



# RFU650-10105

RFU65x

RFID

**SICK**  
Sensor Intelligence.



### Ordering information

Type	part no.
RFU650-10105	1083559

Other models and accessories → [www.sick.com/RFU65x](http://www.sick.com/RFU65x)



### Detailed technical data

#### Features

<b>Version</b>	Long Range
<b>Product category</b>	RFID read/write device with integrated antenna
<b>Radio approval</b>	China (800 900 RFID 设备检验标准)
<b>Frequency band</b>	UHF (860 MHz ... 960 MHz)
<b>Carrier frequency</b>	920.625 MHz ... 924.375 MHz
<b>Output power</b>	1.6 W (ERP, with integrated antenna,)
<b>RFID standard</b>	EPCglobal UHF Class 1 Generation 2, ISO/IEC 18000-6 C, RAIN
<b>Modulation</b>	PR-ASK, DSB-ASK
<b>Aperture angle</b>	80°, vertical 55°, horizontal
<b>Reading range</b>	≤ 10 m <sup>1)</sup>
<b>Antenna</b>	Integrated
Transmitting power	Adjustable
Polarization	Circular
Axial ratio	Typ. 2 dB
Front-to-back ratio	> 15 dB
<b>Direction monitoring</b>	✓
<b>Bulk reading</b>	✓
<b>Further functions</b>	Transponder entry detection with direction information at horizontal antenna level, Horizontal transponder angle output, diagnosis, updatable firmware, freely programmable data output format, Heartbeat, triggering, SICK AppSpace functionalities can be enabled with the SD card accessory SDK6U-P00100 (for firmware ≥ 2.0.0)

<sup>1)</sup> Depending on transponder used and ambient conditions.

#### Mechanics/electronics

<b>Connection type</b>	1 x M12, 17-pin male connector, A-coded
------------------------	---

<sup>1)</sup> Operation at +25 °C.

	1 x M12, 4-pin female connector, D-coded 1 x USB, 5-pin micro-B socket
<b>Supply voltage</b>	12 V DC ... 30 V DC
<b>Power consumption</b>	Typ. 26 W
<b>Housing material</b>	Aluminum
<b>Housing color</b>	Blue, black, silver
<b>Enclosure rating</b>	IP67
<b>Protection class</b>	III
<b>Weight</b>	3.9 kg
<b>Dimensions (L x W x H)</b>	400 mm x 252 mm x 70 mm
<b>MTBF</b>	25 years <sup>1)</sup>

<sup>1)</sup> Operation at +25 °C.

## Interfaces

<b>Ethernet</b>		✓ , TCP/IP, OPC UA
	Remark	Companion Spec V1.0 from firmware 2.20
	Function	Data interface (read result output), Service interface
	Data transmission rate	10/100 MBit/s
<b>PROFINET</b>		✓
	Function	PROFINET Single Port, PROFINET Dual Port (optional via external connection module CDF600-2), Data interface (read result output)
	Data transmission rate	10/100 MBit/s
<b>EtherNet/IP™</b>		✓
	Function	Data interface (read result output)
	Data transmission rate	10/100 MBit/s
<b>EtherCAT®</b>		✓
	Type of fieldbus integration	Optional over external fieldbus module CDF600
	Function	Data interface (read result output)
<b>Serial</b>		✓ , RS-232, RS-422
	Remark	RS-422 only via 4-wire
	Function	Data interface (read result output), AUX (only RS-232)
	Data transmission rate	0.3 kBaud ... 115.2 kBaud, AUX: 57.6 kBaud
<b>CAN</b>		✓
	Remark	CSN (SICK CAN Sensor Network)
	Function	Data interface (read result output)
<b>PROFIBUS DP</b>		✓
	Type of fieldbus integration	Optional over external fieldbus module CDF600-2
	Function	Data interface (read result output)
<b>USB</b>		✓
	Remark	USB 2.0
	Function	Service interface
<b>CANopen</b>		✓

<sup>1)</sup> Another alternative is to generate your own configuration tools based on the SICK command language CoLa (e.g. in your own software or on PLC function blocks).

	Function
<b>Digital inputs</b>	Data interface (read result output) 2 (physical, 2 additional logical inputs via optional CMC600 parameter memory in CD-B620 / CDM420)
<b>Digital outputs</b>	2 (physical, 2 additional logical outputs via optional CMC600 parameter memory in CD-B620 / CDM420)
<b>Optical indicators</b>	7 LEDs, multi-color (device status) 1 RGB LED (Process feedback)
<b>Acoustic indicators</b>	1 beeper (Feedback)
<b>Control elements</b>	2 buttons (choose and start/stop functions)
<b>Operator interfaces</b>	Web server
<b>Configuration software</b>	SOPAS ET <sup>1)</sup>
<b>Programming interface</b>	Application-specific programming using the SICK AppStudio development environment
<b>Memory card</b>	microSD memory card (parameter cloning, data storage)

<sup>1)</sup> Another alternative is to generate your own configuration tools based on the SICK command language CoLa (e.g. in your own software or on PLC function blocks).

### Ambient data

<b>Electromagnetic compatibility (EMC)</b>	EN 301489-3
<b>Vibration resistance</b>	EN 60068-2-64:2008-02
<b>Shock resistance</b>	EN 60068-2-27:2009-05
<b>Ambient operating temperature</b>	-25 °C ... +60 °C
<b>Storage temperature</b>	-30 °C ... +70 °C
<b>Relative humidity</b>	90 %, Non-condensing

### Certificates

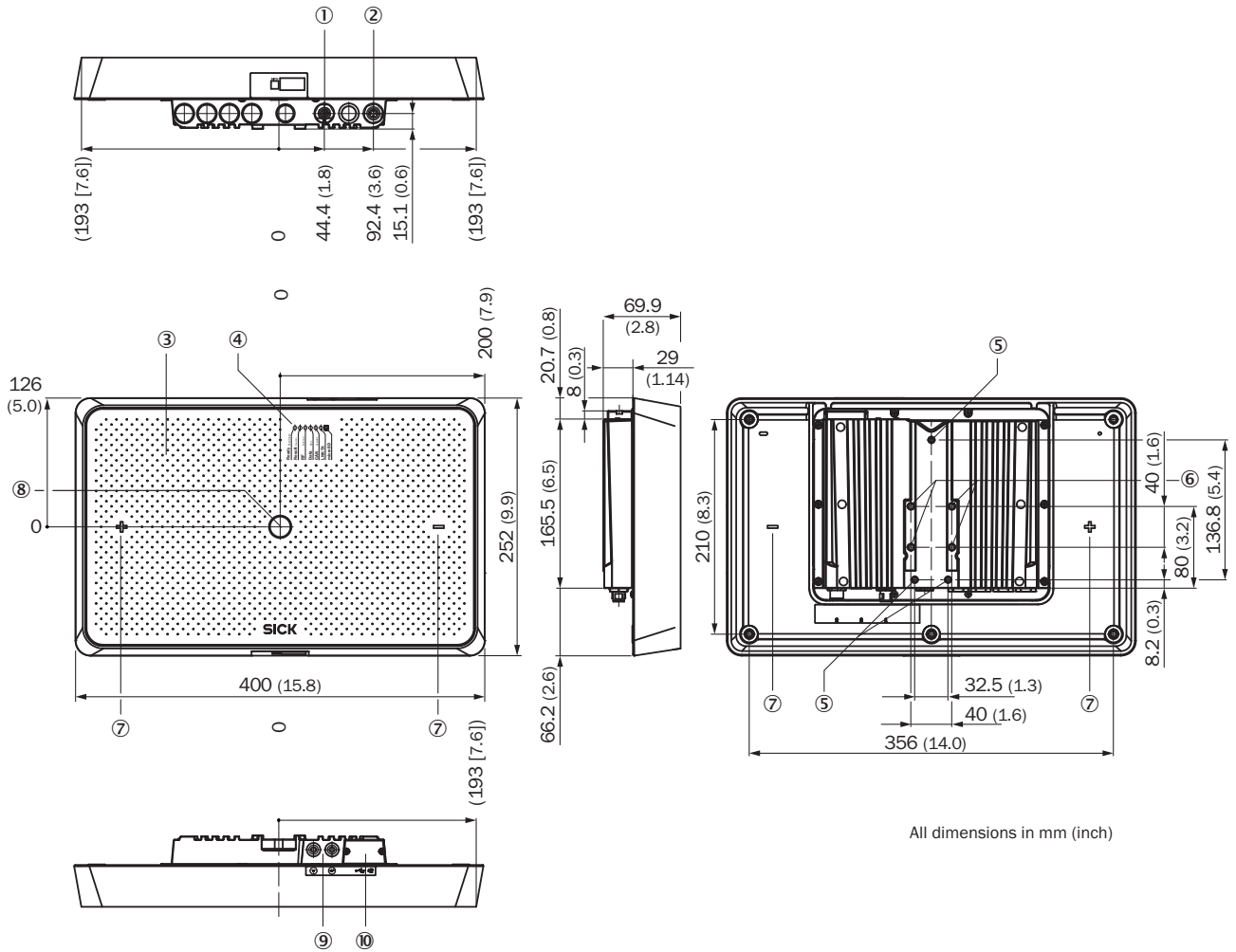
<b>China RoHS</b>	✓
<b>Profinet certificate</b>	✓
<b>Radio Approval certificate China</b>	✓
<b>4Dpro</b>	✓
<b>RAIN RFID</b>	✓

### Classifications

<b>ECLASS 5.0</b>	27280401
<b>ECLASS 5.1.4</b>	27280401
<b>ECLASS 6.0</b>	27280401
<b>ECLASS 6.2</b>	27280401
<b>ECLASS 7.0</b>	27280401
<b>ECLASS 8.0</b>	27280401
<b>ECLASS 8.1</b>	27280401
<b>ECLASS 9.0</b>	27280401
<b>ECLASS 10.0</b>	27280401
<b>ECLASS 11.0</b>	27280401
<b>ECLASS 12.0</b>	27280401
<b>ETIM 5.0</b>	EC002998
<b>ETIM 6.0</b>	EC002998
<b>ETIM 7.0</b>	EC002998

<b>ETIM 8.0</b>	EC002998
<b>UNSPSC 16.0901</b>	52161523

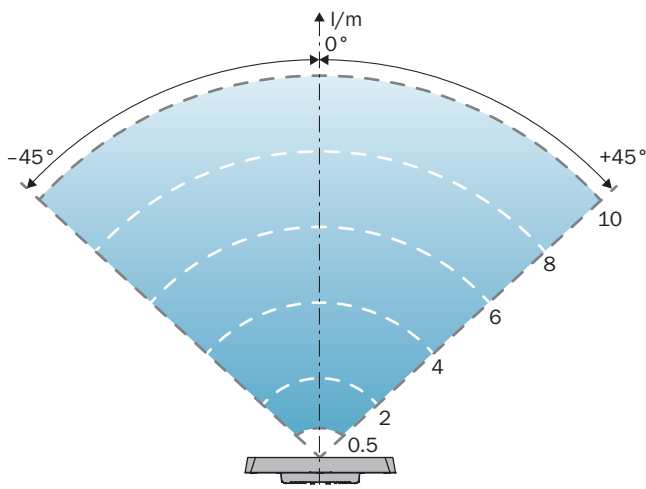
Dimensional drawing



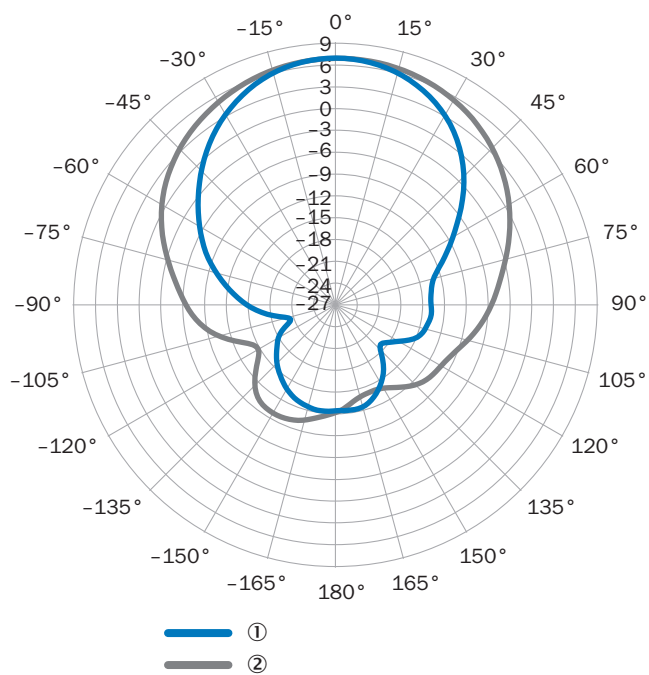
All dimensions in mm (inch)

Dimensions in mm (inch)

Working range diagram



Radiation pattern



measured antenna gain in dBic at 866.5 MHz, RHCP (right-hand circularly polarized)  
 ① Horizontal plane (azimuth)  
 ② vertical plane (elevation)

Connection diagram EtherCAT®

EtherCAT®



- Connecting cable (already present on device)
- EtherCAT® cable, 2 m (Part no. 2106159)

### Connection diagram PROFINET IO/RT


#### PROFINET









- Connecting cable (already present on device)
- Connection cable, 2 m (Part no. 6061702)
- PROFINET cable, 2 m (Part no. 2106182)
- PROFINET cable, 2 m (Part no. 2106258)
- ..... PROFINET cable, ready to assemble AIDA plug connectors

### Recommended accessories

Other models and accessories → [www.sick.com/RFU65x](http://www.sick.com/RFU65x)

	Brief description	Type	part no.
Junction boxes			
		CDB650-204	1064114

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none"> <li><b>Description:</b> USB 2.0, unshielded</li> <li><b>Connection type head A:</b> Male connector, Micro-B, 4-pin, straight</li> <li><b>Connection type head B:</b> Male connector, USB-A, 4-pin, straight</li> <li><b>Signal type:</b> USB 2.0</li> <li><b>Cable:</b> 2 m, 4-wire</li> </ul>	YMUSA4-020VG4MUIA4	6036106
	<ul style="list-style-type: none"> <li><b>Description:</b> Power, suitable for 2 A, shielded, Serial, CAN, Digital I/Os</li> <li><b>Connection type head A:</b> Female connector, M12, 17-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Male connector, M12, 17-pin, straight, A-coded</li> <li><b>Signal type:</b> Power, serial, CAN, digital I/Os</li> <li><b>Cable:</b> 0.9 m, 17-wire</li> <li><b>Application:</b> Drag chain operation</li> </ul>	YM2A8D-C90XXXF2A8D	6052945
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Male connector, M12, 4-pin, straight, D-coded</li> <li><b>Connection type head B:</b> Male connector, RJ45, 4-pin, straight</li> <li><b>Signal type:</b> Ethernet, PROFINET</li> <li><b>Cable:</b> 2 m, 4-wire, PUR, halogen-free</li> <li><b>Description:</b> Ethernet, shielded, PROFINET</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants</li> </ul>	YM2D24-020P-N1MRJA4	2106182
Storage media			
	<ul style="list-style-type: none"> <li><b>Description:</b> microSD memory card with 1 GB for industrial use</li> </ul>	microSD memory card	4051366
Mounting systems			
	<ul style="list-style-type: none"> <li><b>Description:</b> Pivot mounting bracket, incl. assembly material</li> <li><b>Suitable for:</b> Pivot mounting bracket incl. mounting material, can be adjusted +/-30°. Device can be replaced without the need to mechanically readjust the bracket.</li> </ul>	Mounting bracket	2080967
RFID transponders			
	<ul style="list-style-type: none"> <li><b>Carrier frequency:</b> 865 MHz ... 928 MHz</li> <li><b>Memory capacity (EPC / user memory):</b> 496/128 Bit (EPC / User Memory)</li> <li><b>Dimensions (L x W x H):</b> 18 mm x 122 mm x 2 mm</li> </ul>	UHF Transponder, Rectangular, global	6088050

## SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)