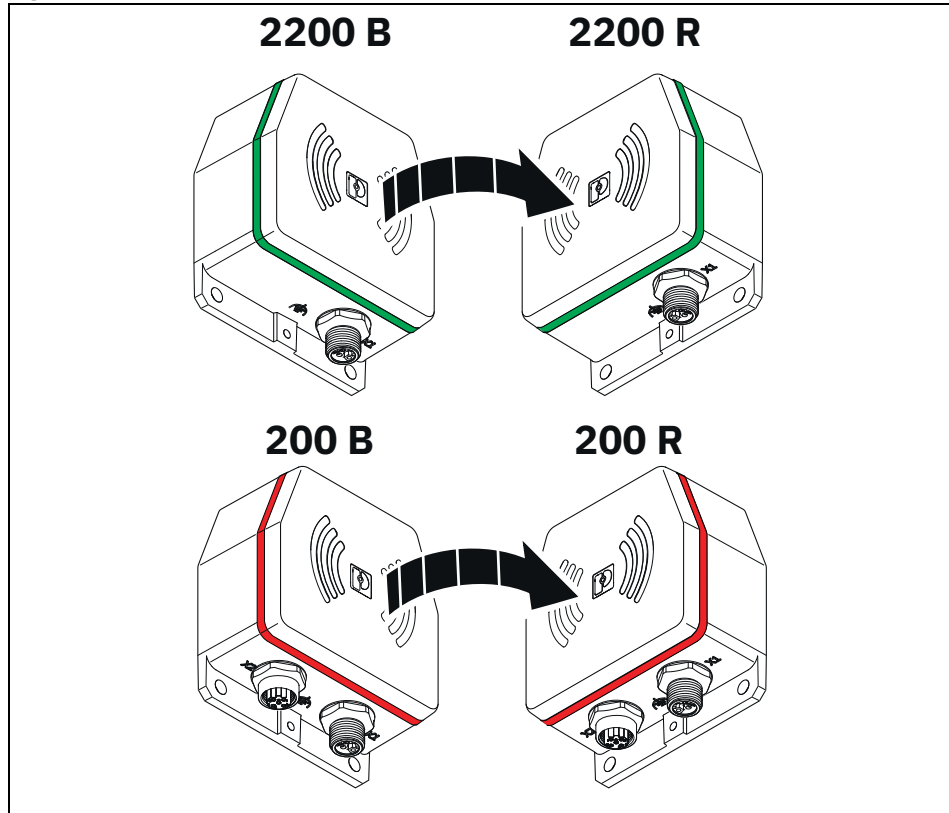


LED ring on the remote coupler lights up red

Only for the NEARFI 200 R power coupler

Figure 6-5 Critical error on remote in parallel operation



If the remote coupler LED ring lights up red, there is a critical error.

Possible reasons:

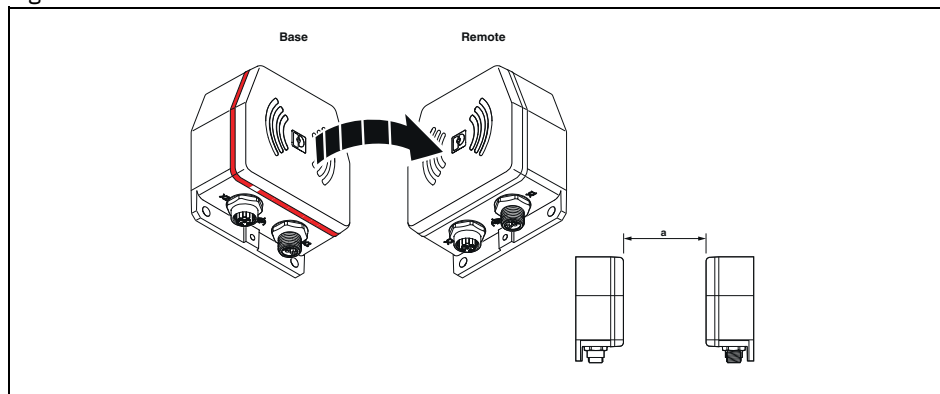
- NEARFI 200 B not transmitting power to NEARFI 200 R
 - Internal temperature too high
 - Internal error
-
- Check the power supply unit.
 - Check the connected load on the remote side.
 - Check the air gap between the devices.
 - Reduce the distance, the offset, or the angle between the devices if necessary.
 - Contact Phoenix Contact if these measures do not help.

6.1.3 Critical error on the base



Only for the NEARFI 2200 power and data couplers and the NEARFI 200/300 power couplers

Figure 6-6 Critical error



If the base coupler LED ring lights up red, there is a critical error.

Possible reasons:

- Supply voltage outside of the nominal range (19 V DC ... 30 V DC)
- Internal temperature too high
- Internal error

To protect the coupler and other devices, the remote coupler switches off. No more power is transmitted.

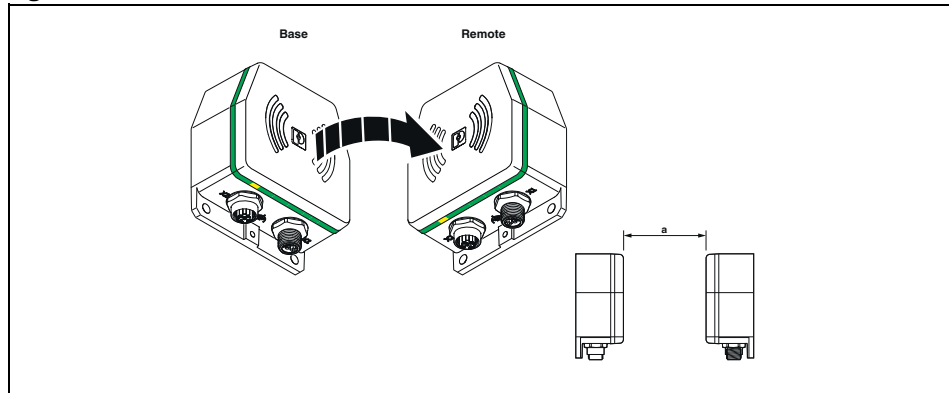
- Check the power supply unit.
- Check the connected load on the remote side.
- Check the air gap between the devices.
- Reduce the distance, the offset, or the angle between the devices if necessary.
- Contact Phoenix Contact if these measures do not help.

6.1.4 Malfunction on the data line



Only for the NEARFI 2200 power and data couplers and the NEARFI 2000 data couplers

Figure 6-7 LAN malfunction



If a twisted pair segment malfunctions, only the ETH LINK LED of the corresponding port will go out.

Fast startup

The “Fast startup” function is also referred to as prioritized startup or fast restart. When using network devices with this function, note the following:

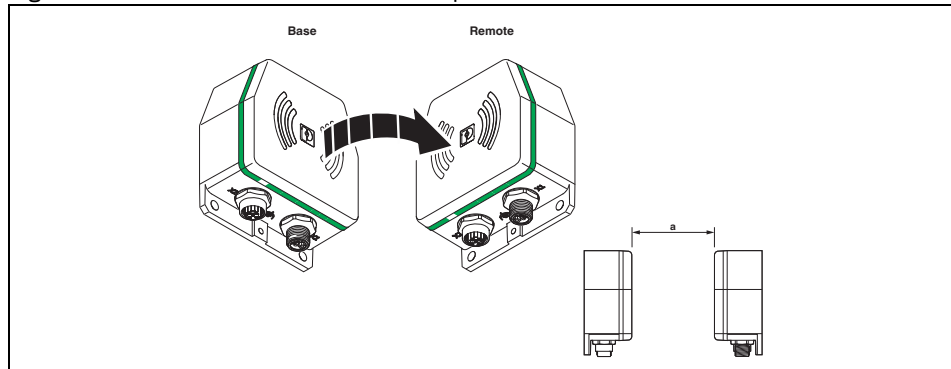
- Only use routers and switches that support fast startup.
- To ensure fast startup of network devices, select “ETH full duplex” operating mode on the NearFi couplers.
- Please note that crossover detection is not available in “ETH full duplex” operating mode. The pin assignment of the network connection changes to “Crossover” on the remote coupler.
- Select the connecting cable according to the connected device:
 - Crossover cable with same port assignment
 - Patch cable with different port assignment

6.1.5 Wireless connection not optimal



Only for the NEARFI 2000 data couplers

Figure 6-8 Wireless connection not optimal



The LED ring on the base and the remote flashes green if the distance or the offset between the couplers is too great.

- Check the air gap between the devices.
- Reduce the distance, the offset, or the angle between the devices if necessary.

7 Device replacement, device defect and repair

7.1 Device replacement

**NOTE: Device damage**

Only mount and remove devices when the power supply is disconnected.

You can replace the device if necessary.

- Disconnect the device from the power supply.
- Remove all cables.
- Remove the device as described in [“Mounting and removal” on page 58](#).
- Replace the device with an identical device (the same item no.).

7.2 Device defect and repair

Repairs may only be carried out by Phoenix Contact.

- Send defective devices back to Phoenix Contact for repair or to receive a replacement device.
- We strongly recommend using the original packaging to return the product.
- Include a note in the packaging indicating that the contents are returned goods.
- Include an error description with the returned product.
- If the original packaging is no longer available, observe the following points:
 - Observe the humidity specifications and the temperature range specified for transport (see [“Ambient conditions” on page 91](#)).
 - Use dehumidifying agents if necessary.
 - Use suitable ESD packaging to protect components that are sensitive to electrostatic discharge.
 - Make sure that the packaging you select is large enough and sufficiently thick.
 - Only use plastic bubble wrap sheets as wadding.
 - Attach warnings to the transport packaging so that they are clearly visible.
 - Please ensure that the delivery note is placed inside the package if the package is to be shipped domestically. However, if the package is being shipped internationally, the delivery note must be placed inside a delivery note pocket and attached to the outside so that it is clearly visible.

8 Maintenance and disposal

8.1 Maintenance

The device is maintenance-free.

8.2 Disposal



The symbol with the crossed-out trash can indicates that this item must be collected and disposed of separately. Phoenix Contact or our service partners will take the item back for free disposal. For information on the available disposal options, visit [phoenixcontact.com](https://www.phoenixcontact.com).

- Set all DIP switches to “off” before disposal.
- Dispose of packaging materials that are no longer needed (cardboard packaging, paper, bubble wrap sheets, etc.) with household waste in accordance with the currently applicable national regulations.

9 Technical data

9.1 Ordering data

NEARFI	Type	Item no.	Pcs./Pkt.
Power and data coupler, 50 W (US), 100 Mbps full duplex, M12 push-pull, IP65, optional: 100 W (US) in conjunction with NEARFI 200 or 2 x 50 W (US+UA) with NEARFI 300	Base coupler	NEARFI 2200 B	1433050
	Remote coupler	NEARFI 2200 R	1433049
Power coupler, 50 W (UA), M12 push-pull, IP65, optional: 2 x 50 W (US+UA) in conjunction with NEARFI 2200/200	Base coupler	NEARFI 300 B	1464614
	Remote coupler	NEARFI 300 R	1509989
Power coupler, 50 W (US), M12 push-pull, IP65, optional: 100 W (US) in conjunction with NEARFI 2200/200 or 2 x 50 W (US+UA) with NEARFI 300	Base coupler	NEARFI 200 B	1433047
	Remote coupler	NEARFI 200 R	1433046
Data coupler, 100 Mbps full duplex, range up to 10 cm, M12 push-pull, IP65	Base coupler	NEARFI 2000 B	1433041
	Remote coupler	NEARFI 2000 R	1433040

9.1.1 Accessories

Screw plugs	Type	Item no.	Pcs./Pkt.
M12 screw plug for unused M12 females of shielded sensor/actuator cable, boxes, and flush-type connectors	PROT-M12 SH	1503302	5
Metal M12 sealing cap for unused M12 males of sensor/actuator cables, flush-type connectors, and I/O devices in the field	PROT-M12 FS-M	1430488	10
M12 sealing cap for unused M12 males of sensor/actuator cables, flush-type connectors, and I/O devices in the field	PROT-M12 FS	1560251	5
M12 screw plug for unused M12 females of M12 power connectors, boxes, and flush-type connectors	PROT M12 MS PWR	1092802	5
Power cables and power connectors			
Power cable, 4-pos., PUR halogen-free, black gray RAL 7021, coding: L, for DC current up to 12 A/63 V			
Free cable end to M12 straight socket Cable length: 5 m	SAC-4P- 5,0-105/M12FSL	1425035	1
Free cable end to M12 angled socket Cable length: 5 m	SAC-4P- 5,0-105/M12FRL	1425039	1
M12 straight connector to free cable end Cable length: 5 m	SAC-4P-M12MSL/ 5,0-105	1425027	1
M12 angled connector to free cable end Cable length: 5 m	SAC-4P-M12MRL/ 5,0-105	1425031	1
M12 straight connector to M12 straight socket Cable length: 0.6 m	SAC-4P-M12MSL/0,6-105/FSL	1425042	1
M12 straight connector to M12 straight socket Cable length: 3 m	SAC-4P-M12MSL/3,0-105/FSL	1425044	1
Power connector, power, 4-pos., shielded, coding: L, Push-Lock spring connection, knurled material: brass, nickel-plated, outer cable diameter: 6 mm ... 11 mm			
M12 straight socket	SACC-M12FSL-4PL-CM SH	1080237	1
M12 straight connector	SACC-M12MSL-4PL-CM SH	1080239	1

Network cables			
Network cable, Ethernet CAT5 (100 Mbps), 4-pos., PUR halogen-free, water blue RAL 5021, shielded (Advanced Shielding Technology), M12 straight push-pull connector, coding: D/IP67, cable length: 5 m			
M12 straight connector to free cable end	NBC-P12MSD/ 5,0-93E	1476013	1
M12 straight connector to RJ45 straight connector/IP20	NBC-P12MSD/ 5,0-93E/R4AC	1476025	1
M12 straight connector to M12 straight connector	NBC-P12MSD/ 5,0-93E/P12MSD	1476051	1
Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-pos., PVC/PVC, green RAL 6018, shielded (Advanced Shielding Technology), M12 straight connector, coding: D/IP67, cable length: 5 m			
M12 straight connector to free cable end	NBC-M12MSD/ 5,0-93B	1407497	1
M12 straight connector to RJ45 straight connector/IP20	NBC-M12MSD/ 5,0-93B/R4AC	1407501	1
M12 straight connector to M12 straight connector	NBC-M12MSD/ 5,0-93B/M12MSD	1407526	1
Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-pos., PUR/FRNC halogen-free, green RAL 6018, shielded (Advanced Shielding Technology), M12 angled connector, coding: D/IP67, to M12 angled connector, coding: D/IP67, cable length: 5 m	NBC-M12MRD/ 5,0-93C/M12MRD	1416749	1
Network connectors			
Connector, PROFINET CAT5 (100 Mbps), 4-pos., shielded, coding: D, Push-Lock spring connection, knurled material: zinc die-cast, nickel-plated, outer cable diameter: 4 mm ... 8 mm			
M12 angled connector	SACC-M12MRD-4PL SH PN	1424684	1
M12 straight connector	SACC-M12MSD-4PL SH PN	1424682	1
RJ45 connector, design: RJ45, degree of protection: IP20, number of positions: 8, 1 Gbps, CAT5, material: plastic, connection method: insulation displacement connection, connection cross-section: AWG 26 ... 23, cable outlet: straight, color: traffic gray A RAL 7042, Ethernet	VS-08-RJ45-5-Q/IP20	1656725	1



You will find additional accessories with the product at phoenixcontact.com/products.

9.2 Technical data

Coupling system	NEARFI 2200	NEARFI 300	NEARFI 200	NEARFI 2000
Product characteristic	Power and data coupler	Power coupler, actuator supply	Power coupler, communications power	Data coupler
Range	0 mm ... 10 mm	0 mm ... 10 mm	0 mm ... 10 mm	0 mm ... 100 mm, adjustable via DIP switch
Center offset	±5 mm	±10 mm	±10 mm	± 5 mm (no spacing between the devices) ± 20 mm (at 100 mm spacing between the devices)
Inclination tolerance	< 15°	< 15°	< 15°	< 25°
Power transmission				
Frequency range	110 kHz ... 148.5 kHz	110 kHz ... 148.5 kHz	110 kHz ... 148.5 kHz	-
Test field strength	~ 1.95 µA/m (at a 10 m distance)	~ 1.95 µA/m (at a 10 m distance)	~ 1.95 µA/m (at a 10 m distance)	-
Output power				
Individual operation	50 W communications power	50 W actuator supply	50 W communications power	-
Parallel operation	100 W communications power, for parallel operation with NEARFI 200	50 W 2 x 50 W, communications power and actuator supply electrically isolated, for parallel operation with NEARFI 2200/200	100 W communications power, for parallel operation with NEARFI 2200	-
	50 W 2 x 50 W, communications power and actuator supply electrically isolated, for parallel operation with NEARFI 300	-	50 W 2 x 50 W, communications power and actuator supply electrically isolated, for parallel operation with NEARFI 300	-
Data transmission				
Frequency range	59 GHz ... 64 GHz	-	-	59 GHz ... 64 GHz
Transmission power	< 10 mW (EIRP)	-	-	< 10 mW (EIRP)
Delay time	≤ 1 µs (typical)	-	-	≤ 1 µs (typical)
Bit error rate	≤ 10 ⁻¹² (typical)	-	-	≤ 10 ⁻¹² (typical)

NEARFI

X1, base	NEARFI 2200 B	NEARFI 300 B	NEARFI 200 B	NEARFI 2000 B
Interface designation	Base power supply	Base power supply	Base power supply	Base power supply
Supply voltage range	19 V DC ... 30 V DC	19 V DC ... 30 V DC	19 V DC ... 30 V DC	19 V DC ... 30 V DC
Typical current consumption				
Individual operation	170 mA without remote coupler, at 24 V DC, at 25°C 480 mA with remote coupler, without load, at 24 V DC, at 25°C	40 mA without remote coupler, at 24 V DC, at 25°C 125 mA with remote coupler, without load, at 24 V DC, at 25°C	40 mA without remote coupler, at 24 V DC, at 25°C 130 mA with remote coupler, without load, at 24 V DC, at 25°C	195 mA at 24 V DC, at 25°C -
Parallel operation	240 mA parallel operation with NEARFI 200, without remote coupler, at 24 V DC, at 25°C 650 mA parallel operation with NEARFI 200, without remote coupler, without load, at 24 V DC, at 25°C	-	125 mA parallel operation with NEARFI 200, without remote coupler, at 24 V DC, at 25°C 330 mA parallel operation with NEARFI 200, without remote coupler, without load, at 24 V DC, at 25°C	-
Current consumption, maximum				
Individual operation	< 3.7 A with remote coupler, 2 A load, 19 V DC input voltage	< 3.2 A with remote coupler, 2 A load, 19 V DC input voltage	< 3.2 A with remote coupler, 2 A load, 19 V DC input voltage	-
Parallel operation	< 7.1 A parallel operation with NEARFI 200, with remote coupler, 4 A load, 19 V DC input voltage	-	< 6.2 A parallel operation with NEARFI 200, with remote coupler, 4 A load, 19 V DC input voltage	

X1, base	NEARFI 2200 B	NEARFI 300 B	NEARFI 200 B	NEARFI 2000 B
Inrush current				
Individual operation	1.9 A for approx. 1.5 ms, at 24 V DC, without remote coupler	2.3 A for approx. 1 ms, at 24 V DC, without remote coupler	2 A for approx. 1.5 ms, at 24 V DC, without remote coupler	0.4 A for 0.2 ms at 24 V DC, without remote coupler
	4.3 A for approx. 4.5 ms, at 24 V DC, with re- mote coupler, without load	4.5 A for approx. 4.5 ms, at 24 V DC, with re- mote coupler, without load	4.4 A for approx. 4.5 ms, at 24 V DC, with re- mote coupler, without load	-
Parallel operation	3.9 A parallel operation with NEARFI 200, for approx. 1.5 ms, at 24 V DC, without remote coupler	-	3.9 A parallel operation with NEARFI 200, for approx. 1.5 ms, at 24 V DC, without remote coupler	-
	8.1 A parallel operation with NEARFI 200, for approx. 4.5 ms, at 24 V DC, with re- mote coupler, without load	-	8.1 A parallel operation with NEARFI 200, for approx. 4.5 ms, at 24 V DC, with re- mote coupler, without load	-
Protective circuit	Transient protec- tion, protection against polarity reversal	Transient protec- tion, protection against polarity reversal	Transient protec- tion, protection against polarity reversal	Transient protec- tion, protection against polarity reversal
Connection method	M12 connector (L-coded) Push-pull fast con- nection or screw connection	M12 connector (L-coded) Push-pull fast con- nection or screw connection	M12 connector (L-coded) Push-pull fast con- nection or screw connection	M12 connector (L-coded) Push-pull fast con- nection or screw connection

NEARFI

X1, remote	NEARFI 2200 R	NEARFI 300 R	NEARFI 200 R	NEARFI 2000 R
Interface designation	Remote output	Remote output	Remote output	Remote power supply
Nominal output voltage	24 V DC $\pm 5\%$	24 V DC $\pm 5\%$	24 V DC $\pm 5\%$	-
Output current				
Individual operation	≤ 2 A (typical)	≤ 2 A (typical)	≤ 2 A (typical)	-
Parallel operation	-	-	≤ 4 A (typical, parallel operation)	-
Maximum output current				
Individual operation	3.5 A peak, for 20 ms, with 5 mm spacing	4 A peak, for 20 ms, with 5 mm spacing	4 A peak, for 20 ms, with 5 mm spacing	-
Parallel operation	-	-	6.8 A parallel operation, peak, for 20 ms, with 5 mm spacing	-
Supply voltage range	-	-	-	19 V DC ... 30 V DC
Typical current consumption	-	-	-	≤ 160 mA at 24 V DC, at 25°C
Inrush current	-	-	-	0.4 A for 0.2 ms at 24 V DC, without remote coupler
Protective circuit	Short circuit protection, overload protection	Short circuit protection, overload protection	Short circuit protection, overload protection	Transient protection, protection against polarity reversal
Connection method	M12 female, L-coded Screw connection	M12 female, L-coded Screw connection	M12 female, L-coded Screw connection	M12 connector, L-coded Push-pull fast connection or screw connection

X2, remote and base	NEARFI 2200	NEARFI 300	NEARFI 200	NEARFI 2000
Designation	Ethernet interface, 100Base-T(X) in accordance with IEEE 802.3	-	-	Ethernet interface, 100Base-T(X) in accordance with IEEE 802.3
Number of ports	1	-	-	1
Connection method	M12 female, D-coded Push-pull fast connection or screw connection	-	-	M12 female, D-coded Push-pull fast connection or screw connection
Note on the connection method	Auto negotiation and auto crossing, fast startup (FSU, < 500 ms), LFPT	-	-	Auto negotiation and auto crossing, fast startup (FSU, < 500 ms), LFPT
Operating mode	Full duplex, auto neg (can be set via DIP switch)	-	-	Full duplex, auto neg (can be set via DIP switch)
Transmission speed	100 Mbps	-	-	100 Mbps
Transmission length	100 m (twisted pair, shielded)	-	-	100 m (twisted pair, shielded)
Transmission medium	Copper	-	-	Copper
Supported protocols	Protocol-transparent: PROFINET, PROFINET IRT, PROFI-safe, EtherCAT®, Modbus/TCP, Powerlink, TSN, etc.	-	-	Protocol-transparent: PROFINET, PROFINET IRT, PROFI-safe, EtherCAT®, Modbus/TCP, Powerlink, TSN, etc.

General data	
Degree of protection	IP65/IP66 (manufacturer's declaration)
Impact strength	IK06
Overvoltage category	II
Pollution degree	2
Flammability rating in accordance with UL 94	V0
Mounting position	Any
Mounting type	Panel mounting
Mounting note	Observe derating, see page 53
Dimensions (W/H/D)	80 mm x 86 mm x 39 mm
Material	
Enclosure	PBT
Enclosure	Die-cast zinc
Color	
Housing	Black (9005)
Other resistance	Resistant to welding splash
Vibration resistance in accordance with EN 60068-2-6/IEC 60068-2-6	5g per spatial direction, 10 Hz ... 150 Hz, amplitude ± 0.34 mm
Shock in accordance with EN 60068-2-27/IEC 60068-2-27	30g, 11 ms duration, half-sine shock pulse, three shocks per spatial direction
Continuous shock in accordance with EN 60068-2-27/IEC 60068-2-27	10g, 16 ms duration, half-sine shock pulse, 1000 shocks per spatial direction
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Free from substances that would hinder coating with paint or varnish	VDMA 24364:2018:05

MTTF (mean time to failure)	NEARFI 2200	NEARFI 300	NEARFI 200	NEARFI 2000
SN 29500 standard, temperature 25°C, operating cycle 21%	126 years	221 years	221 years	191 years
SN 29500 standard, temperature 40°C, operating cycle 34.25%	67 years	112 years	112 years	110 years
SN 29500 standard, temperature 40°C, operating cycle 100%	31 years	51 years	51 years	53 years

Ambient conditions		NEARFI 2200	NEARFI 300	NEARFI 200	NEARFI 2000
Ambient temperature					
	Operation	-20°C ... 55°C (observe derating)	-20°C ... 60°C (observe derating)	-20°C ... 55°C (observe derating)	-20°C ... 65°C (observe derating)
		-	-20°C ... 40°C (in accordance with UL, observe derat- ing)	-20°C ... 40°C (in accordance with UL, observe derat- ing)	-
	Storage/transport	-40°C ... 85°C	-40°C ... 85°C	-40°C ... 85°C	-40°C ... 85°C
Humidity					
	Operation	10% ... 95%	10% ... 95%	10% ... 95%	10% ... 95%
	Storage/transport	10% ... 95%	10% ... 95%	10% ... 95%	10% ... 95%
Altitude		2000 m	2000 m	2000 m	2000 m
Air pressure					
	Operation	80 kPa ... 108 kPa (up to 2000 m above mean sea level)	80 kPa ... 108 kPa (up to 2000 m above mean sea level)	80 kPa ... 108 kPa (up to 2000 m above mean sea level)	80 kPa ... 108 kPa (up to 2000 m above mean sea level)
	Storage/transport	66 kPa ... 108 kPa (up to 3500 m above mean sea level)	66 kPa ... 108 kPa (up to 3500 m above mean sea level)	66 kPa ... 108 kPa (up to 3500 m above mean sea level)	66 kPa ... 108 kPa (up to 3500 m above mean sea level)



Please note that the lower derating value of the respective item version applies for parallel operation, see [4.15 “Derating”](#).

NEARFI

Conformity/approvals	NEARFI 2200	NEARFI 300	NEARFI 200	NEARFI 2000
CE	CE compliant			
Wireless approval, Europe	RED 2014/53/EU			
UL, USA	UL 61010 recognized UL 61010-2-201, 2nd Edition UL 61010-1, 3rd Edition E238705	UL 61010 Listed UL 61010-2-201, 2nd Edition UL 61010-1, 3rd Edition E238705		
UL, Canada	cUL 61010 recognized CSA C22.2 No. 61010-2- 201:18, 2nd Edition CSA C22.2 No. 610 10-1, 3rd Edition E238705	cUL 61010 listed CSA C22.2 No. 61010-2-201:18, 2nd Edition CSA C22.2 No. 61010-1, 3rd Edition E238705		
Radio approval for USA, FCC	YG32200B YG32200R	YG3300B YG3300R	YG3200B YG3200R	YG32000B YG32000R

Conformance with EMC Directive 2014/30/EU

Immunity in accordance with EN 61000-6-2

Electrostatic discharge	EN 61000-4-2	
	Contact discharge	±4 kV (test severity level 2)
	Air discharge	±8 kV (test severity level 3)
	Comment	Criterion B
Electromagnetic HF field	EN 61000-4-3	
	Frequency range	80 MHz ... 1 GHz (test severity level 3)
	Field strength	10 V/m
	Comment	Criterion A
Fast transients (burst)	EN 61000-4-4	
	Input	±2 kV (test severity level 3 - asymmetrical)
	Output	±2 kV (test severity level 3 - asymmetrical)
	Signal	±2 kV (test severity level 3 - asymmetrical)
	Comment	Criterion B
Surge current loads (surge)	EN 61000-4-5	
	Input	±0.5 kV (test severity level 1 - symmetrical) ±1 kV (test severity level 2 - asymmetrical)
	Output	±1 kV (test severity level 2 - asymmetrical)
	Signal	±1 kV (test severity level 2 - asymmetrical)
	Comment	Criterion B
Conducted influence	EN 61000-4-6	
	Frequency range	0.15 MHz ... 80 MHz (test severity level 3 - asymmetrical)
	Voltage	10 V (80% amplitude modulation with 1 kHz)
	Comment	Criterion A

Criterion A Normal operating behavior within the specified limits

Criterion B Temporary impairment of operating behavior that is corrected by the device itself

Noise emission in accordance with EN 61000-6-4

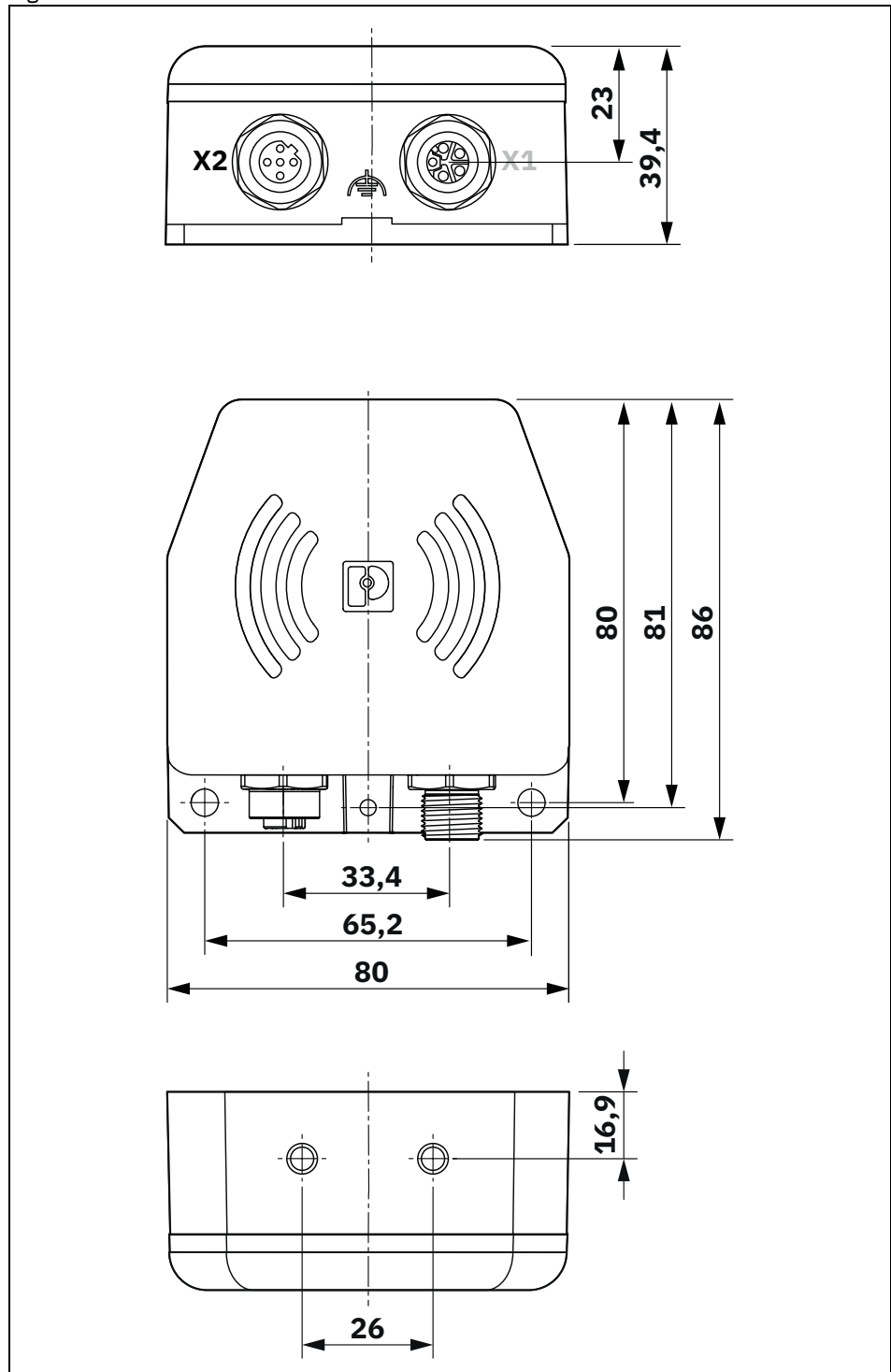
Interference emission	EN 55016-2-3, Class A, industrial area of application
Conducted noise emission	EN 55032, Class A, industrial area of application

Conformance with RED Directive 2014/53/EU

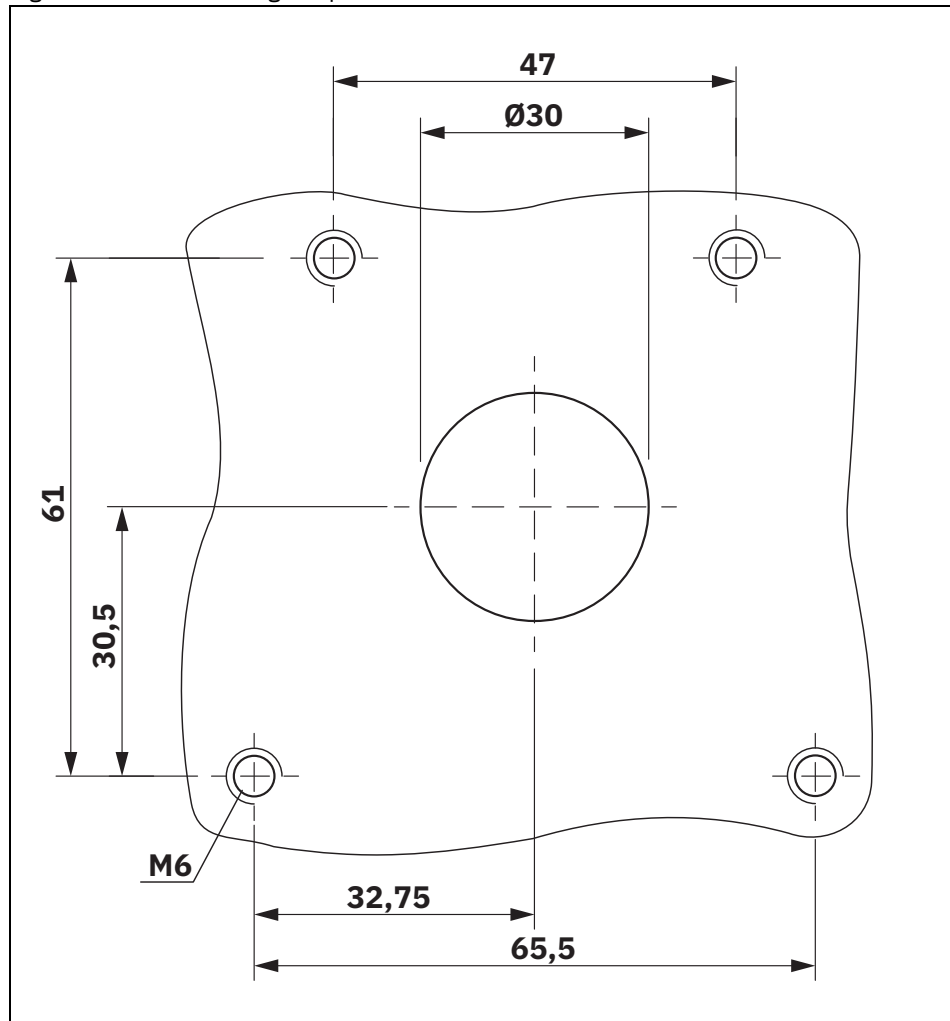
Safety – Protection of personnel with regard to electrical safety	EN 62368
Health – Limiting public exposure to electromagnetic fields	EN 62311
Wireless communication – Effective use of the frequency spectrum and prevention of wireless communication interference	EN 300330, EN 301417, EN 305550, EN 305550-1, EN 303396

9.3 Dimensions

Figure 9-1 Dimensions



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A Appendix

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B Revision history

Table B-1 Revision history

Document revision	Production batch V/C of the product		Date	Description
	NEARFI...B	NEARFI...R		
00	00	00	2024-08-30	First publication
01	00	00	2024-11-20	Table 3-4 “LED ring” revised Section 3.8 “Switch-on time (operational readiness time)” revised Figure 3-29 “Transmission distance for lateral offset, NEARFI 200/300” corrected Bit error rate added to the technical data
02	02	01	2026-04-30	FCC approval, UL approval Section “Protection against tampering” added Section “Derating in accordance with UL” added Figure 6-5 “Critical error on remote in parallel operation” revised Section “Disposal” revised

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