

Inductive coupler - NEARFI PD 2A ETH R



1234225

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NearFi, remote coupler for contactless power and real-time Ethernet transmission in the centimeter range, 24 V DC, 2 A, 100 Mbps, full duplex, M12 connection technology, IP65 type of protection. A base coupler is required for operation.

Product Description

With the robust NEARFI-PD... NearFi couplers, you can transmit power (24 V DC / 2 A) and real-time Ethernet data (100 Mbps, full duplex) without contact across a distance in the centimeter range. Furthermore, the specially developed NearFi technology enables latency-free and protocol-independent Ethernet communication. At the same time, the limited wireless range of just a few centimeters also ensures security and permits parallel applications in the tightest of spaces. You can therefore replace wear-sensitive and maintenance-intensive connections and reduce downtimes in your systems.

Your advantages

- Contactless - and therefore no wear and no maintenance
- High power in a compact housing
- Protocol-independent, latency-free Ethernet real-time communication with 100 Mbps (full duplex)
- All-round visible diagnostics with light ring on the housing
- High degree of mounting freedom with flexible proximity options
- Plug and Play - as easy as a plug
- Degree of protection: IP65

Commercial Data

Item number	1234225
Packing unit	1 pc
Minimum order quantity	1 pc
Product Key	DNC691
GTIN	4063151337278
Weight per Piece (including packing)	574 g
Weight per Piece (excluding packing)	535 g
Customs tariff number	85176200
Country of origin	DE

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Technical Data

Product properties

Product type	Inductive coupler
Application	Ethernet Power
MTTF	115 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	60 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)
	27 Years (SN 29500 standard, temperature 40°C, operating cycle 100%)

Insulation characteristics

Overvoltage category	II
Pollution degree	1

Electrical properties

Supply

Protective circuit	Short-circuit/overload protection
Connection method	M12 female (A-coded)

Connection data

Supply

Connection method	M12 female (A-coded)
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Interfaces

Data: Ethernet interface, 100Base-T(X) in accordance with IEEE 802.3

Transmission speed	100 Mbps
Connection method	M12 female (D-coded)
No. of channels	1
Transmission length	100 m (shielded twisted pair)
Transmission medium	Copper

Inductive: Power transmission

Switch-on time	< 450 ms (ETH Full Duplex operating mode)
Range	min. 0 mm
	typ. 10 mm (at 55°C)
	typ. 12 mm (at 25 °C)
Wireless modules that can be connected	1 (Base coupler)
Frequency range	100 kHz ... 148.5 kHz (Power transmission)

Wireless

Wireless modules that can be connected	1 (Base coupler)
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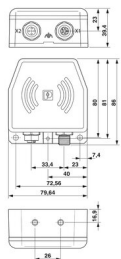


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Frequency	60 GHz
Frequency range	57 GHz ... 64 GHz (Data transmission)
Transmission power	< 10 mW (EIRP)

Dimensions

Dimensional drawing	
Width	80 mm
Height	86 mm
Depth	39 mm

Material specifications

Material	PBT (Housing) Zinc die-cast (Housing)
Flammability rating according to UL 94	V0
Impact strength	IK06

Cable / line

Other resistance	Resistant to welding splashes
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Environmental and real-life conditions

Ambient conditions

Degree of protection	IP65
Impact strength	IK06
Ambient temperature (operation)	-20 °C ... 55 °C (observe derating)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Altitude	2000 m
Permissible humidity (operation)	10 % ... 95 %
Permissible humidity (storage/transport)	10 % ... 95 %
Air pressure (operation)	80 hPa ... 108 kPa (up to 2000 m above sea level)
Air pressure (storage/transport)	66 hPa ... 108 kPa (up to 3500 m above sea level)

Approval data

CE

Certificate	CE-compliant
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Wireless approval, Europe

Note	RED 2014/53/EU
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EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 55032 Class A, industrial applications

Electrostatic discharge

Standards/regulations	EN 61000-4-2
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Electrostatic discharge

Contact discharge	± 4 kV (Test Level 2)
Discharge in air	± 8 kV (Test Level 3)
Comments	Criterion B

Electromagnetic HF field

Standards/regulations	EN 61000-4-3
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Electromagnetic HF field

Frequency range	80 MHz ... 1 GHz (Test Level 3)
Field intensity	10 V/m
Comments	Criterion A

Fast transients (burst)

Standards/regulations	EN 61000-4-4
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Fast transients (burst)

Input	± 2 kV (Test Level 3 - asymmetrical)
Output	± 2 kV (Test Level 3 - asymmetrical)
Signal	± 2 kV (Test Level 3 - asymmetrical)
Comments	Criterion B

Surge current load (surge)

Standards/regulations	EN 61000-4-5
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Surge current load (surge)

Input	± 0.5 kV (Test Level 1 - symmetrical)
	± 1 kV (Test Level 2 - asymmetrical)
Output	± 1 kV (Test Level 2 - asymmetrical)
Signal	± 1 kV (Test Level 2 - asymmetrical)
Comments	Criterion B

Conducted interference

Standards/regulations	EN 61000-4-6
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Conducted interference

Frequency range	0.15 MHz ... 80 MHz (Test Level 3 - asymmetrical)
Comments	Criterion A
Voltage	10 V (80% amplitude modulation with 1 kHz)

Emitted interference

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Standards/regulations	EN 55016-2-3
Comments	Class A, industrial applications
Criterion A	Normal operating behavior within the specified limits.
Criterion B	Temporary impairment to operational behavior that is corrected by the device itself.

Standards and regulations

Free from substances that could impair the application of coating	Yes
Other resistance	Resistant to welding splashes
Standards/regulations	EN 60204-1 (PELV)
Standard designation	Protective extra-low voltage

Mounting

Mounting type	Wall mounting
Assembly instructions	Observe derating
Mounting position	any

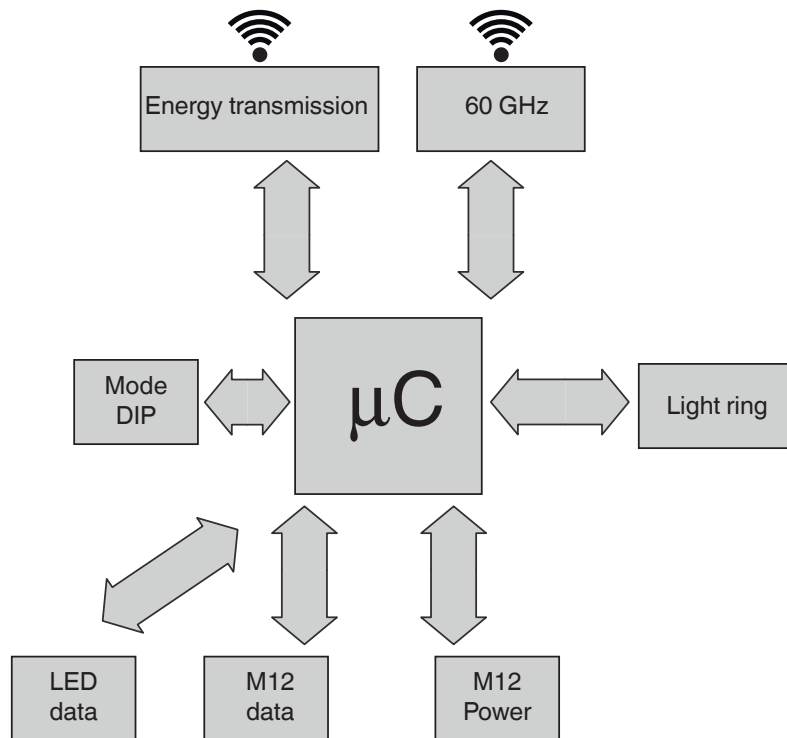
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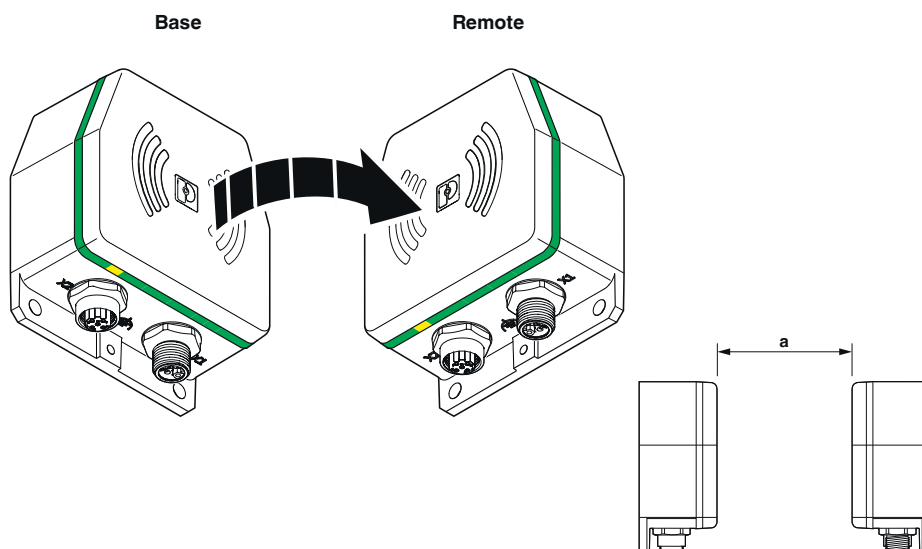
Drawings

Block diagram



Basic circuit diagram

Schematic diagram



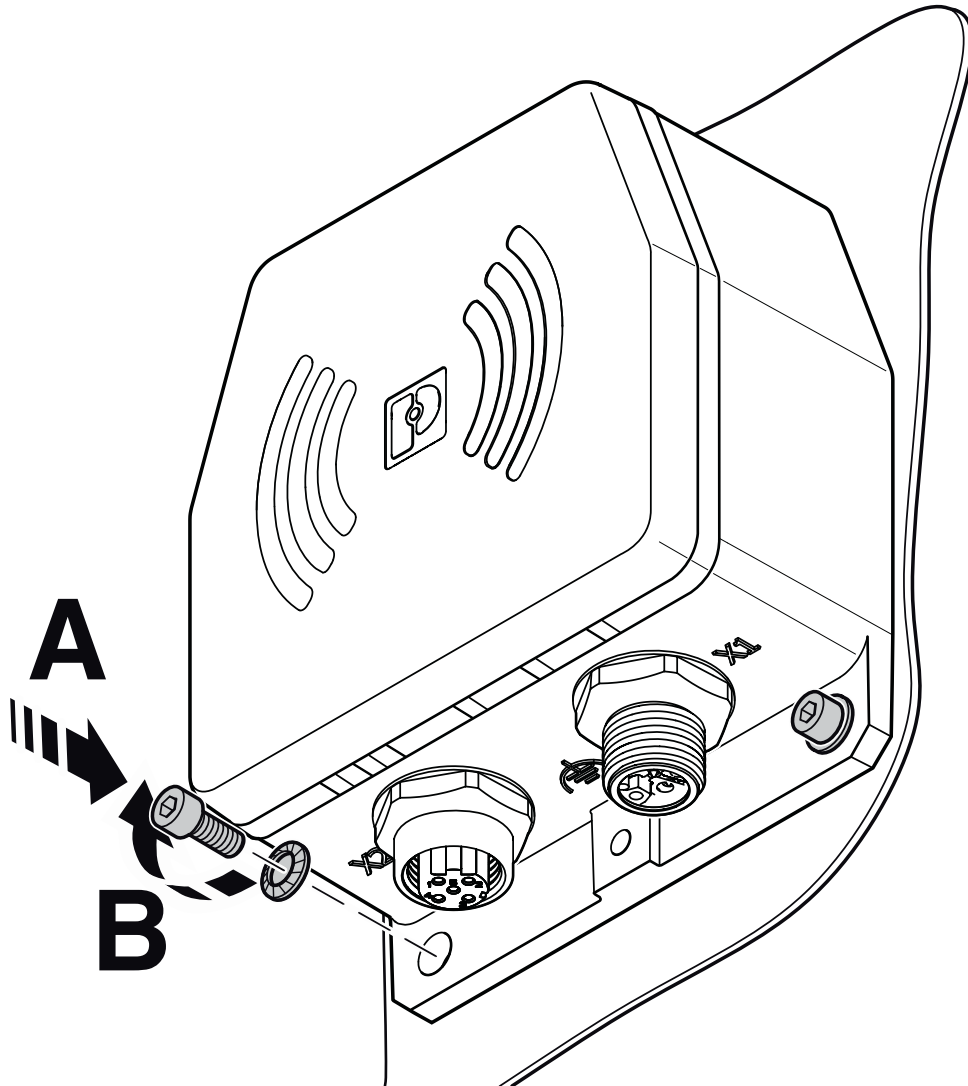
Method of operation

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Schematic diagram



Mounting with two screws

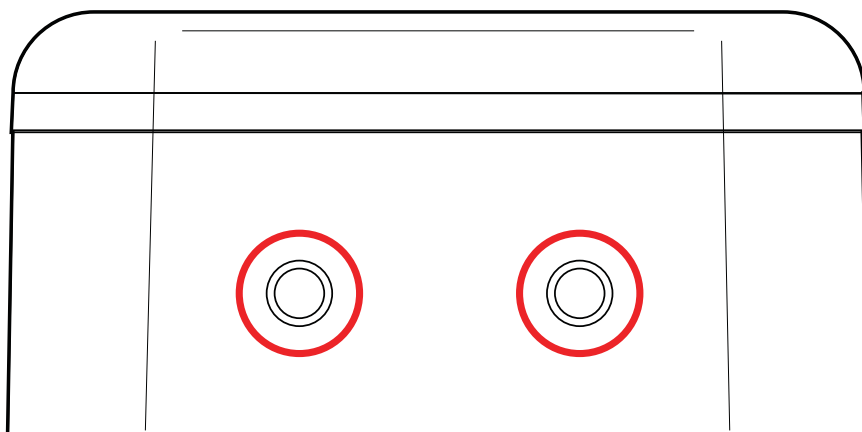
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Schematic diagram



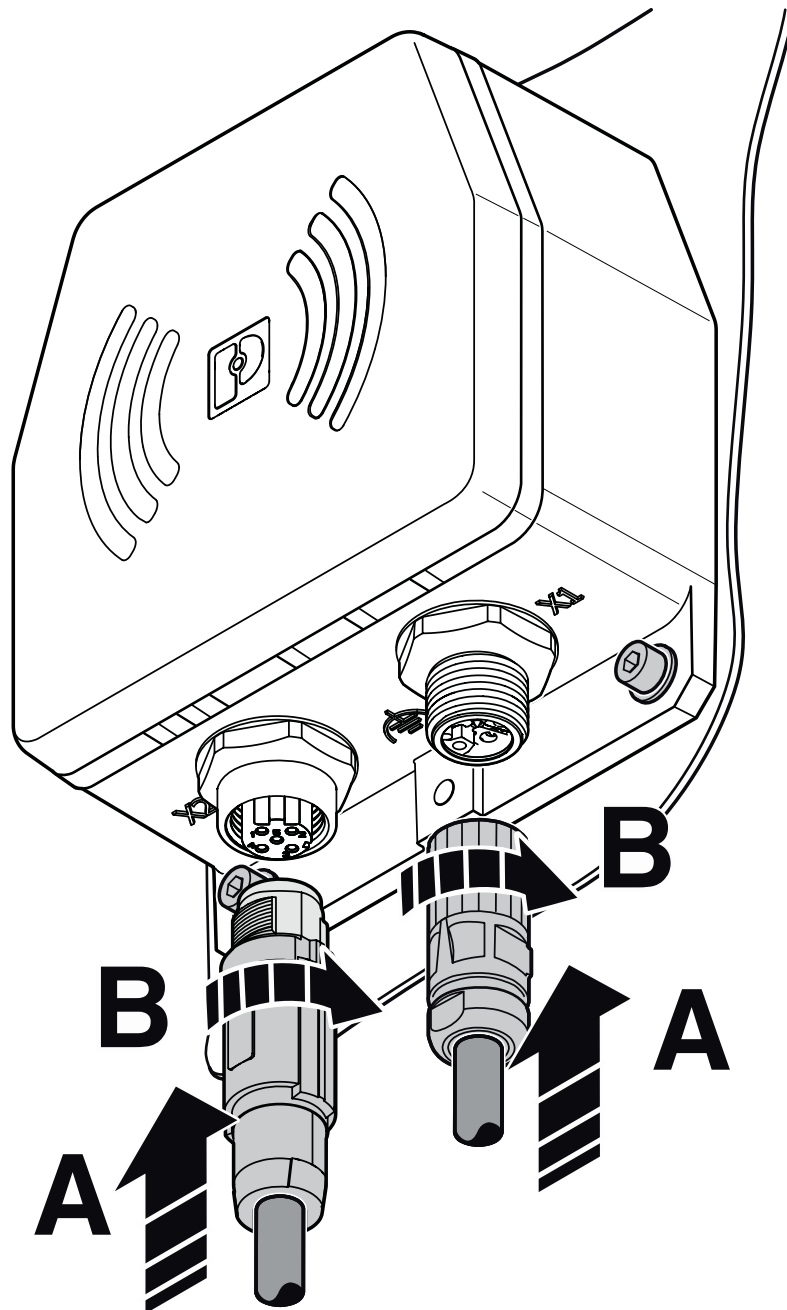
Mounting option

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Schematic diagram



Connecting the cables

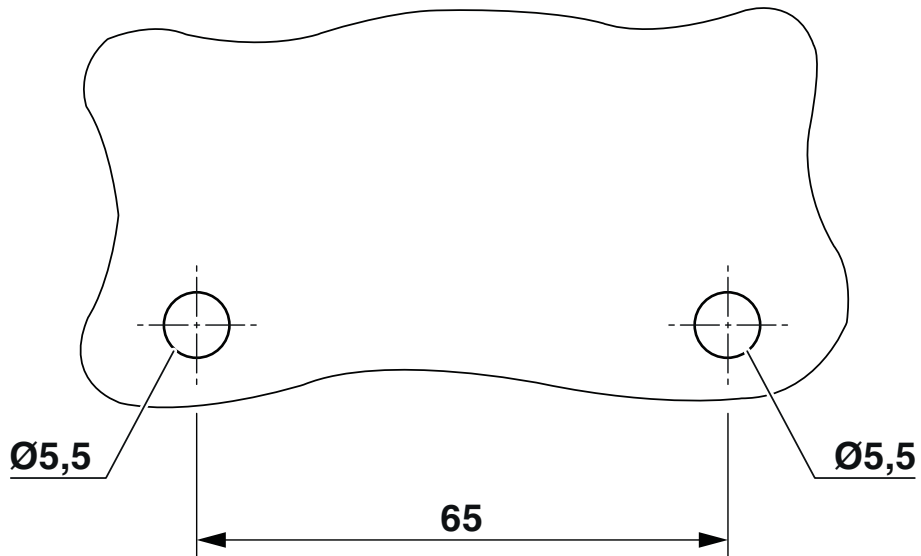
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Drilling plan/solder pad geometry



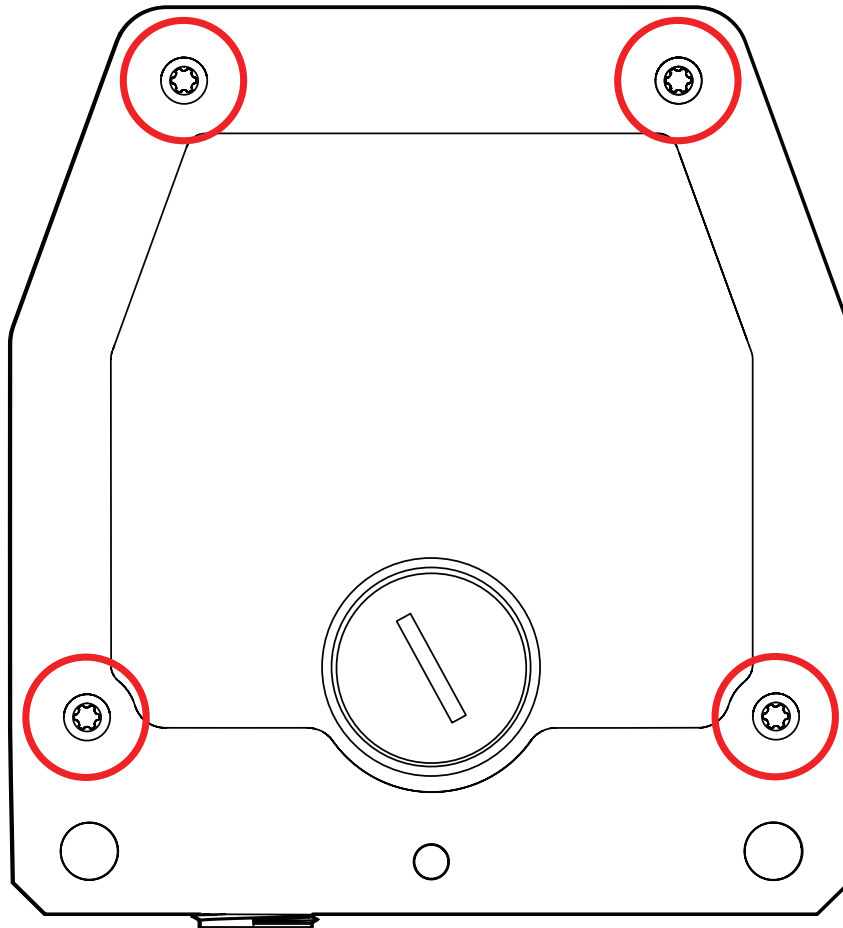
Drilling diagram

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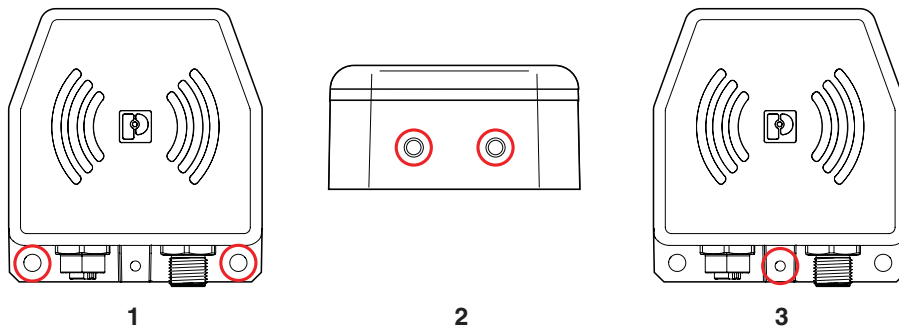
<https://www.phoenixcontact.com/pc/products/1234225>

Schematic diagram



Mounting with four screws

Schematic diagram



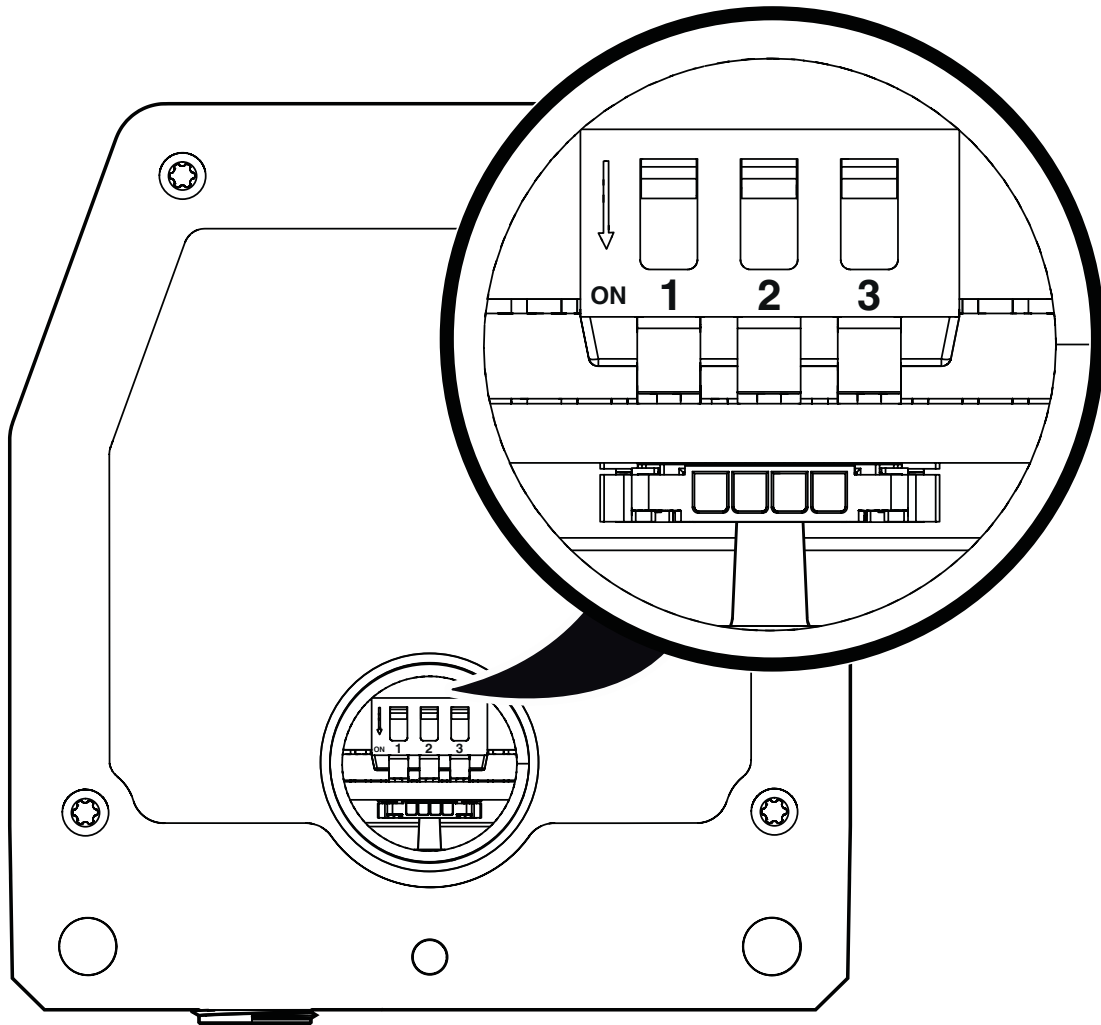
Options for functional grounding

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Schematic diagram



DIP switches

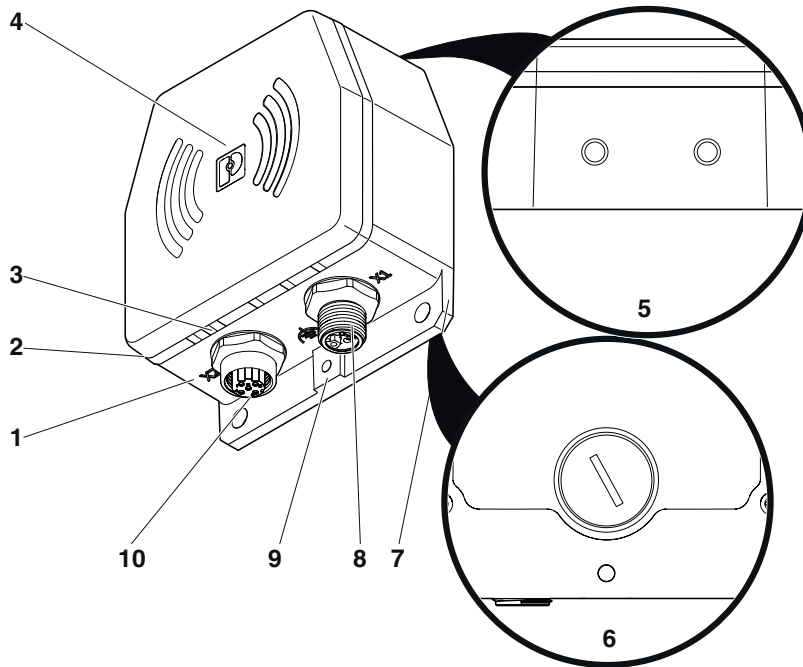
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Schematic diagram



Function elements

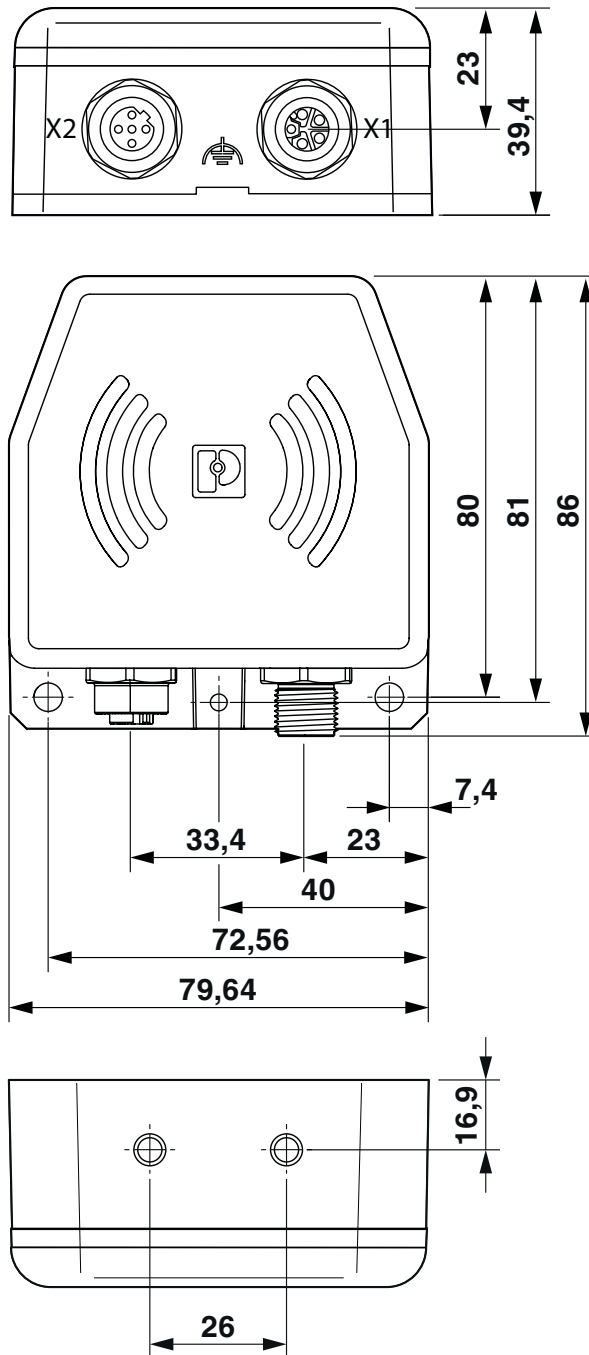
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Dimensional drawing



Dimensional drawing

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Approvals



cUL Recognized
Approval ID: FILE E 238705



UL Recognized
Approval ID: FILE E 238705



MIC
Approval ID: 006-001059

cULus Recognized

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Classifications

ECLASS

ECLASS-9.0	27040701
ECLASS-10.0.1	27040701
ECLASS-11.0	27040701

ETIM

ETIM 8.0	EC002540
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UNSPSC

UNSPSC 21.0	39121000
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Environmental Product Compliance

China RoHS	Environmentally friendly use period: unlimited = EFUP-e
	No hazardous substances above threshold values

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Mandatory Accessories

Inductive coupler

Inductive coupler - NEARFI PD 2A ETH B - 1234224

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NearFi, base coupler for contactless power and real-time Ethernet transmission in the centimeter range, 24 V DC, 2 A, 100 Mbps, full duplex, M12 connection technology, IP65 type of protection. A remote coupler is required for operation.

Accessories

Sensor/actuator cable

Sensor/actuator cable - SAC-5P-MS/ 2,0-186 SCO - 1518326

<https://www.phoenixcontact.com/pc/products/1518326>



Sensor/actuator cable, 5-position, PUR, black-gray RAL 7021, Plug straight M12 SPEEDCON, coding: A, on free cable end, cable length: 2 m

Inductive coupler - NEARFI PD 2A ETH R

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Sensor/actuator cable

Sensor/actuator cable - SAC-5P-MS/ 5,0-186 SCO - 1518339

<https://www.phoenixcontact.com/pc/products/1518339>



Sensor/actuator cable, 5-position, PUR, black-gray RAL 7021, Plug straight M12 SPEEDCON, coding: A, on free cable end, cable length: 5 m

Sensor/actuator cable

Sensor/actuator cable - SAC-5P-MS/10,0-186 SCO - 1518342

<https://www.phoenixcontact.com/pc/products/1518342>



Sensor/actuator cable, 5-position, PUR, black-gray RAL 7021, Plug straight M12 SPEEDCON, coding: A, on free cable end, cable length: 10 m

Inductive coupler - NEARFI PD 2A ETH R

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Sensor/actuator cable

Sensor/actuator cable - SAC-5P-MS/15,0-186 SCO - 1518355

<https://www.phoenixcontact.com/pc/products/1518355>



Sensor/actuator cable, 5-position, PUR, black-gray RAL 7021, Plug straight M12 SPEEDCON, coding: A, on free cable end, cable length: 15 m

Sensor/actuator cable

Sensor/actuator cable - SAC-5P-MS/ 1,0-186/FS SCO - 1518423

<https://www.phoenixcontact.com/pc/products/1518423>



Sensor/actuator cable, 5-position, PUR, black-gray RAL 7021, Plug straight M12 SPEEDCON, coding: A, on Socket straight M12 SPEEDCON, coding: A, cable length: 1 m

Inductive coupler - NEARFI PD 2A ETH R

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Sensor/actuator cable

Sensor/actuator cable - SAC-5P-MS/ 2,0-186/FS SCO - 1518436

<https://www.phoenixcontact.com/pc/products/1518436>



Sensor/actuator cable, 5-position, PUR, black-gray RAL 7021, Plug straight M12 SPEEDCON, coding: A, on Socket straight M12 SPEEDCON, coding: A, cable length: 2 m

Power connector

Power connector - SACC-M12MR-5CON-PG11-M PWR - 1408992

<https://www.phoenixcontact.com/pc/products/1408992>



Power connector, 5-position, Plug angled M12, Coding: A, Screw connection, knurl material: Zinc die-cast, nickel-plated, cable gland Pg11, external cable diameter 8 mm ... 10 mm

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Power connector

Power connector - SACC-M12MS-5CON-PG11-M PWR - 1404417

<https://www.phoenixcontact.com/pc/products/1404417>



Power connector, 5-position, Plug straight M12, Coding: A, Screw connection, knurl material: Zinc die-cast, nickel-plated, cable gland Pg11, external cable diameter 8 mm ... 10 mm

Connector

Connector - SACC-M12MS-5CON-PG 9-M - 1681460

<https://www.phoenixcontact.com/pc/products/1681460>



Connector, Universal, 5-position, Plug straight M12, Coding: A, Screw connection, knurl material: Zinc die-cast, nickel-plated, cable gland Pg9, external cable diameter 6 mm ... 8 mm

Inductive coupler - NEARFI PD 2A ETH R

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Connector

Connector - SACC-M12MR-5CON-PG9-M - 1681473

<https://www.phoenixcontact.com/pc/products/1681473>



Connector, Universal, 5-position, Plug angled M12, Coding: A, Screw connection, knurl material: Zinc die-cast, nickel-plated, cable gland Pg9, external cable diameter 6 mm ... 8 mm

Network cable

Network cable - NBC-MSD SCO/.../... - 1408713

<https://www.phoenixcontact.com/pc/products/1408713>



Network cable, Ethernet CAT5 (100 Mbps), 4-position, shielded, Plug straight M12 SPEEDCON / IP67, coding: D, on free cable end, cable length: Free input (0.2 ... 40.0 m)

Inductive coupler - NEARFI PD 2A ETH R

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Network cable

Network cable - NBC-MSD-MSD SCO/.../... - 1408706

<https://www.phoenixcontact.com/pc/products/1408706>



Network cable, Ethernet CAT5 (100 Mbps), 4-position, shielded, Plug straight M12 SPEEDCON / IP67, coding: D, on Plug straight M12 SPEEDCON / IP67, coding: D, cable length: Free input (0.2 ... 40.0 m)

Network cable

Network cable - NBC-MSD-R4AC SCO/.../... - 1408712

<https://www.phoenixcontact.com/pc/products/1408712>



Network cable, Ethernet CAT5 (100 Mbps), 4-position, Variable cable type, shielded, Plug straight M12 SPEEDCON / IP67, coding: D, on Plug straight RJ45 / IP20, cable length: Free input (0.2 ... 40.0 m)

Inductive coupler - NEARFI PD 2A ETH R

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Network cable

Network cable - NBC-M12MSD/ 1,0-93B - 1407495

<https://www.phoenixcontact.com/pc/products/1407495>



Network cable, PROFINET CAT5 (100 Mbps), EtherCAT[®] CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug straight M12 / IP67, coding: D, on free cable end, cable length: 1 m

Network cable

Network cable - NBC-M12MSD/ 2,0-93B - 1407496

<https://www.phoenixcontact.com/pc/products/1407496>



Network cable, PROFINET CAT5 (100 Mbps), EtherCAT[®] CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug straight M12 / IP67, coding: D, on free cable end, cable length: 2 m

Inductive coupler - NEARFI PD 2A ETH R

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Network cable

Network cable - NBC-M12MSD/ 5,0-93B - 1407497

<https://www.phoenixcontact.com/pc/products/1407497>



Network cable, PROFINET CAT5 (100 Mbps), EtherCAT[®] CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug straight M12 / IP67, coding: D, on free cable end, cable length: 5 m

Network cable

Network cable - NBC-M12MSD/10,0-93B - 1407498

<https://www.phoenixcontact.com/pc/products/1407498>



Network cable, PROFINET CAT5 (100 Mbps), EtherCAT[®] CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug straight M12 / IP67, coding: D, on free cable end, cable length: 10 m

Inductive coupler - NEARFI PD 2A ETH R

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Network cable

Network cable - NBC-M12MSD/ 1,0-93B/R4AC - 1407499

<https://www.phoenixcontact.com/pc/products/1407499>



Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug straight M12 / IP67, coding: D, on Plug straight RJ45 / IP20, cable length: 1 m

Network cable

Network cable - NBC-M12MSD/ 2,0-93B/R4AC - 1407500

<https://www.phoenixcontact.com/pc/products/1407500>



Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug straight M12 / IP67, coding: D, on Plug straight RJ45 / IP20, cable length: 2 m

Inductive coupler - NEARFI PD 2A ETH R

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Network cable

Network cable - NBC-M12MSD/ 5,0-93B/R4AC - 1407501

<https://www.phoenixcontact.com/pc/products/1407501>



Network cable, PROFINET CAT5 (100 Mbps), EtherCAT[®] CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug straight M12 / IP67, coding: D, on Plug straight RJ45 / IP20, cable length: 5 m

Network cable

Network cable - NBC-M12MSD/10,0-93B/R4AC - 1407502

<https://www.phoenixcontact.com/pc/products/1407502>



Network cable, PROFINET CAT5 (100 Mbps), EtherCAT[®] CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug straight M12 / IP67, coding: D, on Plug straight RJ45 / IP20, cable length: 10 m

Inductive coupler - NEARFI PD 2A ETH R



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Network cable

Network cable - NBC-M12MSD/ 1,0-93B/M12MSD - 1407524

<https://www.phoenixcontact.com/pc/products/1407524>



Network cable, PROFINET CAT5 (100 Mbps), EtherCAT[®] CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug straight M12 / IP67, coding: D, on Plug straight M12 / IP67, coding: D, cable length: 1 m

Network cable

Network cable - NBC-M12MSD/ 2,0-93B/M12MSD - 1407525

<https://www.phoenixcontact.com/pc/products/1407525>



Network cable, PROFINET CAT5 (100 Mbps), EtherCAT[®] CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug straight M12 / IP67, coding: D, on Plug straight M12 / IP67, coding: D, cable length: 2 m

Inductive coupler - NEARFI PD 2A ETH R

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Network cable

Network cable - NBC-M12MSD/ 5,0-93B/M12MSD - 1407526

<https://www.phoenixcontact.com/pc/products/1407526>



Network cable, PROFINET CAT5 (100 Mbps), EtherCAT[®] CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug straight M12 / IP67, coding: D, on Plug straight M12 / IP67, coding: D, cable length: 5 m

Network cable

Network cable - NBC-M12MSD/10,0-93B/M12MSD - 1407527

<https://www.phoenixcontact.com/pc/products/1407527>



Network cable, PROFINET CAT5 (100 Mbps), EtherCAT[®] CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug straight M12 / IP67, coding: D, on Plug straight M12 / IP67, coding: D, cable length: 10 m

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Data connector

Data connector - SACC-M12MRD-4Q SH - 1553624

<https://www.phoenixcontact.com/pc/products/1553624>



Data connector, Ethernet CAT5 (100 Mbps), 4-position, shielded, Plug angled M12, Coding: D, Insulation displacement connection, knurl material: Nickel-plated brass, external cable diameter 4 mm ... 8 mm

Data connector

Data connector - SACC-M12MSD-4QO SH ETH - 1411066

<https://www.phoenixcontact.com/pc/products/1411066>



Data connector, Ethernet CAT5 (100 Mbps), 4-position, halogen-free, shielded, Plug straight M12 SPEEDCON, Coding: D, Insulation displacement connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 5 mm ... 9.7 mm

Inductive coupler - NEARFI PD 2A ETH R

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Data connector

Data connector - SACC-M12MSD-4QO SH PN - 1411068

<https://www.phoenixcontact.com/pc/products/1411068>



Data connector, PROFINET CAT5 (100 Mbps), 4-position, halogen-free, shielded, Plug straight M12 SPEEDCON, Coding: D, Insulation displacement connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 5 mm ... 9.7 mm

Data connector

Data connector - SACC-M12MRD-4Q SH PN - 1554539

<https://www.phoenixcontact.com/pc/products/1554539>



Data connector, PROFINET CAT5 (100 Mbps), 4-position, shielded, Plug angled M12, Coding: D, Insulation displacement connection, knurl material: Nickel-plated brass, external cable diameter 4 mm ... 8 mm

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Data connector

Data connector - SACC-M12MRD-4PL SH PN - 1424684

<https://www.phoenixcontact.com/pc/products/1424684>



Data connector, PROFINET CAT5 (100 Mbps), 4-position, shielded, Plug angled M12, Coding: D, Push-lock spring connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 4 mm ... 8 mm

RJ45 connector

RJ45 connector - VS-08-RJ45-5-Q/IP20 - 1656725

<https://www.phoenixcontact.com/pc/products/1656725>



RJ45 connector, degree of protection: IP20, number of positions: 8, 1 Gbps, CAT5 (IEC 11801:2002), material: PA, connection method: IDC fast connection, connection cross section: AWG 26- 23, cable outlet: straight, color: traffic grey A RAL 7042, Ethernet

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Screw plug

Screw plug - PROT-M12 - 1680539

<https://www.phoenixcontact.com/pc/products/1680539>



An M12 screw plug for the unoccupied M12 sockets of the sensor/actuator cable, boxes and flush-type connectors

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