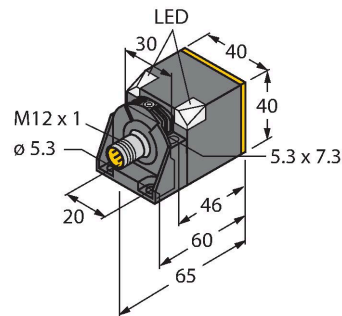


NI50U-CK40-IOL6X2-H1141

Inductive Sensor – IO-Link Communication and Configuration



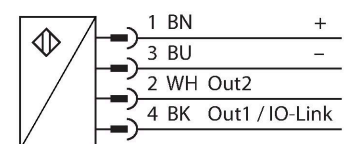
Technical data

Type	NI50U-CK40-IOL6X2-H1141
ID	1625871
General data	
Rated switching distance	50 mm
Mounting conditions	Non-flush, flush mountable
Secured operating distance	$\leq (0.81 \times S_n)$ mm
Repeat accuracy	$\leq 2 \%$ of full scale
Temperature drift	$\leq \pm 10 \%$ $\leq \pm 20 \%, \leq -25 \text{ °C} \vee \geq +70 \text{ °C}$
Hysteresis	3...15 %
Electrical data	
Operating voltage U_B	10...30 VDC
Ripple U_{ss}	$\leq 10 \%$ U_{Bmax}
DC rated operating current I_o	≤ 150 mA
No-load current	≤ 27 mA
Residual current	≤ 0.1 mA
Isolation test voltage	0.5 kV
Short-circuit protection	yes/Cyclic
Voltage drop at I_o	≤ 1.8 V
Wire break/reverse polarity protection	yes/Complete
Communication protocol	IO-Link
Output function	4-wire, NO/NC, PNP/NPN
Output 1	Switching output or IO-Link mode
Output 2	Switching output
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...30 VDC
- M12 x 1 connector
- Configuration and communication via IO-Link v1.1 or via standard I/O
- Electrical outputs independently configurable
- Switching distance can be parametrized per output and hysteresis
- Identification via 32-byte memory
- Temperature monitoring with adjustable limits
- Various timer and pulse monitoring functions

Wiring diagram



Functional principle

Inductive sensors are designed for wear-free and contactless detection of metal objects. uprox3 sensors have significant

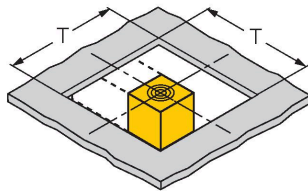
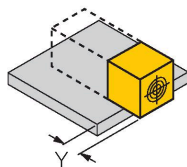
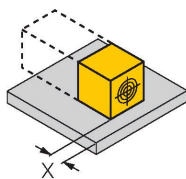
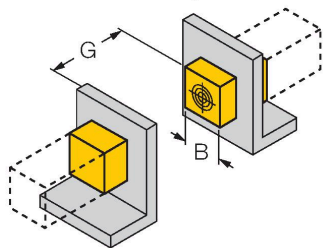
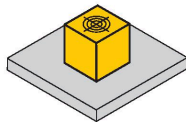
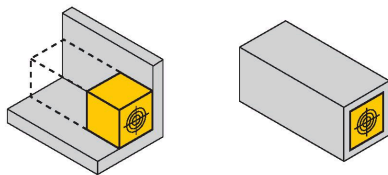
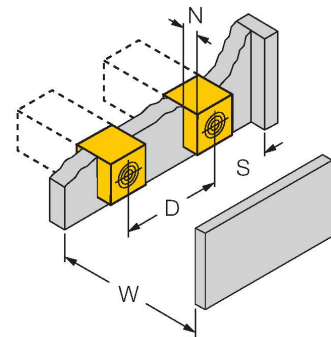
Technical data

Switching frequency	0.5 kHz
IO-Link	
IO-Link specification	V 1.1
IO-Link port type	Class A
Communication mode	COM 2 (38.4 kBaud)
Process data width	16 bit
Switchpoint information	2 bit
Status bit information	3 bit
Frame type	2.2
Minimum cycle time	8 ms
Function pin 4	IO-Link
Function Pin 2	DI
Maximum cable length	20 m
Included in the SIDI GSDML	Yes
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	-25...+70 °C
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

advantages due to their patented multi-coil system. They excel thanks to their optimum switching distances, maximum flexibility and operational reliability as well as efficient standardization. In addition, the uprox3 IO-Link sensors allow certain parameters to be set within predefined limits and various device functions to be configured in accordance with customer needs, using an IO-Link Master. For detailed information, refer to the uprox3 IO-Link manual.

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: $S_r = 35\text{ mm}$; $D = 240\text{ mm}$
2-side mounting: $S_r = 25\text{ mm}$; $D = 240\text{ mm}$
3-side mounting: $S_r = 20\text{ mm}$; $D = 80\text{ mm}$
4-side mounting: $S_r = 15\text{ mm}$; $D = 60\text{ mm}$

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

Sensor mounted on metal, set back from the edge:

$x = 10\text{ mm}$: $S_r = 20\text{ mm}$
 $x = 20\text{ mm}$: $S_r = 20\text{ mm}$
 $x = 30\text{ mm}$: $S_r = 20\text{ mm}$
 $x = 40\text{ mm}$: $S_r = 20\text{ mm}$

Sensor mounted on metal, protruding over the edge:

$y = 10\text{ mm}$: $S_r = 40\text{ mm}$
 $y = 20\text{ mm}$: $S_r = 50\text{ mm}$
 $y = 30\text{ mm}$: $S_r = 50\text{ mm}$
 $y = 40\text{ mm}$: $S_r = 50\text{ mm}$

Installation in aperture:

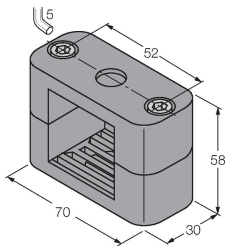
$T = 150\text{ mm}$:
Sensor with turned rotating bracket
Surface-mounted on metal $S_r = 50\text{ mm}$
Surface-mounted on metal, with one side wall $S_r = 25\text{ mm}$
Surface-mounted on metal, with two side walls $S_r = 15\text{ mm}$
Surface-mounted on metal, with three side walls $S_r = 12\text{ mm}$

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

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

Accessories

BSS-CP40	6901318
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Mounting clamp for rectangular housings 40 x 40 mm; material: Polypropylene

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



Accessories

Dimension drawing	Type	ID	
	USB-2-IOL-0002	6825482	IO-Link Master with integrated USB port

