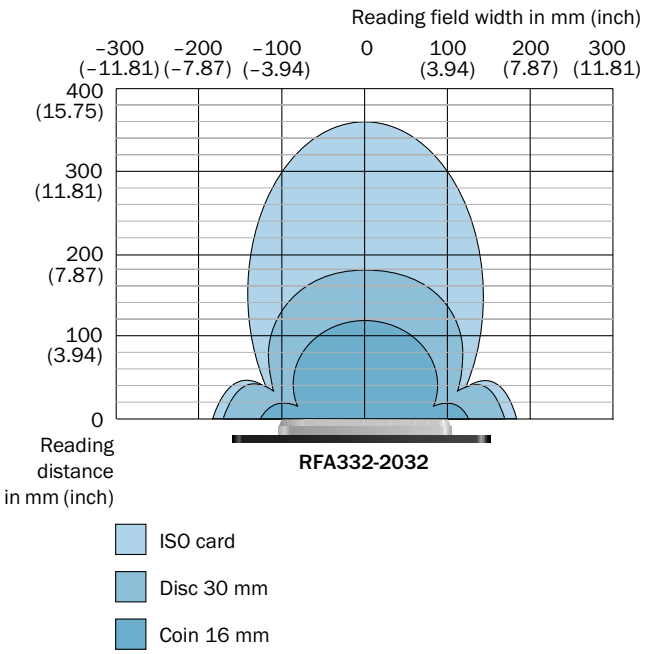
RFH630



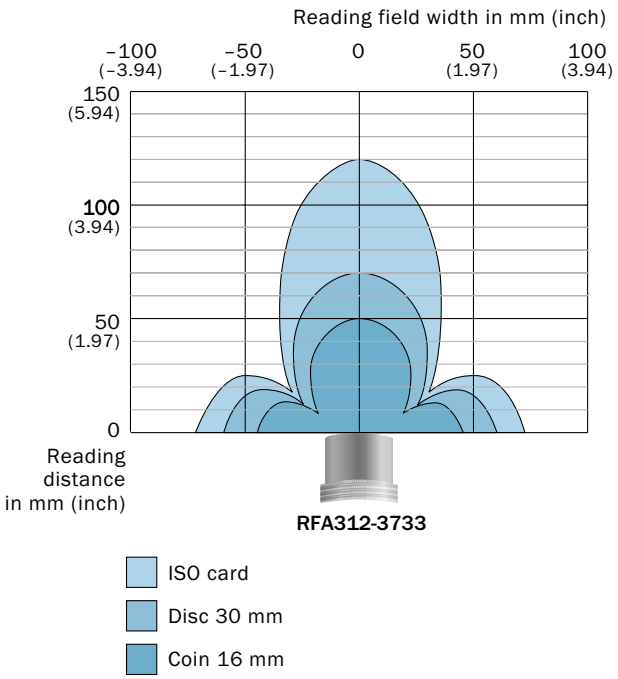


ISO Card
Disc 30
Coin 16

RFH630 Ethernet with external antenna



RFH630 Ethernet with external antenna



Recommended accessories

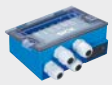
Mounting systems

Mounting brackets and mounting plates

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

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	–	●	–	–
		Female connector, M12, 17-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	4-wire, AWG26	2 m	6034414	–	●	–	●

Further accessories

RFID transponder

	Brief description	Type	Part no.	RFH620 Cable	RFH620 Ethernet	RFH630 Cable	RFH630 Ethernet
	HF transponder, PA 6, diameter 50 mm, NXP ICODE SLIX	Disc (50 mm)	6033781	●	●	●	●

➜ For additional accessories, please see page 28

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 4Dpro 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 ET user interface

Additional information

→ 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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Subject to change without notice

Detailed technical data

Features

Version	Mid Range
Carrier frequency	
Europe, South Africa	865.7 MHz ... 867.5 MHz
USA, Canada	902.75 MHz ... 927.25 MHz
Brazilian	902.75 MHz ... 927.25 MHz, 915,25 MHz ... 927,25 MHz
China	920.625 MHz ... 924.375 MHz
Japan	916.8 MHz ... 920.4 MHz
India	865.7 MHz ... 866.9 MHz
Output power	
Europe, South Africa, India	250 mW (ERP, 24 dBm)
USA, Canada, Brazilian, Japan	320 mW (EIRP, 25 dBm)
China	200 mW (ERP, 23 dBm)
Modulation	PR-ASK, DSB-ASK
MTBF	23 years (continuous operation at ambient temperature 50°C)
Heating	
Cable	No
Ethernet	Yes
PoE	No
Antenna	
Europe, South Africa, India	Integrated (circular polarized, axial ration typ. 2 dB, 100° field opening, front to back ratio > 7 dB)
USA, Canada, Brazilian, China, Japan	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

Interfaces

Serial (RS-232, RS-422/485)	✔ / – (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, PROFINET Dual Port (optional via external connection module CDF600-2), EtherCAT (optional via external connection module CDF600)
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 parameter storage CMC600 in CDB620/ CDM420)

Ethernet	4 (“Sensor 1”, “Sensor 2”, 2 inputs via optional parameter storage CMC600 in CDB620/ CDM420)
PoE	0
Switching outputs	
Cable	4 (“Result 1”, “Result 2”, 2 outputs via optional parameter storage CMC600 in CDB620/ CDM420)
Ethernet	4 (“Result 1”, “Result 2”, 2 outputs via optional parameter storage CMC600 in CDB620/ CDM420)
PoE	0
Optical indicators	11 LEDs (function configurable via SOPAS ET, alternatively controlling with sw commands, status displays)
Configuration software	SOPAS ET

Mechanics/electronics

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

[1] With heating (ethernet) 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

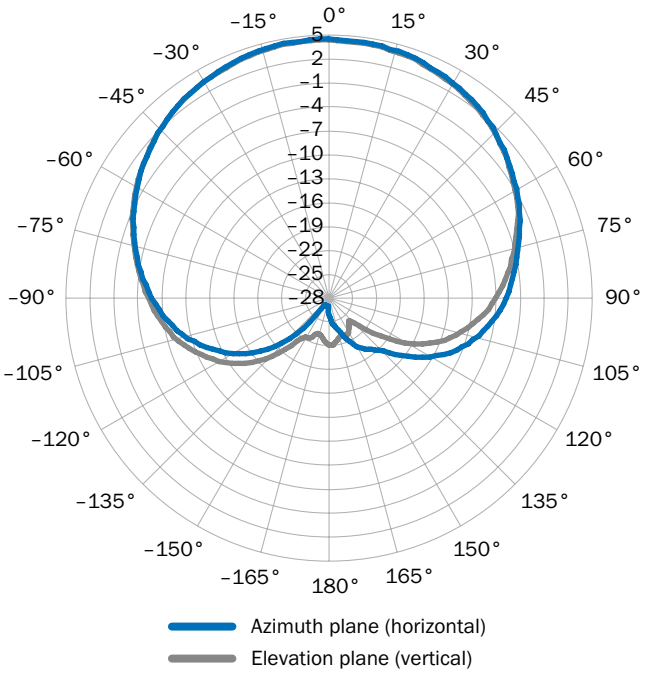
Ordering information

- **Version:** Mid Range
- **Product category:** write/read device with integrated antenna
- **Frequency band:** UHF (860 ... 960 MHz)
- **RFID standard:** EPCglobal UHF Class 1 Generation 2, ISO/IEC 18000-6 C
- **Scanning range:** max. 1 m (Depending on transponder used and ambient conditions.)

Connection type	Radio approval	Type	Part no.
Cable	Europe, South Africa	RFU620-10400	1062600
	USA, Canada	RFU620-10401	1062603
Ethernet	Europe, South Africa	RFU620-10100	1062599
	USA, Canada	RFU620-10101	1062602
	Brazilian	RFU620-10104	1069677
	China	RFU620-10105	1068728
	Japan	RFU620-10107	1068727
PoE	Europe, South Africa	RFU620-10500	1062601
	USA, Canada	RFU620-10501	1062604
	India	RFU620-10503	1069453
	Brazilian	RFU620-10504	1070407

Radiation pattern

Measured antenna gain in dBic at 868.5 MHz,
RHCP (right-hand circular polarized)



Recommended accessories

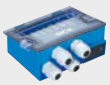
Mounting systems

Mounting brackets and mounting plates

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

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	–	●	–
	Gigabit Ethernet/ PoE	Male connector, M12, 8-pin, straight, X-coded	Male connector, RJ45, 8-pin, straight	AWG26	2 m	6049728	–	–	●
	Ethernet	Male connector, M12, 4-pin, straight, D-coded	Male connector, RJ45, 8-pin, straight	4-wire, AWG26	2 m	6034414	–	●	–
	USB 2.0	Male connector, USB-A	Male connector, Micro-B	–	2 m	6036106	●	●	●

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Further 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 28

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 4D*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 4D*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

→ 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

	Long Range write/read device with integrated antenna	Long Range write/read device without integrated antenna
Version	Long Range	
Carrier frequency		
Europe	865,7 MHz ... 867,5 MHz	
USA, Canada	902,75 MHz ... 927,25 MHz	
Australia	920,25 MHz ... 925,75 MHz	
China	920,625 MHz ... 924,375 MHz	
Japan	916,8 MHz ... 920,4 MHz	
Russia	866,3 MHz ... 867,5 MHz	
Japan	865,7 MHz ... 867,5 MHz	–
South Africa, Saudi Arabia	902,75 MHz ... 927,25 MHz	–
México	865,7 MHz ... 866,9 MHz	–
Brazilian	902,75 MHz ... 907,25 MHz, 915,25 MHz ... 927,25 MHz	–
Korea	917,3 MHz ... 920,3 MHz	–
Indonesia	923,25 MHz ... 924,75 MHz	–
Singapore	–	920,25 MHz ... 924,75 MHz
Output power		
Europe, China, Russia	2 W (ERP, bei integrierter Antenne, alternativ 30 dBm an den externen Antennenport, Leistung einstellbar)	30 dBm an den externen Antennenports, Leistung einstellbar
USA, Canada, Australia	4 W (EIRP, bei integrierter Antenne, alternativ 30 dBm an den externen Antennenport, Leistung einstellbar)	30 dBm an den externen Antennenports, Leistung einstellbar
Japan	4 W (EIRP, bei integrierter Antenne, alternativ 30 dBm an den externen Antennenport, Leistung einstellbar) 0,5 W (EIRP, bei integrierter Antenne, alternativ 24 dBm an den externen Antennenports, Leistung einstellbar) (typabhängig)	30 dBm an den externen Antennenports, Leistung einstellbar
South Africa, Saudi Arabia, India, Indonesia	2 W (ERP, bei integrierter Antenne, alternativ 30 dBm an den externen Antennenport, Leistung einstellbar)	–
México, Brazilian, Korea	4 W (EIRP, bei integrierter Antenne, alternativ 30 dBm an den externen Antennenport, Leistung einstellbar)	–
Singapore	–	30 dBm an den externen Antennenports, Leistung einstellbar
Modulation	PR-ASK, DSB-ASK	
MTBF	14 years (continuous operation at ambient temperature 50°C)	
Antenna	Integriert (zirkular polarisiert, Achsenverhältnis typ. 2 dB, Öffnungswinkel 72°, Rückdämpfung > 17 dB), zusätzlich 3 externe Antennenanschlüsse	4 externe Antennenanschlüsse
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	

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, PROFINET Dual Port (optional via external connection module CDF600-2)
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 parameter storage CMC600 in CDB620/ CDM420)
Switching outputs	4 (“Result 1”, “Result 2”, 2 outputs via optional parameter storage CMC600 in CDB620/ CDM420)
Optical indicators	8 LEDs, one of them multi-colored (function configurable via SOPAS ET, 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)
Configuration software	SOPAS ET

Mechanics/electronics

	Long Range write/read device with integrated antenna	Long Range write/read device without integrated antenna
Electrical connection	1 x M12, 17-pin male connector 1 x M12, 4-pin female connector Ethernet	
Operating voltage	18 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	239 mm x 197 mm x 40 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 ... +60 °C
Storage temperature	–30 °C ... +70 °C
Permissible relative humidity	± 90 %, non-condensing

Ordering information

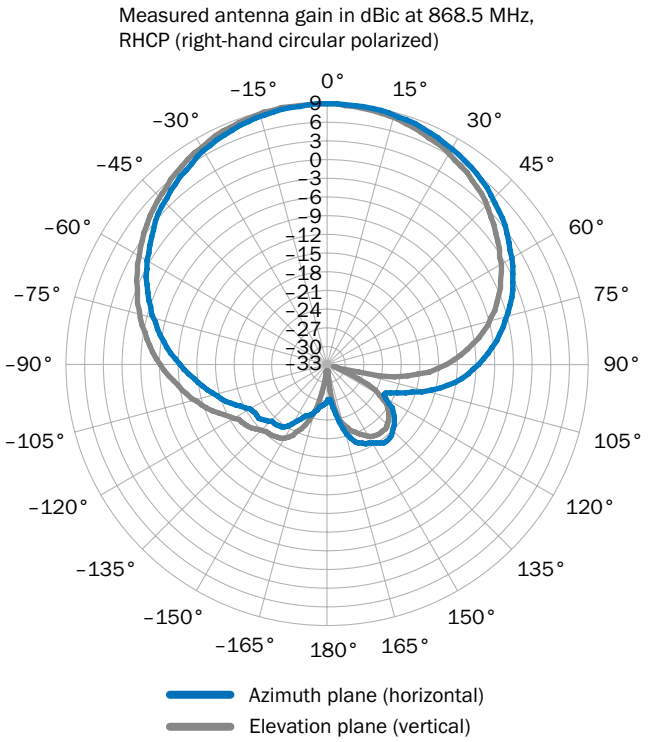
- **Version:** Long Range
- **Frequency band:** UHF (860 ... 960 MHz)
- **RFID standard:** EPCglobal UHF Class 1 Generation 2, ISO/IEC 18000-6 C

Product category	Scanning range	Radio approval	Type	Part no.
Write/read device with integrated antenna	Typ. 5 m [1]	Europe, South Africa, Saudi Arabia	RFU630-13100	1054396
		USA, Canada, México	RFU630-13101	1054397
		Australia	RFU630-13102	1058775
		India	RFU630-13103	1067473
		Brazilian	RFU630-13104	1068726
		China	RFU630-13105	1057943
		Japan	RFU630-13106	1067133
	Typ. 2 m [1]	Japan	RFU630-13107	1061498
	Typ. 5 m [1]	Russia	RFU630-13108	1070903
		Korea	RFU630-13110	1073442
		Indonesia	RFU630-13112	1074302
Write/read device without integrated antenna	Typ. 5 m [1]	Europe	RFU630-04100	1058117
		USA, Canada	RFU630-04101	1059999
		Australia	RFU630-04102	1073376
		China	RFU630-04105	1073196
		Japan	RFU630-04106	1068569
		Russia	RFU630-04108	1070904
		Singapore	RFU630-04109	1073377

[1] Depending on transponder used and ambient conditions.

Radiation pattern

RFU63x Long Range



Recommended accessories

Mounting systems

Mounting brackets and mounting plates

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

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, including trigger unit functionality for external illumination of LECTOR®65x	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	4-wire, AWG26	2 m	6034414
	USB 2.0	Male connector, USB-A	Male connector, Micro-B	–	2 m	6036106

Power supply units and power cord connectors

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

Further 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 28

RFID

Mounting systems

Mounting brackets and mounting 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	–	–	–	–	–	–	–	●
	Mounting bracket for wall mounting, incl. assembly material	2060912	–	–	–	–	–	–	–	●
	Pivot mounting bracket, incl. assembly material	2061737	–	–	–	–	–	–	–	●

Terminal and alignment brackets

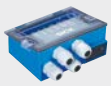
	Brief description	Part no.	RFH620 Cable	RFH620 Ethernet	RFH630 Cable	RFH630 Ethernet	RFU62x Cable	RFU62x Ethernet	RFU62x PoE	RFU63x
	Quick-action lock system	2016110	–	–	–	–	●	●	●	–
	Base clamp	5327611	–	–	–	–	●	●	●	●
	Cross clamp	5327612	–	–	–	–	●	●	●	●
	Link clamp with screws	2068919	–	–	–	–	●	●	●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

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 plug connection (6010075 and 6020092)	4038847	●	●	●	●	●	●	–	●

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/socket for CAN, base for CMC600	CDB620-101	1042257	●	●	●	●	●	●	–	–
	Small connection module for a sensor, 5 cable glands, socket 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, including trigger unit functionality for external illumination of LECTOR®65x	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	●	●	●	●	●	●	–	●

	Brief description	Type	Part no.	RFH620 Cable	RFH620 Ethernet	RFH630 Cable	RFH630 Ethernet	RFU62x Cable	RFU62x Ethernet	RFU62x PoE	RFU63x
	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/CDB650/CDM42x	CMC600-101	1042259	●	●	●	●	●	●	–	●

Power supply units and 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	–	–	–	●	–	●	–	●

Plug connectors and cables

Signal type/application: Power, serial, CAN, digital I/Os

	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
	Female connector, M12, 12-pin, straight	Cable	12-wire, UL	5 m	6034605	–	●	–	–	–	–	–	–
	Female connector, M12, 12-pin, straight, A-coded		Drag chain use, suitable for 2 A, suitable for refrigeration	5 m	2075219	–	●	–	–	–	–	–	–
	Female connector, M12, 17-pin, straight, A-coded		17-wire, suitable for 2 A, adapted color coding of open conductor heads, drag chain use, stripped	3 m	2070425	–	–	–	●	–	●	–	●
				5 m	2070426	–	–	–	●	–	●	–	●
				10 m	2070427	–	–	–	●	–	●	–	●
			Drag chain use, suitable for 2 A, suitable for refrigeration	5 m	2075220	–	–	–	●	–	●	–	●

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	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
	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	–	●	–	–	–	–	–	–
			To connection module CDx (except CDB650), drag chain use	3 m	2061604	–	●	–	–	–	–	–	–
	Female connector, M12, 17-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	–	–	–	●	–	●	–	●
			To connection module CDx (except CDB650), drag chain use	3 m	2061605	–	–	–	●	–	●	–	●
	Male connector, M12, 17-pin, straight, A-coded	Female connector, M12, 17-pin, straight, A-coded	To connection module CDB650, 17-wire, suitable for 2 A, drag chain use	0.9 m	6052945	–	–	–	●	–	●	–	●
				2 m	6052286	–	–	–	●	–	●	–	●
				3 m	6051194	–	–	–	●	–	●	–	●
				5 m	6051195	–	–	–	●	–	●	–	●
	Female connector, M12, 17-pin, straight, A-coded	Male connector, M12, 17-pin, straight, A-coded	Drag chain use, suitable for 2 A, suitable for refrigeration	2 m	6053230	–	–	–	●	–	●	–	●
				3 m	6053231	–	–	–	●	–	●	–	●
				5 m	6053232	–	–	–	●	–	●	–	●
	Female connector, D-Sub-HD, 15-pin, straight	Cable	Extension cable, 15-wire, AWG26	2 m	2043413	●	–	●	–	●	–	–	–
		Male connector, D-Sub-HD, 15-pin, straight		2 m	6034417	●	●	●	●	●	●	–	●
				3 m	6034418	●	●	●	●	●	●	–	●

Signal type/application: Power

	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
	Female connector, M12, 17-pin	Cable	To connection module CDx (except CDB650), 2-wire	10 m	6048319	–	–	–	●	–	●	–	●
	Cable		Black AS-i flat cable for looping in the power supply to 4Dpro Ethernet sensors, sold per meter, 2-wire, by the meter	–	6022463	–	●	–	●	–	●	–	–
	AS-i clip, M12	–	AS-i clip for connection on black AS-i flat cable		6022472	–	●	–	●	–	●	–	–
	Female connector, M12, 12-pin, straight	Male connector, M12, 4-pin, straight	For connection to black AS-i flat ribbon cable for supplying power to 4Dpro-Ethernet sensors, drag chain use	1 m	6044572	–	●	–	–	–	–	–	–
				2.5 m	6044573	–	●	–	–	–	–	–	–
	Female connector, M12, 17-pin, straight			1 m	6044574	–	–	–	●	–	●	–	–
				2.5 m	6044575	–	–	–	●	–	●	–	–

Signal type/application: Ethernet

	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
	Male connector, M12, 4-pin, D-coded	Male connector, M12, 4-pin, D-coded	4-wire	2 m	6034420	–	●	–	●	–	●	–	●
				3 m	6034421	–	●	–	●	–	●	–	●
				5 m	6034422	–	●	–	●	–	●	–	●
	Male connector, M12, 4-pin, straight, D-coded	Male connector, RJ45, 8-pin, straight	4-wire, AWG26	2 m	6034414	–	●	–	●	–	●	–	●
				3 m	6044400	–	●	–	●	–	●	–	●
				5 m	6034415	–	●	–	●	–	●	–	●
				10 m	6030928	–	●	–	●	–	●	–	●
				20 m	6036158	–	●	–	●	–	●	–	●
 Illustration may differ			4-wire, suitable for refrigeration, Ecolab, AWG26	2 m	6050198	–	●	–	●	–	●	–	●
				3 m	6050199	–	●	–	●	–	●	–	●
				5 m	6050200	–	●	–	●	–	●	–	●
				10 m	6050201	–	●	–	●	–	●	–	●
				20 m	6050596	–	●	–	●	–	●	–	●
			35,000 torsion flex cycles, robot	5 m	6053217	–	●	–	●	–	●	–	●

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Signal type/application: Gigabit Ethernet/PoE

	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
	Male connector, M12, 8-pin, straight, X-coded	Male connector, RJ45, 8-pin, straight	AWG26	2 m	6049728	–	–	–	–	–	–	●	–
				5 m	6049729	–	–	–	–	–	–	●	–
				10 m	6049730	–	–	–	–	–	–	●	–

Signal type/application: serial

	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
	Female connector, D-Sub, 9-pin, straight	Female connector, D-Sub, 9-pin, straight	For PC connection	3 m	2014054	●	●	●	●	●	●	–	●

Signal type/application: RS-232, USB

	Connection type head A	Connection type head B	Cable	Part no.	RFH620 Cable	RFH620 Ethernet	RFH630 Cable	RFH630 Ethernet	RFU62x Cable	RFU62x Ethernet	RFU62x PoE	RFU63x
	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	●	●	●	●	●	●	–	●

Signal type/application: USB 2.0

	Connection type head A	Connection type head B	Cable length	Type	Part no.	RFH620 Cable	RFH620 Ethernet	RFH630 Cable	RFH630 Ethernet	RFU62x Cable	RFU62x Ethernet	RFU62x PoE	RFU63x
	Male connector, USB-A	Male connector, Micro-B	2 m	USB cable	6036106	–	–	–	–	●	●	●	●

Signal type/application: HF analog

	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
	Male connector, N, straight	Male connector, TNC, straight	Antenna connecting cable, power loss 1.5 dB	2 m	6034081	–	–	–	–	–	–	–	●
			Antenna connecting cable, power loss 2.5 dB	5 m	6034082	–	–	–	–	–	–	–	●
			Antenna connecting cable, power loss 3.5 dB	10 m	6034083	–	–	–	–	–	–	–	●
	Female connector, TNC	Female 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	6049782	–	–	–	–	–	–	–	●

Further 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, India, Russia, South Africa, Saudi Arabia), TNC reverse	RFA630-000	1058383	–	–	–	–	–	–	–	●
	Industrial RFID UHF antenna, carrier frequency 902 ... 928 MHz (USA, Canada, México, Australia, Brazil, China, Japan), TNC reverse	RFA630-001	1058384	–	–	–	–	–	–	–	●
	Industrial RFID UHF antenna, carrier frequency 865 ... 868 MHz (Europe, India, Russia, South Africa, Saudi Arabia), TNC male connector, with integrated feedback LED (RGB)	RFA630-100	1059946	–	–	–	–	–	–	–	●
	Industrial RFID UHF antenna, carrier frequency 902 ... 928 MHz (USA, Canada, México, Australia, Brazil, China, Japan), TNC male connector, with integrated feedback LED (RGB)	RFA630-101	1059947	–	–	–	–	–	–	–	●
	Industrial RFID UHF antenna, carrier frequency 860 ... 960 MHz (Europe and North America), N male connector	RFA641-3440	6034316	–	–	–	–	–	–	–	●
	Industrial RFID UHF antenna, carrier frequency 865 ... 870 MHz (Europe, South Africa, Saudi Arabia), TNC reverse	RFA651-5731	6036102	–	–	–	–	–	–	–	●

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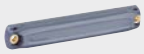
RFID transponder

	Brief description	Type	Part no.	RFH620 Cable	RFH620 Ethernet	RFH630 Cable	RFH630 Ethernet	RFU62x Cable	RFU62x Ethernet	RFU62x PoE	RFU63x
	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, 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, 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, ABS, 90 mm x 34 mm x 7 mm, NXP ICODE SLIX	On-metal transponder flat	6047938	●	●	●	●	–	–	–	–
	HF transponder, polyamid, silicone, 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, global, high memory, 41 mm x 11 mm x 5.15 mm, NXP UCODE 12C	High memory transponder (41 mm x 11 mm x 5.15 mm)	6054025	–	–	–	–	●	●	●	●
	UHF transponder, PVC, 85.6 mm x 54 mm x 0.76 mm, Alien Higgs	ISO card	6051820	–	–	–	–	●	●	●	●

	Brief description	Type	Part no.	RFH620 Cable	RFH620 Ethernet	RFH630 Cable	RFH630 Ethernet	RFU62x Cable	RFU62x Ethernet	RFU62x PoE	RFU63x
 Illustration may differ	UHF transponder, global, 110 mm x 70 mm x 0.42 mm, NXP UCODE G2iM	Label High Temp	6052355	–	–	–	–	●	●	●	●
	UHF transponder, global, 110 mm x 70 mm x 0.42 mm, NXP UCODE G2XM	Label High Temp	6049636	–	–	–	–	●	●	●	●
	UHF transponder, ETSI, plastic, 155 mm x 26 mm x 14.5 mm, Impinj Monza 4QT	On-metal Transponder (155 mm x 26 mm x 14.5 mm)	6055970	–	–	–	–	●	●	●	●
	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, plastic, ETSI, 63 mm x 10 mm x 4 mm, Alien Higgs 3	On-metal Transponder (63 mm x 10 mm x 4 mm)	6053373	–	–	–	–	●	●	●	●
	UHF transponder, FCC, plastic, 63 mm x 10 mm x 4 mm, Alien Higgs 3	On-metal Transponder (63 mm x 10 mm x 4 mm)	6053374	–	–	–	–	●	●	●	●
	UHF transponder, ETSI, PA 6, Durchmesser 55 mm, Dicke 13 mm, NXP UCODE G2XM	On-metal Transponder ETSI Disk on spacer	6051350	–	–	–	–	●	●	●	●
	UHF transponder, FCC, PA 6, 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, Alien Higgs 3	On-metal Transponder High Temp FCC	6053159	–	–	–	–	●	●	●	●
	UHF transponder, special label for wooden pallets, 73 mm x 14 mm x 0.3 mm, Impinj Monza 4QT	Special label	6054385	–	–	–	–	●	●	●	●

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Other mounting accessories

	Brief description	Part no.	RFH620 Cable	RFH620 Ethernet	RFH630 Cable	RFH630 Ethernet	RFU62x Cable	RFU62x Ethernet	RFU62x PoE	RFU63x
	Spacer for on-metal application with disc transponder; length 20 mm, diameter 18 mm, hole 8.2 mm, up to 120 °C	5324113	●	●	●	●	–	–	–	–
	Mounting bracket for card transponder on euro-pallet	2042903	●	●	●	●	●	●	●	●
	Teflon holder for high memory transponder (6054025); 2 x hole 6.2 mm	2075469	–	–	–	–	●	●	●	●

Storage media

	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	●	●	●	●	●	●	●	●

Transponder HF

Features

	Type	Part no.	Dimensions	IC	Max. reading distance (mm)	Temperature range				
						Ambient operating temperature		Tested		
						min. (°C)	max. (°C)	to (°C)	Duration	Cycles
	Disc low cost Ø 30 mm	6051701	Ø 30 mm x 3 mm	NXP I-Code SLIx	70 RFH620 120 RFH630	–25	+85	–	–	–
	Disc Ø 30 mm	6034740		NXP I-Code SLIx	85 RFH620 140 RFH630	–40	+85	+140	100 h	1
	Disc Ø 30 mm FRAM	6043514		Fujitsu MB89R118	80 RFH620 130 RFH630	–25	+85	+140	100 h	1
	Disc Ø 50 mm	6033781	Ø 50 mm x 3 mm	NXP I-Code SLIx	120 RFH620 200 RFH630	–40	+85	+140	100 h	1
	Disc Ø 50 mm FRAM	6042212		Fujitsu MB89R118	110 RFH620 190 RFH630	–25	+85	+140	100 h	1
	ISO card NXP	6037848	86 x 54 x 1 mm³	NXP I-Code SLIx	150 RFH620 240 RFH630	–35	+50	–	–	–
	ISO card TI	6037846		TI Tag-it HF-I plus	140 RFH620 230 RFH630	–10	+50	–	–	–
	ISO card low cost	6042981		NXP I-Code SLIx	110 RFH620 190 RFH630	–25	+50	–	–	–
	Coin transponder Ø 16 mm	6041592	Ø 16 mm x 3 mm	NXP I-Code SLIx	60 RFH620 100 RFH630	–25	+85	+120 +220	100 h 30 sec	1 1
	Coin transponder Ø 22 mm	6033173	Ø 22 mm x 3 mm	TI Tag-it HF-I plus	65 RFH620 115 RFH630	–25	+90	–	–	–
	Disc on metal Ø 22 mm	6052179	Ø 22 mm x 3 mm	NXP I-Code SLIx	5 RFH620 50 RFH630	–40	+90	–	–	–
	On-metal transponder flat	6047938	90 x 34 x 7 mm³	NXP I-Code SLIx	65 RFH620 120 RFH630	–25	+85	–	–	–
	On-metal transponder small	6039051	25 x 13 x 5 mm³	NXP I-Code SLIx	55 RFH620 110 RFH630	–25	+85	–	–	–
	Glass transponder	6039237	Ø 4 mm 22 mm	NXP I-Code SLIx	30 RFH620 90 RFH630	–25	+85	+120 +140	100 h 10 h	1 1
	Cylinder transponder low cost	6044368	Ø 5 mm 30 mm	NXP I-Code SLIx	25 RFH620 45 RFH630	–40	+85	–	–	–

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	Type	Part no.	Dimensions	IC	Max. reading distance (mm)	Temperature range				
						Ambient operating temperature		Tested		
						min. (°C)	max. (°C)	to (°C)	Duration	Cycles
	Paper label low cost	6037763	81 mm x 49 mm	NXP I-Code SLIx	140 RFH620 230 RFH630	+5	+50	–	–	–
 Illustration may differ		6052794	36 mm x 18 mm	NXP I-Code SLIx	55 RFH620 120 RFH630	+5	+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	...

Transponder UHF

Features

	Type	Part no.	Dimensions	IC	Max. reading distance [1] (m)	Temperature range				
					RFU62x, transmission power 250 mW (ERP) RFU63x, transmission power 2 W (ERP) 0.1 0.2 0.5 1 2 5 10	Ambient operating temperature		Tested		
						min. (°C)	max. (°C)	to (°C)	Duration	Cycles
	On-metal global	6052346	52 x 48 x 10 mm³	Impinj Monza 4QT		-40	+85	+125	60 min.	1
	On-metal ETSI	6055970	155 x 26 x 15 mm³	Impinj Monza 4QT		-35	+65	–	–	–
	On-metal global	6052186	27 x 27 x 6 mm³	Impinj Monza 4QT		-35	+85	–	–	–
	ISO-Karte	6051820	86 x 54 x 1 mm³	Alien Higgs 3		-10	+50	–	–	–
	On-metal ETSI	6051350	Ø 55 mm x 13 mm	NXP UCODE G2XM		-20	+85	+140	100 h	1
	On-metal FCC	6051351				-20	+85	+140	100 h	1
	On-metal ETSI	6053373	63 x 9 x 4 mm³	Alien Higgs 3		-40	+85	–	–	–
	On-metal FCC	6053374				-40	+85	–	–	–
	On-metal High Temp ETSI [2]	6050780	51 x 37 x 8 mm³	NXP UCODE G2XM		-30	+85	+220	30 min.	1000
	On-metal High Temp FCC [2]	6053159		Alien Higgs 3		-30	+85	+220	30 min.	1000
	High Memory global	6054025	41 x 11 x 6 mm³	NXP UCODE I²C		-40	+85	–	–	–
	Special Label global	6054385	73 x 14 x 0,3 mm³	Impinj Monza 4QT		-35	+60	–	–	–
	High temp label global [2]	6049636	110 x 70 x 0,5 mm³	NXP UCODE G2XM		-40	+85	+220	50 min.	1
	High temp label global [2]	6052355	110 x 70 x 0,5 mm³	NXP UCODE G2iM		-40	+85	+230	60 min.	4

[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] Tested in the laboratory, qualification required from the customer.

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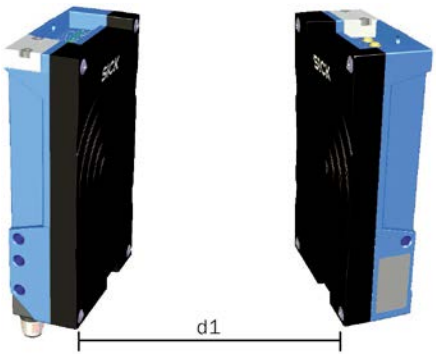
Overview ISO 18000-6C transponder ICs – 860-960 MHz – UHF

Manufacturer	Type	User memory	UII / EPC memory
Alien	Higgs 3	512 bit	Up to 480 bit
	Higgs 4	512 bit	128 bit
Impinj	Monza 4 D	32 bit	128 bit
	Monza 4 E	Up to 128 bit	Up to 496 bit
	Monza 4 QT	512 bit	Up to 128 bit
	Monza 5	0 bit	128 bit
	Monza X-2K	2,176 bit	128 bit
	Monza X-8K	8,192 bit	128 bit
NXP	UCODE G2XL	0 bit	240 bit
	UCODE G2XM	512 bit	240 bit
	UCODE G2iL	0 bit	128 bit
	UCODE G2iM	512 bit	256 bit
	UCODE 7	0 bit	128 bit
	UCODE i²C	3,328 bit	160 bit

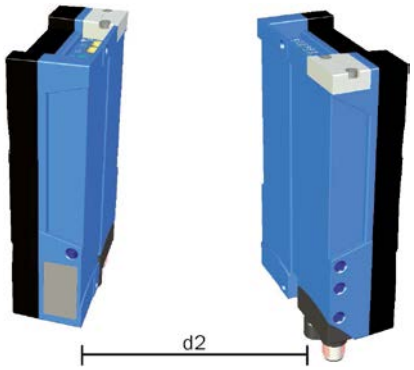
Mounting distance for RFH6xx

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

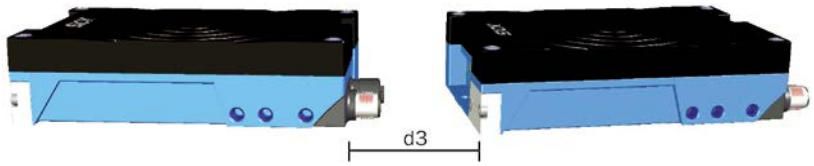
Face to face



Back to back



Side by side

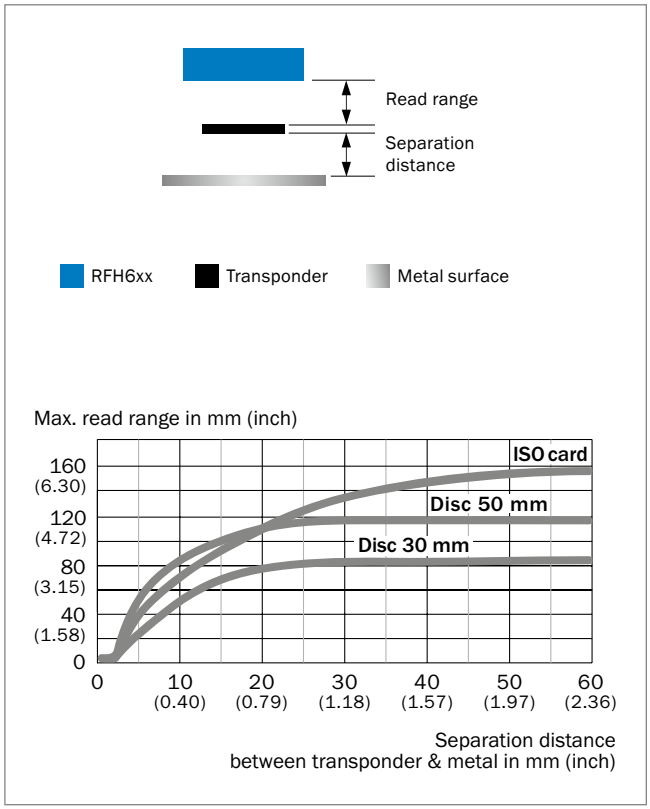


Version	d1	d2	d3
RFH620 Short Range	340 mm	140 mm	150 mm
RFH630 Mid Range	1,700 mm	1,200 mm	1,300 mm

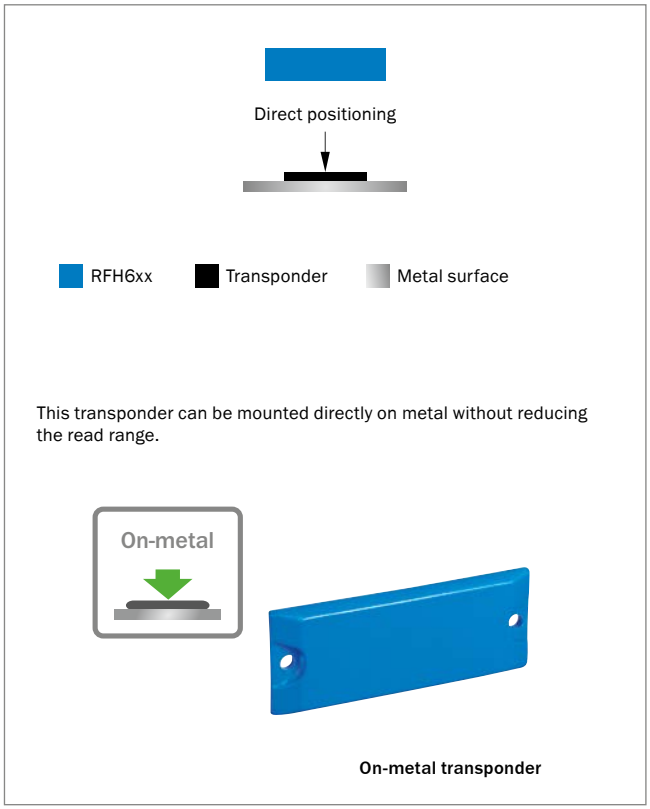
Mounting on metal for RFH6xx

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 RFH6xx

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)

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