

NEARFI D ETH B - Inductive coupler



1234232
<https://www.phoenixcontact.com/us/products/1234232>

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NearFi base, contactless real-time Ethernet coupler, 100 Mbps, range ≤40 mm, M12 screw connection, IP65, can be combined with NEARFI D ETH R. 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 | 1234232 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | DN26 |
| Product key | DNC693 |
| GTIN | 4063151336271 |
| Weight per piece (including packing) | 525.5 g |
| Weight per piece (excluding packing) | 480 g |
| Customs tariff number | 85176200 |
| Country of origin | DE |

NEARFI D ETH B - Inductive coupler



1234232

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Technical data

Notes

Note on application

| | |
|---------------------|-------------------------|
| Note on application | Only for industrial use |
|---------------------|-------------------------|

Product properties

| | |
|--------------|---|
| Product type | Inductive coupler |
| 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 |
|---|--------|

Supply

| | |
|-----------------------------|---|
| Supply voltage range | 19 V DC ... 30 V DC |
| Typical current consumption | ≤ 195 mA (at 24 V DC, at 25 °C) |
| Inrush current | ≤ 0.25 A (20 ms at 24 V DC, without remote coupler) |
| Protective circuit | Transient protection, polarity protection |

Connection data

Supply

| | |
|-------------------|-------------------|
| Connection method | M12 male, A-coded |
|-------------------|-------------------|

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 ⁻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. |

NEARFI D ETH B - Inductive coupler



1234232

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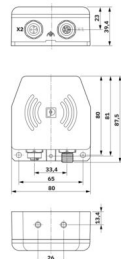
Inductive

| | |
|--|---|
| 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 (Remote coupler) |

Wireless

| | |
|--|---------------------------------------|
| Wireless modules that can be connected | 1 (Remote 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 |
|------------------|-------------------------------|

Mechanical tests

| | |
|--|---|
| Vibration resistance in accordance with EN 60068-2-6/IEC 60068-2-6 | : 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 | : 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 | : 10 g, 16 ms duration, half-sine shock pulse, 1,000 shocks per spatial direction |

NEARFI D ETH B - Inductive coupler



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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 |
|-------------|--------------|

Wireless approval, Europe

| | |
|------|----------------|
| Note | RED 2014/53/EU |
|------|----------------|

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 | YG3DETHB |
|-------------|----------|

Wireless approval Canada, IC

| | |
|-------------|-------------|
| Certificate | 4720B-DETHB |
|-------------|-------------|

Wireless approval Japan, MIC

| | |
|----------------|------------|
| Identification | 006-001056 |
|----------------|------------|

KC approval for South Korea

| | |
|-------------|-----------------|
| Certificate | R-R-PCK-1234232 |
|-------------|-----------------|

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 |

NEARFI D ETH B - Inductive coupler



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| | |
|----------|----------------------------------|
| 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 |
| 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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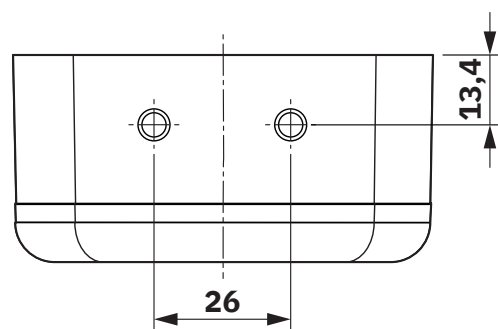
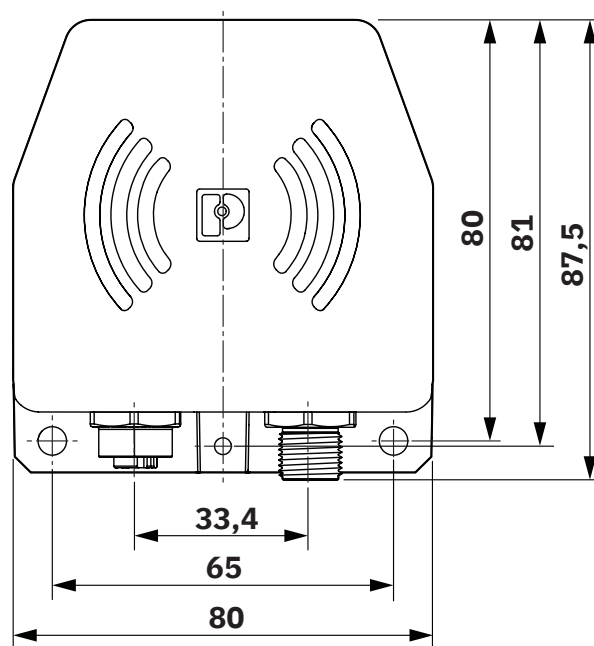
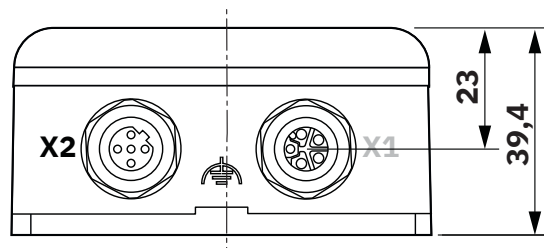
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Drawings

Dimensional drawing



Dimensional drawing

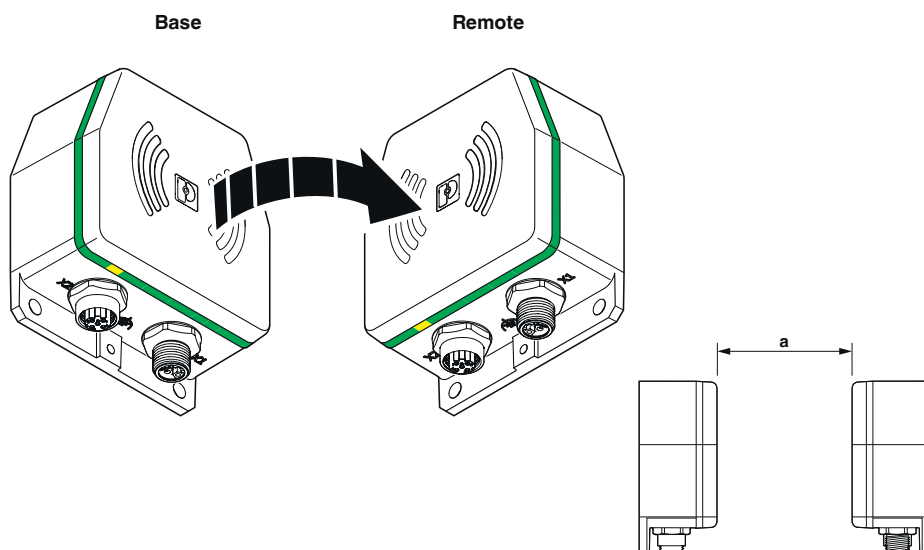
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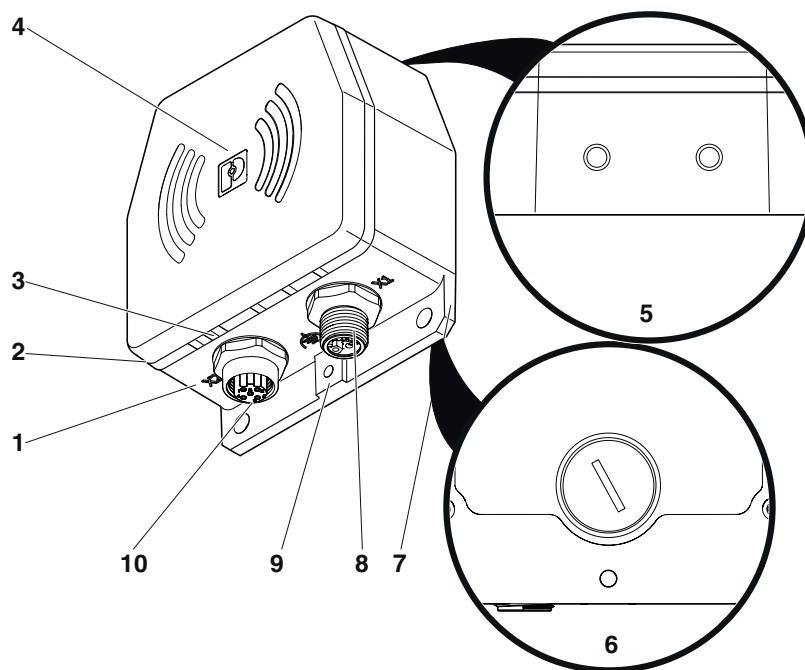


Schematic diagram



Method of operation

Schematic diagram



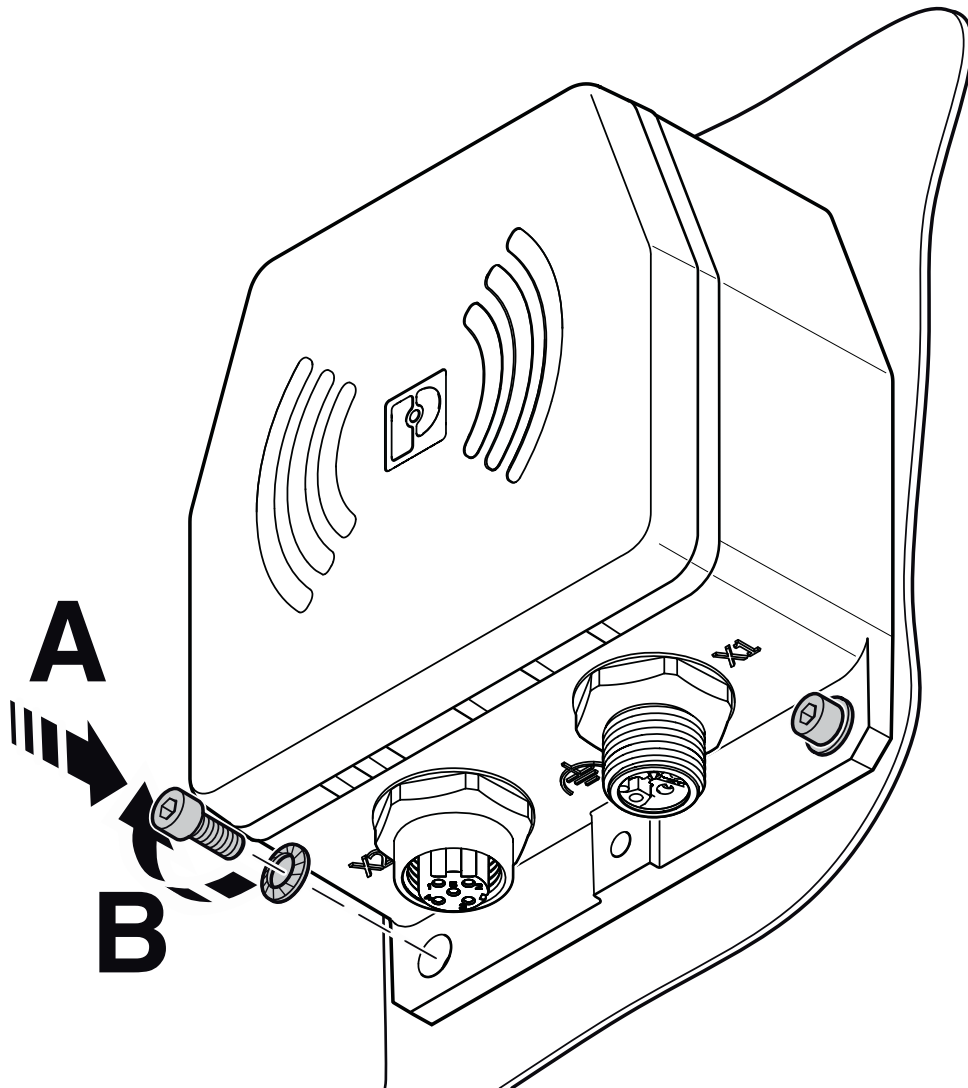
Function elements

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Schematic diagram



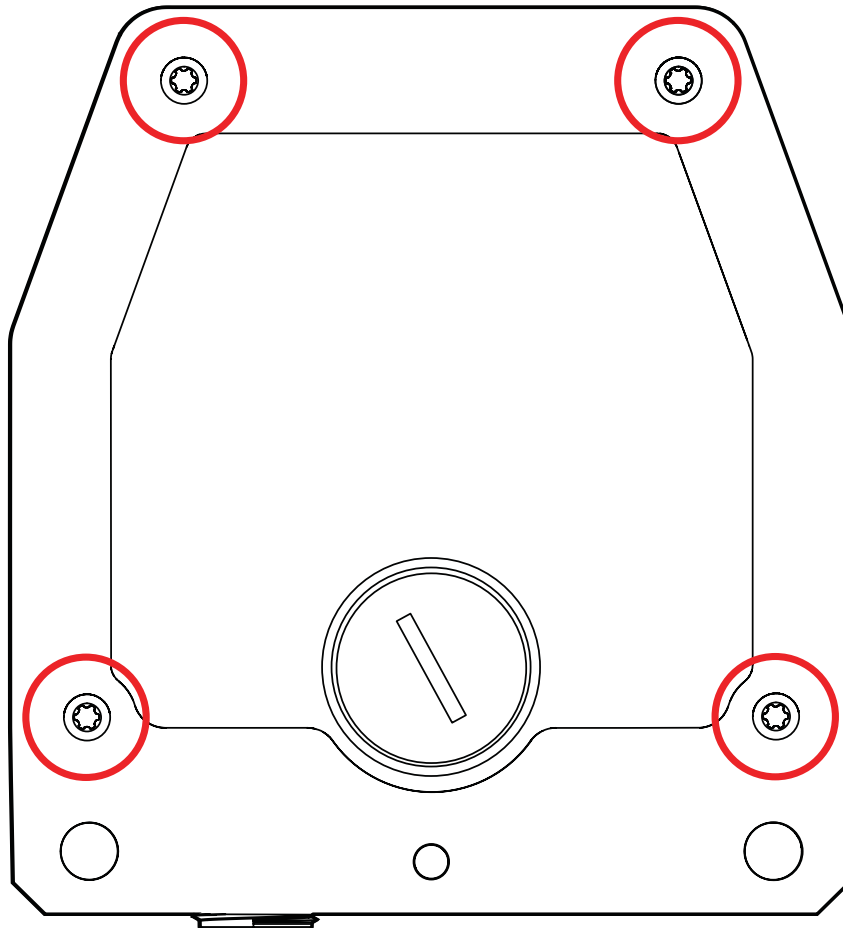
Mounting with two screws

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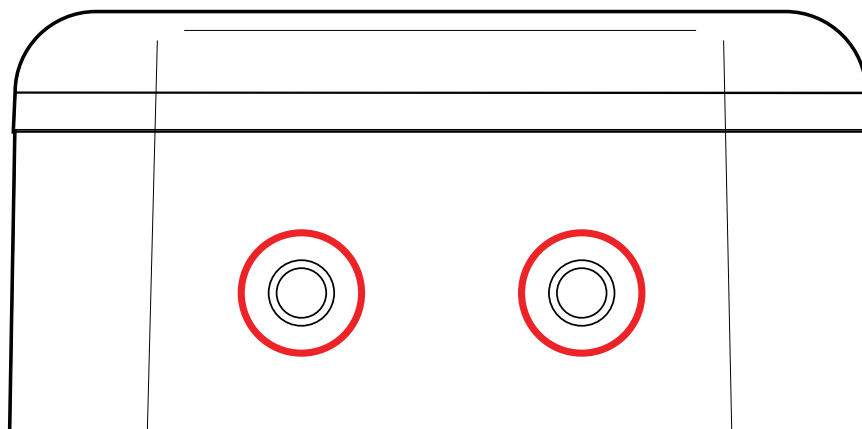
<https://www.phoenixcontact.com/us/products/1234232>

Schematic diagram



Mounting with four screws

Schematic diagram



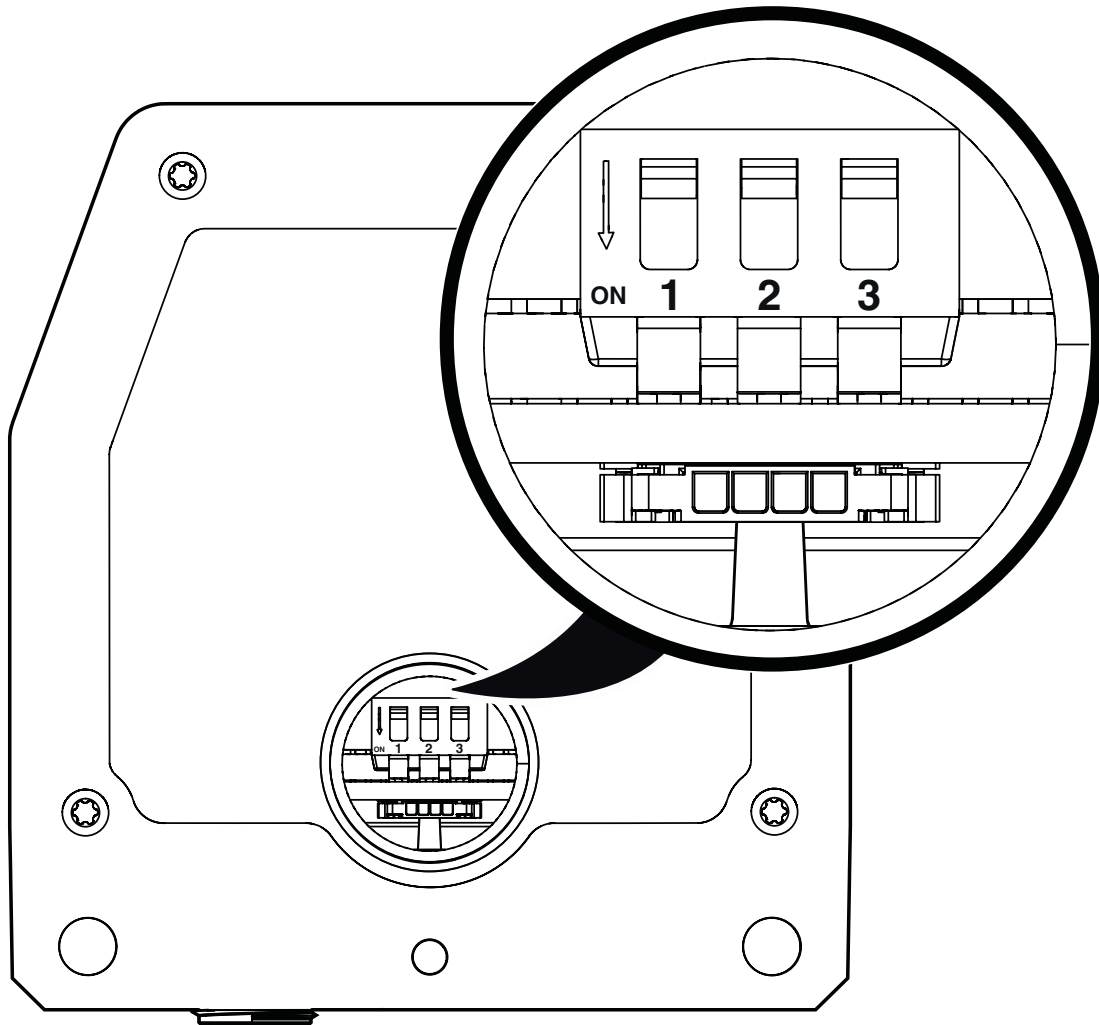
Mounting option

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Schematic diagram



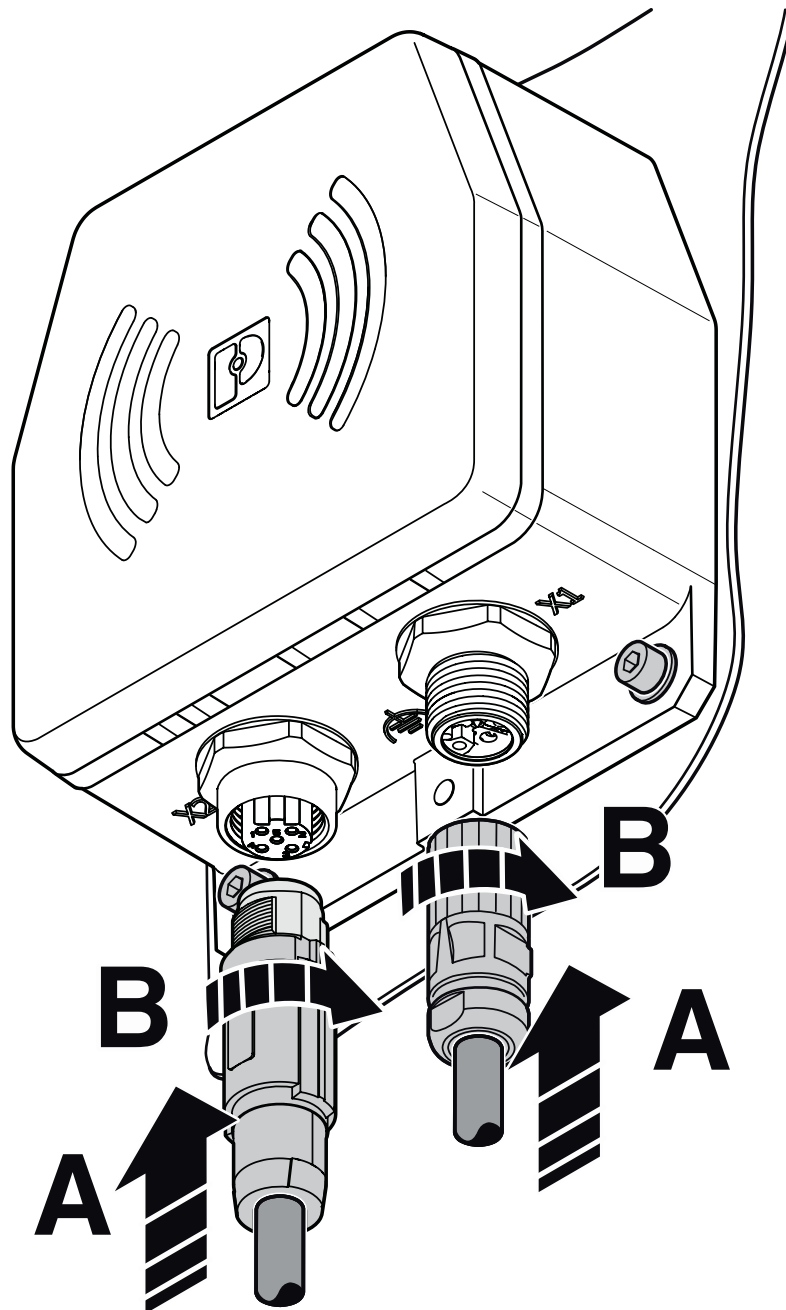
DIP switches

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Schematic diagram



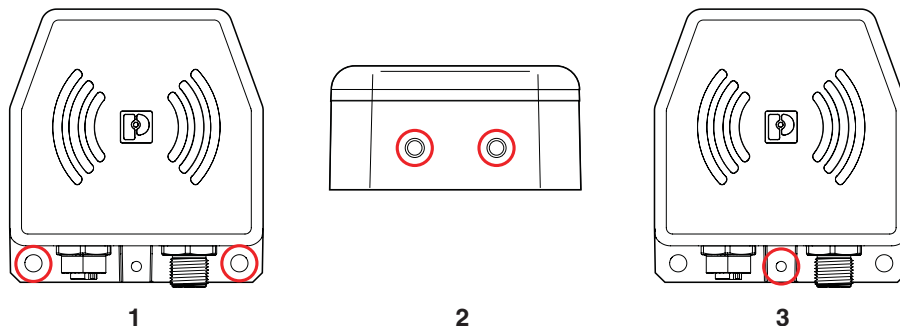
Connecting the cables

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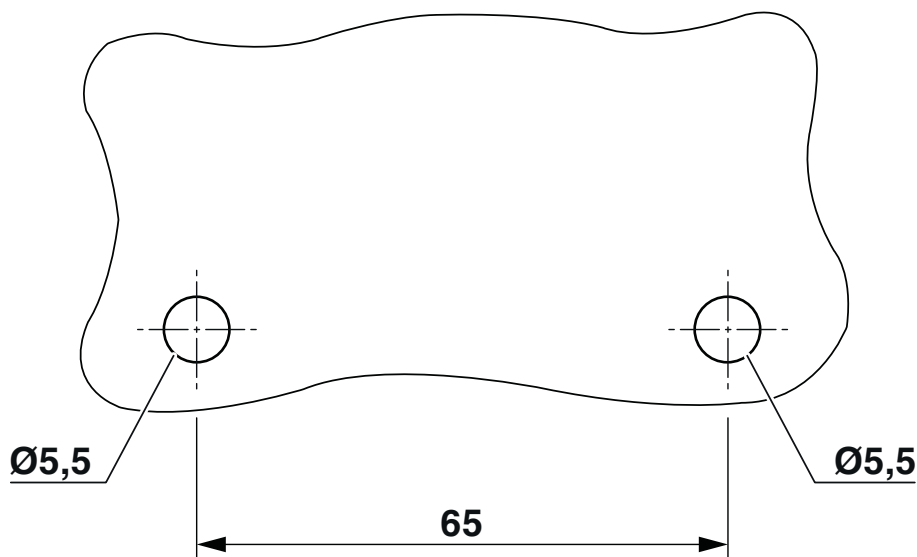
<https://www.phoenixcontact.com/us/products/1234232>

Schematic diagram



Options for functional grounding

Drilling plan/solder pad geometry



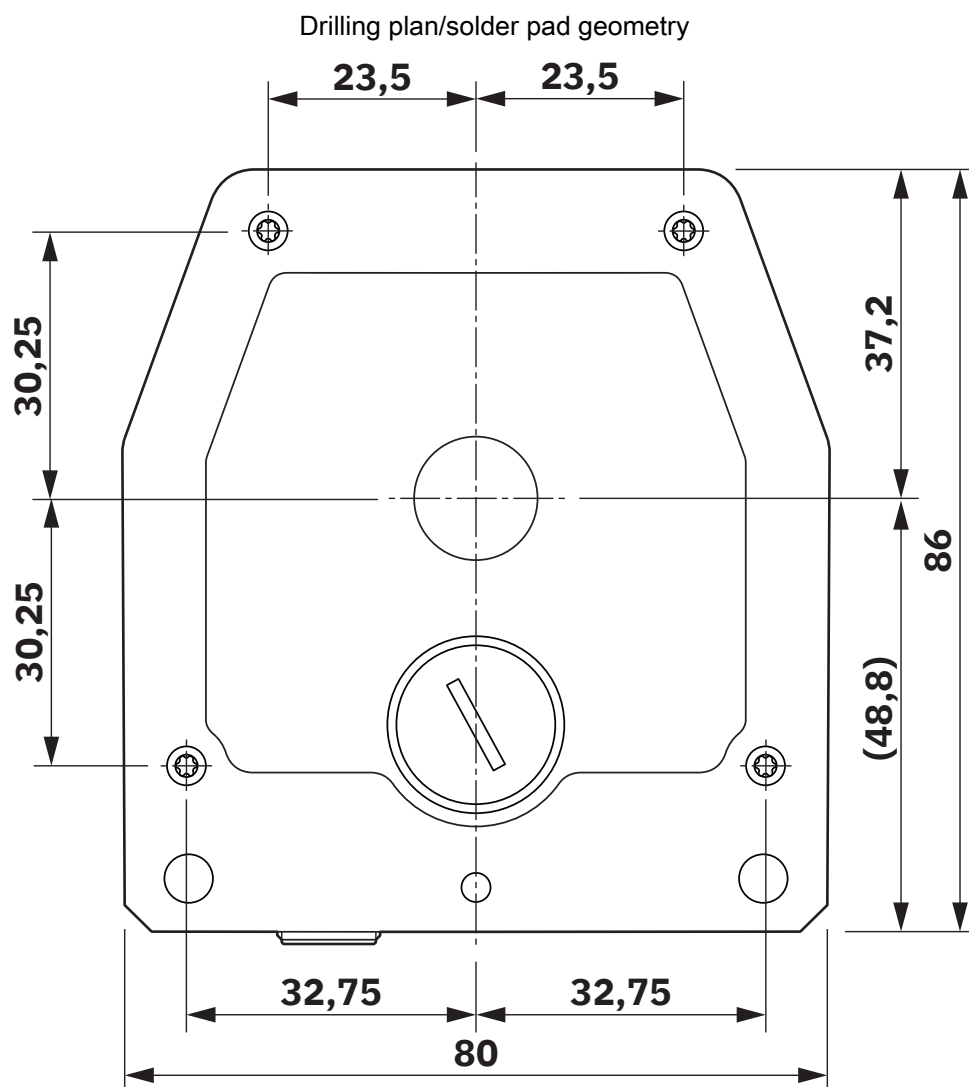
Drilling diagram

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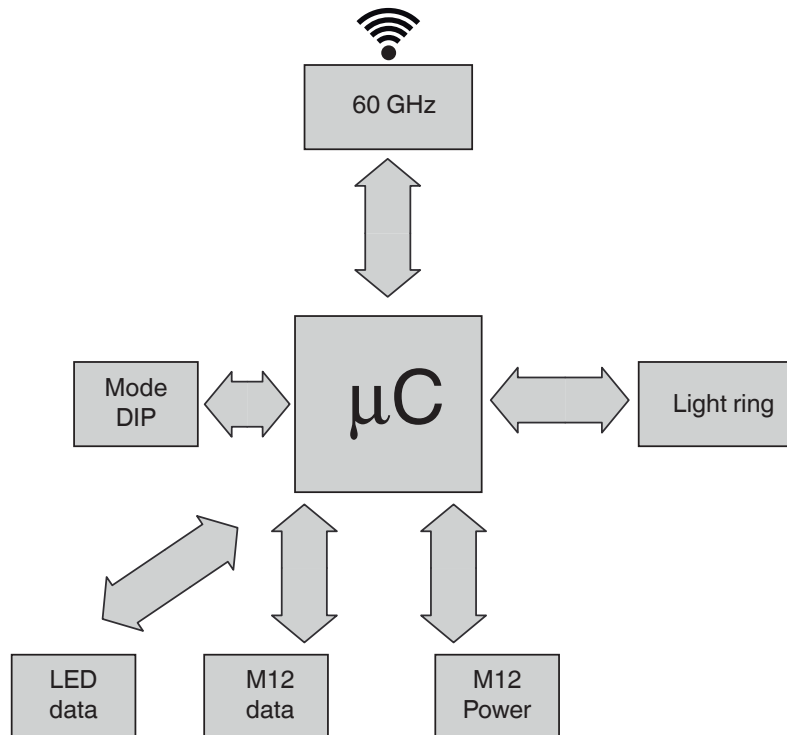
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Centering template

Block diagram



Basic circuit diagram

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Approvals

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MIC

Approval ID: 006-001056

FCC

Approval ID: YG3DETHB

Industry Canada

Approval ID: 4720B-DETHB



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 |
|-------------|----------|

ETIM

| | |
|----------|----------|
| ETIM 9.0 | EC002540 |
|----------|----------|

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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 | 4b329bc9-8477-46e7-962e-7ea18d1948c7 |

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Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com