

# NEARFI D ETH R - Inductive coupler



1234234

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NearFi remote, contactless real-time Ethernet coupler, 100 Mbps, range  $\leq 40$  mm, M12 screw connection, IP65, can be combined with NEARFI D ETH B. Incompatible with NEARFI 2000 (new)

## Product description

With the robust NEARFI-D... NearFi couplers, you can transmit 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
- 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	1234234
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN26
Product key	DNC693
GTIN	4063151338107
Weight per piece (including packing)	523 g
Weight per piece (excluding packing)	480 g
Customs tariff number	85176200
Country of origin	DE

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## Technical data

### Notes

#### Note on application

Note on application	Only for industrial use
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### Product properties

Product type	Inductive coupler
Product family	NearFi
Application	Ethernet
MTTF	239 Years (SN 29500 standard, temperature 25°C, operating cycle 21%) 155 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%) 81 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	4.68 W
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#### Supply

Supply voltage range	19 V DC ... 30 V DC
Typical current consumption	≤ 195 mA (at 24 V DC, at 25 °C)
Protective circuit	Transient protection, polarity protection

### Connection data

#### Supply

Connection method	M12 male, 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 ≤10 <sup>-12</sup>
No. of channels	1
Transmission length	100 m (shielded twisted pair)
Transmission medium	Copper
Protocols supported	Protocol transparent: PROFINET, PROFINET IRT, PROFI-safe, EtherCAT®, Modbus/TCP, Powerlink, TSN, etc.

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## Inductive

Switch-on time	< 450 ms (ETH Full Duplex operating mode)
Range	min. 0 mm
	≤ 20 mm (at 65°C)
	≤ 40 mm (at 25 °C)
Center offset	± 20 mm
Wireless modules that can be connected	1 (Base coupler)

## 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
	Resistant to salt spray in accordance with IEC 60068-2-11 (96 h in 5% salt spray)

## Mechanical tests

Vibration resistance in accordance with EN 60068-2-6/IEC 60068-2-6	Vibration (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	Shock (operation): 30 g, 11 ms duration, half-sine shock pulse, three shocks per spatial direction

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Continuous shock in accordance with EN 60068-2-27/IEC 60068-2-27	Continuous shock (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 ... 65 °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)

## 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 Listed
	UL 61010-2-201, 2nd Edition
	UL 61010-1, 3rd Edition
Certificate	E238705

### UL, Canada

Identification	cUL 61010 Listed
	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	YG3DETHR
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### Wireless approval Canada, IC

Certificate	4720B-DETHR
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### Wireless approval Japan, MIC

Identification	006-001057
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### KC approval for South Korea

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

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Identification	Class A
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## EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
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### Electrostatic discharge

Standards/regulations	EN 61000-4-2
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### Electrostatic discharge

Contact discharge	$\pm 4$ kV (Test Level 2)
Discharge in air	$\pm 8$ 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	$\pm 2$ kV (Test Level 3 - asymmetrical)
Output	$\pm 2$ kV (Test Level 3 - asymmetrical)
Signal	$\pm 2$ 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	$\pm 0.5$ kV (Test Level 1 - symmetrical)
	$\pm 1$ kV (Test Level 2 - asymmetrical)
Output	$\pm 1$ kV (Test Level 2 - asymmetrical)
Signal	$\pm 1$ 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

## 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
	Resistant to salt spray in accordance with IEC 60068-2-11 (96 h in 5% salt spray)
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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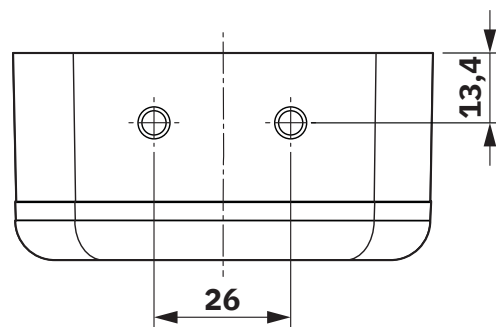
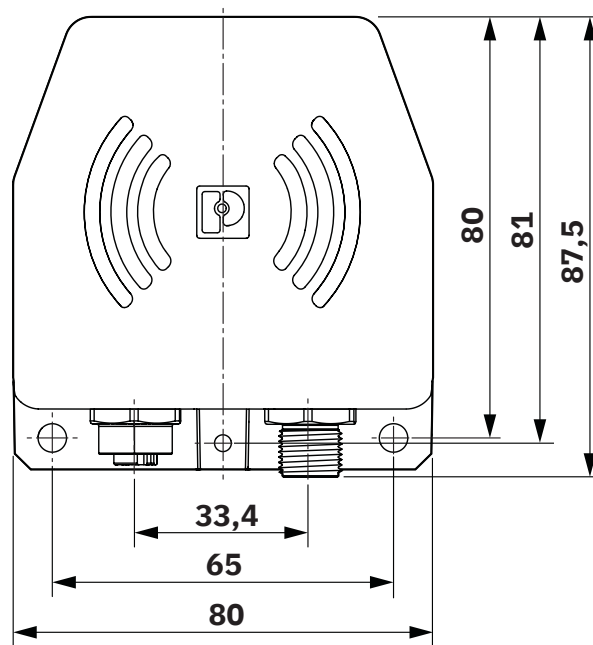
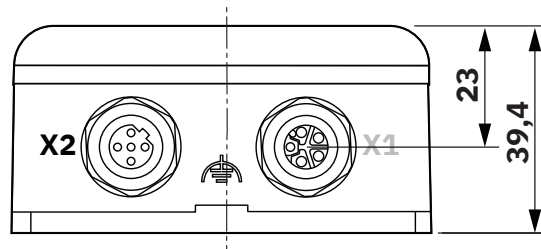
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## Drawings

Dimensional drawing



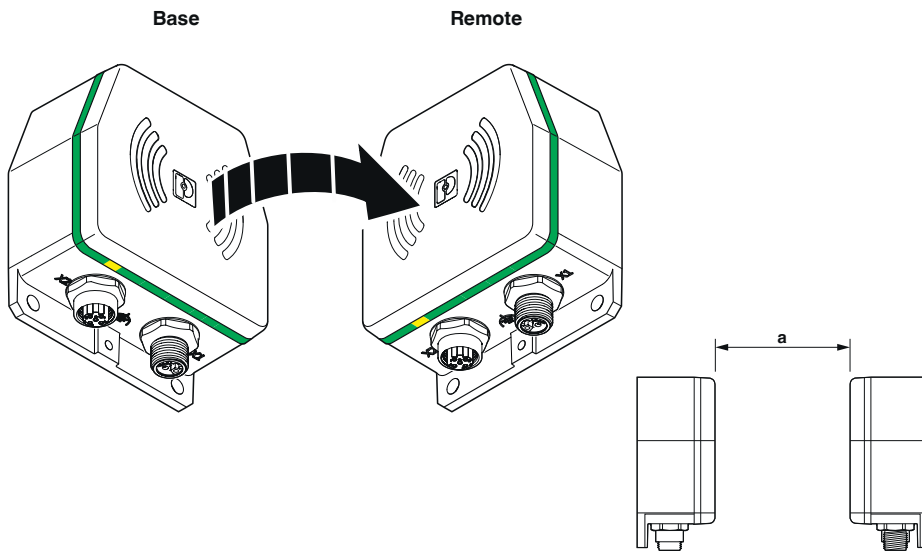
Dimensional drawing

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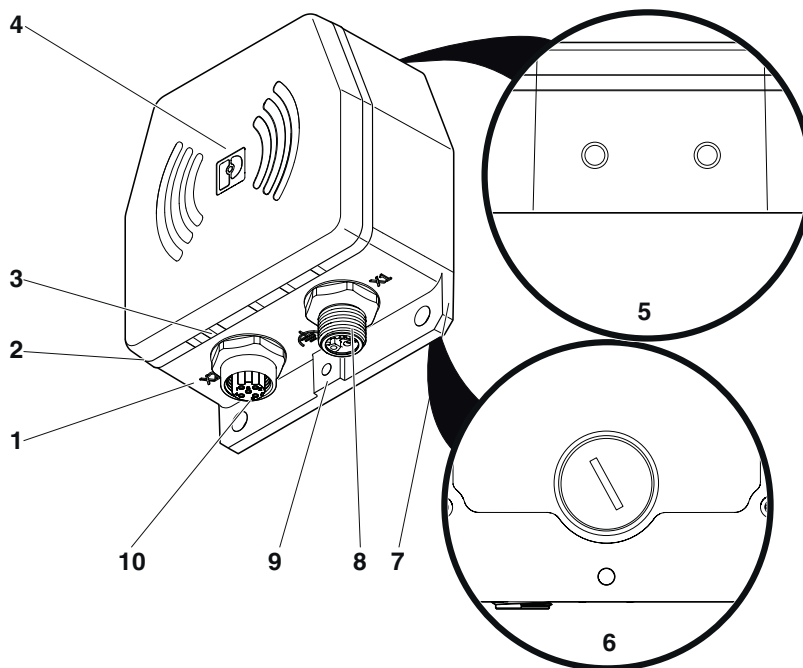
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## Schematic diagram



## Method of operation

### Schematic diagram



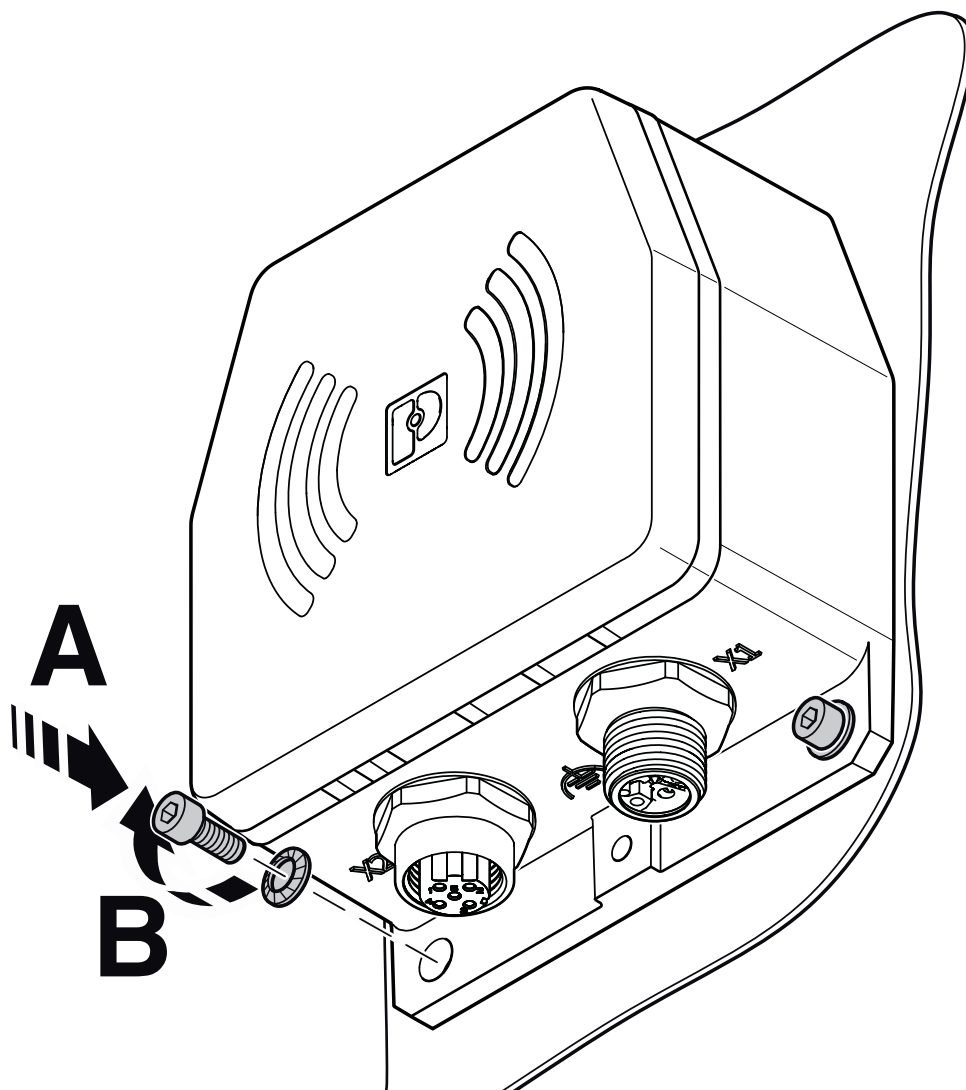
## Function elements

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Schematic diagram



Mounting with two screws

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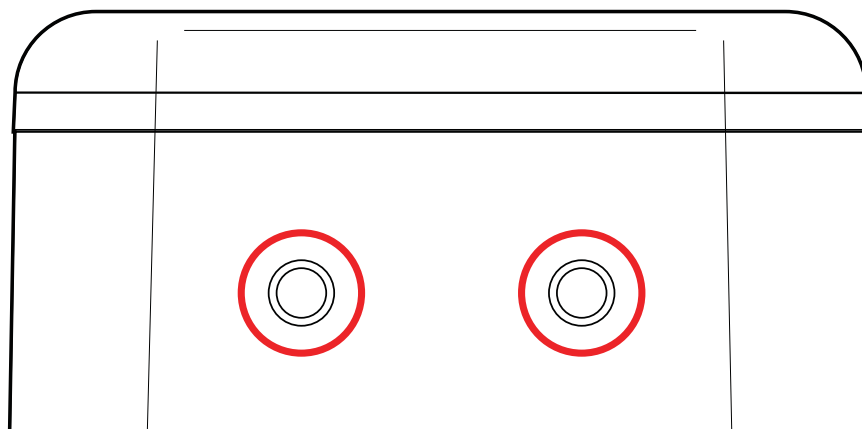
<https://www.phoenixcontact.com/us/products/1234234>

Schematic diagram



Mounting with four screws

Schematic diagram



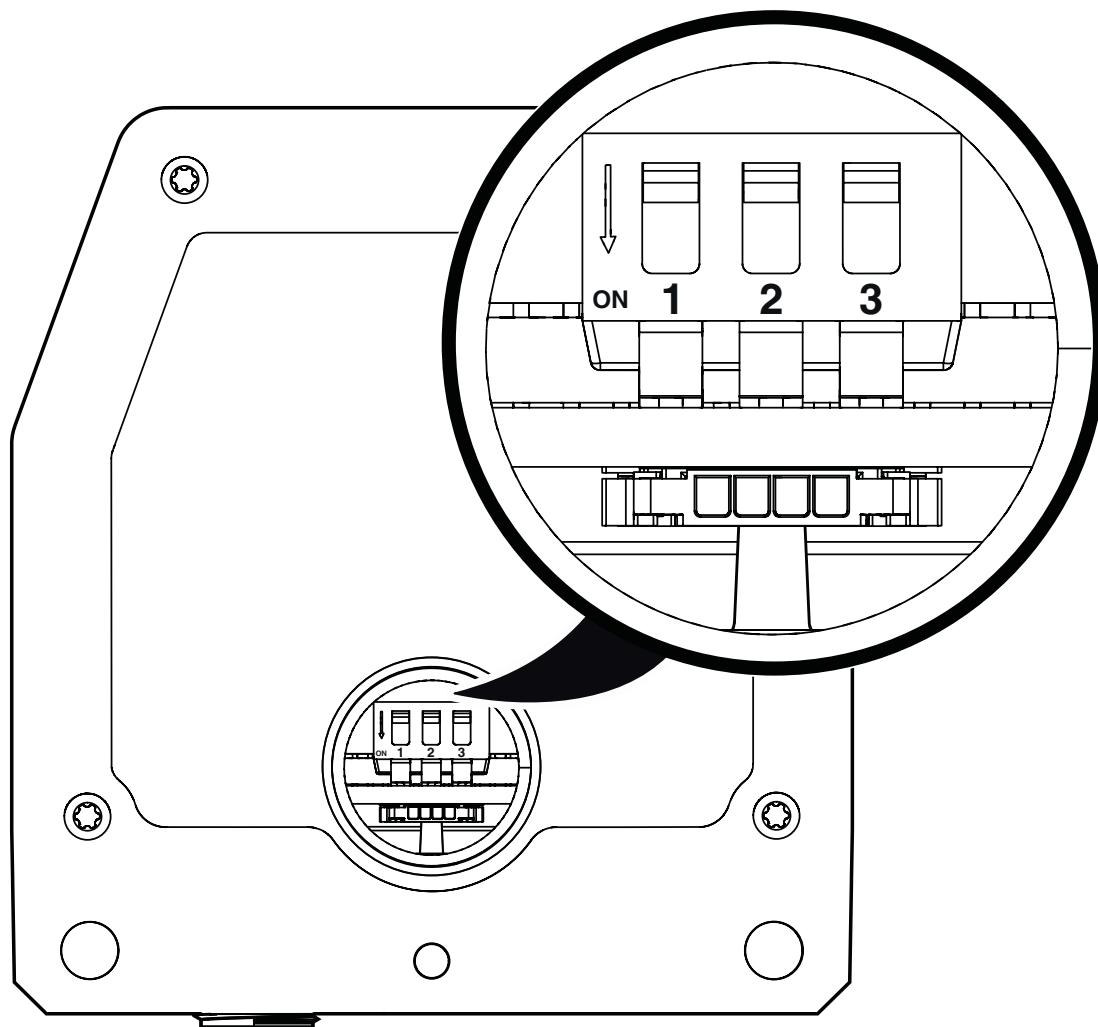
Mounting option

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Schematic diagram



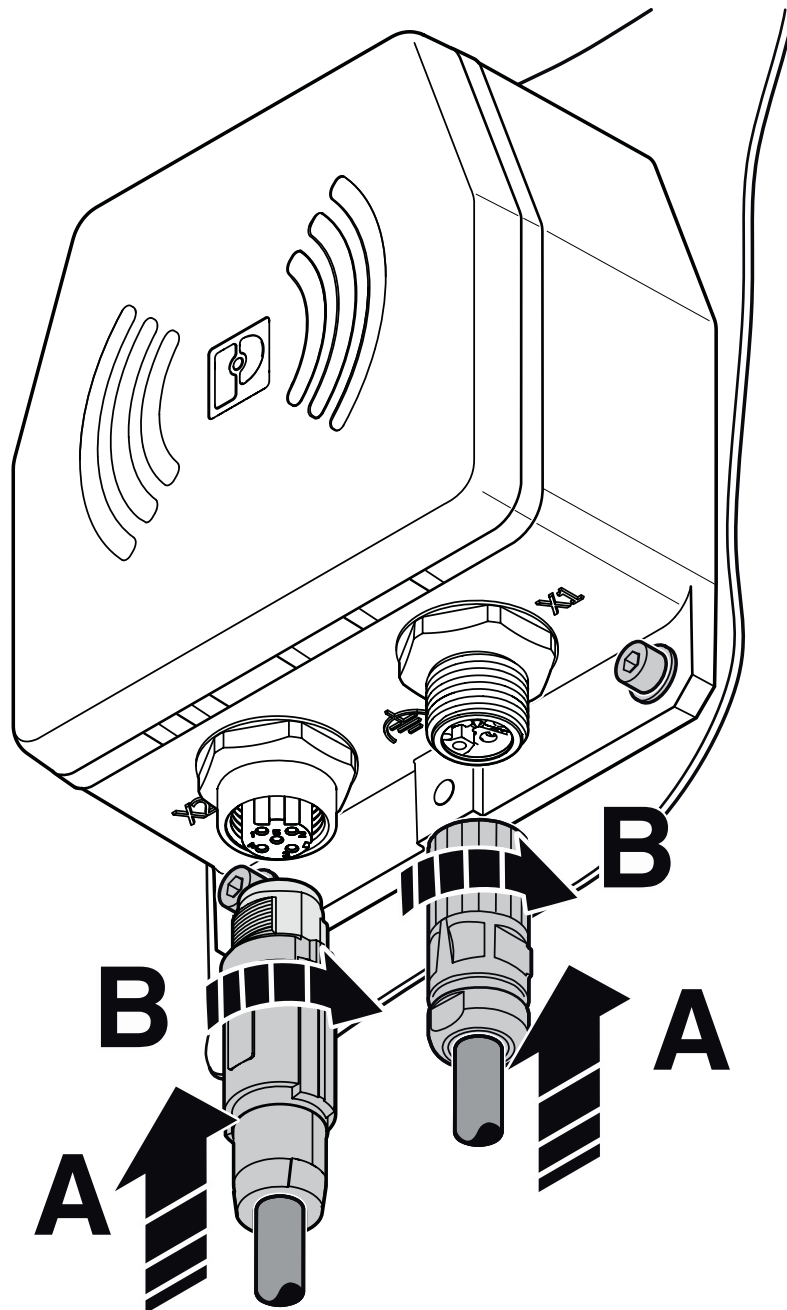
DIP switches

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Schematic diagram



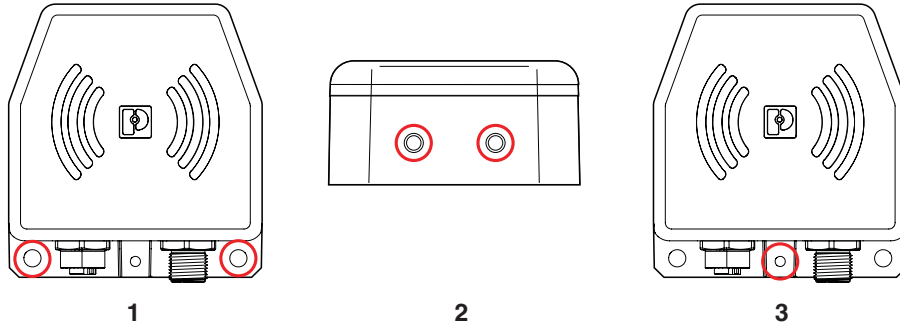
Connecting the cables

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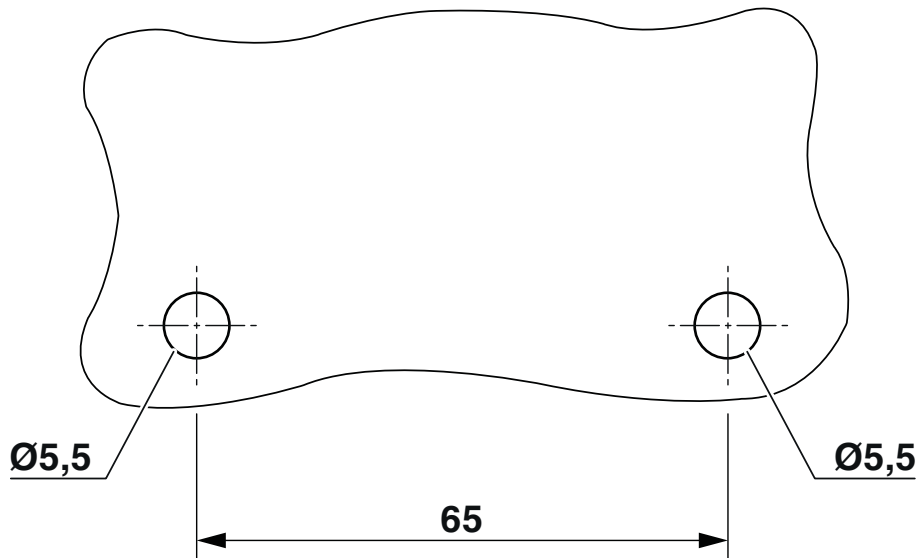
<https://www.phoenixcontact.com/us/products/1234234>

Schematic diagram



Options for functional grounding

Drilling plan/solder pad geometry



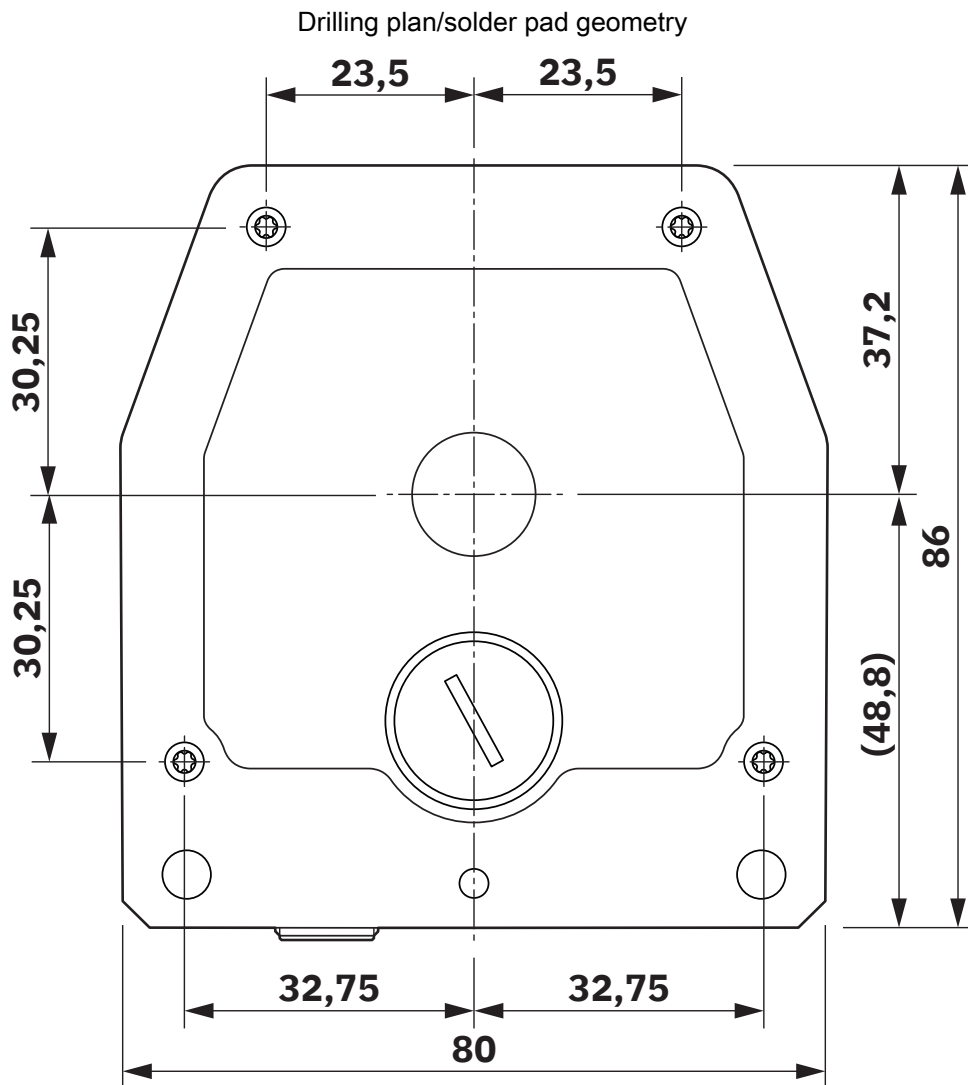
Drilling diagram

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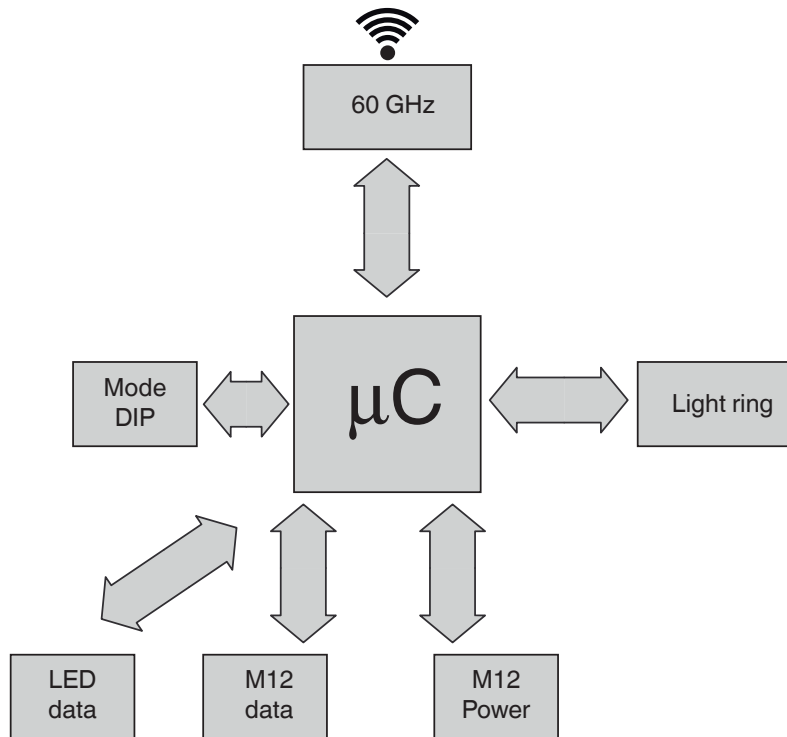
Centering template

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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/1234234>



**MIC**

Approval ID: 006-001057

**FCC**

Approval ID: YG3DETHR

**Industry Canada**

Approval ID: 4720B-DETHR



**cULus Recognized**

Approval ID: E238705



**KC**

Approval ID: R-R-PCK-1234232



**cULus Listed**

Approval ID: E238705

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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	a2658cee-fc4c-4f56-8880-95cb2050418a

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