

# NEARFI PD 2A ETH R - Inductive coupler



1234225

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

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NearFi remote, contactless power and real-time Ethernet coupler, 50 W (US), 100 Mbps, range  $\leq 10$  mm, M12 screw connection, IP65, can be combined with NEARFI PD 2A ETH B. Incompatible with NEARFI 2200 (new)

## 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
Sales key	DN26
Product key	DNC691
GTIN	4063151337278
Weight per piece (including packing)	583.5 g

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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
Product family	NearFi
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	2

### Electrical properties

Maximum power dissipation for nominal condition	0 W
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### Supply

Protective circuit	Short-circuit/overload protection
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### Output data

Output voltage	24 V DC $\pm 5\%$
Output current	$\leq 2$ A (typical) 3.5 A (Peak, for 20 ms, with 5 mm spacing)

### 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
Note on the connection method	Auto negotiation and autocrossing, fast startup (FSU, <500 ms) Typical bit error rate $\leq 10^{-12}$
No. of channels	1
Transmission length	100 m (shielded twisted pair)
Transmission medium	Copper
Protocols supported	Protocol transparent: PROFINET, PROFINET IRT, PROFIsafe, EtherCAT®, Modbus/TCP, Powerlink, TSN, etc.

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## Inductive: Power transmission

Switch-on time	< 450 ms (ETH Full Duplex operating mode)
Range	min. 0 mm
	≤ 10 mm (at 55°C)
	≤ 12 mm (at 25 °C)
Center offset	± 5 mm
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)
Frequency	60 GHz
Frequency range	57 GHz ... 64 GHz (Data transmission)
Transmission power	< 10 mW (EIRP)
Delay time	≤ 1 μs (typical)

## Dimensions

Dimensional drawing	
Width	80 mm
Height	86 mm
Depth	39 mm

## Material specifications

Color (Housing)	black (RAL 9005)
Material (Enclosure)	PBT
	Die-cast zinc
Flammability rating according to UL 94	V0

## Cable/line

Other resistance	Resistant to welding splashes
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## Mechanical tests

Vibration resistance in accordance with EN 60068-2-6/IEC 60068-2-6	Operation: 5 g per spatial direction, 10 Hz ... 150 Hz, amplitude ±0.34 mm
Shock in accordance with EN 60068-2-27/IEC 60068-2-27	Operation: 30 g, 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	Operation: 10 g, 16 ms duration, half-sine shock pulse, 1,000 shocks per spatial direction

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## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP65 (Manufacturer's declaration)
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 kPa ... 108 kPa (up to 2000 m above sea level)
Air pressure (storage/transport)	66 kPa ... 108 kPa (up to 3500 m above sea level)

### Test (Salt spray)

Test standard	IEC 60068-2-11
Test duration (Total)	96 h

## Approvals

### CE

Certificate	CE-compliant
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### Wireless approval, Europe

Note	RED 2014/53/EU
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### UL, USA

Identification	UL 61010 Recognized
	UL 61010-2-201, 2nd Edition
	UL 61010-1, 3rd Edition
Certificate	E238705

### UL, Canada

Identification	cUL 61010 Recognized
	CSA C22.2 NO. 61010-2-201:18, 2nd Edition
	CSA C22.2 NO. 61010-1, 3rd Edition
Certificate	E238705

### Wireless approval USA, FCC

Certificate	YG3PD2AETHR
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### Wireless approval Japan, MIC

Identification	006-001059
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### KC approval for South Korea

Certificate	R-R-PCK-1234232
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### CC-Link IE TSN

Identification	Class A
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## EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Electrostatic discharge	
Standards/regulations	EN 61000-4-2
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
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
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
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
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	
Standards/regulations	EN 55016-2-3

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Comments	Class A, industrial applications
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## Criteria

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	VDMA 24364:2018-05
Other resistance	Resistant to welding splashes
Standards/regulations	EN 60204-1 (PELV)
Standard designation	Protective extra-low voltage

## Mounting

Mounting type	Panel mounting
Assembly note	Observe derating
Mounting position	any

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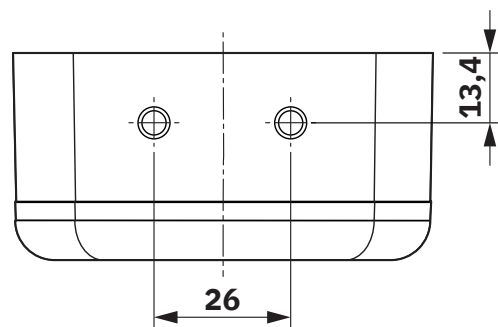
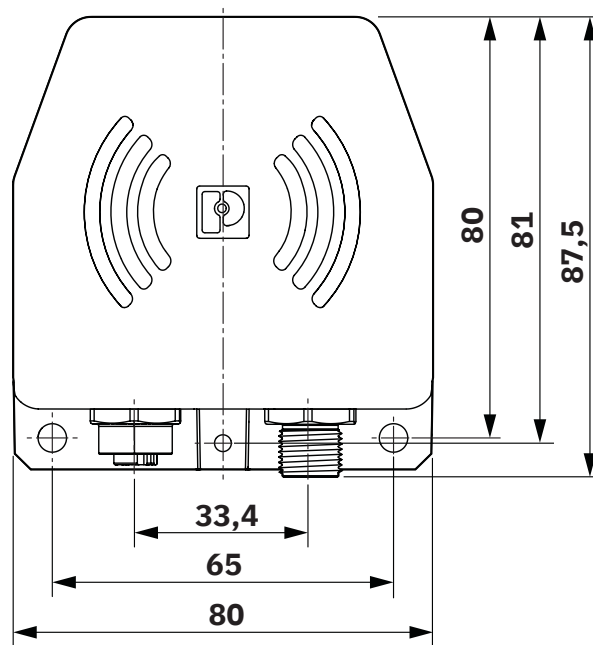
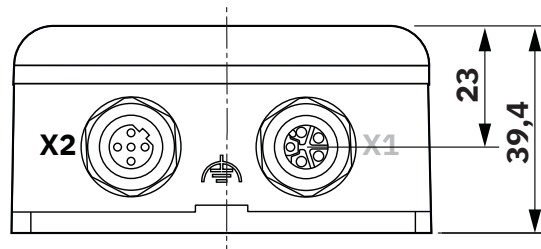
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## Drawings

Dimensional drawing



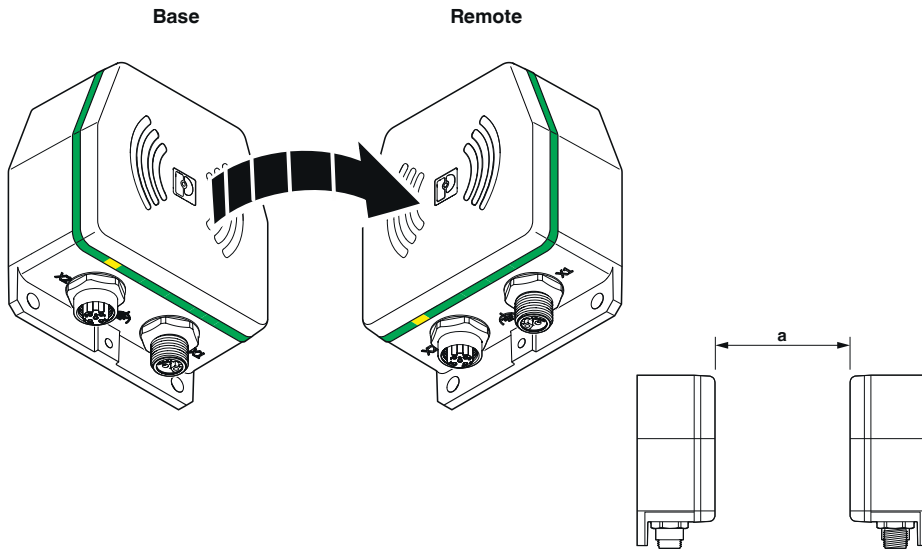
Dimensional drawing

# NEARFI PD 2A ETH R - Inductive coupler

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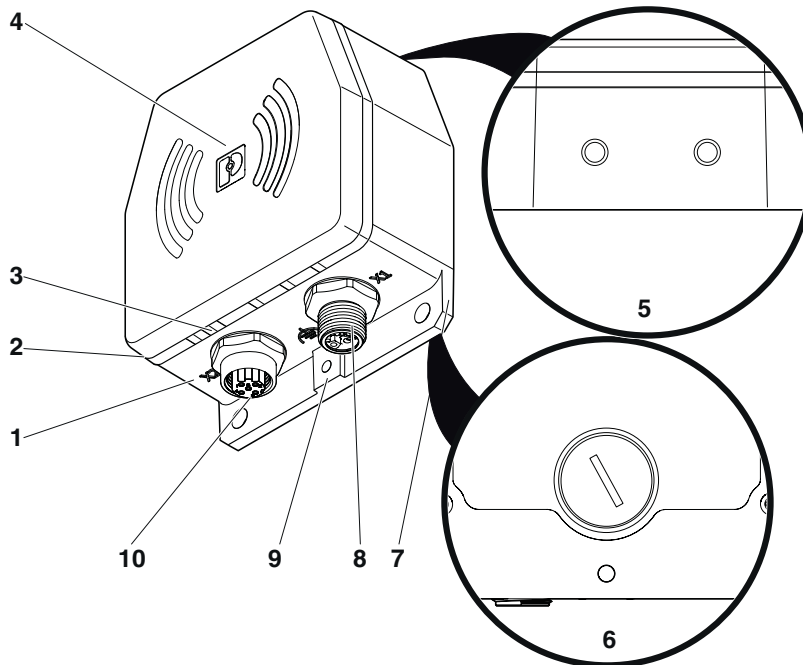
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## Schematic diagram



## Method of operation

### Schematic diagram



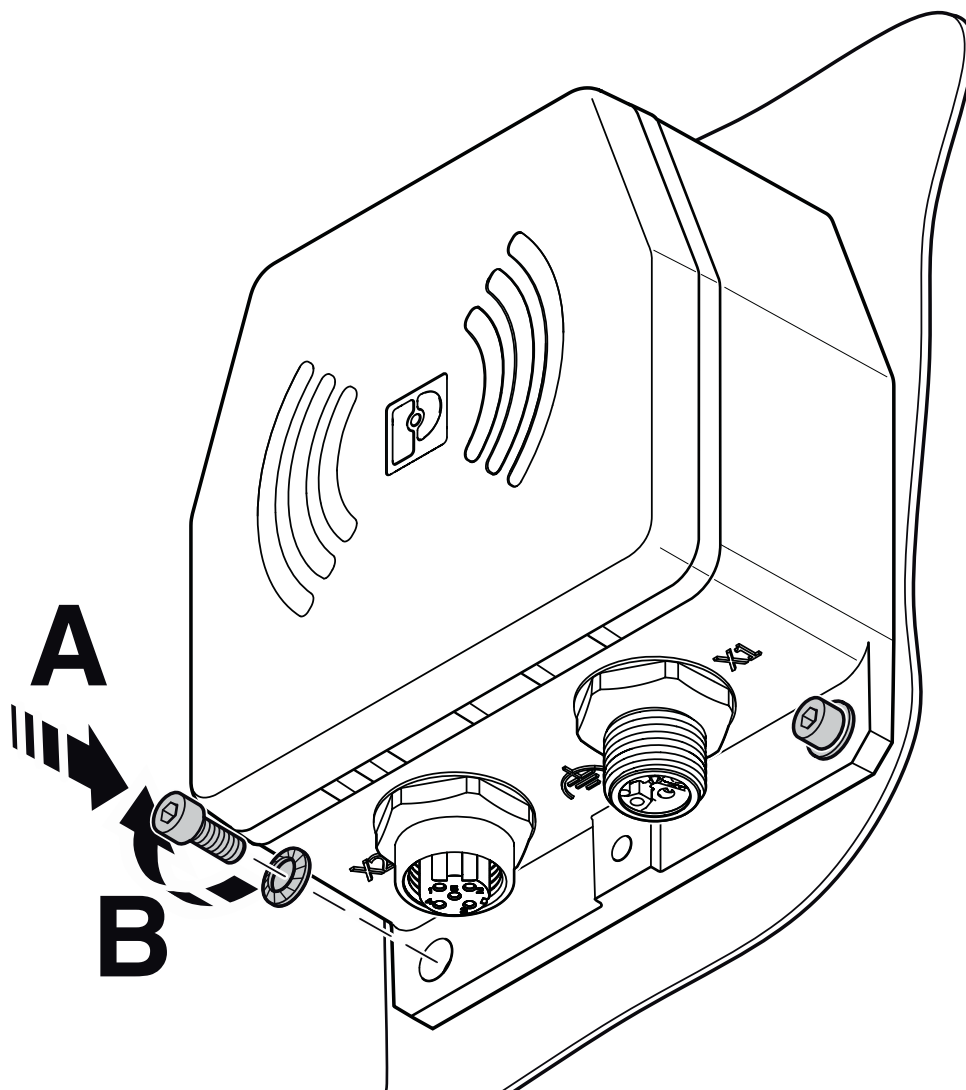
## Function elements

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Schematic diagram



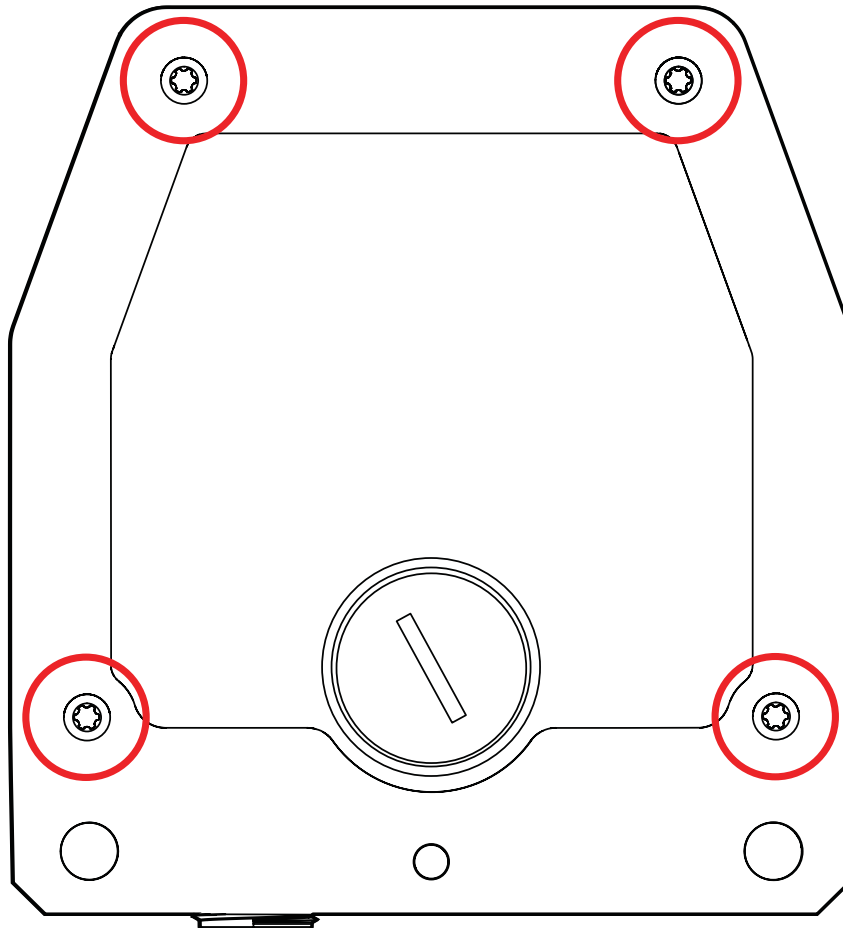
Mounting with two screws

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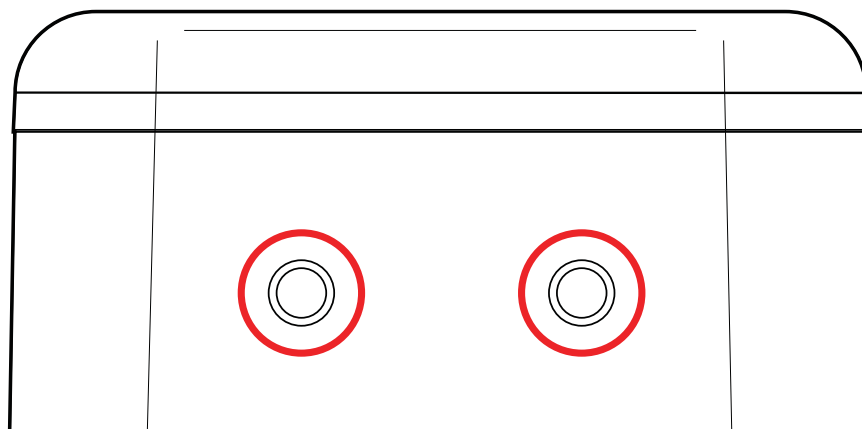
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Schematic diagram



Mounting with four screws

Schematic diagram



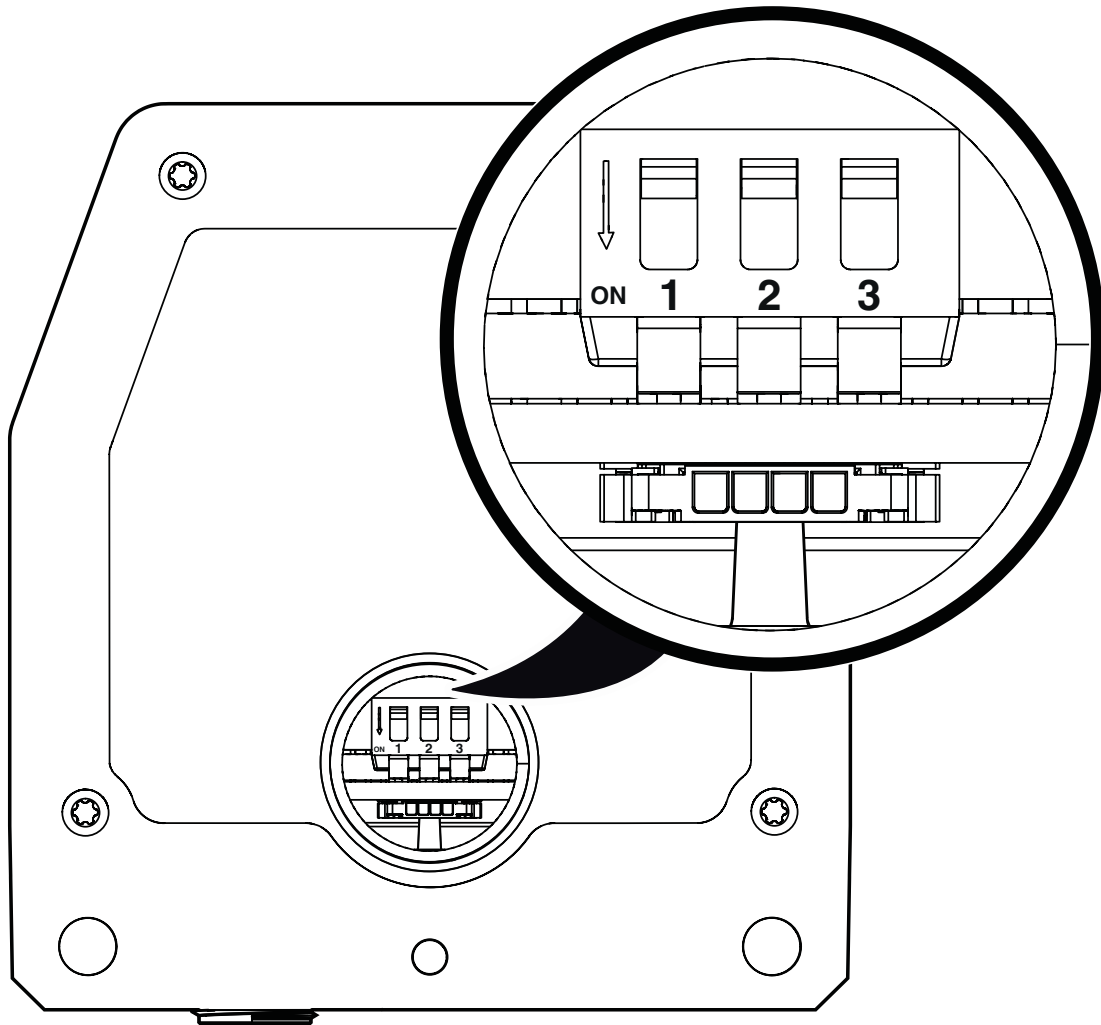
Mounting option

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Schematic diagram



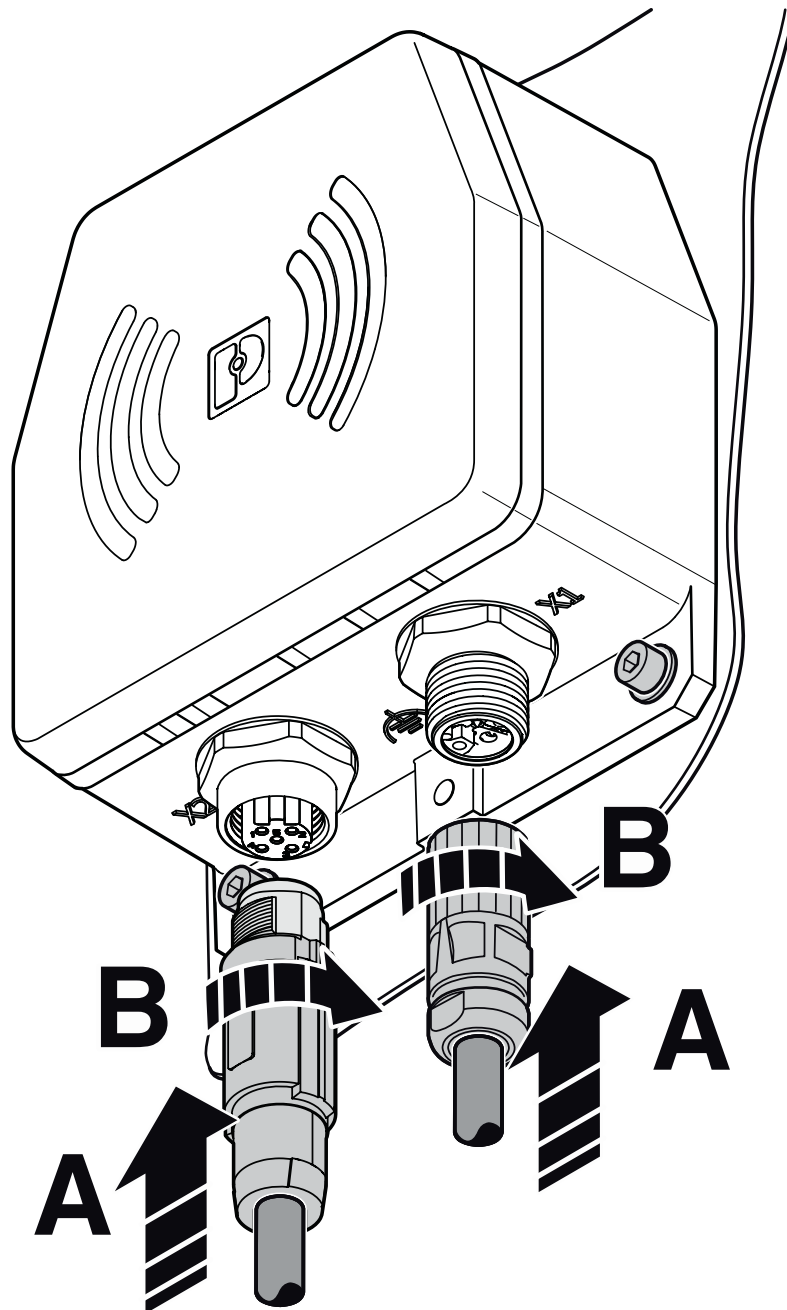
DIP switches

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Schematic diagram



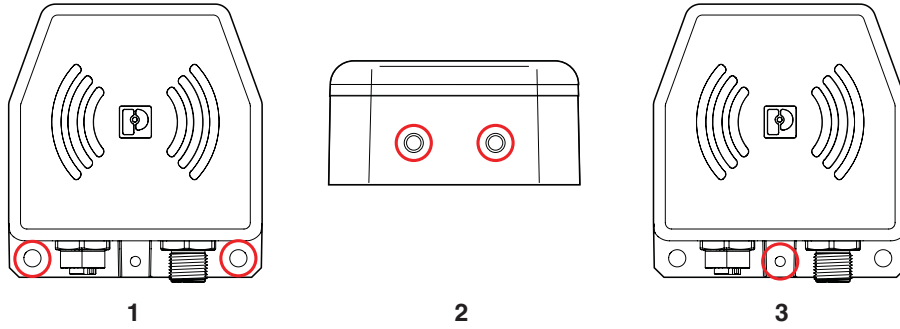
Connecting the cables

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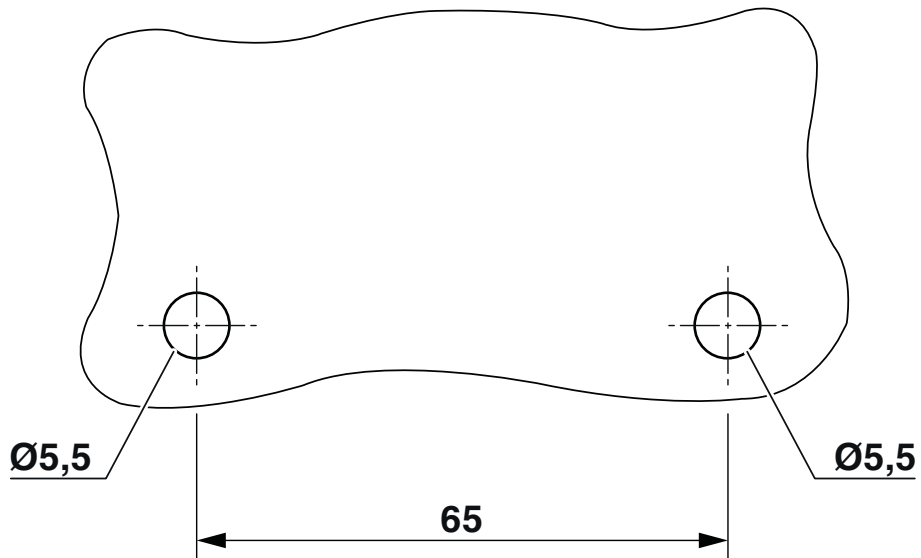
<https://www.phoenixcontact.com/us/products/1234225>

Schematic diagram



Options for functional grounding

Drilling plan/solder pad geometry



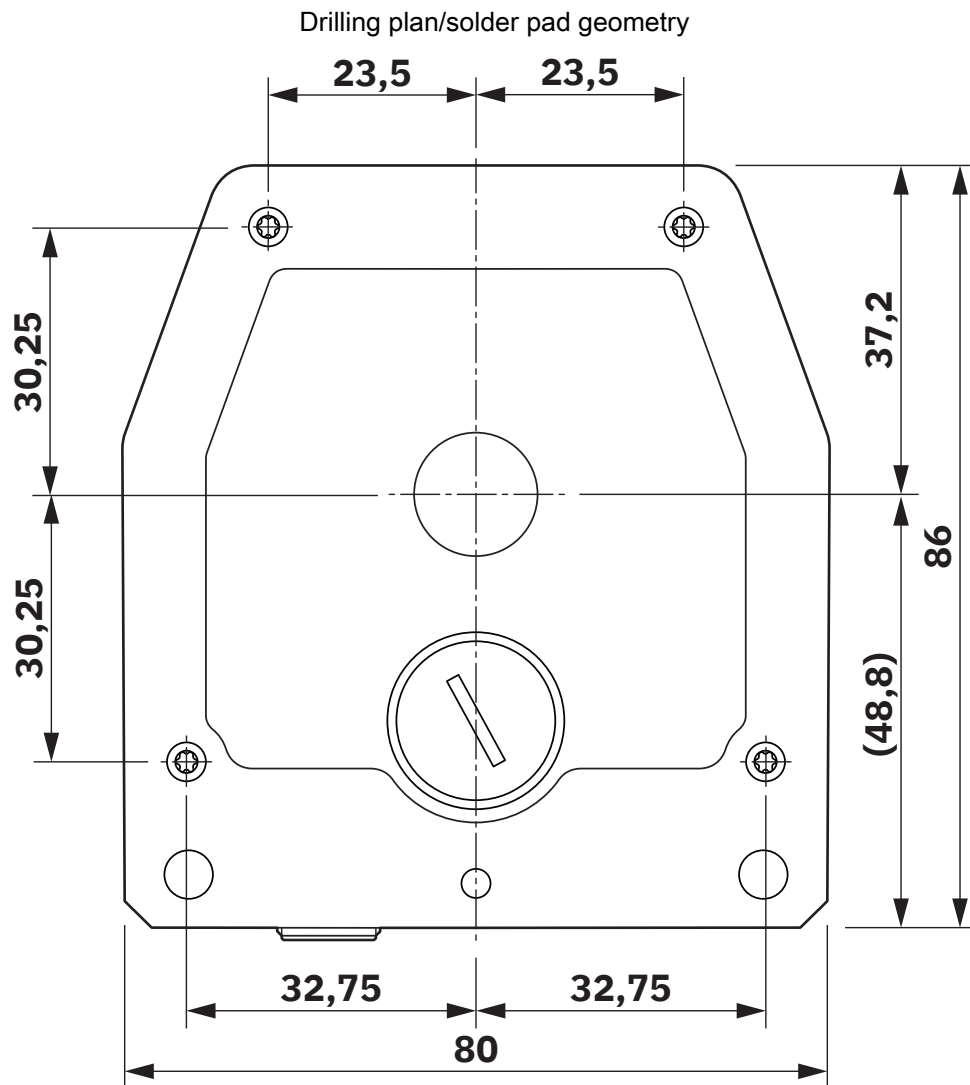
Drilling diagram

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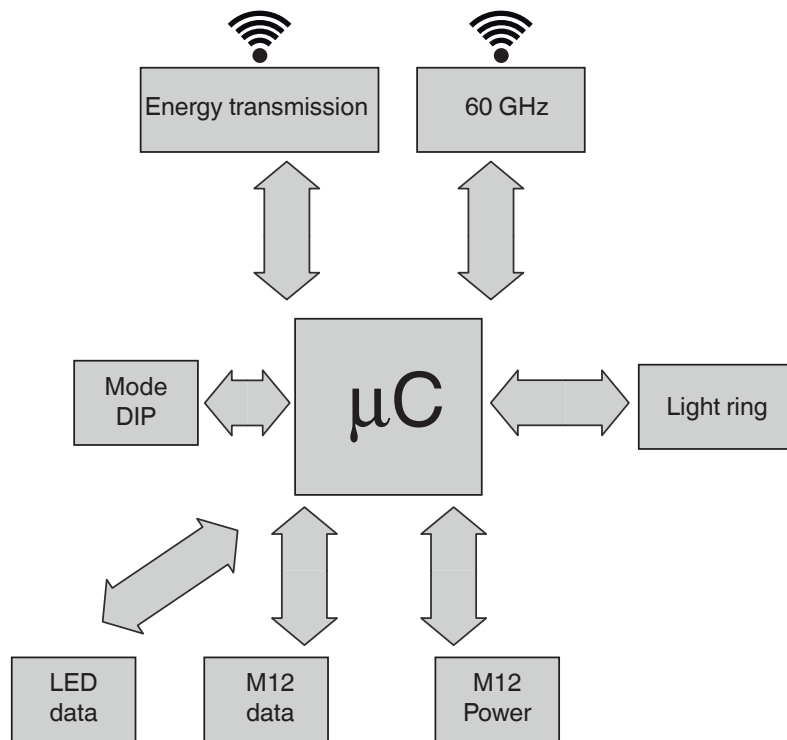
Centering template

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Block diagram



Basic circuit diagram

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1234225>



**MIC**

Approval ID: 006-001059



**cULus Recognized**

Approval ID: E238705

**FCC**

Approval ID: YG3PD2AETHR



**KC**

Approval ID: R-R-PCK-1234232

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## Classifications

### ECLASS

ECLASS-13.0	27040701
ECLASS-15.0	19170417

### ETIM

ETIM 10.0	EC001467
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### UNSPSC

UNSPSC 21.0	39121000
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## Environmental product compliance

### EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	6(c)

### China RoHS

Environment friendly use period (EFUP)	EFUP-50
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.

### EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	0bc4976f-6d82-4dbe-9f02-2cb510a9e30a

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