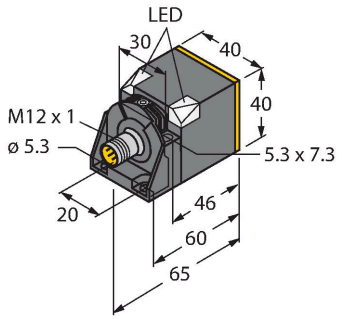
# NI50U-CK40-VP4X2-H1141/3GD
# Inductive Sensor – With Extended Switching Distance



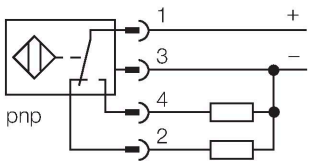

## Technical data

| | |
|---|---|
| Type | NI50U-CK40-VP4X2-H1141/3GD |
| ID | 1514120 |
| **General data** | |
| Rated switching distance | 50 mm |
| Mounting conditions | Non-flush, flush |
| Secured operating distance | ≤ (0.81 × Sn) mm |
| Repeat accuracy | ≤ 2 % of full scale |
| Temperature drift | ≤ ±10 % |
| | ≤ ± 20 %, ≤ -25 °C v ≥ +70 °C |
| Hysteresis | 3…15 % |
| **Electrical data** | |
| Operating voltage $U_B$ | 10…65 VDC |
| Ripple $U_{ss}$ | ≤ 10 % $U_{Bmax}$ |
| DC rated operating current $I_e$ | ≤ 200 mA |
| No-load current | ≤ 15 mA |
| Residual current | ≤ 0.1 mA |
| Isolation test voltage | 0.5 kV |
| Short-circuit protection | yes/Cyclic |
| Voltage drop at $I_e$ | ≤ 1.8 V |
| Wire break/reverse polarity protection | yes/Complete |
| Output function | 4-wire, Complementary contact, PNP |
| DC field stability | 300 mT |
| AC field stability | 300 $mT_{ss}$ |
| Insulation class | ⧈ |

## Features

- Rectangular, height 40 mm
- Variable orientation of active face in 5 directions
- Plastic, PBT-GF30-V0
- High luminance corner LEDs
- Optimum view on supply voltage and switching state from any position
- Factor 1 for all metals
- Increased switching distance
- Protection class IP68
- Resistant to magnetic fields
- Auto-compensation protects against pre-damping
- Partially embeddable
- DC 4-wire, 10…65 VDC
- Changeover contact, PNP output
- M12 x 1 male connector
- ATEX category II 3 G, Ex zone 2
- ATEX category II 3 D, Ex zone 22

## Wiring diagram




## Functional principle

Inductive sensors are designed for wear-free and contactless detection of metal objects. uprox+ sensors have significant advantages due to their patented multi-coil system. They excel thanks to their optimum switching

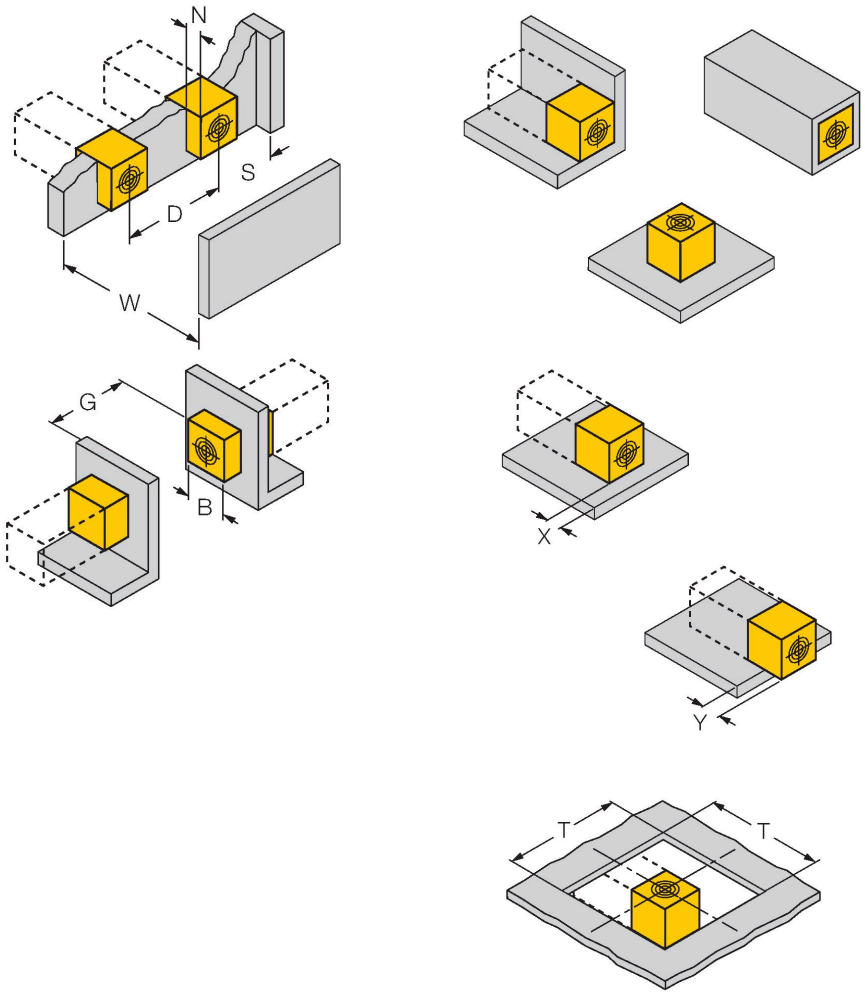
## Technical data

| | |
|---|---|
| Switching frequency | 0.25 kHz |
| Approval acc. to | ATEX test certificate TURCK Ex-10002M X |
| Device marking | EX II 3 G Ex ec IIC T4 Gc/II 3 D Ex tc IIIC T110 °C Dc |
| Warning | Do not unplug connector under voltage |
| **Mechanical data** | |
| Design | Rectangular, CK40 |
| Dimensions | 65 x 40 x 40 mm |
| | variable orientation of active face in 5 directions |
| Housing material | Plastic, PBT-GF20-V0, Black |
| Active area material | Plastic, PA12-GF30, yellow |
| Electrical connection | Connector, M12 × 1 |
| **Environmental conditions** | |
| Ambient temperature | -30…+85 °C |
| | For explosion hazardous areas see instruction leaflet |
| Vibration resistance | 55 Hz (1 mm) |
| Shock resistance | 30 g (11 ms) |
| Protection class | IP68 |
| MTTF | 874 years acc. to SN 29500 (Ed. 99) 40 °C |
| Power-on indication | 2 × LEDs, Green |
| Switching state | 2 × LEDs, Yellow |
| Included in delivery | Fixing clamp BS4-CK40, SC-M12/3GD |

distances, maximum flexibility and operational reliability as well as efficient standardization.

## Mounting instructions

Mounting instructions/Description




| | |
|---|---|
| Distance D | 240 mm |
| Distance W | 105 mm |
| Distance S | 60 mm |
| Distance G | 300 mm |
| Distance N | 30 mm |
| Width active area B | 40 mm |

Flush mounting possible on up to 4 sides
1-side mounting: Sr = 35 mm; D = 240 mm
2-side mounting: Sr = 25 mm; D = 240 mm
3-side mounting: Sr = 20 mm; D = 80 mm
4-side mounting: Sr = 15 mm; D = 60 mm

Rear-side mounting and set-back installation with reduced switching distance possible

Sensor mounted on metal, set back from the edge:
x = 10 mm: Sr = 20 mm
x = 20 mm: Sr = 20 mm
x = 30 mm: Sr = 20 mm
x = 40 mm: Sr = 20 mm

Sensor mounted on metal, protruding over the edge:
y = 10 mm: Sr = 40 mm
y = 20 mm: Sr = 50 mm
y = 30 mm: Sr = 50 mm
y = 40 mm: Sr = 50 mm

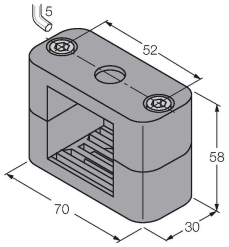
Installation in aperture:
T = 150 mm:
Sensor with turned rotating bracket
Surface-mounted on metal Sr = 50 mm
Surface-mounted on metal, with one side wall Sr = 25 mm
Surface-mounted on metal, with two side walls Sr = 15 mm
Surface-mounted on metal, with three side walls Sr = 12 mm

The values stated relate to a 1-mm-thick steel plate.

Sr is the switching distance that can be measured under specified temperature and supply conditions, also taking into account series variation.

## Accessories

| BSS-CP40 | 6901318 |
|---|---|




Mounting clamp for rectangular housings 40 x 40 mm; material: Polypropylene

## Wiring accessories

| Dimension drawing | Type | ID | |
|---|---|---|---|
| | RKC4.4T-2/TEL | 6625013 | Connection cable, M12 female connector, straight, 4-pin, cable length: 2 m, jacket material: PVC, black; cULus approval |

## Instructions for use

**Intended use**

**This device fulfills the directive 2014/34/EU and is suited for use in explosion-hazardous areas acc. to EN60079-0:2018, EN60079-7:2015/A1:2018, EN60079-31:2014.In order to ensure correct operation to the intended purpose it is required to observe the national regulations and directives.**

**For use in explosion hazardous areas conform to classification**

II 3 G and II 3 D (Group II, Category 3 G, electrical equipment for gaseous atmospheres and category 3 D, electrical equipment for dust atmospheres).

**Marking (see device or technical data sheet)**

Ⓔx II 3 G Ex ec IIC T4 Gc acc. to EN 60079-0:2018 and EN 60079-7:2015/A1:2018 and Ⓔx II 3 D Ex tc IIIC T110 °C Dc acc. to EN 60079-0:2018 and EN 60079-31:2014

**Local admissible ambient temperature**

-25…+30 °C

**Installation/Commissioning**

**These devices may only be installed, connected and operated by trained and qualified staff. Qualified staff must have knowledge of protection classes, directives and regulations concerning electrical equipment designed for use in explosion hazardous areas.Please verify that the classification and the marking on the device comply with the actual application conditions.**

**Installation and mounting instructions**

**Avoid static charging of cables and plastic devices. Please only clean the device with a damp cloth. Do not install the device in a dust flow and avoid build-up of dust deposits on the device.The devices must be protected against strong magnetic fields.The pin configuration and the electrical specifications can be taken from the device marking or the technical data sheet.In order to avoid contamination of the device, please remove possible blanking plugs of the cable glands or connectors only shortly before inserting the cable or opening the cable socket.**

**Special conditions for safe operation**

**For devices with M12 connectors please use the supplied safety clip SC-M12/3GD.Do not disconnect the plug-in connection or cable under voltage.Please attach a warning label permanently in an appropriate fashion in close proximity to the plug-in connection with the following inscription: Nicht unter Spannung trennen / Do not separate when energized.The device must be protected against any kind of mechanical damage and degrading UV-radiation.The IP protection rating of the connectors is given only in combination with a suitable O-ringLoad voltage and operating voltage of this equipment must be supplied from power supplies with safe isolation (IEC 30 364/UL508), to ensure that the rated voltage of the equipment (24 VDC +20% = 28.8 VDC) is never exceeded by more than 40%.**

**Service/Maintenance**

**Repairs are not possible. The approval expires if the device is repaired or modified by a person other than the manufacturer. The most important data from the approval are listed.**

NI50U-CK40-VP4X2-H1141/3GD| 02/21/2025 13-10 | technical changes reserved