TURCK

Industrial Automation

INDUCTIVE FACTOR 1 SENSORS

uprox+

Sense it! Connect it! Bus it! Solve it!

S1570/02

Type code

Bi 4U – M12. – AP6X – H1141 / S989

U *uprox*®-Factor 1

Rated operating distance [mm]

Function principle
i = inductive

mounting mode
B flush
N non-flush

AP6X

S989 increased sensitivity
F2 offset oscillator frequency

Internal code
1 standard configuration
4 NO 2-wire DC/ output pin 4

Number of contacts

Mechanical design
1 straight
3 straight with adapter

Connector type
H1 connector (M12 x 1)
V1 connector (M8 x 1)

Function display
X LED
X2 2 LEDs (or dual-colour)

Voltage range
4 10…65 VDC ö
6 10…30 VDC ö
44 10…55 VDC ö

Output
N npn
P pnp
D 2-wire DC non-polarized

Function
A NO (normally open)
R NC (normally closed)
V complementary

M12. ---------- **.**

Housing styles
CK40 style CK40 (65 x 40 x 40 mm)
CP40 style CP40 (114 x 40 x 40 mm)
K90 style K90 (Ø 90 mm)
TS12 style TS12
(for mounting on tubes with retaining straps)
EG stainless steel barrel, fully threaded
EH stainless steel barrel, smooth
EM stainless steel barrel, partly threaded
M chrome-plated brass barrel, partly threaded
MT teflon-coated brass barrel, partly threaded
Q rectangular housing

Additional information on housing
E long version
SR terminal chamber with straight or angled cable exits
WD for wash-down applications, resistant against aggressive cleaning agents
TC terminal chamber

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uprox®

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Industrial Automation

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THE COMPANY

TURCK is one of the leading companies in the field of industrial automation. The family enterprise with more than 2600 employees in 25 countries and representations in further 60 states, achieves a turnover of nearly 330 million euros. Over 40 years TURCK has set benchmarks time and again with superior products and tailor-made solutions for factory and process automation. The international orientation started already in 1975 with the foundation of TURCK Inc. in Minneapolis, USA.

With production sites in Germany, Switzerland, USA, Mexico and China, today TURCK has succeeded in adapting to the conditions of local markets. Despite international orientation, the company's core competence and the main production sites equipped with the latest machinery, will remain in Germany.

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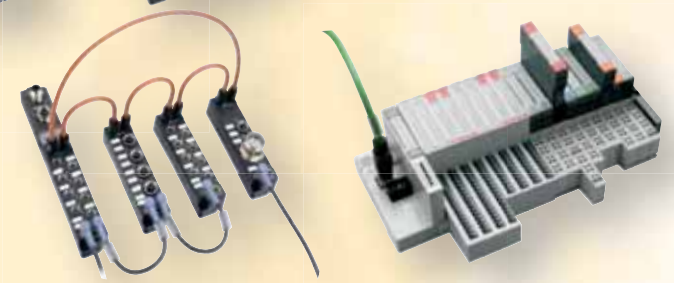


THE PROGRAM

With more than 13000 products covering the areas sensor, fieldbus, interface and connection technology, TURCK offers the full range of solutions for factory and process automation. Examples for the outstanding innovation skills of the company are the inductive *uprox*®+ factor1 sensor, the modular I/O system BL67, *excom*® and the compact remote I/O system for application in explosion-hazardous areas. Whether for machine & system engineering, automotive, transport & handling, food & beverage or the chemical and pharmaceutical industries, TURCK products optimise the system availability with robust and reliable technologies. Due to effective standardissation, the smart solutions also contribute to cost savings in purchase, inventory management, installation and maintenance.

Technical features

Maximum operating distance

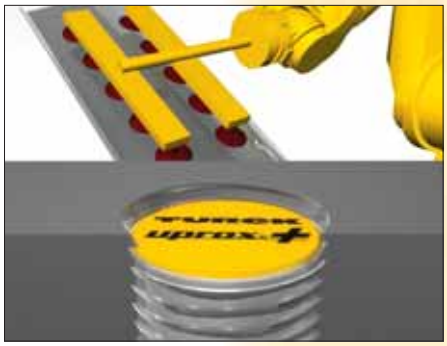
Owing to their novel patented coil technology, uprox+ sensors feature a switching distance that is up to 250 % higher than that of conventional inductive sensors with a ferrite core. This means that the sensor is superior to any standard sensor of the same size. Make use of this outstanding performance to optimise your applications!

Factor 1

The innovative uprox+ sensors set a new benchmark in metal detection. They are capable of detecting materials such as iron, stainless steel, copper, aluminium and brass at the same high distance and with the highest precision.

Partial embedding of non-flush sensors

Unique mounting flexibility of uprox+ sensors is achieved with embedded pre-damping protection. In contrast to conventional sensors with ferrite core, free zones can be much smaller. Non-flush threaded barrel sensors can be mounted up to the edge of the thread with reduced switching distance.



Non-flush mounting of flush sensors

The new uprox+ sensors only require small free zones for installation. Recessed mounting by half a thread turn provides even more mechanical protection - for absolute safety in all fitting positions!

A high degree of protection

- **IP68 including IP67:**
  – 24 hrs. continuous storage at +70 °C
  – 24 hrs. continuous storage -25 °C
  – 7 days submersion at a depth of 1 m
  – 10 temperature shock cycles
  from +70 °C to -25 °C,
  Dwell cylce per temperature: 1 hour
- **IP69K:** suited for high pressure steam jet cleaning to DIN 40050-9 following EN 60529

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Excellent EMC immunity

The uprox+ sensors comply with the strict requirements of the currently valid product norm EN 60947-5-2 for proximity sensors. Even the high requirements of the norm EN 61000-4-6 (conducted interference) are easily fulfilled by the uprox+ sensors.

High magnetic field immunity

uprox+ sensors do not incorporate a ferrite core and are thus not susceptible to strong magnetic fields which occur, for example, in electric welding processes or near lifts or electrical furnaces.

Sensor sealing

A special double-lip seal of the individual housing components in the front cap area and at the connector insert prevents the ingress of liquids even during high pressure cleaning procedures. As a result, uprox+ sensors even exceed the requirements of protection degree IP68 and IP69K by far!

Resistance

The materials of the WD series used for the threaded barrel (V4A; 1.4404; 316L) and the front cap (LCP Vectra 140) are resistant to all common acid and alkaline detergents and disinfectants. Consequently, damages through aggressive cleansers are avoided.

With the development of the new uprox+ sensors, TURCK impressively demonstrates its innovation skills. The proven performance spectrum of our uprox+ sensors has been consistently optimised to meet increasing customer requirements. Why not profit from the unique plus points of the new sensor generation?

Process optimization with ...

... efficient standardisation

- Only a few sensor variants needed to cover the entire range of applications
- Low average prices due to the eliminated need for special devices and many sensor versions
- Reduced training requirements based on a lean product program

... a maximum degree of freedom

- A multitude of solutions provided by a minimum number of sensor types
- A high degree of freedom in construction
  - ➔ Avoidance of construction faults
  - ➔ Avoidance of unnecessary conflicts between mechanical and electrical construction
- Simple mounting by eliminating the need for additional mounting accessories

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... extremely service-friendly

- Simple adjustment due to the highest operating distance
- A maximum degree of freedom in set-up based on the reliable sensor performance, regardless of the mounting mode, e.g., partial flush mounting, partial embedding or recessed sensor mounting
- Minimum maintenance due to an intelligently streamlined variety of types

... high system availability

- Less mechanical damage and increased safety due to protective recessed mounting options.
- Less damage during the cleaning process due to the prevention of the ingress of cleaning liquids based on a novel double sealing system between front cap, threaded barrel and connector insert. As a result, the system‘s fail-safety is enhanced.
- Prevention of down-times due to the excellent resistance of the sensor materials against acid and alkaline cleaning agents and disinfectants
- Shorter down-times based on the high availability of spare parts at lower costs
- High interference immunity due to a high level of EMC
- Material suitability for the food industry certified by an independent test laboratory (Henkel Ecolab)

Overview - Housing styles

EG08

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EH6,5

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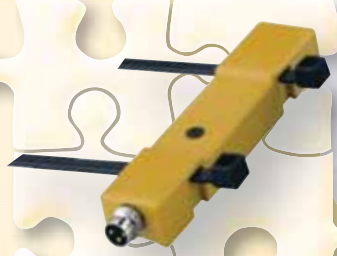
TS12



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Cylindrical housing versions are available with the following max. switching distances:

- **Housing style EH6,5**
  - a 2 mm
  - b 6 mm
- **Housing style EG08**
  - a 2 mm
  - b 6 mm
- **Housing style M12**
  - a 4 mm
  - b 10 mm
- **Housing style M18**
  - a 8 mm
  - b 15 mm
- **Housing style M30**
  - a 10 mm
  - b 30 mm

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Rectangular housing versions are available with the following max. switching distances:

- **Housing style Q08**
  - a 8 mm
- **Housing style Q8SE**
  - b 4 mm
- **Housing style Q12**
  - a 5 mm
- **Housing style CK40/CP40**
  - a 30 mm
  - b 50 mm
- **Housing style QV40**
  - a 20 mm
  - b 50 mm
- **Housing style Q40**
  - b 22 mm
- **Housing style Q80**
  - a 50 mm
  - b 70 mm
- **Housing style K90SR**
  - b 100 mm
- **Housing style TS12**
  - b 20 mm

Standard program rectangular housings

Housing Q8SE
S_r = 3,5 mm

Operating distance:
one-side
flush mounting

Housing Q8SE
S_r = 3,0 mm

Operating distance:
based on metal and
two-side flush mounting

Housing Q8SE
S_r = 2,5 mm

Operating distance:
based on metal and
two-side
flush mounting

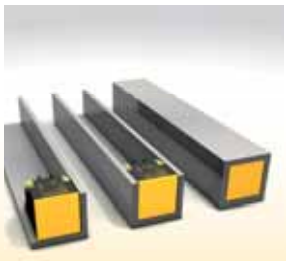
Housing Q8SE
S_r = 2,0 mm

Operating distance:
based on metal and
three-side flush mounting

Inductive sensors are designed for wear-free and non-contact detection of metal targets. uprox+ sensors have significant advantages due to their patented multicoil system. Maximum operating distances, maximum flexibility, highest operational safety and efficient standardisation are convincing arguments.

Rectangular uprox+ sensors provide a multitude of mounting options. All variable non-flush rectangular uprox+ sensors permit full embedding in combination with a reduced operating distance.

Additional mounting aids or mechanical fixtures are superfluous, thus making installation easier, faster and less cost-intensive.



Partial embedding of non-flush sensors

Non-flush uprox+ sensors provide unique flexibility due to the integrated pre-damping protection. The metal-free mounting zones can be significantly reduced compared to conventional sensors with a ferrite core. Depending on the sensor type, up to 4-side embedding in metal is admissible in combination with a reduced switching distance.

Maximum operating distance

Owing to their novel patented coil technology, uprox+ sensors feature a switching distance that is up to 250 % higher than that of conventional inductive sensors with a ferrite core. This means that the sensor is superior to any standard sensor of the same size. Make use of this outstanding performance to optimise your applications!

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Q8SE

Dimensions [mm]	mounting mode/ Operational distance S_n [mm]	Output	Type designation	Ident no.	Connection
40 x 8 x 8	b , 4 *	© , PNP	NI4U-Q8SE-AP6X-V1131	4635808 ✘	Connector M8 x 1
40 x 8 x 8	b , 4 *	¨ , PNP	NI4U-Q8SE-RP6X-V1131	4635820 ✘	Connector M8 x 1
40 x 8 x 8	b , 4 *	© , NPN	NI4U-Q8SE-AN6X-V1131	4635810	Connector M8 x 1
40 x 8 x 8	b , 4 *	© , PNP	NI4U-Q8SE-AP6X-0,3-PSG3M	4635833 ✘	PUR cable 0,3 m/Connector M8 x 1
40 x 8 x 8	b , 4 *	¨ , PNP	NI4U-Q8SE-RP6X-0,3-PSG3M	4635823	PUR cable 0,3 m/Connector M8 x 1
40 x 8 x 8	b , 4 *	© , PNP	NI4U-Q8SE-AP6X	4635807 ✘	PUR cable 2 m
40 x 8 x 8	b , 4 *	¨ , PNP	NI4U-Q8SE-RP6X	4635821	PUR cable 2 m
40 x 8 x 8	b , 4 *	© , NPN	NI4U-Q8SE-AN6X	4635809 ✘	PUR cable 2 m

Q08

32 x 20 x 8	a , 8	© , PNP	BI8U-Q08-AP6X2-V1131	1662005 ✘	Connector Ø8
32 x 20 x 8	a , 8	© , NPN	BI8U-Q08-AN6X2-V1131	1662008	Connector Ø8
32 x 20 x 8	a , 8	© , PNP	BI8U-Q08-AP6X2	1662006 ✘	PUR cable 2 m
32 x 20 x 8	a , 8	¨ , PNP	BI8U-Q08-RP6X2	1662012	PUR cable 2 m
32 x 20 x 8	a , 8	© , NPN	BI8U-Q08-AN6X2	1662007 ✘	PUR cable 2 m

Q12

40 x 26 x 12	a , 5	© , NPN	BI5U-Q12-AN6X2-V1131	1635525 ✘	Connector M8 x 1
40 x 26 x 12	a , 5	© , PNP	BI5U-Q12-AP6X2-V1131	1635524 ✘	Connector M8 x 1
40 x 26 x 12	a , 5	© , PNP	BI5U-Q12-AP6X2-V1131/F2	1635528 ✘	Connector M8 x 1
40 x 26 x 12	a , 5	© , PNP	BI5U-Q12-AP6X2-H1141	1635526 ✘	Connector M12 x 1
40 x 26 x 12	a , 5	© , NPN	BI5U-Q12-AN6X2-H1141	1635527 ✘	Connector M12 x 1
40 x 26 x 12	a , 5	© , PNP	BI5U-Q12-AP6X2	1635522 ✘	PUR cable 2 m
40 x 26 x 12	a , 5	ª , PNP	BI5U-Q12-VP6X2	1635533	PUR cable 2 m
40 x 26 x 12	a , 5	© , NPN	BI5U-Q12-AN6X2	1635523 ✘	PUR cable 2 m

K90SR

130 x 75 x 60	b , 100 **	ª , PNP	NI100U-K90SR-VP4X2-H1141	1625844 ✘	Connector M12 x 1
130 x 75 x 60	b , 100 **	ª , NPN	NI100U-K90SR-VN4X2-H1141	1515510	Connector M12 x 1
130 x 75 x 60	b , 100 **	ª , PNP	NI100U-K90SR-VP4X2	1625834 ✘	Terminal chamber
130 x 75 x 60	b , 100 **	ª , NPN	NI100U-K90SR-VN4X2	1515503 ✘	Terminal chamber

✘ = preferred solution

* flush mounting permitted in combination with a reduced operating distance
** 1-side flush mounting permitted in combination with a reduced operating distance

Further technical information on the individual sensors from page 40 on

Factor 1

The innovative uprox+ sensors set a new benchmark in metal detection. They are capable of detecting materials such as iron, stainless steel, copper, aluminium and brass at the same high distance and with the highest precision.

High magnetic field immunity

uprox+ sensors do not incorporate a ferrite core and are thus not susceptible to strong magnetic fields which occur, for example, in electric welding processes or near lifts or electrical furnaces.

Standard program rectangular housings

Due to the integrated pre-damping protection, the non-flush uprox+ sensors offer unique flexibility. Compared to conventional sensors with a ferrite core, the metal-free mounting zones can be significantly reduced. Depending on the sensor style, up to 4-side embedding in metal is permitted in combination with a reduced operating distance:

Housing Ni50U-CK40/ CP40/QV40 S_r = 35 mm

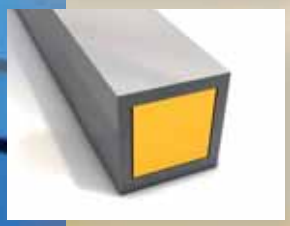
Operating distance: one-side on metal

Housing Ni50U-CK40/ CP40/QV40 S_r = 25 mm

Operating distance: two-side embedding

Housing Ni50U-CK40/ CP40/QV40 S_r = 20 mm

Operating distance: three-side embedding

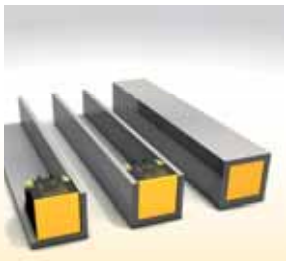


Housing Ni50U-CK40/ CP40/QV40 S_r = 17 mm

Operating distance: fully embedded

Additional mounting aids or mechanical fixtures are superfluous, thus making installation easier, faster and less cost-intensive.

Partial embedding of non-flush sensors



Non-flush uprox+ sensors provide unique flexibility due to the integrated pre-damping protection. The metal-free mounting zones can be significantly reduced compared to conventional sensors with a ferrite core. Depending on the sensor type, up to 4-side embedding in metal is admissible in combination with a reduced switching distance.

Maximum operating distance

Owing to their novel patented coil technology, uprox+ sensors feature a switching distance that is up to 250 % higher than that of conventional inductive sensors with a ferrite core. This means that the sensor is superior to any standard sensor of the same size. Make use of this outstanding performance to optimise your applications!

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CK40

Dimensions [mm]	mounting mode/ operational distance S_n [mm]	Output	Type designation	Ident no.	Connection
65 x 40 x 40	a , 30	© , PNP	BI30U-CK40-AP6X2-H1141	1625829 ✘	Connector M12 x 1
65 x 40 x 40	a , 30	© , NPN	BI30U-CK40-AN6X2-H1141	1625820	Connector M12 x 1
65 x 40 x 40	a , 20	© , PNP	BI20U-CK40-AP6X2-H1141	1627233 ✘	Connector M12 x 1
65 x 40 x 40	a , 20	ª , PNP	BI20U-CK40-VP4X2-H1141	1627216 ✘	Connector M12 x 1
65 x 40 x 40	a , 20	© , NPN	BI20U-CK40-AN6X2-H1141	1627231	Connector M12 x 1
65 x 40 x 40	a , 20	ª , NPN	BI20U-CK40-VN4X2-H1141	1568814	Connector M12 x 1
65 x 40 x 40	b , 50 *	© , PNP	NI50U-CK40-AP6X2-H1141	1625837 ✘	Connector M12 x 1
65 x 40 x 40	b , 50 *	ª , PNP	NI50U-CK40-VP4X2-H1141	1538302 ✘	Connector M12 x 1
65 x 40 x 40	b , 50 *	© , NPN	NI50U-CK40-AN6X2-H1141	1625823 ✘	Connector M12 x 1
65 x 40 x 40	b , 50 *	ª , NPN	NI50U-CK40-VN4X2-H1141	1625806	Connector M12 x 1

CP40

114 x 40 x 40	a , 30	© , PNP	BI30U-CP40-AP6X2	1625830 ✘	Terminal chamber
114 x 40 x 40	a , 30	ª , PNP	BI30U-CP40-VP4X2	1625851	Terminal chamber
114 x 40 x 40	a , 30	© , NPN	BI30U-CP40-AN6X2	1625102	Terminal chamber
114 x 40 x 40	a , 20	© , PNP	BI20U-CP40-AP6X2	1627232 ✘	Terminal chamber
114 x 40 x 40	a , 20	ª , PNP	BI20U-CP40-VP4X2	1627240 ✘	Terminal chamber
114 x 40 x 40	a , 20	© , NPN	BI20U-CP40-AN6X2	1627230	Terminal chamber
114 x 40 x 40	a , 20	ª , NPN	BI20U-CP40-VN4X2	1627237	Terminal chamber
114 x 40 x 40	b , 50 *	© , PNP	NI50U-CP40-AP6X2	1625831 ✘	Terminal chamber
114 x 40 x 40	b , 50 *	ª , PNP	NI50U-CP40-VP4X2	1538303 ✘	Terminal chamber
114 x 40 x 40	b , 50 *	© , NPN	NI50U-CP40-AN6X2	1625846 ✘	Terminal chamber
114 x 40 x 40	b , 50 *	ª , NPN	NI50U-CP40-VN4X2	1625847	Terminal chamber

Q80

92 x 80 x 40	a , 50	© , PNP	BI50U-Q80-AP6X2-H1141	1608940 ✘	Connector M12 x 1
92 x 80 x 40	a , 50	ª , PNP	BI50U-Q80-VP4X2-H1141	1562000 ✘	Connector M12 x 1
92 x 80 x 40	a , 50	© , NPN	BI50U-Q80-AN6X2-H1141	1608944	Connector M12 x 1
92 x 80 x 40	a , 50	ª , NPN	BI50U-Q80-VN4X2-H1141	1562001	Connector M12 x 1
92 x 80 x 40	b , 70 **	© , PNP	NI70U-Q80-AP6X2-H1141	1625832 ✘	Connector M12 x 1
92 x 80 x 40	b , 70 **	ª , PNP	NI70U-Q80-VP4X2-H1141	1625833 ✘	Connector M12 x 1
92 x 80 x 40	b , 70 **	© , NPN	NI70U-Q80-AN6X2-H1141	1625848	Connector M12 x 1
92 x 80 x 40	b , 70 **	ª , NPN	NI70U-Q80-VN4X2-H1141	1625821	Connector M12 x 1

* flush mounting permitted in combination with a reduced operating distance
** 1-side flush mounting permitted in combination with a reduced operating distance

✘ = preferred solution

Further technical information on the individual sensors from page 46 on

Factor 1

The innovative uprox+ sensors set a new benchmark in metal detection. They are capable of detecting materials such as iron, stainless steel, copper, aluminium and brass at the same high distance and with the highest precision.

High magnetic field immunity

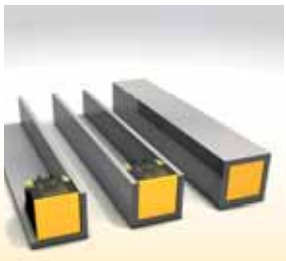
uprox+ sensors do not incorporate a ferrite core and are thus not susceptible to strong magnetic fields which occur, for example, in electric welding processes or near lifts or electrical furnaces.

Rectangular housing QV40 for quick mounting

The innovative 40 mm housing of the QV40 opens up new possibilities for quick and tool-free mounting. The QV40 can be snapped in and removed from the retainer with a simple “click” by using only one hand. Rotation of the active face in 5 directions without tools is also possible. Despite the flexibility, the robust QV40 which comes in protection degree IP68 remains firm in its work position.

The new member of the *uprox*®+ family is furthermore equipped with all advantages of the Factor 1 sensor family. Highest switching distance and Factor 1, high magnetic field immunity and excellent EMC immunity and not forgetting the mounting in free zones. These are only some advantages of the sensor.
The non-flush version of the QV40 has a switching distance of 50 mm and even partial embedding is possible, thanks to the integrated pre-damping protection. Especially for applications with a dense sensor network like conveyor lines for example, the QV40 guarantees considerable time and cost savings with respect to mounting and maintenance.

Partial embedding of non-flush sensors



Non-flush uprox+ sensors provide unique flexibility due to the integrated pre-damping protection. The metal-free mounting zones can be significantly reduced compared to conventional sensors with a ferrite core. Depending on the sensor type, up to 4-side embedding in metal is admissible in combination with a reduced switching distance.

Maximum operating distance

Owing to their novel patented coil technology, uprox+ sensors feature a switching distance that is up to 250 % higher than that of conventional inductive sensors with a ferrite core. This means that the sensor is superior to any standard sensor of the same size. Make use of this outstanding performance to optimise your applications!

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QV40

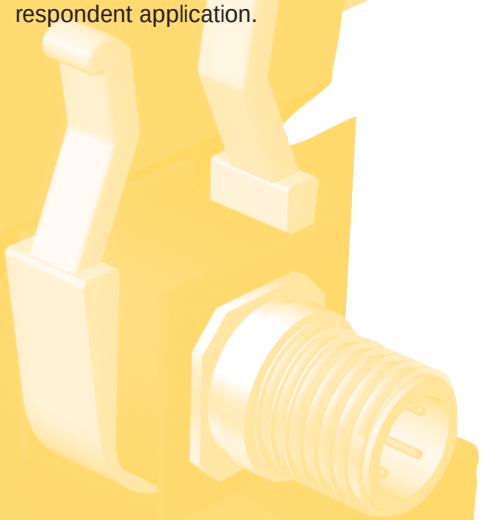
Dimensions [mm]	mounting mode/ Operational distance S_n [mm]	Output	Type designation	Ident no.	Connection
65 x 40 x 40	a , 20	© , PNP	BI20U-QV40-AP6X2-H1141	1627245 ✘	Connector M12 x 1
65 x 40 x 40	b , 50 *	© , PNP	NI50U-QV40-AP6X2-H1141	1625853 ✘	Connector M12 x 1

* flush mounting permitted in combination with a reduced operating distance

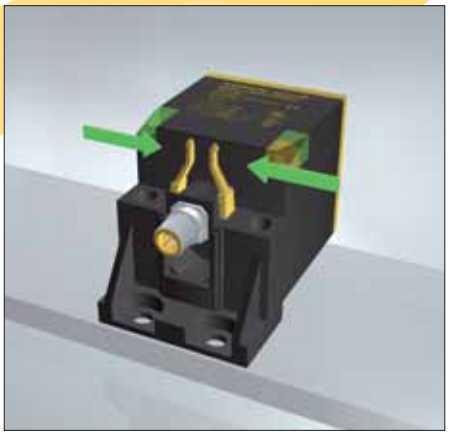
✘ = preferred solution

Further technical information on the individual sensors from page 46 on

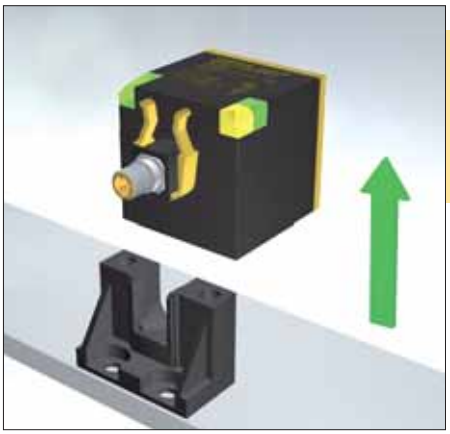
Long term planning as well as storage of different sensor models and mounting accessories are no longer necessary. Flexible mounting possibilities of the QV40 enable individual alignment of each sensor according to the requirements of the correspondent application.



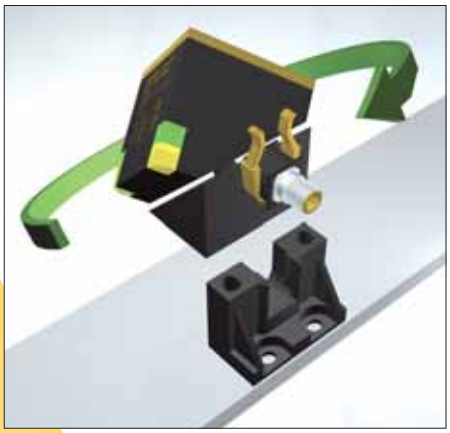
The sensor can be aligned very simple in 5 directions without tools:



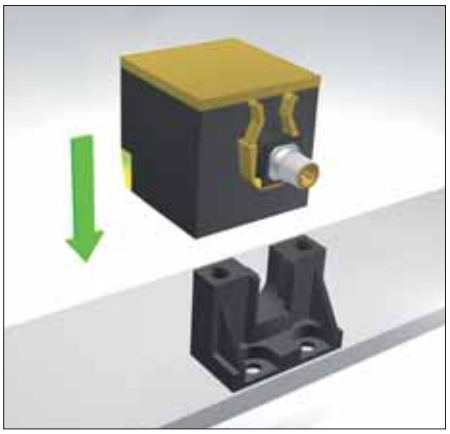
1. A light squeeze of the bracket is enough to release the sensor from the fixing clamp.



2. The sensor can now be removed from the Fixing clamp ...



3. ... and easy aligned by simply twisting the active face



4. Once the sensor is in final position it is simply snapped in the Fixing clamp.

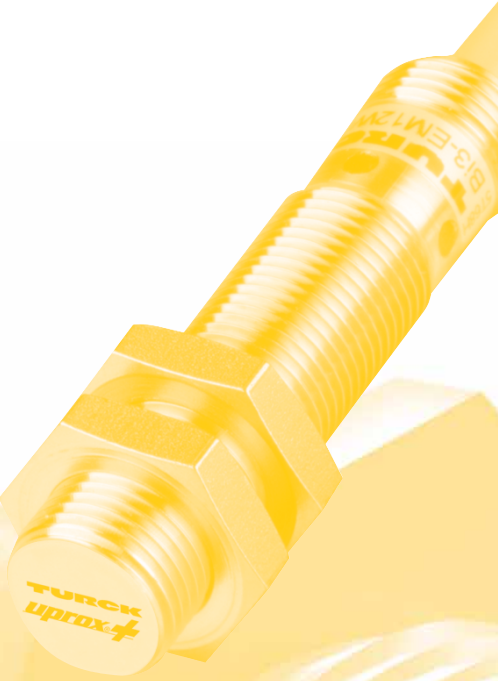
Factor 1

The innovative uprox+ sensors set a new benchmark in metal detection. They are capable of detecting materials such as iron, stainless steel, copper, aluminium and brass at the same high distance and with the highest precision.

High magnetic field immunity

uprox+ sensors do not incorporate a ferrite core and are thus not susceptible to strong magnetic fields which occur, for example, in electric welding processes or near lifts or electrical furnaces.

Standard program cylindrical housings



Like all inductive proximity switches, uprox+ sensors are suited for non-contact and wear-free detection of metals.

All sensors of the uprox+ series owe many new features to their novel multicoil system, providing them with distinct advantages over conventional inductive sensor constructions.
The standard sensors in Ø 6,5 mm, M8 x 1, M12 x 1, M18 x 1 and M30 x 1,5 chrome-plated barrels excel in maximum operating distances, eliminated reduction factors, high magnetic-field immunity, excellent EMC properties and versatile mounting modes.

Non-flush mounting of flush sensors

The new uprox+ sensors only require small free zones for installation. Recessed mounting by half a thread turn provides even more mechanical protection - for absolute safety in all fitting positions!

Partial embedding of non-flush sensors

Unique mounting flexibility of uprox+ sensors is achieved with embedded pre-damping protection. In contrast to conventional sensors with ferrite core, free zones can be much smaller. Non-flush threaded barrel sensors can be mounted up to the edge of the thread with reduced switching distance.

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Ø 6,5

M8 x 1

Housing lenght [mm]	mounting mode/ Operational distance S_n [mm]	Output	Type designation	Ident no.	Connection
49	a , 2 *	© , PNP	BI2U-EH6,5-AP6X-V1131	4281160 ✘	Connector M8 x 1
49	a , 2 *	¨ , PNP	BI2U-EH6,5-RP6X-V1131	1637151	Connector M8 x 1
49	a , 2 *	© , NPN	BI2U-EH6,5-AN6X-V1131	4281180	Connector M8 x 1
42	a , 2 *	© , PNP	BI2U-EH6,5-AP6X-0,3-PSG3M	4281161	PUR cable 0,3 m/ Connector M8 x 1
42	a , 2 *	© , PNP	BI2U-EH6,5-AP6X	4281150 ✘	PUR cable 2 m
42	a , 2 *	¨ , PNP	BI2U-EH6,5-RP6X	4281151	PUR cable 2 m
42	a , 2 *	© , NPN	BI2U-EH6,5-AN6X	4281170	PUR cable 2 m
49	b , 6 **	© , PNP	NI6U-EH6,5-AP6X-V1131	4631510 ✘	Connector M8 x 1
49	b , 6 **	¨ , PNP	NI6U-EH6,5-RP6X-V1131	4635832	Connector M8 x 1
49	b , 6 **	© , NPN	NI6U-EH6,5-AN6X-V1131	4631530	Connector M8 x 1
42	b , 6 **	© , PNP	NI6U-EH6,5-AP6X	4631500 ✘	PUR cable 2 m
42	b , 6 **	© , NPN	NI6U-EH6,5-AN6X	4631520	PUR cable 2 m
49	a , 2 *	© , PNP	BI2U-EG08-AP6X-V1131	4602033 ✘	Connector M8 x 1
49	a , 2 *	¨ , PNP	BI2U-EG08-RP6X-V1131	4602091 ✘	Connector M8 x 1
49	a , 2 *	© , NPN	BI2U-EG08-AN6X-V1131	4602036	Connector M8 x 1
49	a , 2 *	¨ , NPN	BI2U-EG08-RN6X-V1131	1637152	Connector M8 x 1
42	a , 2 *	© , PNP	BI2U-EG08-AP6X-0,3-PSG3M	4602039	PUR cable 0,3 m/Connector M8 x 1
57	a , 2 *	© , PNP	BI2U-EG08-AP6X-H1341	4602034 ✘	Connector M12 x 1
57	a , 2 *	¨ , PNP	BI2U-EG08-RP6X-H1341	4602080 ✘	Connector M12 x 1
57	a , 2 *	© , NPN	BI2U-EG08-AN6X-H1341	4602037	Connector M12 x 1
42	a , 2 *	© , PNP	BI2U-EG08-AP6X	4602032 ✘	PUR cable 2 m
42	a , 2 *	© , NPN	BI2U-EG08-AN6X	4602035 ✘	PUR cable 2 m
49	b , 6 **	© , PNP	NI6U-EG08-AP6X-V1131	4635801 ✘	Connector M8 x 1
49	b , 6 **	¨ , PNP	NI6U-EG08-RP6X-V1131	4635831 ✘	Connector M8 x 1
49	b , 6 **	© , NPN	NI6U-EG08-AN6X-V1131	4635804	Connector M8 x 1
57	b , 6 **	© , PNP	NI6U-EG08-AP6X-H1341	4635802 ✘	Connector M12 x 1
57	b , 6 **	¨ , PNP	NI6U-EG08-RP6X-H1341	4635830 ✘	Connector M12 x 1
57	b , 6 **	© , NPN	NI6U-EG08-AN6X-H1341	4635805	Connector M12 x 1
42	b , 6 **	© , PNP	NI6U-EG08-AP6X	4635800 ✘	PUR cable 2 m
42	b , 6 **	© , NPN	NI6U-EG08-AN6X	4635803 ✘	PUR cable 2 m

* recessed mounting permitted

✘ = preferred solution

** embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance

Further technical information on the individual sensors from page 52 on

Excellent EMC immunity

The uprox+ sensors comply with the strict requirements of the currently valid product norm EN 60947-5-2 for proximity sensors. Even the high requirements of the norm EN 61000-4-6 (conducted interference) are easily fulfilled by the uprox+ sensors.

Factor 1

The innovative uprox+ sensors set a new benchmark in metal detection. They are capable of detecting materials such as iron, stainless steel, copper, aluminium and brass at the same high distance and with the highest precision.

Standard program cylindrical housings

M12 x 1

Housing lenght [mm]	mounting mode/ Operational distance S_n [mm]	Output	Type designation	Ident no.	Connection
52	a , 4 *	© , PNP	BI4U-M12-AP6X-V1131	1634780 ✘	Connector M8 x 1
52	a , 4 *	© , PNP	BI4U-EM12-AP6X-V1131	1634909	Connector M8 x 1
52	a , 4 *	© , NPN	BI4U-M12-AN6X-V1131	1635430	Connector M8 x 1
52	a , 4 *	© , PNP	BI4U-M12-AP6X-H1141	1634804 ✘	Connector M12 x 1
52	a , 4 *	© , PNP	BI4U-EM12-AP6X-H1141	1634807 ✘	Connector M12 x 1
52	a , 4 *	¨ , PNP	Bi4U-M12-RP6X-H1141	1634846 ✘	Connector M12 x 1
52	a , 4 *	© , NPN	BI4U-M12-AN6X-H1141	1634824 ✘	Connector M12 x 1
52	a , 4 *	© , NPN	BI4U-EM12-AN6X-H1141	1634827	Connector M12 x 1
62	a , 4 *	© , PNP	BI4U-M12E-AP6X-H1141	1634845 ✘	Connector M12 x 1
62	a , 4 *	ª , PNP	BI4U-M12E-VP44X-H1141	1634869 ✘	Connector M12 x 1
62	a , 4 *	© , NPN	BI4U-M12E-AN6X-H1141	1634863	Connector M12 x 1
62	a , 4 *	ª , NPN	BI4U-M12E-VN44X-H1141	1634873 ✘	Connector M12 x 1
80	a , 4 *	ª , PNP	BI4U-M12-VP44X-H1141 L80	1634918 ✘	Connector M12 x 1
100	a , 4 *	ª , PNP	BI4U-M12-VP44X-H1141 L100	1634917 ✘	Connector M12 x 1
54	a , 4 *	© , PNP	BI4U-M12-AP6X	1634803 ✘	PVC cable 2 m
54	a , 4 *	¨ , PNP	BI4U-M12-RP6X	1634866	PVC cable 2 m
54	a , 4 *	© , NPN	BI4U-M12-AN6X	1634823	PVC cable 2 m
64	a , 4 *	ª , PNP	BI4U-M12E-VP44X	1634868 ✘	PVC cable 2 m
64	a , 4 *	ª , NPN	BI4U-M12E-VN44X	1634872	PVC cable 2 m

M12 x 1

52	b , 10 **	© , PNP	NI10U-M12-AP6X-V1131	1634790 ✘	Connector M8 x 1
52	b , 10 **	© , NPN	NI10U-M12-AN6X-V1131	1634795	Connector M8 x 1
52	b , 10 **	© , PNP	NI10U-M12-AP6X-H1141	1634806 ✘	Connector M12 x 1
52	b , 10 **	© , PNP	NI10U-EM12-AP6X-H1141	1634808 ✘	Connector M12 x 1
52	b , 10 **	¨ , PNP	NI10U-M12-RP6X-H1141	1634848 ✘	Connector M12 x 1
52	b , 10 **	© , NPN	NI10U-M12-AN6X-H1141	1634826 ✘	Connector M12 x 1
52	b , 10 **	© , NPN	NI10U-EM12-AN6X-H1141	1634828	Connector M12 x 1
62	b , 10 **	© , PNP	NI10U-M12E-AP6X-H1141	1634901	Connector M12 x 1
62	b , 10 **	ª , PNP	NI10U-M12E-VP44X-H1141	1634871 ✘	Connector M12 x 1
62	b , 10 **	© , PNP	NI10U-M12E-AN6X-H1141	1634902	Connector M12 x 1
62	b , 10 **	ª , NPN	NI10U-M12E-VN44X-H1141	1634875 ✘	Connector M12 x 1
54	b , 10 **	© , PNP	NI10U-M12-AP6X	1634805 ✘	PVC cable 2 m
54	b , 10 **	¨ , PNP	NI10U-M12-RP6X	1634921	PVC cable 2 m
54	b , 10 **	© , NPN	NI10U-M12-AN6X	1634825 ✘	PVC cable 2 m
64	b , 10 **	ª , PNP	NI10U-M12E-VP44X	1634870 ✘	PVC cable 2 m
64	b , 10 **	ª , NPN	NI10U-M12E-VN44X	1634874	PVC cable 2 m

✘ = preferred solution

Non-flush mounting of flush sensors

The new uprox+ sensors only require small free zones for installation. Recessed mounting by half a thread turn provides even more mechanical protection - for absolute safety in all fitting positions!

Partial embedding of non-flush sensors

Unique mounting flexibility of uprox+ sensors is achieved with embedded pre-damping protection. In contrast to conventional sensors with ferrite core, free zones can be much smaller. Non-flush threaded barrel sensors can be mounted up to the edge of the thread with reduced switching distance.

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M18 x 1

Housing lenght [mm]	mounting mode/ Operational distance S_n [mm]	Output	Type designation	Ident no.	Connection
52	a , 8 *	© , PNP	BI8U-M18-AP6X-H1141	1644731 ✘	Connector M12 x 1
52	a , 8 *	© , PNP	BI8U-EM18-AP6X-H1141	1644734 ✘	Connector M12 x 1
52	a , 8 *	¨ , PNP	BI8U-M18-RP6X-H1141	1644750 ✘	Connector M12 x 1
52	a , 8 *	© , NPN	BI8U-M18-AN6X-H1141	1644737 ✘	Connector M12 x 1
52	a , 8 *	© , NPN	BI8U-EM18-AN6X-H1141	1644738	Connector M12 x 1
62	a , 8 *	ª , PNP	BI8U-M18M-VP44X-H1141	1634877 ✘	Connector M12 x 1
62	a , 8 *	ª , NPN	BI8U-M18M-VN44X-H1141	1634881 ✘	Connector M12 x 1
72	a , 8 *	© , PNP	BI8U-M18E-AP6X-H1141	1644735 ✘	Connector M12 x 1
72	a , 8 *	© , NPN	BI8U-M18E-AN6X-H1141	1644751	Connector M12 x 1
52	a , 8 *	© , PNP	BI8U-EM18E-AP6X-H1141	1634865	Connector M12 x 1
54	a , 8 *	© , PNP	BI8U-M18-AP6X	1644733 ✘	PVC cable 2 m
54	a , 8 *	© , NPN	BI8U-M18-AN6X	1644736	PVC cable 2 m
64	a , 8 *	ª , PNP	BI8U-M18M-VP44X	1634876 ✘	PVC cable 2 m
64	a , 8 *	ª , NPN	BI8U-M18M-VN44X	1634880	PVC cable 2 m
64	a , 8 *	© , PNP	BI8U-M18E-AP6X	1644732	PVC cable 2 m
64	a , 8 *	ª , PNP	BI8U-M18E-VP44X	1634915	PVC cable 2 m

M18 x 1

52	b , 15 **	© , PNP	NI15U-M18-AP6X-H1141	1635331 ✘	Connector M12 x 1
52	b , 15 **	© , PNP	NI15U-EM18-AP6X-H1141	1635332 ✘	Connector M12 x 1
52	b , 15 **	¨ , PNP	NI15U-M18-RP6X-H1141	1635450 ✘	Connector M12 x 1
52	b , 15 **	© , NPN	NI15U-M18-AN6X-H1141	1635335 ✘	Connector M12 x 1
52	b , 15 **	© , NPN	NI15U-EM18-AN6X-H1141	1635336	Connector M12 x 1
62	b , 15 **	ª , PNP	NI15U-M18M-VP44X-H1141	1634879 ✘	Connector M12 x 1
62	b , 15 **	ª , NPN	NI15U-M18M-VN44X-H1141	1634883 ✘	Connector M12 x 1
72	b , 15 **	© , PNP	NI15U-M18E-AP6X-H1141	1635352	Connector M12 x 1
72	b , 15 **	© , PNP	NI15U-EM18E-AP6X-H1141	1635372	Connector M12 x 1
72	b , 15 **	© , NPN	NI15U-M18E-AN6X-H1141	1635353	Connector M12 x 1
54	b , 15 **	© , PNP	NI15U-M18-AP6X	1635330 ✘	PVC cable 2 m
54	b , 15 **	© , NPN	NI15U-M18-AN6X	1635334	PVC cable 2 m
64	b , 15 **	ª , PNP	NI15U-M18M-VP44X	1634878 ✘	PVC cable 2 m
64	b , 15 **	ª , NPN	NI15U-M18M-VN44X	1634882	PVC cable 2 m

* recessed mounting permitted

✘ = preferred solution

** embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance

Further technical information on the individual sensors from page 60 on

Excellent EMC immunity

The uprox+ sensors comply with the strict requirements of the currently valid product norm EN 60947-5-2 for proximity sensors. Even the high requirements of the norm EN 61000-4-6 (conducted interference) are easily fulfilled by the uprox+ sensors.

Factor 1

The innovative uprox+ sensors set a new benchmark in metal detection. They are capable of detecting materials such as iron, stainless steel, copper, aluminium and brass at the same high distance and with the highest precision.

Standard program cylindrical housings

M30 x 1,5

Housing lenght [mm]	mounting mode/ Operational distance S_n [mm]	Output	Type designation	Ident no.	Connection
62	a , 15 *	© , PNP	BI15U-M30-AP6X-H1141	1636732 ✘	Connector M12 x 1
62	a , 15 *	© , PNP	BI15U-EM30-AP6X-H1141	1636733 ✘	Connector M12 x 1
62	a , 15 *	¨ , PNP	Bi15U-M30-RP6X-H1141	1636739 ✘	Connector M12 x 1
62	a , 15 *	ª , PNP	BI15U-M30-VP44X-H1141	1634885 ✘	Connector M12 x 1
62	a , 15 *	© , NPN	BI15U-M30-AN6X-H1141	1636736 ✘	Connector M12 x 1
62	a , 15 *	ª , NPN	BI15U-M30-VN44X-H1141	1634889 ✘	Connector M12 x 1
77	a , 15 *	© , PNP	BI15U-M30E-AP6X-H1141	1636742	Connector M12 x 1
64	a , 15 *	© , PNP	BI15U-M30-AP6X	1636731 ✘	PVC cable 2 m
64	a , 15 *	© , PNP	BI15U-EM30-AP6X	1636741	PVC cable 2 m
64	a , 15 *	ª , PNP	BI15U-M30-VP44X	1634884 ✘	PVC cable 2 m
64	a , 15 *	© , NPN	BI15U-M30-AN6X	1636735	PVC cable 2 m
64	a , 15 *	ª , NPN	BI15U-M30-VN44X	1634888	PVC cable 2 m

M30 x 1,5

62	b , 30 **	© , PNP	NI30U-M30-AP6X-H1141	1646631 ✘	Connector M12 x 1
62	b , 30 **	© , PNP	NI30U-EM30-AP6X-H1141	1646632 ✘	Connector M12 x 1
62	b , 30 **	¨ , PNP	NI30U-M30-RP6X-H1141	1646636 ✘	Connector M12 x 1
62	b , 30 **	ª , PNP	NI30U-M30-VP44X-H1141	1634887 ✘	Connector M12 x 1
62	b , 30 **	© , NPN	NI30U-M30-AN6X-H1141	1644635 ✘	Connector M12 x 1
62	b , 30 **	© , NPN	NI30U-EM30-AN6X-H1141	1644636	Connector M12 x 1
62	b , 30 **	ª , NPN	NI30U-M30-VN44X-H1141	1634891 ✘	Connector M12 x 1
77	b , 30 **	© , PNP	NI30U-M30E-AP6X-H1141	1644756	Connector M12 x 1
64	b , 30 **	© , PNP	NI30U-M30-AP6X	1646630 ✘	PVC cable 2 m
64	b , 30 **	¨ , PNP	NI30U-M30-RP6X	1646634	PVC cable 2 m
64	b , 30 **	ª , PNP	NI30U-M30-VP44X	1634886 ✘	PVC cable 2 m
64	b , 30 **	© , NPN	NI30U-M30-AN6X	1644634	PVC cable 2 m
64	b , 30 **	ª , NPN	NI30U-M30-VN44X	1634890	PVC cable 2 m

* flush mounting permitted in combination with a reduced operating distance

** 1-side flush mounting permitted in combination with a reduced operating distance

✘ = preferred solution

Further technical information on the individual sensors from page 90 on

Non-flush mounting of flush sensors

The new uprox+ sensors only require small free zones for installation. Recessed mounting by half a thread turn provides even more mechanical protection - for absolute safety in all fitting positions!

Partial embedding of non-flush sensors

Unique mounting flexibility of uprox+ sensors is achieved with embedded pre-damping protection. In contrast to conventional sensors with ferrite core, free zones can be much smaller. Non-flush threaded barrel sensors can be mounted up to the edge of the thread with reduced switching distance.

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The cylindrical uprox+ sensors come in Ø 6,5 mm, M8 x 1, M12 x 1, M18 x 1 and M30 x 1,5 housings. The flush sensors of this series are, of course, fully embeddable in contrast to so-called „semi-flush“ sensor types. They allow recessed mounting of half a turn of the thread - for additional mechanical protection and absolute safety under all mounting conditions.
The non-flush uprox+ types with integrated pre-damping protection provide just as flexible mounting options:

- **Very small metal-free zones**
- **Embedding up to the upper edge of the thread**
- **Automatic compensation of pre-damping effects**

Excellent EMC immunity

The uprox+ sensors comply with the strict requirements of the currently valid product norm EN 60947-5-2 for proximity sensors. Even the high requirements of the norm EN 61000-4-6 (conducted interference) are easily fulfilled by the uprox+ sensors.

Factor 1

The innovative uprox+ sensors set a new benchmark in metal detection. They are capable of detecting materials such as iron, stainless steel, copper, aluminium and brass at the same high distance and with the highest precision.

Teflon-coated sensors for the automotive industry

The new generation of inductive sensors is inherently immune to interference caused by strong magnetic-fields, which occur, for instance, in electric welding processes and under many other environmental conditions (e. g. near lifts, electric furnaces etc.).

The printed coil is fully protected against the magnetic fields occurring in welding systems. Selection of the right kind of housing naturally also plays an essential role.

To ensure long-life characteristics, our uprox+ devices are composed of a brass barrel with TF80i teflon coating.

The teflon-coated versions are the perfect choice for the hostile conditions of the automotive industry. They provide protection against weld-splatter and drillings and thus resist extreme mechanical strain.

These sensors are approved for use in almost all automotive plants.
Upgrade your systems with the teflon-coated series for the automotive industry!

High magnetic field immunity

uprox+ sensors do not incorporate a ferrite core and are thus not susceptible to strong magnetic fields which occur, for example, in electric welding processes or near lifts or electrical furnaces.

Factor 1

Owing to their novel patented coil technology, uprox+ sensors feature a switching distance that is up to 250 % higher than that of conventional inductive sensors with a ferrite core. This means that the sensor is superior to any standard sensor of the same size. Make use of this outstanding performance to optimise your applications!

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Housing lenght [mm]	mounting mode/ Operational distance S_n [mm]	Output	Type designation	Ident no.	Connection
M8 x 1					
49	b , 2 *	© , PNP	BI2U-EGT08-AP6X-V1131	4602070 ✘	Connector M8 x 1
57	b , 2 *	© , PNP	BI2U-EGT08-AP6X-H1341	4602071 ✘	Connector M12 x 1
M12 x 1					
52	b , 4 *	© , PNP	BI4U-MT12-AP6X-H1141	1634809 ✘	Connector M12 x 1
52	b , 4 *	© , NPN	BI4U-MT12-AN6X-H1141	1634829	Connector M12 x 1
62	b , 4 *	© , PNP	BI4U-MT12E-AP6X-H1141	1644758 ✘	Connector M12 x 1
52	a , 10 **	© , PNP	NI10U-MT12-AP6X-H1141	1634810 ✘	Connector M12 x 1
52	a , 10 **	© , NPN	NI10U-MT12-AN6X-H1141	1634830	Connector M12 x 1
M18 x 1					
52	b , 8 *	© , PNP	BI8U-MT18-AP6X-H1141	1644730 ✘	Connector M12 x 1
52	b , 8 *	© , NPN	BI8U-MT18-AN6X-H1141	1644739	Connector M12 x 1
72	b , 8 *	© , PNP	BI8U-MT18E-AP6X-H1141	1644752	Connector M12 x 1
52	a , 15 **	© , PNP	NI15U-MT18-AP6X-H1141	1635333 ✘	Connector M12 x 1
52	a , 15 **	© , NPN	NI15U-MT18-AN6X-H1141	1635337	Connector M12 x 1
72	a , 15 **	© , PNP	Ni15U-MT18E-AP6X-H1141	1635339 ✘	Connector M12 x 1
M30 x 1,5					
62	b , 15 *	© , PNP	BI15U-MT30-AP6X-H1141	1636734 ✘	Connector M12 x 1
62	b , 15 *	© , NPN	BI15U-MT30-AN6X-H1141	1636738	Connector M12 x 1
62	a , 30 *	© , PNP	NI30U-MT30-AP6X-H1141	1646633 ✘	Connector M12 x 1
62	a , 30 *	© , NPN	NI30U-MT30-AN6X-H1141	1644637	Connector M12 x 1

* recessed mounting permitted ✘ = preferred solution
** embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance

Further technical information on the individual sensors from page 60 on

Maximum operating distance

Owing to their novel patented coil technology, uprox+ sensors feature a switching distance that is up to 250 % higher than that of conventional inductive sensors with a ferrite core. This means that the sensor is superior to any standard sensor of the same size. Make use of this outstanding performance to optimise your applications!

Excellent EMC immunity

The uprox+ sensors comply with the strict requirements of the currently valid product norm EN 60947-5-2 for proximity sensors. Even the high requirements of the norm EN 61000-4-6 (conducted interference) are easily fulfilled by the uprox+ sensors.

Sensors with 2-wire connection

The revolutionary sensor family uprox+ is consequently extended by a 2-wire DC series. The new sensors contribute to the unique performance spectrum of the uprox+ sensors.

The inductive 2-wire sensor technology is of special interest for machine engineers, who sell to Japan, France and the USA. This sensor version is the preferred type in these countries and especially suited for applications of the automotive industry.

Moreover, the new sensors are the ideal replacement for mechanical switches because the already existing cable network, usually 2-wire technology, can be used.

If the sensors are operated with the TURCK remote I/O fieldbus system BL20-4DI-NAMUR, wire-breaks and short-circuits are immediately detected.

The new 2-wire sensors feature of course the approved uprox+ advantages and thus withstand the harsh environmental conditions of the automotive industry.

The additional advantages at a glance:
- Replacement of mechanical switches by a simple 2-wire connection
- System diagnostics provided by short circuit and wire-break monitoring

2-wire DC sensors of the uprox+ sensor familiy are avialable as M12, M18, M30 and CK40 versions.

Non-flush mounting of flush sensors

The new uprox+ sensors only require small free zones for installation. Recessed mounting by half a thread turn provides even more mechanical protection - for absolute safety in all fitting positions!

Partial embedding of non-flush sensors

Unique mounting flexibility of uprox+ sensors is achieved with embedded pre-damping protection. In contrast to conventional sensors with ferrite core, free zones can be much smaller. Non-flush threaded barrel sensors can be mounted up to the edge of the thread with reduced switching distance.

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	Dimensions/ Housing lenght [mm]	ounting mode/ Operational distance S_n [mm]	Output	Type designation	Ident no.	Connection
M12 x 1 	62	a , 2 *	© , 2-wire	BI2U-M12E-AD4X-H1144	4405060 ✘	Connector M12 x 1
	62	a , 2 *	© , 2-wire	BI2U-MT12E-AD4X-H1144	4405061 ✘	Connector M12 x 1
	64	a , 2 *	© , 2-wire	BI2U-MT12E-AD4X-0,3-RS4,23/XOR	4405048 ✘	XOR cable 0,3 m/ Connector M12 x 1
	64	a , 2 *	© , 2-wire	BI2U-M12E-AD4X	4405062 ✘	PUR cable 2 m
	62	b , 5 **	© , 2-wire	NI5U-M12E-AD4X-H1144	4405063 ✘	Connector M12 x 1
	62	b , 5 **	© , 2-wire	NI5U-MT12E-AD4X-H1144	4405065 ✘	Connector M12 x 1
	64	b , 5 **	© , 2-wire	NI5U-M12E-AD4X	4405064 ✘	PUR cable 2 m
M18 x 1 	62	a , 5 *	© , 2-wire	BI5U-M18M-AD4X-H1144	4405066 ✘	Connector M12 x 1
	62	a , 5 *	© , 2-wire	BI5U-MT18M-AD4X-H1144	4405068 ✘	Connector M12 x 1
	64	a , 5 *	© , 2-wire	BI5U-MT18M-AD4X-0,3-RS4,23/XOR	4405049 ✘	XOR cable 0,3 m/ Connector M12 x 1
	64	a , 5 *	© , 2-wire	BI5U-M18M-AD4X	4405067 ✘	PUR cable 2 m
	62	b , 10 **	© , 2-wire	NI10U-M18M-AD4X-H1144	4405069 ✘	Connector M12 x 1
	62	b , 10 **	© , 2-wire	NI10U-MT18M-AD4X-H1144	4405071 ✘	Connector M12 x 1
	64	b , 10 **	© , 2-wire	NI10U-M18M-AD4X	4405070 ✘	PUR cable 2 m
M30 x 1,5 	62	a , 10 *	© , 2-wire	BI10U-M30-AD4X-H1144	4405072 ✘	Connector M12 x 1
	62	a , 10 *	© , 2-wire	BI10U-MT30-AD4X-H1144	4405074 ✘	Connector M12 x 1
	64	a , 10 **	© , 2-wire	BI10U-MT30-AD4X-0,3-RS4,23/XOR	4405050 ✘	XOR cable 0,3 m/ Connector M12 x 1
	64	a , 10 **	© , 2-wire	BI10U-M30-AD4X	4405073 ✘	PUR cable 2 m
	62	b , 15	© , 2-wire	NI15U-M30-AD4X-H1144	4405075 ✘	Connector M12 x 1
	62	b , 15	© , 2-wire	NI15U-MT30-AD4X-H1144	4405077 ✘	Connector M12 x 1
	64	b , 15	© , 2-wire	NI15U-M30-AD4X	4405076 ✘	PUR cable 2 m
CK 40 	65 x 40 x 40	a , 15	© , 2-wire	BI15U-CK40-AD4X-H1144	4280032 ✘	Connector M12 x 1
	65 x 40 x 40	b , 35 ***	© , 2-wire	NI35U-CK40-AD4X-H1144	4280232 ✘	Connector M12 x 1

* recessed mounting permitted ✘ = preferred solution
** embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance
*** flush mounting permitted in combination with a reduced operating distance

Further technical information on the individual sensors from page 46 on

Excellent EMC immunity

The uprox+ sensors comply with the strict requirements of the currently valid product norm EN 60947-5-2 for proximity sensors. Even the high requirements of the norm EN 61000-4-6 (conducted interference) are easily fulfilled by the uprox+ sensors.

Factor 1

The innovative uprox+ sensors set a new benchmark in metal detection. They are capable of detecting materials such as iron, stainless steel, copper, aluminium and brass at the same high distance and with the highest precision.

Sensors for the food industry

The Wash-Down sensors of the uprox+ series are the perfect solution for all requirements of the food industry: This product line, providing both well-established and innovative features,is capable of optimising all kinds of applications, for example, in dairies, breweries, the manufacture of bakery products and frozen foods, or packaging and filling processes in the food industry.

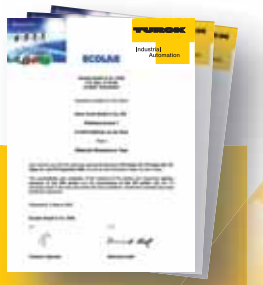
Due to the novel multi-coil technology and integrated pre-damping protection with self-compensation, only very small metal-free zones have to be observed during mounting. As a result, mounting errors are reduced and the degree of freedom in the development of machines and systems is enhanced.

Recessed mounting protects the sensor against mechanical damage. Reduction factors are also no longer an issue, because uprox+ sensors detect all materials such as iron, stainless steel, copper, aluminium and brass at the same distance. A special twin sealing lip prevents the ingress of cleaning agents between LCP front cap, threaded barrel and connector insert, so that the sensor is effectively sealed. The sensitive measuring core is protected by the robust V4A stainless steel housing. Even aggressive acid or alkaline detergents and disinfectants can do no harm to the sensor.

The Wash-Down sensors with food safe polypropylene cables are highly chemical resistant and can be operated without problems at temperatures between -40 °C and +100 °C. The requirements of protection degree IP68 and IP69K are effortlessly exceeded, so that the sensors permanently resist the cyclic cleaning processes, which place great demands on all field devices employed in the food and beverage industry.

At temperatures of up to 80°C and more, the devices are cleaned and disinfected daily under high pressure using chemical cleaning agents. The uprox+ food and beverage series by TURCK has proven its capabilities under the strict eyes of the independent test laboratory „Henkel Ecolab“.

All materials used are FDA conform and perfectly suited for the demands of the food and beverage industry.
The resistance of the materials against detergents and disinfectants prevents down-times, while the excellent sealing qualities of the housing and the high EMC immunity of the electronics ensure fail-safe operation in harsh industrial environments.
The sensor family uprox+ masters both standard and customized applications, stands for high system availability, service-friendliness, efficient standardisation and maximum degree of freedom.
Use these benefits to optimise your production processes!



Test procedure
Henkel-Ecolab test method
R&D-P3-E Nr. 37

Withstand and immersion test:
complete immersion in the test medium

Test duration: 28 days

Evaluation:
gravimetric analysis; mass differential in %, visual assessment of swelling, embrittlement, change of color, comparison with zero value (demineralized water)

Sensor sealing

A special double-lip seal of the individual housing components in the front cap area and at the connector insert prevents the ingress of liquids even during high pressure cleaning procedures. As a result, uprox+ sensors even exceed the requirements of protection degree IP68 and IP69K by far!

Resistance

The materials of the WD series used for the threaded barrel (V4A; 1.4404; 316L) and the front cap (LCP Vectra 130) are resistant to all common acid and alkaline detergents and disinfectants. Consequently, damages through aggressive cleansers are avoided.

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	Housing lenght [mm]	mounting mode/ Operational distance S_n [mm]	Output	Type designation	Ident no.	Connection
M12 x 1 	52	b , 4 *	© , PNP	BI4U-EM12WD-AP6X-H1141	1634812 ✘	Connector M12 x 1
	52	b , 4 *	© , NPN	BI4U-EM12WD-AN6X-H1141	1634841	Connector M12 x 1
	62	b , 4 *	ª , PNP	BI4U-EM12EWD-VP44X-H1141	1634905 ✘	Connector M12 x 1
	52	b , 4 *	© , PNP	BI4U-EM12WD-AP6X	1634811 ✘	PP Cable 2 m
	52	b , 4 *	© , NPN	BI4U-EM12WD-AN6X	1634842	PP Cable 2 m
	52	a , 10 **	© , PNP	NI10U-EM12WD-AP6X-H1141	1634814 ✘	Connector M12 x 1
	52	a , 10 **	© , NPN	NI10U-EM12WD-AN6X-H1141	1634837	Connector M12 x 1
	62	a , 10 **	© , PNP	NI10U-EM12EWD-AP6X-H1141	1634908	Connector M12 x 1
	62	a , 10 **	ª , PNP	NI10U-EM12EWD-VP44X-H1141	1634896	Connector M12 x 1
	52	a , 10 **	© , PNP	NI10U-EM12WD-AP6X	1634813 ✘	PP Cable 2 m
	52	a , 10 **	© , NPN	NI10U-EM12WD-AN6X	1634838	PP Cable 2 m
M18 x 1 	52	b , 8 *	© , PNP	BI8U-EM18WD-AP6X-H1141	1634816 ✘	Connector M12 x 1
	52	b , 8 *	© , NPN	BI8U-EM18WD-AN6X-H1141	1634839	Connector M12 x 1
	62	b , 8 *	ª , PNP	BI8U-EM18MWD-VP44X-H1141	1634897	Connector M12 x 1
	56	b , 8 *	© , PNP	BI8U-EM18WD-AP6X	1634815 ✘	PP Cable 2 m
	56	b , 8 *	© , NPN	BI8U-EM18WD-AN6X	1634840	PP Cable 2 m
	52	a , 15 **	© , PNP	NI15U-EM18WD-AP6X-H1141	1634818 ✘	Connector M12 x 1
	52	a , 15 **	© , NPN	NI15U-EM18WD-AN6X-H1141	1634835	Connector M12 x 1
	62	a , 15 **	ª , PNP	NI15U-EM18MWD-VP44X-H1141	1634898	Connector M12 x 1
	56	a , 15 **	© , PNP	NI15U-EM18WD-AP6X	1634817 ✘	PP Cable 2 m
	56	a , 15 **	© , NPN	NI15U-EM18WD-AN6X	1634836	PP Cable 2 m
M30 x 1,5 	62	b , 15 *	© , PNP	BI15U-EM30WD-AP6X-H1141	1634820 ✘	Connector M12 x 1
	62	b , 15 *	ª , PNP	BI15U-EM30WD-VP44X-H1141	1634899	Connector M12 x 1
	62	b , 15 *	© , NPN	BI15U-EM30WD-AN6X-H1141	1634834	Connector M12 x 1
	66	b , 15 *	© , PNP	BI15U-EM30WD-AP6X	1634819 ✘	PP Cable 2 m
	66	b , 15 *	© , NPN	BI15U-EM30WD-AN6X	1634843	PP Cable 2 m
	62	a , 30 **	© , PNP	NI30U-EM30WD-AP6X-H1141	1634822 ✘	Connector M12 x 1
	62	a , 30 **	ª , PNP	NI30U-EM30WD-VP44X-H1141	1634904	Connector M12 x 1
	62	a , 30 **	© , NPN	NI30U-EM30WD-AN6X-H1141	1634832	Connector M12 x 1
	66	a , 30 **	© , PNP	NI30U-EM30WD-AP6X	1634821 ✘	PP Cable 2 m
	66	a , 30 **	© , NPN	NI30U-EM30WD-AN6X	1634833	PP Cable 2 m

* recessed mounting permitted ✘ = preferred solution
** embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance
Further technical information on the individual sensors from page 60 on

Factor 1

The innovative uprox+ sensors set a new benchmark in metal detection. They are capable of detecting materials such as iron, stainless steel, copper, aluminium and brass at the same high distance and with the highest precision.

A high degree of protection

- **IP68 including IP67:**
  – 24 hrs. continuous storage at +70 °C
  – 24 hrs. continuous storage -25 °C
  – 7 days submersion at a depth of 1 m
  – 10 temperature shock cycles from +70 °C to -25 °C,
  Dwell cylce per temperature: 1 hour
- **IP69K:** suited for high pressure steam jet cleaning to DIN 40050-9 following EN 60529

Sensors with terminal chamber connection for the food and beverage industry

Sensors with terminal chamber connection are commonly applied in the food and beverage industry. In order to profit from the advantages of the uprox+ factor 1 sensors the uprox+ Wash-Down series is now also available with extremely flexible terminal chamber connection.

Removable terminal clamps

Suited for M16 x 1 cable glands

Variable cable outlet

Sensor sealing

A special double-lip seal of the individual housing components in the front cap area and at the connector insert prevents the ingress of liquids even during high pressure cleaning procedures. As a result, uprox+ sensors even exceed the requirements of protection degree IP68 and IP69K by far!

Resistance

The materials of the WD series used for the threaded barrel (V4A; 1.4404; 316L) and the front cap (LCP Vectra 130) are resistant to all common acid and alkaline detergents and disinfectants. Consequently, damages through aggressive cleansers are avoided.

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	Housing lenght [mm]	mounting mode/ Operational distance S_n [mm]	Output	Type designation	Ident no.	Connection
M12 x 1	80	b , 4 *	© , PNP	BI4U-EM12WDTC-AP6X	1634760 ✘	Terminal chamber
	80	a , 10 **	© , PNP	NI10U-EM12WDTC-AP6X	1634761 ✘	Terminal chamber
M18 x 1	81	b , 8 *	© , PNP	BI8U-EM18WDTC-AP6X	1634762 ✘	Terminal chamber
	81	a , 15 **	© , PNP	NI15U-EM18WDTC-AP6X	1634763 ✘	Terminal chamber
M30 x 1	95	b , 15 *	© , PNP	BI15U-EM30WDTC-AP6X	1634764 ✘	Terminal chamber
	95	a , 30 **	© , PNP	NI30U-EM30WDTC-AP6X	1634765 ✘	Terminal chamber

* recessed mounting permitted
** embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance

✘ =preferred solution

Further technical information on the individual sensors from page 72 on

The compact and FDA conform terminal chamber sensors enable a straight or 90° angled cable routing by simply twisting the cover. The removable terminal strip with convenient and vibration resistant cage clamp technology enables simple and quick connection of the sensor. LEDs in the terminal chamber inform the user about the switching status and the power supply of the sensors.

The new uprox+ terminal chamber sensors are available as M12, M18 and M30 versions.They fulfil all requirements of food safety and are FDA conform.

V4A stainless steel housings and a special sealing technology guarantee reliable protection against aggressive cleaning agents and high pressure cleaning methods.

Like all uprox+ factor 1 sensors they guarantee maximum freedom in the development of machines and systems. Highest switching distances and extreme flexibility with regard to mouning, are only two outstanding advantages of this sensor type – especially when considering stainless steel targets which commonly occur in the food and beverage industry.

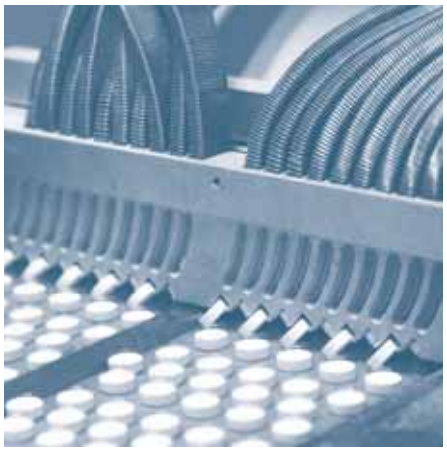
Factor 1

The innovative uprox+ sensors set a new benchmark in metal detection. They are capable of detecting materials such as iron, stainless steel, copper, aluminium and brass at the same high distance and with the highest precision.

A high degree of protection

- **IP68 including IP67:**
  – 24 hrs. continuous storage at +70 °C
  – 24 hrs. continuous storage -25 °C
  – 7 days submersion at a depth of 1 m
  – 10 temperature shock cycles from +70 °C to -25 °C,
  Dwell cylce per temperature: 1 hour
- **IP69K:** suited for high pressure steam jet cleaning to DIN 40050-9 following EN 60529

Sensors for the explosion hazardous area



No matter whether for installations in the chemical, petrochemical or pharmaceutical industry, in mills, in food and animal food processing – an ATEX approval for inductive sensors for these sectors is indispensable. In 1994 the new EC directive 94/9/EC was passed. The name ATEX is derived from the directive's former work title "ATmosphère EXplosible"

The directive 94/9/EG determines the design requirements of electrical equipment and protective systems and is sometimes also called ATEX 100a. Since the 1st of July 2003, the ATEX directive has been governing the field of explosion protection exclusively, so that all former Ex approvals have lost their validity. With the introduction of the new directive much has changed for the manufacturers and users of sensors. Particularly those areas, in which only rare or short-term explosion hazards occur, have been affected by a multitude of new provisions.

These changes have, of course, confused and irritated many customers, and since the test authorities, such as the TÜV, keep a strict eye on this issue - a great demand for inductive explosion-proof sensors has developed. Of course, we also offer uprox+ sensors for the explosion hazardous area:

Category II 3 G, (Gas Ex Zone 2)
The non-intrinsically safe 3-wire DC sensors have been tested accordingly and may be employed in Zone 2. The sensors have been inspected with regard to their max. surface temperature and their mechanical features. The mechanical test (impact test) is exacting, so that generally only very few sensors actually pass the strict tests.
uprox+ sensors with ATEX approval are made of a top-grade stainless steel barrel and an LCP front cap, so that they are suited for use in hostile environments.

Category II 3 D (Dust Ex Zone 22)
It is also permitted to use non-intrinsically safe devices in Zone 22. With their LCP front cap and high protection rating of IP68/IP69K, the uprox+ sensors for the explosion hazardous area easily pass the prescribed surface temperature test.

The declarations of conformity covering uprox+ sensors for the explosion hazardous area are ready for download via the Internet.

Factor 1

The innovative uprox+ sensors set a new benchmark in metal detection. They are capable of detecting materials such as iron, stainless steel, copper, aluminium and brass at the same high distance and with the highest precision.

Sensor sealing

A special double-lip seal of the individual housing components in the front cap area and at the connector insert prevents the ingress of liquids even during high pressure cleaning procedures. As a result, uprox+ sensors even exceed the requirements of protection degree IP68 and IP69K by far!

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	Dimensions/ Housing lenght [mm]	mounting mode/ Operational distance S_n [mm]	Output	Type designation	Ident no.	Connection
M12 x 1 	52	b , 4 *	© , PNP	BI4U-EM12WD-AP6X-H1141/3D	1634851 ✘	Connector M12 x 1
	52	b , 4 *	© , NPN	BI4U-EM12WD-AN6X-H1141/3D	1634852	Connector M12 x 1
	52	a , 10 **	© , PNP	NI10U-EM12WD-AP6X-H1141/3D	1634857 ✘	Connector M12 x 1
	52	a , 10 **	© , NPN	NI10U-EM12WD-AN6X-H1141/3D	1634858	Connector M12 x 1
M18 x 1 	52	b , 8 *	© , PNP	BI8U-EM18WD-AP6X-H1141/3GD	1634853 ✘	Connector M12 x 1
	52	b , 8 *	© , NPN	BI8U-EM18WD-AN6X-H1141/3GD	1634854	Connector M12 x 1
	52	a , 15 **	© , PNP	NI15U-EM18WD-AP6X-H1141/3D	1634859 ✘	Connector M12 x 1
	52	a , 15 **	© , NPN	NI15U-EM18WD-AN6X-H1141/3D	1634860	Connector M12 x 1
M30 x 1 	62	b , 15 *	© , PNP	BI15U-EM30WD-AP6X-H1141/3GD	1634855 ✘	Connector M12 x 1
	62	b , 15 *	© , NPN	BI15U-EM30WD-AN6X-H1141/3GD	1634856	Connector M12 x 1
	62	a , 30 **	© , PNP	NI30U-EM30WD-AP6X-H1141/3D	1634861 ✘	Connector M12 x 1
	62	a , 30 **	© , NPN	NI30U-EM30WD-AN6X-H1141/3D	1634862	Connector M12 x 1
CK40 	65 x 40 x 40	b , 20	© , PNP	BI20U-CK40-AP6X2-H1141/3GD	1625845	Connector M12 x 1
	65 x 40 x 40	a , 50 ***	ª , PNP	NI50U-CK40-VP4X2-H1141/3GD	1514120	Connector M12 x 1
CP40 	114 x 40 x 40	b , 20	© , PNP	BI20U-CP40-AP6X2/3D	1627236 ✘	Terminal chamber
Q80 	92 x 80 x 40	b , 50	© , PNP	BI50U-Q80-AP6X2-H1141/3GD	1608946 ✘	Connector M12 x 1
	92 x 80 x 40	b , 50	ª , PNP	BI50U-Q80-VP4X2-H1141/3GD	1562004	Connector M12 x 1

* recessed mounting permitted ✘ = preferred solution
** embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance
*** flush mounting permitted in combination with a reduced operating distance

Further technical information on the individual sensors from page 46 on

Resistance

The materials of the WD series used for the threaded barrel (V4A; 1.4404; 316L) and the front cap (LCP Vectra 130) are resistant to all common acid and alkaline detergents and disinfectants. Consequently, damages through aggressive cleansers are avoided.

ATEX approval

The non-intrinsically safe 3-wire DC uprox+ sensors are approved for the explosion hazardous area,
Zone 2 (gases, vapours and mists)
Category II 3 G
Zone 22 (non-conductive dusts)
Category II 3 D
The directive 94/9/EC is fulfilled, so that these sensors contribute to enhancing the safety level!

Application-optimized sensor designs

Dimensions/ Housing lenght [mm]	mounting mode/ Operational distance S_n [mm]	Output	Type designation	Ident no.	Connection
67 x 40 x 52,5	a , 22	© , PNP	NI22U-Q40-AP6X2-H1141	4690229 ✘	Connector M12 x 1

Further technical information on the individual sensors from page 44 on

✘ = preferred solution

Q40

By applying the most advanced coil technology, we can offer application-optimised sensor designs, which have been specially developed to meet specific application needs and thus provide optimum efficiency.

The stamping press tools in an automotive plant are equipped with sensors, which are to detect the presence/absence of the part to be pressed by the tool. As special proximity switches with identical response to steel and aluminium materials are needed, it is obvious that uprox+ is the ideal choice.
The Q40 sensor style combines the characteristics “maximum operating distance“ and “no reduction factor“ with particularly practical mounting options.
The Q40 permits both flush and recessed mounting.

uprox+ **sensor Q40 integrated into a stamping press**

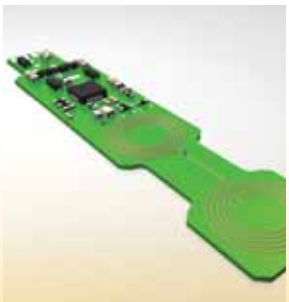
The height adjustment feature of the Q40 is used to align the switch and the final cast surface, thus saving additional work steps, such as an adjustment of the mounting surface. Furthermore, the switch-point can be easily adjusted to the optimum target position.
The operating distance is easily and precisely set, also in the recessed mounting mode using a countersunk screw, type M 1030 (DIN 7991), without having to remove the switch.
All these factors contribute to cost savings compared to conventional solutions: less proximity switches are needed, material machining is superfluous and mounting procedures are simplified.

Highly visible LEDs ensure reliable function and adjustment control in all mounting modes.

When replacing a defect proximity switch, the original setting of the operating distance is retained. There is also no need to construct an additional mounting panel or fixture.

The housing design meets the essential requirements of model-making, casting and machining processes and cost-effective manufacture. The cast usually incorporates the openings or fixtures for sensor mounting. Expensive machining procedures are thus superfluous.

Flexible coil technology



Since the design of the new sensors does not include a ferrite core and a wound coil, you can profit from a maximum degree of flexibility in the housing conception – without any mechanical restrictions!

Factor 1

The innovative uprox+ sensors set a new benchmark in metal detection. They are capable of detecting materials such as iron, stainless steel, copper, aluminium and brass at the same high distance and with the highest precision.

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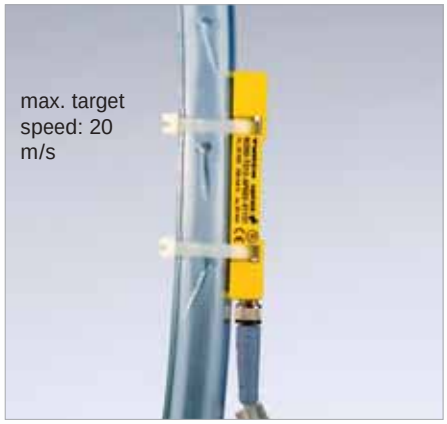
TS12

Dimensions/ Housing lenght [mm]	Swit. frequency/ Minimum pulse duration [mm]	Output	Type designation	Ident no.	Connection
80 x 17 x 12	8 Hz, 100 ms	© , PNP	NI20U-TS12-AP6X2-V1131	1646640 ✘	Connector M8 x 1
80 x 17 x 12	8 Hz, 100 ms	© , NPN	NI20U-TS12-AN6X2-V1131/S989	1646642	Connector M8 x 1
80 x 17 x 12	8 Hz, 100 ms	© , NPN	NI20U-TS12-AN6X2-V1131	1625822	Connector M8 x 1
80 x 17 x 12	8 Hz, 100 ms	© , PNP	NI20U-TS12-AP6X2-V1131/S989	1646641 ✘	Connector M8 x 1

Further technical information on the individual sensors from page 44 on

✘ = preferred solution



uprox+ sensor TS12 – the innovative replacement for various ring sensors

In order to ensure error-free and smooth production, the small parts feeding procedure in assembly and handling applications must be monitored. It must, for instance, be verified that the screwing robot is loaded exactly with one screw. If no screw is fed, the work piece may be damaged or not properly assembled. If two screws are fed, then the screw robot may be damaged.

Until today this application was solved with ring sensors, but these are difficult to mount and different ring sensors are needed for every single tube diameter. Due to the new printed coil technology, it is now possible to detect tube-guided small parts “on the fly” reliably from the side.

The uprox+ tube sensor TS12 is an innovative replacement for the large variety of ring sensors. Only a single sensor is needed to solve all applications involving various tube diameters. The integrated retaining strap saves additional cost-intensive mounting aids and the sensor can be mounted after final installation of the feeding tube.

Mechanical damage is excluded due to the compact housing style without any disturbing contours.

Non-flush mounting of flush sensors

The new uprox+ sensors only require small free zones for installation. Recessed mounting by half a thread turn provides even more mechanical protection - for absolute safety in all fitting positions!

Maximum operating distance

Owing to their novel patented coil technology, uprox+ sensors feature a switching distance that is up to 250 % higher than that of conventional inductive sensors with a ferrite core. This means that the sensor is superior to any standard sensor of the same size. Make use of this outstanding performance to optimise your applications!

Product overview accessories

TURCK offers a versatile range of accessories for mounting and protection of the uprox+ series.

Matching fixing clamps and quick-mounts are offered for all cylindrical sensor styles: Ø 6,5 mm, M8 x 1, M12 x 1, M18 x 1 and M30 x 1,5.

The mounting rail JS 025/037 facilitates installation and adjustment of CP40 and CK40 style sensors.

Added protection against mechanical damage is provided by the protective fixing clamps, which additionally simplify installation of the CK40 und CP40 sensor series.

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Type designation	Description	Suited for housings...	Material	Ident no.
MF-CK40-1S	Protective frame (one-side)	QV40/CK40	VA	6900481
MF-CK40-2S	Protective frame (angle)	QV40/CK40	VA	6900482
MF-CK40-3S	Protective frame (profile)	QV40/CK40	VA	6900483
MF-CP40-2S	Protective frame (angle)	CP40	VA	6901080
SG40/2	Protective housing, temperature resistant	CP40	ULtem	69497
SG40	Protective housing	CP40	PA	69500
BSS-CP40	Fixing clamp	CP40	PP	6901318
JS 025/037	DIN rail	QV40/CK40/ CP40	VA	69429
MBS65	Fixing clamp	Ø 6,5 mm	Al	69478
BS 865	Fixing clamp	Ø 6,5 mm	Al	69476
BST-08N	Fixing clamp without dead-stop	M8	PA	6947211
BST-08B	Fixing clamp with dead-stop	M8	PA	6947210
BSS-08	Mounting clamp	M8	PP	6901322
MW-08	Mounting bracket	M8	VA	6945008
QM-08	Mounting bracket with dead-stop for quick mounting	M8	CuZn-Cr	6945100
BS 12	Fixing clamp	M12	PA	69470
BST-12B	Fixing clamp with dead-stop	M12	PA	6947212
BST-12N	Fixing clamp without dead-stop	M12	PA	6947213
BSS-12	Mounting clamp	M12	PP	6901321
MW-12	Mounting bracket	M12	VA	6945003
QM-12	Mounting bracket with dead-stop for quick mounting	M12	CuZn-Cr	6945101
PN-M12	Screw cap for flush sensors	M12	VA	6905309

Product overview accessories

Type designation	Description	Suited for housings ...	Material	Ident no.
BS 18	Fixing clamp M18 x1, plastic: PA6	M18	PA	69471 ✘

BST-18B	Fixing clamp with dead-stop	M18	PA	6947214 ✘
BST-18N	Fixing clamp without dead-stop	M18	PA	6947215 ✘

BSS-18	Mounting clamp	M18	PP	6901320 ✘

MW-18	Mounting bracket	M18	VA	6945004 ✘

QM-18	Mounting bracket with dead-stop for quick mounting	M18	CuZn-Cr	6945102 ✘

PN-M18	Screw cap for flush sensors	M18	VA	6905310 ✘

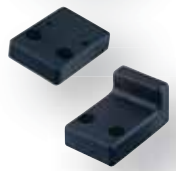
BST-30N	Fixing clamp without dead-stop	M30	PA	6947217 ✘
BST-30B	Fixing clamp with dead-stop	M30	PA	6947216 ✘

BSS-30	Mounting clamp	M30	PP	6901319 ✘

MW-30	Mounting bracket	M30	VA	6945005 ✘

OM-30	Mounting bracket with dead-stop for quick mounting	M30	CuZn-Cr	6945103 ✘

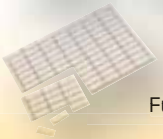
PN-M30	Screw cap for flush sensors	M30	VA	6905308 ✘



BST-UV	Base part for BST fixing clamps		PA	6947218
BST-UH	Base part for BST fixing clamps		PA	6947219

BSS-SPV1	Weld-on base plate for fixing clamps	M8/M12	St37	6901317 ✘
BSS-SPV2	Weld-on base plate for fixing clamps	M18	St37	6901316 ✘
BSS-SPV4	Weld-on base plate for fixing clamps	M30	St37	6901347 ✘
BSS-SPV5	Weld-on base plate for fixing clamps	CP40/CK40/ QV40	St37	6901324 ✘

BSS-TSM	DIN rail nut for fixing clamps		GD-Zn	6901323 ✘



BST-BS	Label for BST		PA	6947220

Further mounting instructions for sensors are available on our data sheets and can be downloaded on www.turck.com.

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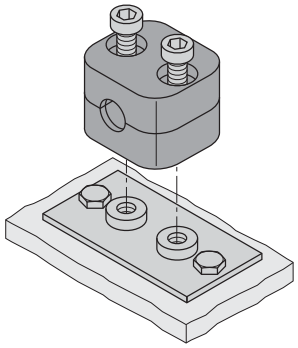
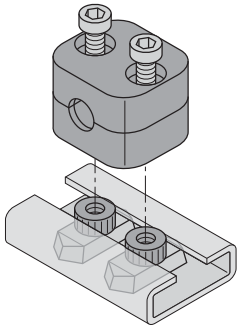
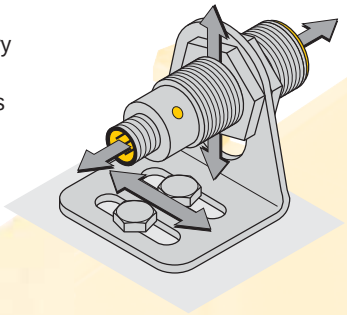
Mounting clamp BSS
The portfolio consists of two half-shells and two Allen screws each. Optionally welding plates with additional drilling holes can be used. Matching DIN rail nuts are available for mounting of DIN rails.

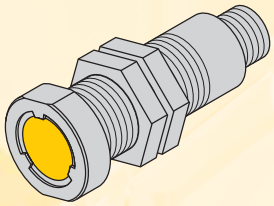




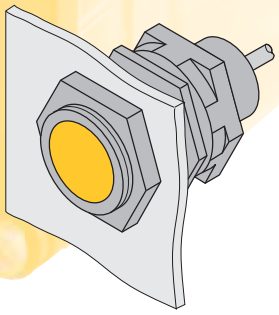
Mounting bracket MW
The mounting brackets provide extraordinary mounting flexibility. The position of the sensor can easily be re-adjusted in all directions and is thus very user friendly.

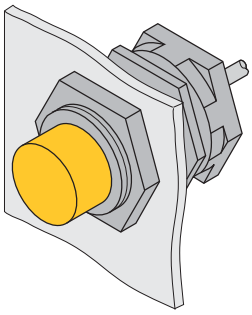


Screw caps PN
The screw caps are screwed on the head of the uprox+ flush sensor, protecting this way the active face against damages. Recessed mounting of the sensor head is optained by the shroud, this way mechanical strains work on the screw cap but not on the sensor.



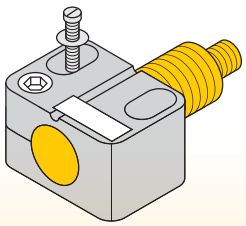
Fixing clamp for quick mounting QM
The fixing clamp for quick mounting with dead-stop enables simple mounting of the sensors without complicated readjustment



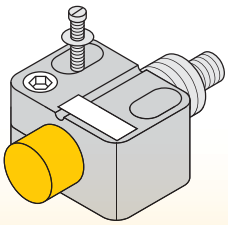


Fixing clamps BST
The new mounting system BST is designed for cylindrical sensor with diameters of 8, 12, 18 and 30 mm. Fixing clamps with and without dead-stop are available. The dead stop enables simple exchange of the sensors without readjustment. Two new mounting base plates and labels round-off the product portfolio.

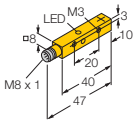
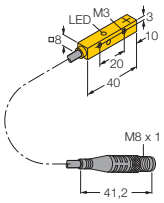
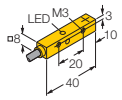
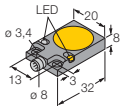
B version
– with dead-stop



N version
– without dead-stop

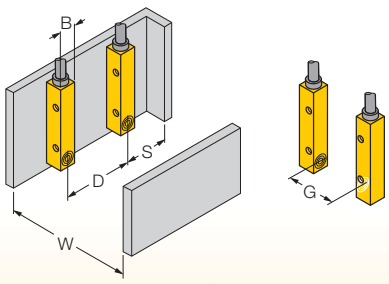


Technical data

Dimensions/Housing style		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**Q8SE** {	–	4*, b	© , PNP	10...30 VDC	150 mA, ö	
		–	4*, b	¨ , PNP	10...30 VDC	150 mA, ö	
		–	4*, b	© , NPN	10...30 VDC	150 mA, ö	
	**Q8SE** {	–	4*, b	© , PNP	10...30 VDC	150 mA, ö	
		–	4*, b	¨ , PNP	10...30 VDC	150 mA, ö	
	**Q8SE**]	–	4*, b	© , PNP	10...30 VDC	150 mA, ö	
		–	4*, b	¨ , PNP	10...30 VDC	150 mA, ö	
		–	4*, b	© , NPN	10...30 VDC	150 mA, ö	
	**Q08** {	–	8, a	© , PNP	10...30 VDC	200 mA, ö	
		–	8, a	© , NPN	10...30 VDC	200 mA, ö	

* flush mounting permitted in combination with a reduced operating distance

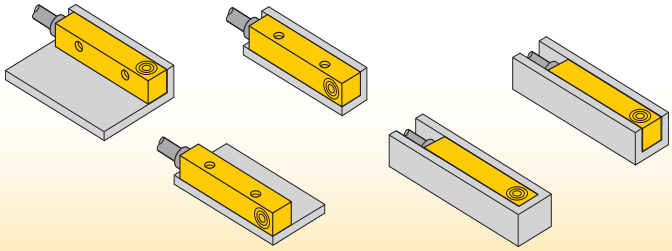
Housing type Q8SE



D = 24 mm
W = 12 mm
S = 12 mm
G = 24 mm

Up to 4-side flush mounting possible:

1-side:	**2-side:**	**3-side:**	**4-side:**
S_r = 3,5 mm	S_r = 3,0 mm	S_r = 2,5 mm	S_r = 2,0 mm



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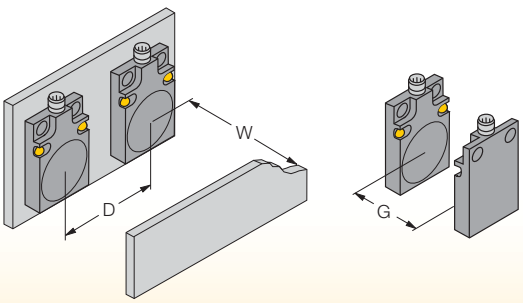
Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
NI4U-Q8SE-AP6X-V1131	4635808 ✘	S002	1	-30...+85	IP68	PP	PP	–	–	ñ
NI4U-Q8SE-RP6X-V1131	4635820 ✘	S175	1	-30...+85	IP68	PP	PP	–	–	ñ
NI4U-Q8SE-AN6X-V1131	4635810	S005	1	-30...+85	IP68	PP	PP	–	–	ñ
NI4U-Q8SE-AP6X-0,3-PSG3M	4635833 ✘	S002	1	-30...+85	IP68	PP	PP	PUR 0.3 m	–	ñ
NI4U-Q8SE-RP6X-0,3-PSG3M	4635823	S175	1	-30...+85	IP68	PP	PP	PUR 0.3 m	–	ñ
NI4U-Q8SE-AP6X	4635807 ✘	S001	1	-30...+85	IP68	PP	PP	PUR 2 m	–	ñ
NI4U-Q8SE-RP6X	4635821	S054	1	-30...+85	IP68	PP	PP	PUR 2 m	–	ñ
NI4U-Q8SE-AN6X	4635809 ✘	S004	1	-30...+85	IP68	PP	PP	PUR 2 m	–	ñ
BI8U-Q08-AP6X2-V1131	1662005 ✘	S002	0.25	-25...+70	IP68	GD-Zn	LCP	–	ñ	ñ
BI8U-Q08-AN6X2-V1131	1662008	S005	0.25	-25...+70	IP68	GD-Zn	LCP	–	ñ	ñ

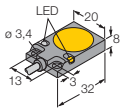
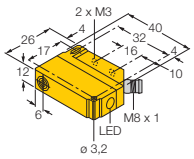
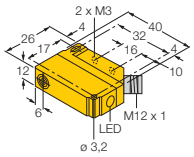
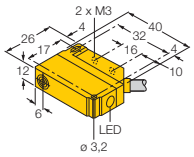
✘ = preferred solution, available at short notice

Housing type Q08

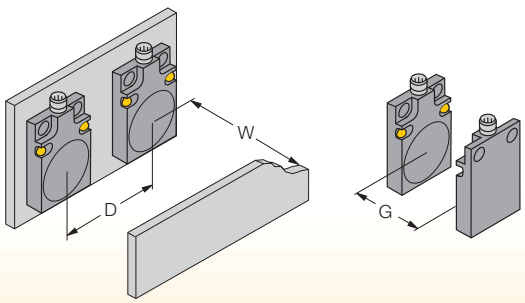


D = 40 mm
W = 24 mm
G = 48 mm

Technical data

Dimensions/Housing style		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**Q08**	–	8, a	© , PNP	10...30 VDC	200 mA, ö	
	]	–	8, a	¨ , PNP	10...30 VDC	200 mA, ö	
		–	8, a	© , NPN	10...30 VDC	200 mA, ö	
	**Q12**	–	5, a	© , PNP	10...30 VDC	200 mA, ö	
	{	–	5, a	© , NPN	10...30 VDC	200 mA, ö	
		–	5, a	© , NPN	10...30 VDC	200 mA, ö	
	**Q12**	–	5, a	© , PNP	10...30 VDC	200 mA, ö	
	{	–	5, a	© , NPN	10...30 VDC	200 mA, ö	
	**Q12**	–	5, a	© , PNP	10...30 VDC	200 mA, ö	
	]	–	5, a	ª , PNP	10...30 VDC	200 mA, ö	
		–	5, a	© , NPN	10...30 VDC	200 mA, ö	

Housing type Q08



D = 40 mm
W = 24 mm
G = 48 mm

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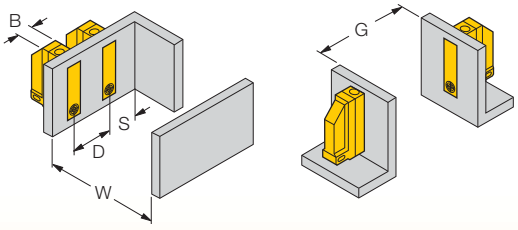
Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
BI8U-Q08-AP6X2	1662006 ✘	S001	0.25	-25...+70	IP68	GD-Zn	LCP	PUR 2 m	ñ	ñ
BI8U-Q08-RP6X2	1662012	S054	0.25	-25...+70	IP68	GD-Zn	LCP	PUR 2 m	ñ	ñ
BI8U-Q08-AN6X2	1662007 ✘	S004	0.25	-25...+70	IP68	GD-Zn	LCP	PUR 2 m	ñ	ñ
BI5U-Q12-AP6X2-V1131	1635524 ✘	S002	1	-25...+70	IP68	PA	PA	–	ñ	ñ
BI5U-Q12-AN6X2-V1131/F2	1635528 ✘	S005	1	-25...+70	IP68	PA	PA	–	ñ	ñ
BI5U-Q12-AN6X2-V1131	1635525 ✘	S005	1	-25...+70	IP68	PA	PA	–	ñ	ñ
BI5U-Q12-AP6X2-H1141	1635526 ✘	S002	1	-25...+70	IP68	PA	PA	–	ñ	ñ
BI5U-Q12-AN6X2-H1141	1635527 ✘	S005	1	-25...+70	IP68	PA	PA	–	ñ	ñ
BI5U-Q12-AP6X2	1635522 ✘	S001	1	-25...+70	IP68	PA	PA	PUR 2 m	ñ	ñ
BI5U-Q12-VP6X2	1635533	S007	1	-25...+70	IP68	PA	PA	PUR 2 m	ñ	ñ
BI5U-Q12-AN6X2	1635523 ✘	S004	1	-25...+70	IP68	PA	PA	PUR 2 m	ñ	ñ

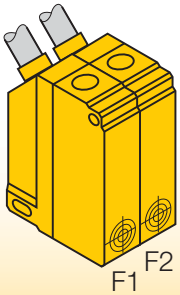
✘ = preferred solution, available at short notice

Housing type Q12

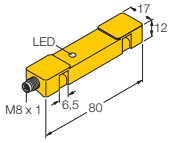
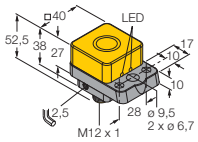


B = 12 mm
D = 48 mm
W = 25 mm
S = 12 mm
G = 50 mm

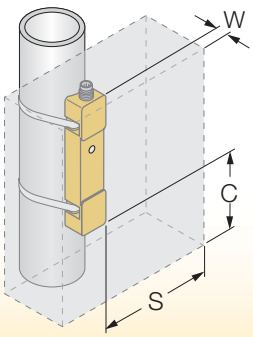
Sensors can be mounted directly side by side if a sensor with staggered oscillator frequency Bi5U-Q12.../F2 is used..



Technical data

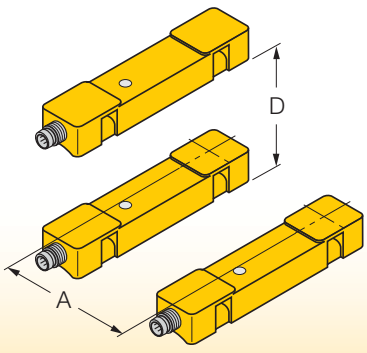
Dimensions/Housing style		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**TS12** {	–	20, b	© , PNP	10...30 VDC	200 mA, ö	
		–	20, b	© , PNP	10...30 VDC	200 mA, ö	
		–	20, b	© , NPN	10...30 VDC	200 mA, ö	
		–	20, b	© , NPN	10...30 VDC	200 mA, ö	
	**Q40** {	–	22, b	© , PNP	10...30 VDC	200 mA, ö	

Housing type TS12



D = 50 mm
W = 35 mm
S = 35 mm
A = 42 mm
C = 30 mm

Detection of tailbacks with the TS12 sensor



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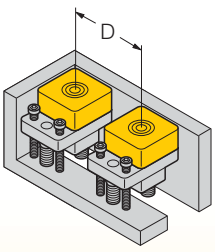
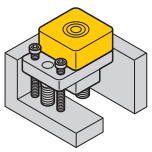
Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
NI20U-TS12-AP6X2-V1131	1646640 ✘	S002	0.008	-25...+70	IP68	PBT	–	–	ñ	ñ
NI20U-TS12-AP6X2-V1131/ S989	1646641 ✘	S002	0.008	-25...+70	IP68	PBT	–	–	ñ	ñ
NI20U-TS12-AN6X2-V1131	1625822	S005	0.008	-25...+70	IP68	PBT	–	–	ñ	ñ
NI20U-TS12-AN6X2-V1131/ S989	1646642	S005	0.008	-25...+70	IP68	PBT	–	–	ñ	ñ
NI22U-Q40-AP6X2-H1141	4690229 ✘	S002	0.25	0...+70	IP68	PBT/GD-Zn	PBT	–	ñ	ñ

✘ = preferred solution, available at short notice

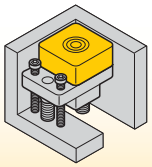
Housing type Q40



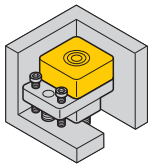
D = 240 mm



non-flush mounting S_r = 22 mm
Arrange the depth of the screw-on surface so that the sensing range can be reduced to 10 mm using the height adjustment screw.

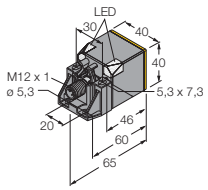
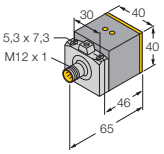


recessed mounting S_r = 19 mm
Arrange the depth of the screw-on surface 1 mm below the tool contour so that the sensing range can be reduced to 10 mm using the height adjustment screw.



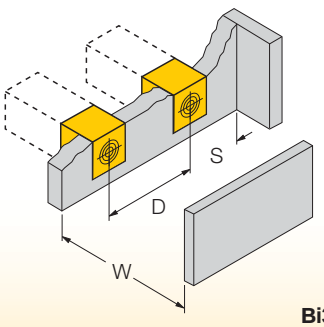
recessed mounting S_r = 21 mm
11 mm below the tool contour
The sensing range can be set above the tool contour by variation of the recessed mounting depth using the height adjustment screw.

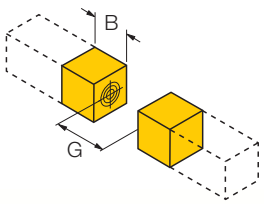
Technical data

Dimensions/Housing style		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**QV40**	–	20, a	© , PNP	10...30 VDC	200 mA, ö	
	}	–	50*, b	© , PNP	10...30 VDC	200 mA, ö	
	**CK40**	–	20, a	© , PNP	10...30 VDC	200 mA, ö	
	{	É II 3 G É II 3 D	20, a	© , PNP	10...30 VDC	200 mA, ö	
		–	20, a	ª , PNP	10...65 VDC	200 mA, ö	
		–	20, a	© , NPN	10...30 VDC	200 mA, ö	
		–	20, a	ª , NPN	10...65 VDC	200 mA, ö	
		–	15, a	© , 2-wire	10...65 VDC	100 mA, ö	

* flush mounting permitted in combination with a reduced operating distance

Housing type QV40/CK40/CP40 flush

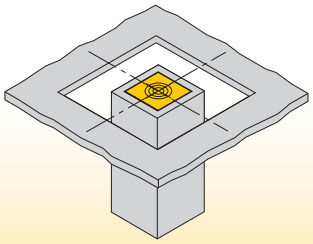




	D	W	S	G
Bi30U	80	90	40	180
Bi20U	80	60	40	120
Bi15U	80	60	40	90

BI30U

When installing the sensor in an aperture plate (thin sheet metal, e.g., a step plate) the sensor must be fully embedded in metal for reliable detection of the target.



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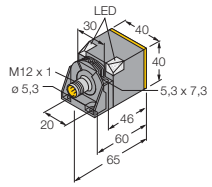
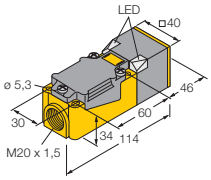
Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
BI20U-QV40-AP6X2-H1141	1627245 ✘	S002	0.25	0...+70	IP68	PBT	PA-X	–	ñ ñ	ñ ñ
NI50U-QV40-AP6X2-H1141	1625853 ✘	S002	0.25	-30...+85	IP68	PBT	PA-X	–	ñ ñ	ñ ñ
BI20U-CK40-AP6X2-H1141	1627233 ✘	S002	0.25	0...+70	IP68	PBT	PA-X	–	ñ	ñ
BI20U-CK40-AP6X2-H1141/3GD	1625845	S002	0.25	0...+70	IP68	PBT	PA-X	–	ñ	ñ
BI20U-CK40-VP4X2-H1141	1627216 ✘	S008	0.25	0...+70	IP68	PBT	PA-X	–	ñ	ñ
BI20U-CK40-AN6X2-H1141	1627231	S005	0.25	0...+70	IP68	PBT	PA-X	–	ñ	ñ
BI20U-CK40-VN4X2-H1141	1568814	S011	0.25	0...+70	IP68	PBT	PA-X	–	ñ	ñ
BI15U-CK40-AD4X-H1144	4280032 ✘	S179	0.01	-25...+70	IP68	PBT	PA-X	–	ñ	ñ

✘ = preferred solution, available at short notice

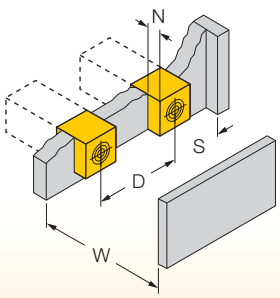
Further mounting instructions for sensors are available on our data sheets and can be downloaded on www.turck.com.

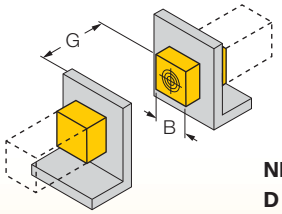
Technical data

Dimensions/Housing style		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**CK40** {	–	30, a	© , PNP	10...30 VDC	200 mA, ö	
		–	30, a	© , NPN	10...30 VDC	200 mA, ö	
		–	50*, b	© , PNP	10...30 VDC	200 mA, ö	
		–	50*, b	ª , PNP	10...65 VDC	200 mA, ö	
		É II 3 G É II 3 D	50*, b	ª , PNP	10...65 VDC	200 mA, ö	
		–	50*, b	© , NPN	10...30 VDC	200 mA, ö	
		–	50*, b	ª , NPN	10...65 VDC	200 mA, ö	
		–	35, b	© , 2-wire	10...65 VDC	100 mA, ö	
	**CP40** }	–	30, a	© , PNP	10...30 VDC	200 mA, ö	
		–	30, a	ª , PNP	10...65 VDC	200 mA, ö	
		–	30, a	© , NPN	10...30 VDC	200 mA, ö	
		–	20, a	© , PNP	10...30 VDC	200 mA, ö	
		É II 3 D	20, a	© , PNP	10...30 VDC	200 mA, ö	
		–	20, a	ª , PNP	10...65 VDC	200 mA, ö	
		–	20, a	© , NPN	10...30 VDC	200 mA, ö	
		–	20, a	ª , NPN	10...65 VDC	200 mA, ö	
		–	50*, b	© , PNP	10...30 VDC	200 mA, ö	
		–	50*, b	ª , PNP	10...65 VDC	200 mA, ö	
		–	50*, b	© , NPN	10...30 VDC	200 mA, ö	
		–	50*, b	ª , NPN	10...65 VDC	200 mA, ö	

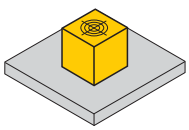
* flush mounting permitted in combination with a reduced operating distance

Housing type QV40/CK40/CP40 non-flush





NI35U
D = 120 mm
W = 105 mm
T = 140 mm
S = 60 mm
G = 210 mm
N = 30 mm



NI50U
D = 240 mm
W = 105 mm
S = 60 mm
G = 300 mm
N = 30 mm

Back-mounting as well as recessed mounting with switching distance reduction

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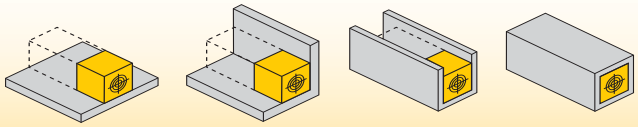
Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
BI30U-CK40-AP6X2-H1141	1625829 ✘	S002	0.25	-10...+60	IP68	PBT	PA-X	–	ñ ñ	ñ ñ
BI30U-CK40-AN6X2-H1141	1625820	S005	0.25	-10...+60	IP68	PBT	PA-X	–	ñ ñ	ñ ñ
NI50U-CK40-AP6X2-H1141	1625837 ✘	S002	0.25	-30...+85	IP68	PBT	PA-X	–	ñ ñ	ñ ñ
NI50U-CK40-VP4X2-H1141	1538302 ✘	S008	0.25	-30...+85	IP68	PBT	PA-X	–	ñ ñ	ñ ñ
NI50U-CK40-VP4X2-H1141/3GD	1514120	S008	0.25	-30...+85	IP68	PBT	PA-X	–	ñ ñ	ñ ñ
NI50U-CK40-AN6X2-H1141	1625823 ✘	S005	0.25	-30...+85	IP68	PBT	PA-X	–	ñ ñ	ñ ñ
NI50U-CK40-VN4X2-H1141	1625806	S011	0.25	-30...+85	IP68	PBT	PA-X	–	ñ ñ	ñ ñ
NI35U-CK40-AD4X-H1144	4280232 ✘	S179	0.01	-25...+70	IP68	PBT	PA-X	–	ñ ñ	ñ ñ
BI30U-CP40-AP6X2	1625830 ✘	S003	0.25	-10...+60	IP68	PBT	PA-X	–	ñ ñ	ñ ñ
BI30U-CP40-VP4X2	1625851	S009	0.25	-10...+60	IP68	PBT	PA-X	–	ñ ñ	ñ ñ
BI30U-CP40-AN6X2	1625102	S006	0.25	-10...+60	IP68	PBT	PA-X	–	ñ ñ	ñ ñ
BI20U-CP40-AP6X2	1627232 ✘	S003	0.25	0...+70	IP68	PBT	PA-X	–	ñ ñ	ñ ñ
BI20U-CP40-AP6X2/3D	1627236 ✘	S003	0.25	0...+70	IP68	PBT	PA-X	–	ñ ñ	ñ ñ
BI20U-CP40-VP4X2	1627240 ✘	S009	0.25	0...+70	IP68	PBT	PA-X	–	ñ ñ	ñ ñ
BI20U-CP40-AN6X2	1627230	S006	0.25	0...+70	IP68	PBT	PA-X	–	ñ ñ	ñ ñ
BI20U-CP40-VN4X2	1627237	S012	0.25	0...+70	IP68	PBT	PA-X	–	ñ ñ	ñ ñ
NI50U-CP40-AP6X2	1625831 ✘	S003	0.25	-30...+85	IP68	PBT	PA-X	–	ñ ñ	ñ ñ
NI50U-CP40-VP4X2	1538303 ✘	S009	0.25	-30...+85	IP68	PBT	PA-X	–	ñ ñ	ñ ñ
NI50U-CP40-AN6X2	1625846 ✘	S006	0.25	-30...+85	IP68	PBT	PA-X	–	ñ ñ	ñ ñ
NI50U-CP40-VN4X2	1625847	S012	0.25	-30...+85	IP68	PBT	PA-X	–	ñ ñ	ñ ñ

✘ = preferred solution, available at short notice

Housing type CK40/CP40 non-flush

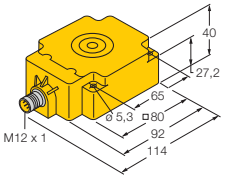
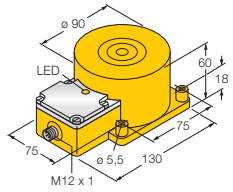
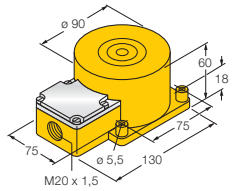
Up to 4 side flush mounting

1-side:	**2-side:**	**3-side:**	**4-side:**
NI50U			
S_r = 35 mm; D = 240 mm	S_r = 25 mm; D = 240 mm	S_r = 20 mm; D = 80 mm	S_r = 17 mm; D = 60 mm
NI35U			
S_r = 28 mm	S_r = 24 mm	S_r= 19 mm	S_r = 12 mm



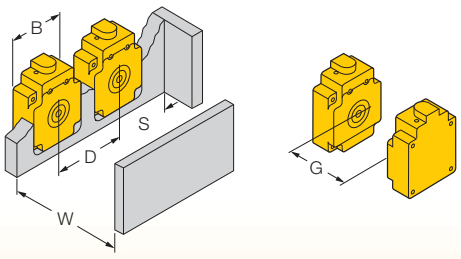
Further mounting instructions for sensors are available on our data sheets and can be downloaded on www.turck.com.

Technical data

Dimensions/Housing style		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**Q80** {	–	50, a	© , PNP	10...30 VDC	200 mA, ö	
		É II 3 G É II 3 D	50, a	© , PNP	10...30 VDC	200 mA, ö	
		–	50, a	ª , PNP	10...65 VDC	200 mA, ö	
		É II 3 G É II 3 D	50, a	ª , PNP	10...65 VDC	200 mA, ö	
		–	50, a	© , NPN	10...30 VDC	200 mA, ö	
		–	50, a	ª , NPN	10...65 VDC	200 mA, ö	
		–	70*, b	© , PNP	10...30 VDC	200 mA, ö	
		–	70*, b	ª , PNP	10...65 VDC	200 mA, ö	
		–	70*, b	© , NPN	10...30 VDC	200 mA, ö	
		–	70*, b	ª , NPN	10...65 VDC	200 mA, ö	
	**K90** {	–	100*, b	ª , PNP	10...65 VDC	200 mA, ö	
		–	100*, b	ª , NPN	10...65 VDC	200 mA, ö	
	**K90** }	–	100*, b	ª , PNP	10...65 VDC	200 mA, ö	
		–	100*, b	ª , NPN	10...65 VDC	200 mA, ö	

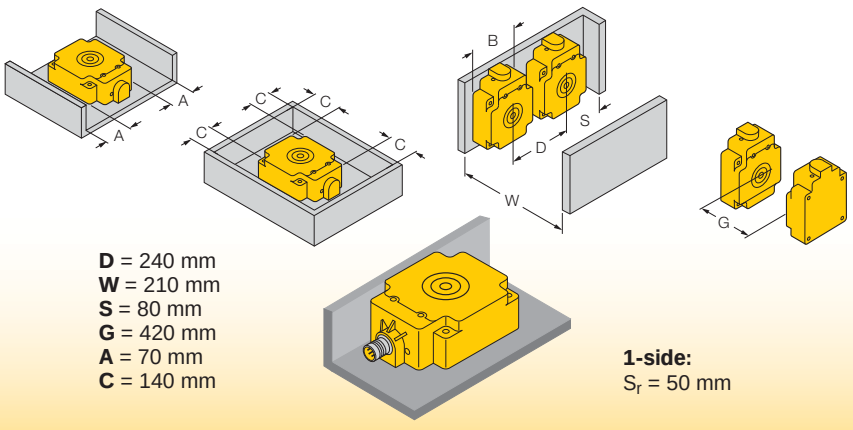
* 1-side flush mounting permitted in combination with a reduced operating distance

Housing type Q80 flush



D = 240 mm
W = 150 mm
S = 80 mm
G = 300 mm

Housing type Q80 non-flush



D = 240 mm
W = 210 mm
S = 80 mm
G = 420 mm
A = 70 mm
C = 140 mm

1-side:
S_r = 50 mm

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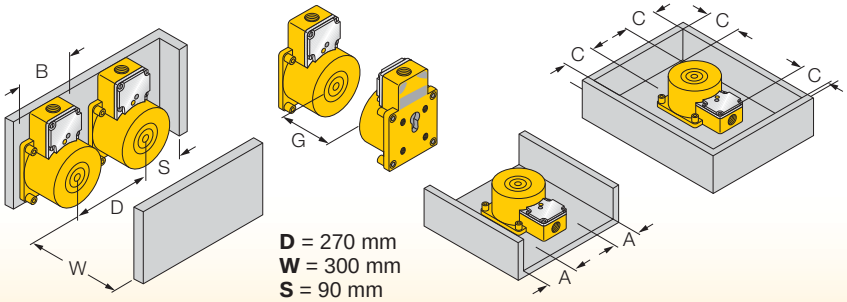
Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
BI50U-Q80-AP6X2-H1141	1608940 ✘	S002	0.25	-25...+70	IP68	PBT	PBT	–	ñ	ñ
BI50U-Q80-AP6X2-H1141/3GD	1608946 ✘	S002	0.25	0...+50	IP68	PBT	PBT	–	ñ	ñ
BI50U-Q80-VP4X2-H1141	1562000 ✘	S008	0.25	-25...+70	IP68	PBT	PBT	–	ñ	ñ
BI50U-Q80-VP4X2-H1141/3GD	1562004	S008	0.25	0...+50	IP68	PBT	PBT	–	ñ	ñ
BI50U-Q80-AN6X2-H1141	1608944	S005	0.25	-25...+70	IP68	PBT	PBT	–	ñ	ñ
BI50U-Q80-VN4X2-H1141	1562001	S011	0.25	-25...+70	IP68	PBT	PBT	–	ñ	ñ
NI70U-Q80-AP6X2-H1141	1625832 ✘	S002	0.25	-25...+70	IP68	PBT	PBT	–	ñ	ñ
NI70U-Q80-VP4X2-H1141	1625833 ✘	S008	0.25	-25...+70	IP68	PBT	PBT	–	ñ	ñ
NI70U-Q80-AN6X2-H1141	1625848	S005	0.25	-25...+70	IP68	PBT	PBT	–	ñ	ñ
NI70U-Q80-VN4X2-H1141	1625821	S011	0.25	-25...+70	IP68	PBT	PBT	–	ñ	ñ
NI100U-K90SR-VP4X2-H1141	1625844	S008	0.25	-30...+85	IP68	PBT	PBT	–	ñ	ñ
NI100U-K90SR-VN4X2-H1141	1515510	S011	0.25	-30...+85	IP68	PBT	PBT	–	ñ	ñ
NI100U-K90SR-VP4X2	1625834 ✘	S009	0.25	-30...+85	IP68	PBT	PBT	–	ñ	ñ
NI100U-K90SR-VN4X2	1515503 ✘	S012	0.25	-30...+85	IP68	PBT	PBT	–	ñ	ñ

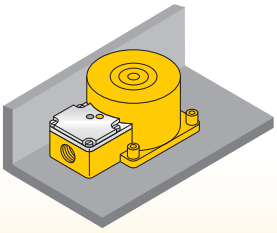
✘ = preferred solution, available at short notice

Housing type K90 non-flush



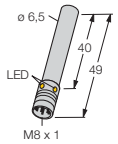
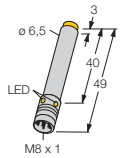
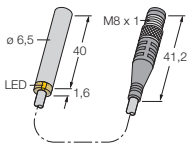
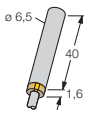
D = 270 mm
W = 300 mm
S = 90 mm
G = 600 mm
A = 100 mm
C = 200 mm

1-side flush mounting:



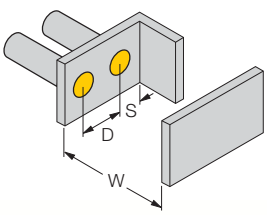
1-side:
S_r = 70 mm

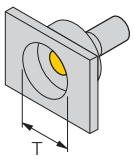
Technical data

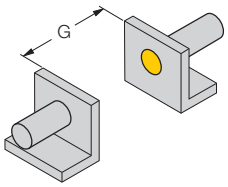
Dimensions/Housing style		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**Ø 6,5** {	–	2*, a	© , PNP	10...30 VDC	150 mA, ö	
		–	2*, a	¨ , PNP	10...30 VDC	150 mA, ö	
		–	2*, a	© , NPN	10...30 VDC	150 mA, ö	
	**Ø 6,5** {	–	6**, b	© , PNP	10...30 VDC	150 mA, ö	
		–	6**, b	¨ , PNP	10...30 VDC	150 mA, ö	
		–	6**, b	© , NPN	10...30 VDC	150 mA, ö	
	**Ø 6,5** {	–	2*, a	© , PNP	10...30 VDC	150 mA, ö	
	**Ø 6,5**]	–	2*, a	© , PNP	10...30 VDC	150 mA, ö	
		–	2*, a	¨ , PNP	10...30 VDC	150 mA, ö	
		–	2*, a	© , NPN	10...30 VDC	150 mA, ö	

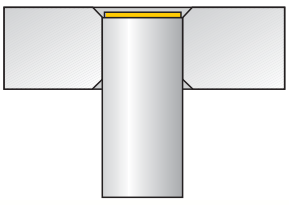
* recessed mounting permitted
** embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance

Housing type Ø 6,5 flush









All flush mountable cylindrical uprox+ sensors allow recessed mounting.

Recessed mounting of 0.5 mm ensures safe operation

D = 13 mm
W = 6 mm
T = 20 mm
S = 10 mm
G = 12 mm

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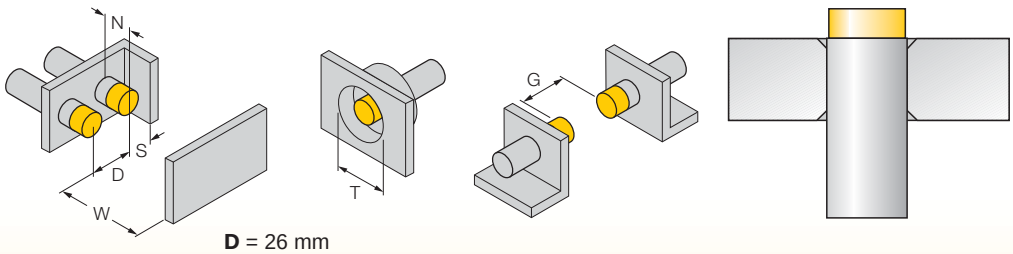
	Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
	BI2U-EH6,5-AP6X-V1131	4281160 ✘	S002	1	-30...+85	IP68	V4A (1.4404)	PA	–	–	ñ
	BI2U-EH6,5-RP6X-V1131	1637151	S175	1	-30...+85	IP68	V4A (1.4404)	PA	–	–	ñ
	BI2U-EH6,5-AN6X-V1131	4281180	S005	1	-30...+85	IP68	V4A (1.4404)	PA	–	–	ñ
	NI6U-EH6,5-AP6X-V1131	4631510 ✘	S002	1	0...+70	IP68	V4A (1.4404)	PA	–	–	ñ
	NI6U-EH6,5-RP6X-V1131	4635832	S175	1	0...+70	IP68	V4A (1.4404)	PA	–	–	ñ
	NI6U-EH6,5-AN6X-V1131	4631530	S005	1	0...+70	IP68	V4A (1.4404)	PA	–	–	ñ
	BI2U-EH6,5-AP6X-0,3-PSG3M	4281161	S002	1	-30...+85	IP68	V4A (1.4404)	PA	PUR 0.3 m	–	ñ
	BI2U-EH6,5-AP6X	4281150 ✘	S001	1	-30...+85	IP68	V4A (1.4404)	PA	PUR 2 m	–	ñ
	BI2U-EH6,5-RP6X	4281151	S054	1	-30...+85	IP68	V4A (1.4404)	PA	PUR 2 m	–	ñ
	BI2U-EH6,5-AN6X	4281170	S004	1	-30...+85	IP68	V4A (1.4404)	PA	PUR 2 m	–	ñ

✘ = preferred solution, available at short notice

Housing type Ø 6,5 non-flush

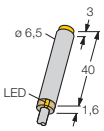


D = 26 mm
W = 18 mm
T = 26 mm
S = 10 mm
G = 36 mm
N = 12 mm

All non-flush mountable cylindrical uprox+ sensors can be mounted to the upper edge of the thread.

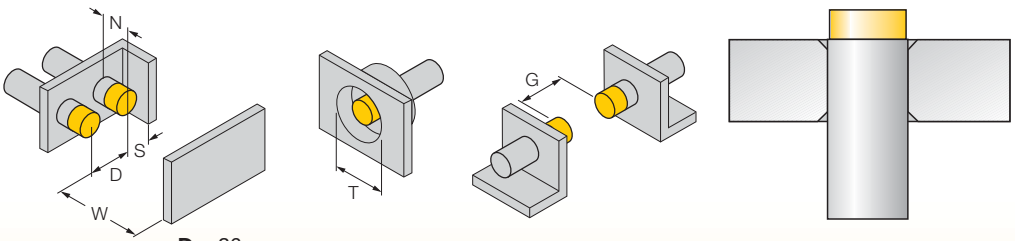
Housing type Ø 6.5 mm ensures safe operation with max. 30 % reduced switching distance.

Technical data

Dimensions/Housing style	Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
Ø 6,5] 	–	6*, b	© , PNP	10...30 VDC	150 mA, ö	
	–	6*, b	© , NPN	10...30 VDC	150 mA, ö	

* embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance

Housing type Ø 6,5 non-flush



D = 26 mm
W = 18 mm
T = 26 mm
S = 10 mm
G = 36 mm
N = 12 mm

All non-flush mountable cylindrical uprox+ sensors can be mounted to the upper edge of the thread.

Housing type Ø 6.5 mm ensures safe operation with max. 30 % reduced switching distance.

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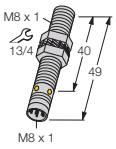
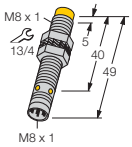
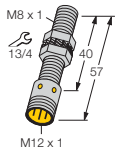
	Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
	NI6U-EH6,5-AP6X	4631500 ✘	S001	1	0...+70	IP68	V4A (1.4404)	PA	PUR 2 m	–	ñ
	NI6U-EH6,5-AN6X	4631520	S004	1	0...+70	IP68	V4A (1.4404)	PA	PUR 2 m	–	ñ

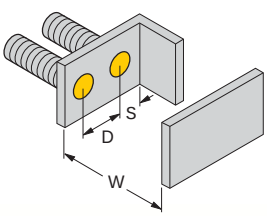
✘ = preferred solution, available at short notice

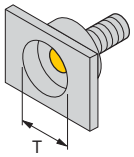
Technical data

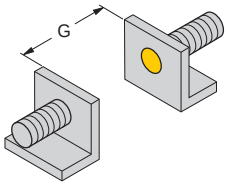
Dimensions/Housing style		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**M8 x 1** {	–	2*, a	© , PNP	10...30 VDC	150 mA, ö	
		teflon	2*, a	© , PNP	10...30 VDC	150 mA, ö	
		–	2*, a	¨ , PNP	10...30 VDC	150 mA, ö	
		–	2*, a	© , NPN	10...30 VDC	150 mA, ö	
		–	2*, a	¨ , NPN	10...30 VDC	150 mA, ö	
	**M8 x 1** {	–	6**, b	© , PNP	10...30 VDC	150 mA, ö	
		–	6**, b	¨ , PNP	10...30 VDC	150 mA, ö	
		–	6**, b	© , NPN	10...30 VDC	150 mA, ö	
	**M8 x 1** {	–	2*, a	© , PNP	10...30 VDC	150 mA, ö	
		teflon	2*, a	© , PNP	10...30 VDC	150 mA, ö	
		–	2*, a	¨ , PNP	10...30 VDC	150 mA, ö	
		–	2*, a	© , NPN	10...30 VDC	150 mA, ö	

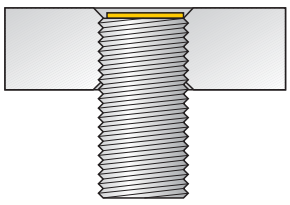
* recessed mounting permitted
** embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance

Housing type M8 x 1 flush









All flush mountable cylindrical uprox+ sensors allow recessed mounting.

Recessed mounting of half a thread turn ensures safe operation

D = 16 mm
W = 6 mm
T = 24 mm
S = 12 mm
G = 12 mm

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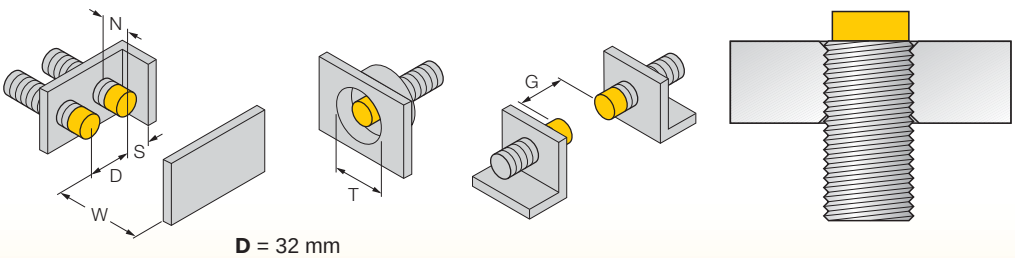
	Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
	BI2U-EG08-AP6X-V1131	4602033 ✘	S002	1	-30...+85	IP68	V4A (1.4404)	PA	–	–	ñ
	BI2U-EGT08-AP6X-V1131	4602070 ✘	S002	1	-30...+85	IP68	V4A (1.4404)-T	PA	–	–	ñ
	BI2U-EG08-RP6X-V1131	4602091 ✘	S175	1	-30...+85	IP68	V4A (1.4404)	PA	–	–	ñ
	BI2U-EG08-AN6X-V1131	4602036	S005	1	-30...+85	IP68	V4A (1.4404)	PA	–	–	ñ
	BI2U-EG08-RN6X-V1131	1637152	S178	1	-30...+85	IP68	V4A (1.4404)	PA	–	–	ñ
	NI6U-EG08-AP6X-V1131	4635801 ✘	S002	1	0...+70	IP68	V4A (1.4404)	PA	–	–	ñ
	NI6U-EG08-RP6X-V1131	4635831 ✘	S175	1	0...+70	IP68	V4A (1.4404)	PA	–	–	ñ
	NI6U-EG08-AN6X-V1131	4635804	S005	1	0...+70	IP68	V4A (1.4404)	PA	–	–	ñ
	BI2U-EG08-AP6X-H1341	4602034 ✘	S002	1	-30...+85	IP68	V4A (1.4404)	PA	–	–	ñ
	BI2U-EGT08-AP6X-H1341	4602071 ✘	S002	1	-30...+85	IP68	V4A (1.4404)-T	PA	–	–	ñ
	BI2U-EG08-RP6X-H1341	4602080 ✘	S056	1	-30...+85	IP68	V4A (1.4404)	PA	–	–	ñ
	BI2U-EG08-AN6X-H1341	4602037	S005	1	-30...+85	IP68	V4A	PA	–	–	ñ

✘ = preferred solution, available at short notice

Housing type M8 x 1 non-flush

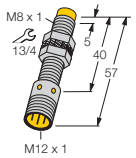
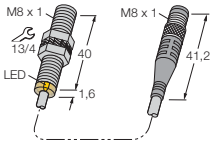
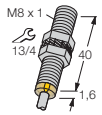
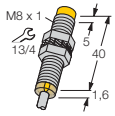


D = 32 mm
W = 18 mm
T = 32 mm
S = 12 mm
G = 36 mm
N = 12 mm

All non-flush mountable cylindrical uprox+ sensors can be mounted to the upper edge of the thread.

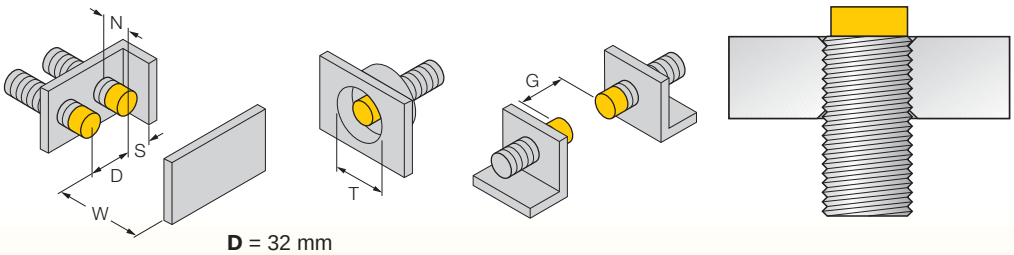
Safe operation is ensured with reduced switching distance.

Technical data

Dimensions/Housing style		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**M8 x 1** {	–	6**, b	© , PNP	10...30 VDC	150 mA, ö	
		–	6**, b	¨ , PNP	10...30 VDC	150 mA, ö	
		–	6**, b	© , NPN	10...30 VDC	150 mA, ö	
	**M8 x 1**]	–	2*, a	© , PNP	10...30 VDC	150 mA, ö	
	**M8 x 1**]	–	2*, a	© , PNP	10...30 VDC	150 mA, ö	
		–	2*, a	© , NPN	10...30 VDC	150 mA, ö	
	**M8 x 1**]	–	6**, b	© , PNP	10...30 VDC	150 mA, ö	
		–	6**, b	© , NPN	10...30 VDC	150 mA, ö	

* recessed mounting permitted
** embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance

Housing type M8 x 1 non-flush



D = 32 mm
W = 18 mm
T = 32 mm
S = 12 mm
G = 36 mm
N = 12 mm

All non-flush mountable cylindrical uprox+ sensors can be mounted to the upper edge of the thread.

Safe operation is ensured with reduced switching distance.

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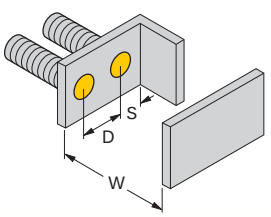
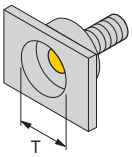
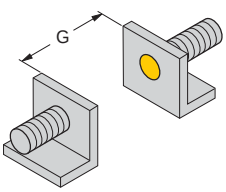
Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
NI6U-EG08-AP6X-H1341	4635802 ✘	S002	1	0...+70	IP68	V4A (1.4404)	PA	–	–	ñ
NI6U-EG08-RP6X-H1341	4635830 ✘	S056	1	0...+70	IP68	V4A (1.4404)	PA	–	–	ñ
NI6U-EG08-AN6X-H1341	4635805	S005	1	0...+70	IP68	V4A (1.4404)	PA	–	–	ñ
BI2U-EG08-AP6X-0,3-PSG3M	4602039	S001	1	-30...+85	IP68	V4A (1.4404)	PA	PUR 0.3 m	–	ñ
BI2U-EG08-AP6X	4602032 ✘	S001	1	-30...+85	IP68	V4A (1.4404)	PA	PUR 2 m	–	ñ
BI2U-EG08-AN6X	4602035 ✘	S004	1	-30...+85	IP68	V4A (1.4404)	PA	PUR 2 m	–	ñ
NI6U-EG08-AP6X	4635800 ✘	S001	1	0...+70	IP68	V4A (1.4404)	PA	PUR 2 m	–	ñ
NI6U-EG08-AN6X	4635803 ✘	S004	1	0...+70	IP68	V4A (1.4404)	PA	PUR 2 m	–	ñ

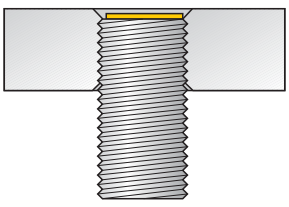
✘ = preferred solution, available at short notice

Housing type M8 x 1 flush







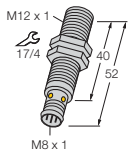
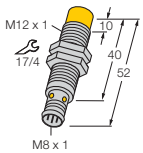


All flush mountable uprox+ threaded barrel sensors allow recessed mounting.

Safe operation is ensured if the sensor is screwed in non-ferritic materials by half a thread turn.

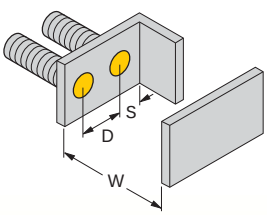
D = 16 mm
W = 6 mm
T = 24 mm
S = 12 mm
G = 12 mm

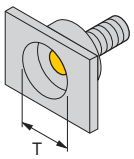
Technical data

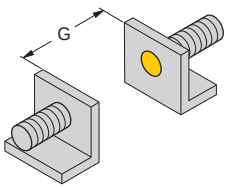
Dimensions/Housing style	Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
M12 x 1	–	4*, a	© , PNP	10...30 VDC	200 mA, ö	
 {	–	4*, a	© , PNP	10...30 VDC	200 mA, ö	
	–	4*, a	© , NPN	10...30 VDC	200 mA, ö	
M12 x 1	–	10**, b	© , PNP	10...30 VDC	200 mA, ö	
 {	–	10**, b	© , NPN	10...30 VDC	200 mA, ö	

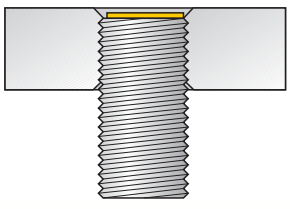
* recessed mounting permitted
** embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance

Housing type M12 x 1 flush









All flush mountable uprox+ threaded barrel sensors allow recessed mounting.

Safe operation is ensured if the sensor is recessed mounted by half a thread turn

D = 24 mm
W = 12 mm
T = 36 mm
S = 18 mm
G = 24 mm

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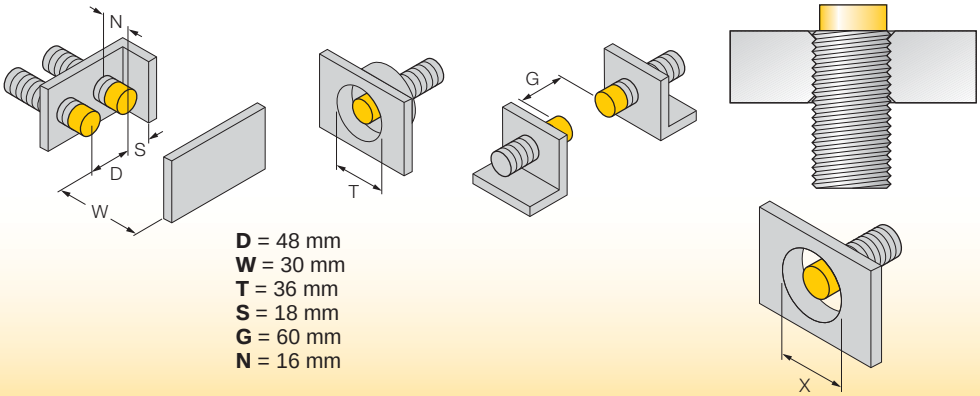
Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
BI4U-M12-AP6X-V1131	1634780 ✘	S002	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
BI4U-EM12-AP6X-V1131	1634909	S002	2	-30...+85	IP68	V2A (1.4301)	LCP	–	–	ñ
BI4U-M12-AN6X-V1131	1635430	S005	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
NI10U-M12-AP6X-V1131	1634790 ✘	S002	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
NI10U-M12-AN6X-V1131	1634795	S005	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ

✘ = preferred solution, available at short notice

3

Housing type M12 x 1 non-flush



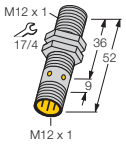
D = 48 mm
W = 30 mm
T = 36 mm
S = 18 mm
G = 60 mm
N = 16 mm

All non-flush mountable uprox+ threaded barrel sensors can be mounted to the upper edge of the thread.

Thus safe operation with a maximum reduction of the switching distance by 20 % is guaranteed.

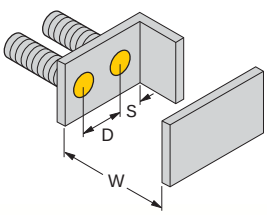
When installed in an aperture plate a clearance of x = 50 mm has to be kept

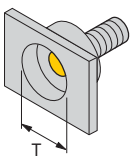
Technical data

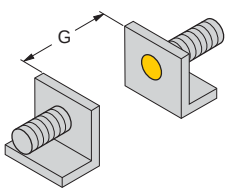
Dimensions/Housing style	Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
 **M12 x 1** {	–	4*, a	© , PNP	10...30 VDC	200 mA, ö	
	teflon	4*, a	© , PNP	10...30 VDC	200 mA, ö	
	–	4*, a	© , PNP	10...30 VDC	200 mA, ö	
	20 bar wash down T -40°C T +100°C	4*, a	© , PNP	10...30 VDC	200 mA, ö	
	É II 3 D 20 bar wash down	4*, a	© , PNP	10...30 VDC	200 mA, ö	
	–	4*, a	¨ , PNP	10...30 VDC	200 mA, ö	
	–	4*, a	© , NPN	10...30 VDC	200 mA, ö	
	teflon	4*, a	© , NPN	10...30 VDC	200 mA, ö	
	–	4*, a	© , NPN	10...30 VDC	200 mA, ö	
	20 bar wash down T -40°C T +100°C	4*, a	© , NPN	10...30 VDC	200 mA, ö	
	É II 3 D 20 bar wash down	4*, a	© , NPN	10...30 VDC	200 mA, ö	

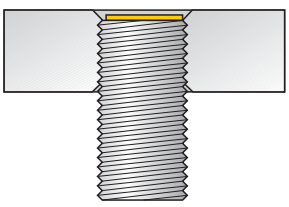
* recessed mounting permitted

Housing type M12 x 1 flush









All flush mountable uprox+ threaded barrel sensors enable recessed mounting.

Safe operation is ensured if the sensor is recessed mounted by half a thread turn.

D = 24 mm
W = 12 mm
T = 36 mm
S = 18 mm
G = 24 mm

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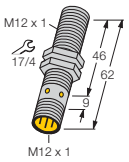
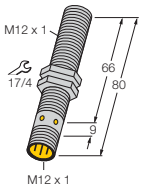
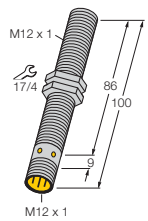
	Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
	BI4U-M12-AP6X-H1141	1634804 ✘	S002	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
	BI4U-MT12-AP6X-H1141	1634809 ✘	S002	2	-30...+85	IP68	CuZn-T	LCP	–	–	ñ
	BI4U-EM12-AP6X-H1141	1634807 ✘	S002	2	-30...+85	IP68	V2A (1.4301)	LCP	–	–	ñ
	BI4U-EM12WD-AP6X-H1141	1634812 ✘	S002	2	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
	BI4U-EM12WD-AP6X-H1141/3D	1634851 ✘	S002	2	-30...+85	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
	Bi4U-M12-RP6X-H1141	1634846 ✘	S056	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
	BI4U-M12-AN6X-H1141	1634824 ✘	S005	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
	BI4U-MT12-AN6X-H1141	1634829	S005	2	-30...+85	IP68	CuZn-T	LCP	–	–	ñ
	BI4U-EM12-AN6X-H1141	1634827	S005	2	-30...+85	IP68	V2A (1.4301)	LCP	–	–	ñ
	BI4U-EM12WD-AN6X-H1141	1634841	S005	2	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
	BI4U-EM12WD-AN6X-H1141/3D	1634852	S005	2	-30...+85	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ

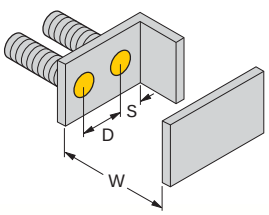
✘ = preferred solution, available at short notice

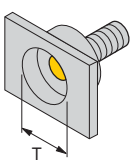
Technical data

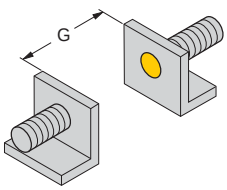
Dimensions/Housing style		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**M12 x 1** {	–	4*, a	© , PNP	10...30 VDC	200 mA, ö	
		teflon	4*, a	© , PNP	10...30 VDC	200 mA, ö	
		–	4*, a	ª , PNP	10...55 VDC	200 mA, ö	
		20 bar wash down	4*, a	ª , PNP	10...55 VDC	200 mA, ö	
		–	4*, a	© , NPN	10...30 VDC	200 mA, ö	
		–	4*, a	ª , NPN	10...55 VDC	200 mA, ö	
		–	2*, a	© , 2-wire	10...65 VDC	100 mA, ö	
		teflon	2*, a	© , 2-wire	10...65 VDC	100 mA, ö	
	**M12 x 1** {	–	4*, a	ª , PNP	10...55 VDC	200 mA, ö	
	**M12 x 1** {	–	4*, a	ª , PNP	10...55 VDC	200 mA, ö	

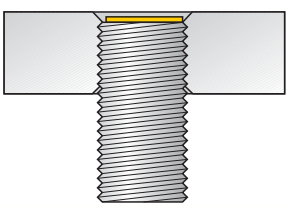
* recessed mounting permitted

Housing type M12 x 1 flush









All flush mountable uprox+ threaded barrel sensors enable recessed mounting.

Safe operation is ensured if the sensor is recessed mounted by half a thread turn.

	D	W	T	S	G
BI2U	24 mm	6 mm	36 mm	18 mm	12 mm
BI4U	24 mm	12 mm	36 mm	18 mm	24 mm

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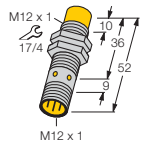
Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
BI4U-M12E-AP6X-H1141	1634845 ✘	S002	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
BI4U-MT12E-AP6X-H1141	1644758 ✘	S002	2	-30...+85	IP68	CuZn-T	LCP	–	–	ñ
BI4U-M12E-VP44X-H1141	1634869 ✘	S007	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
BI4U-EM12EWD-VP44X-H1141	1634905 ✘	S007	2	-30...+85	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
BI4U-M12E-AN6X-H1141	1634863	S005	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
BI4U-M12E-VN44X-H1141	1634873 ✘	S011	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
BI2U-M12E-AD4X-H1144	4405060 ✘	S179	0.01	0...+70	IP68	CuZn-Cr	LCP	–	–	ñ
BI2U-MT12E-AD4X-H1144	4405061 ✘	S179	0.01	0...+70	IP68	CuZn-T	LCP	–	–	ñ
BI4U-M12-VP44X-H1141 L80	1634918 ✘	S007	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
BI4U-M12-VP44X-H1141 L100	1634917 ✘	S007	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ

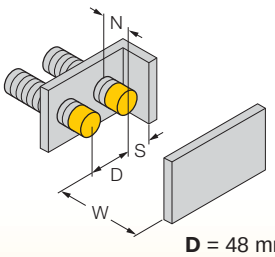
✘ = preferred solution, available at short notice

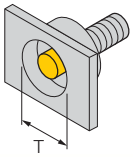
Technical data

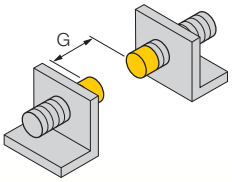
Dimensions/Housing style	Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
 **M12 x 1** {	–	10*, b	© , PNP	10...30 VDC	200 mA, ö	
	teflon	10*, b	© , PNP	10...30 VDC	200 mA, ö	
	–	10*, b	© , PNP	10...30 VDC	200 mA, ö	
	20 bar wash down T -40°C T +100°C	10*, b	© , PNP	10...30 VDC	200 mA, ö	
	É II 3 D 20 bar wash down	10*, b	© , PNP	10...30 VDC	200 mA, ö	
	–	10*, b	¨ , PNP	10...30 VDC	200 mA, ö	
	–	10*, b	© , NPN	10...30 VDC	200 mA, ö	
	teflon	10*, b	© , NPN	10...30 VDC	200 mA, ö	
	–	10*, b	© , NPN	10...30 VDC	200 mA, ö	
	20 bar wash down T -40°C T +100°C	10*, b	© , NPN	10...30 VDC	200 mA, ö	
	É II 3 D 20 bar wash down	10*, b	© , NPN	10...30 VDC	200 mA, ö	

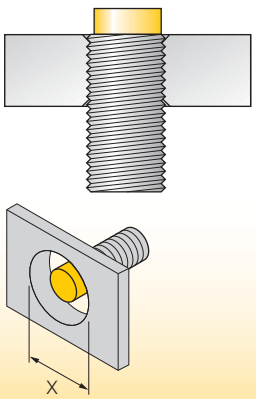
* embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance

Housing type M12 x 1 non-flush









D = 48 mm
W = 30 mm
T = 36 mm
S = 18 mm
G = 60 mm
N = 16 mm

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Thus safe operation with a maximum reduction of the switching distance by 20 % is guaranteed.

When installed in an aperture plate a clearance of x = 50 mm has to be kept

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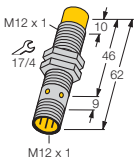
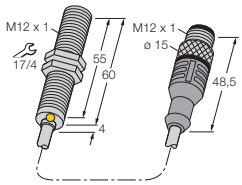
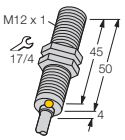
Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
NI10U-M12-AP6X-H1141	1634806 ✘	S002	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
NI10U-MT12-AP6X-H1141	1634810 ✘	S002	1	-30...+85	IP68	CuZn-T	LCP	–	–	ñ
NI10U-EM12-AP6X-H1141	1634808 ✘	S002	1	-30...+85	IP68	V2A (1.4301)	LCP	–	–	ñ
NI10U-EM12WD-AP6X-H1141	1634814 ✘	S002	1	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
NI10U-EM12WD-AP6X-H1141/3D	1634857 ✘	S002	1	-30...+85	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
NI10U-M12-RP6X-H1141	1634848 ✘	S056	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
NI10U-M12-AN6X-H1141	1634826 ✘	S005	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
NI10U-MT12-AN6X-H1141	1634830	S005	1	-30...+85	IP68	CuZn-T	LCP	–	–	ñ
NI10U-EM12-AN6X-H1141	1634828	S005	1	-30...+85	IP68	V2A (1.4301)	LCP	–	–	ñ
NI10U-EM12WD-AN6X-H1141	1634837	S005	1	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
NI10U-EM12WD-AN6X-H1141/3D	1634858	S005	1	-30...+85	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ

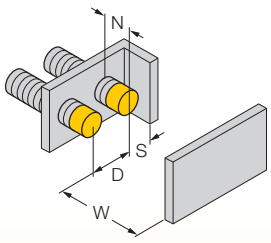
✘ = preferred solution, available at short notice

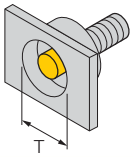
Technical data

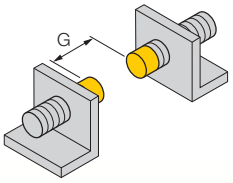
Dimensions/Housing style		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**M12 x 1** {	–	10**, b	© , PNP	10...30 VDC	200 mA, ö	
		20 bar wash down	10**, b	© , PNP	10...30 VDC	200 mA, ö	
		–	10**, b	ª , PNP	10...55 VDC	200 mA, ö	
		20 bar wash down	10**, b	ª , PNP	10...55 VDC	200 mA, ö	
		–	10**, b	© , PNP	10...30 VDC	200 mA, ö	
		–	10**, b	ª , NPN	10...55 VDC	200 mA, ö	
		–	5**, b	© , 2-wire	10...65 VDC	100 mA, ö	
		teflon	5**, b	© , 2-wire	10...65 VDC	100 mA, ö	
	**M12 x 1** {	teflon	2*, a	© , 2-wire	10...65 VDC	100 mA, ö	
	**M12 x 1**]	–	4*, a	© , PNP	10...30 VDC	200 mA, ö	
		–	4*, a	¨ , PNP	10...30 VDC	200 mA, ö	
		–	4*, a	© , NPN	10...30 VDC	200 mA, ö	

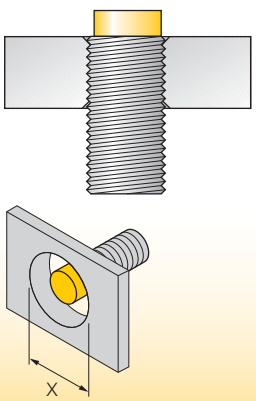
* recessed mounting permitted
** embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance

Housing type M12 x 1 non-flush









	D	W	T	S	G	N
Ni5U	36 mm	15 mm	36 mm	18 mm	30 mm	10 mm
Ni10U	48 mm	30 mm	36 mm	18 mm	60 mm	16 mm

All non-flush mountable uprox+ threaded barrel sensors can be mounted to the upper edge of the thread.

Thus safe operation with a maximum reduction of the switching distance by 20 % is guaranteed.

When installed in an aperture plate a clearance of x = 50 mm has to be kept

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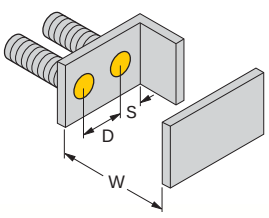
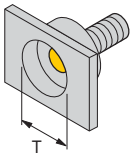
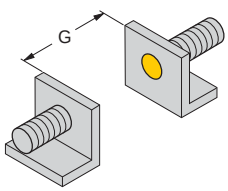
Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
NI10U-M12E-AP6X-H1141	1634901	S002	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
NI10U-EM12EWD-AP6X-H1141	1634908	S002	1	-30...+85	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
NI10U-M12E-VP44X-H1141	1634871 ✘	S007	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
NI10U-EM12EWD-VP44X-H1141	1634896	S007	1	-30...+85	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
NI10U-M12E-AN6X-H1141	1634902	S002	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
NI10U-M12E-VN44X-H1141	1634875 ✘	S011	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
NI5U-M12E-AD4X-H1144	4405063 ✘	S179	0.01	0...+70	IP68	CuZn-Cr	LCP	–	–	ñ
NI5U-MT12E-AD4X-H1144	4405065 ✘	S179	0.01	0...+70	IP68	CuZn-T	LCP	–	–	ñ
BI2U-MT12E-AD4X-0,3-RS4.23/XOR	4405048 ✘	S179	0.01	0...+70	IP68	CuZn-T	LCP	PVC 0.3 m	–	ñ
BI4U-M12-AP6X	1634803 ✘	S001	2	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
BI4U-M12-RP6X	1634866	S054	2	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
BI4U-M12-AN6X	1634823	S004	2	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ

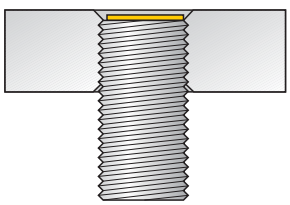
✘ = preferred solution, available at short notice

Housing type M12 x 1 flush







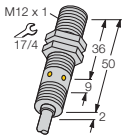
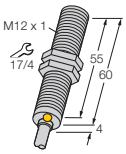
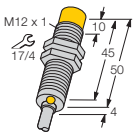


All flush mountable uprox+ threaded barrel sensors enable recessed mounting.

Safe operation is ensured if the sensor is recessed mounted by half a thread turn.

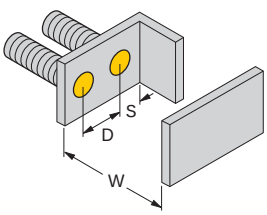
	D	W	T	S	G
BI2U	24 mm	6 mm	36 mm	18 mm	12 mm
BI4U	24 mm	12 mm	36 mm	18 mm	24 mm

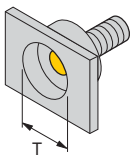
Technical data

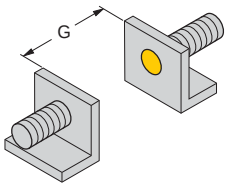
Dimensions/Housing style		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**M12 x 1**]	20 bar wash down T -40°C T +100°C	4*, a	© , PNP	10...30 VDC	200 mA, ö	
		20 bar wash down T -40°C T +100°C	4*, a	© , NPN	10...30 VDC	200 mA, ö	
	**M12 x 1**]	–	4*, a	ª , PNP	10...55 VDC	200 mA, ö	
		–	4*, a	ª , NPN	10...55 VDC	200 mA, ö	
		–	2*, a	© , 2-wire	10...65 VDC	100 mA, ö	
	**M12 x 1**]	–	10**, b	© , PNP	10...30 VDC	200 mA, ö	
		–	10**, b	¨ , PNP	10...30 VDC	200 mA, ö	
		–	10**, b	© , NPN	10...30 VDC	200 mA, ö	

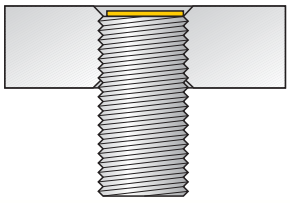
* recessed mounting permitted
** embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance

Housing type M12 x 1 flush









All flush mountable uprox+ threaded barrel sensors enable recessed mounting.

Safe operation is ensured if the sensor is recessed mounted by half a thread turn.

	D	W	T	S	G
BI2U	24 mm	6 mm	36 mm	18 mm	12 mm
BI4U	24 mm	12 mm	36 mm	18 mm	24 mm

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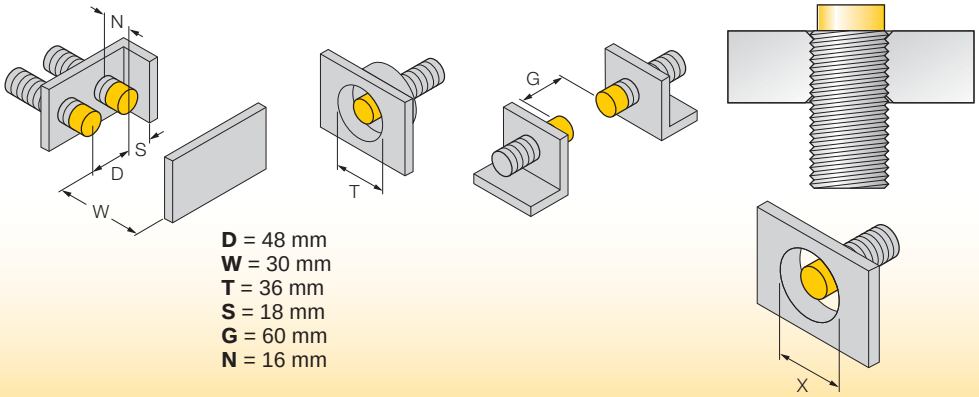
	Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
	BI4U-EM12WD-AP6X	1634811 ✘	S001	2	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	PP 2 m	–	ñ
	BI4U-EM12WD-AN6X	1634842	S004	2	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	PP 2 m	–	ñ
	BI4U-M12E-VP44X	1634868 ✘	S007	2	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
	BI4U-M12E-VN44X	1634872	S010	2	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
	BI2U-M12E-AD4X	4405062 ✘	S013	0.01	0...+70	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
	NI10U-M12-AP6X	1634805 ✘	S001	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
	NI10U-M12-RP6X	1634921	S054	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
	NI10U-M12-AN6X	1634825 ✘	S004	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ

✘ = preferred solution, available at short notice

Housing type M12 x 1 non-flush



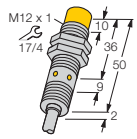
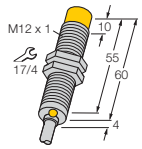
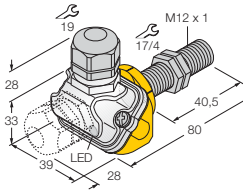
D = 48 mm
W = 30 mm
T = 36 mm
S = 18 mm
G = 60 mm
N = 16 mm

All non-flush mountable uprox+ threaded barrel sensors can be mounted to the upper edge of the thread.

Thus safe operation with a maximum reduction of the switching distance by 20 % is guaranteed.

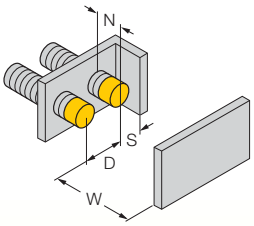
When installed in an aperture plate a clearance of x = 50 mm has to be kept

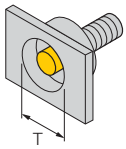
Technical data

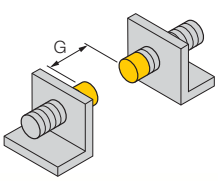
Dimensions/Housing style		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**M12 x 1**]	20 bar wash down T -40°C T +100°C	10**, b	©, PNP	10...30 VDC	200 mA, ö	
		20 bar wash down T -40°C T +100°C	10**, b	©, NPN	10...30 VDC	200 mA, ö	
	**M12 x 1**]	–	10**, b	[a], PNP	10...55 VDC	200 mA, ö	
		–	10**, b	[a], NPN	10...55 VDC	200 mA, ö	
		–	5**, b	©, 2-wire	10...65 VDC	100 mA, ö	
	**M12 x 1** }	20 bar wash down	4*, a	©, PNP	10...30 VDC	200 mA, ö	

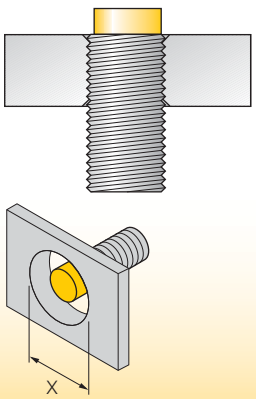
* recessed mounting permitted
** embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance

Housing type M12 x 1 flush









	D	W	T	S	G	N
Ni5U	36 mm	15 mm	36 mm	18 mm	30 mm	10 mm
Ni10U	48 mm	30 mm	36 mm	18 mm	60 mm	16 mm

All non-flush mountable uprox+ threaded barrel sensors can be mounted to the upper edge of the thread.

Thus safe operation with a maximum reduction of the switching distance by 20 % is guaranteed.

When installed in an aperture plate a clearance of x = 50 mm has to be kept

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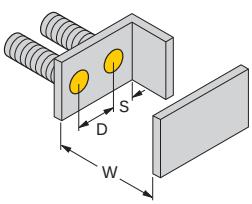
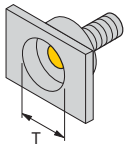
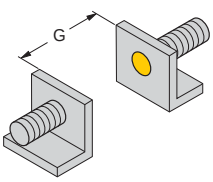
	Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
	NI10U-EM12WD-AP6X	1634813 ✘	S001	1	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	PP 2 m	–	ñ
	NI10U-EM12WD-AN6X	1634838	S004	1	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	PP 2 m	–	ñ
	NI10U-M12E-VP44X	1634870 ✘	S007	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
	NI10U-M12E-VN44X	1634874	S010	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
	NI5U-M12E-AD4X	4405064 ✘	S013	0.01	0...+70	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
	BI4U-EM12WDTC-AP6X	1634760 ✘	S003	2	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ

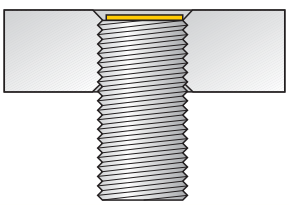
✘ = preferred solution, available at short notice

Housing type M12 x 1 flush







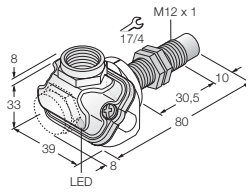


All flush mountable uprox+ threaded barrel sensors enable recessed mounting.

Safe operation is ensured if the sensor is recessed mounted by half a thread turn.

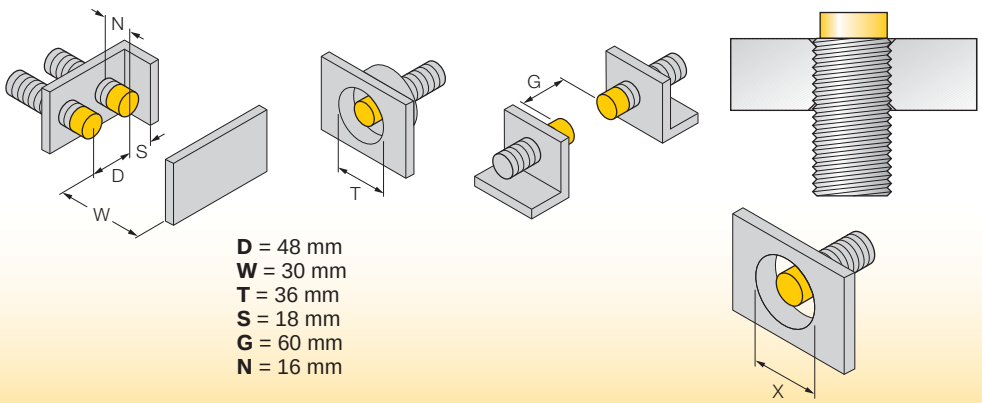
D = 24 mm
W = 12 mm
T = 36 mm
S = 18 mm
G = 24 mm

Technical data

Dimensions/Housing style	Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
M12 x 1 } 	20 bar wash down	10*, b	© , PNP	10...30 VDC	200 mA, ö	

* embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance

Housing type M12 x 1 non-flush



D = 48 mm
W = 30 mm
T = 36 mm
S = 18 mm
G = 60 mm
N = 16 mm

All non-flush mountable uprox+ threaded barrel sensors can be mounted to the upper edge of the thread.

Thus safe operation with a maximum reduction of the switching distance by 20 % is guaranteed.

When installed in an aperture plate a clearance of x = 50 mm has to be kept

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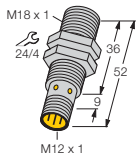
	Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
	NI10U-EM12WDTC-AP6X	1634761 ✘	S003	1	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ

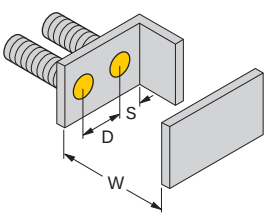
✘ = preferred solution, available at short notice

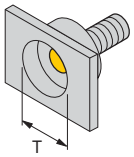
Technical data

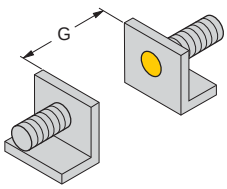
Dimensions/Housing style		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**M18 x 1** {	–	8*, a	© , PNP	10...30 VDC	200 mA, ö	
		teflon	8*, a	© , PNP	10...30 VDC	200 mA, ö	
		–	8*, a	© , PNP	10...30 VDC	200 mA, ö	
		15 bar wash down T -40°C T +100°C	8*, a	© , PNP	10...30 VDC	200 mA, ö	
		É II 3 G É II 3 D 15 bar wash down	8*, a	© , PNP	10...30 VDC	200 mA, ö	
		–	8*, a	¨ , PNP	10...30 VDC	200 mA, ö	
		–	8*, a	© , NPN	10...30 VDC	200 mA, ö	
		teflon	8*, a	© , NPN	10...30 VDC	200 mA, ö	
		–	8*, a	© , NPN	10...30 VDC	200 mA, ö	
		15 bar wash down T -40°C T +100°C	8*, a	© , NPN	10...30 VDC	200 mA, ö	
		É II 3 G É II 3 D 15 bar wash down	8*, a	© , NPN	10...30 VDC	200 mA, ö	

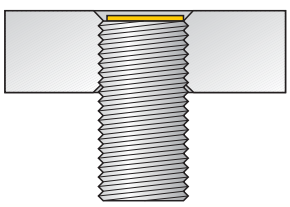
* recessed mounting permitted

Housing type M18 x 1 flush









All flush mountable uprox+ threaded barrel sensors enable recessed mounting.

Safe operation is ensured if the sensor is recessed mounted by half a thread turn.

D = 36 mm
W = 24 mm
T = 54 mm
S = 27 mm
G = 48 mm

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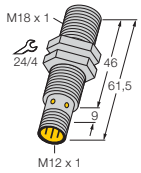
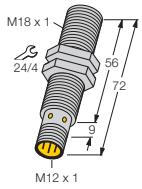
Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
BI8U-M18-AP6X-H1141	1644731 ✘	S002	1.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
BI8U-MT18-AP6X-H1141	1644730 ✘	S002	1.5	-30...+85	IP68	CuZn-T	LCP	–	–	ñ
BI8U-EM18-AP6X-H1141	1644734 ✘	S002	1.5	-30...+85	IP68	V2A (1.4301)	LCP	–	–	ñ
BI8U-EM18WD-AP6X-H1141	1634816 ✘	S002	1.5	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
BI8U-EM18WD-AP6X-H1141/3GD	1634853 ✘	S002	1.5	-30...+85	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
BI8U-M18-RP6X-H1141	1644750 ✘	S056	1.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
BI8U-M18-AN6X-H1141	1644737 ✘	S005	1.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
BI8U-MT18-AN6X-H1141	1644739	S005	1.5	-30...+85	IP68	CuZn-T	LCP	–	–	ñ
BI8U-EM18-AN6X-H1141	1644738	S005	1.5	-30...+85	IP68	V2A (1.4301)	LCP	–	–	ñ
BI8U-EM18WD-AN6X-H1141	1634839	S005	1.5	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
BI8U-EM18WD-AN6X-H1141/3GD	1634854	S005	1.5	-30...+85	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ

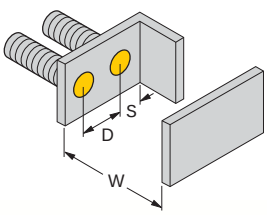
✘ = preferred solution, available at short notice

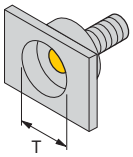
Technical data

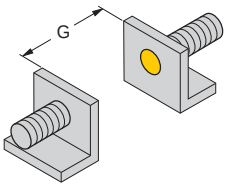
Dimensions/Housing style		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**M18 x 1**	–	8*, a	ª , PNP	10...55 VDC	200 mA, ö	
	{	15 bar wash down	8*, a	ª , PNP	10...55 VDC	200 mA, ö	
		–	8*, a	ª , NPN	10...55 VDC	200 mA, ö	
		–	5*, a	© , 2-wire	10...65 VDC	100 mA, ö	
		teflon	5*, a	© , 2-wire	10...65 VDC	100 mA, ö	
	**M18 x 1**	–	8*, a	© , PNP	10...30 VDC	200 mA, ö	
	{	teflon	8*, a	© , PNP	10...30 VDC	200 mA, ö	
		–	8*, a	© , PNP	10...30 VDC	200 mA, ö	
		–	8*, a	© , NPN	10...30 VDC	200 mA, ö	

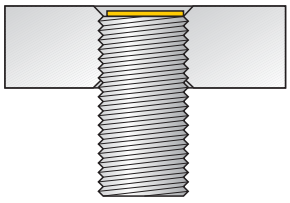
* recessed mounting permitted

Housing type M18 x 1 flush









All flush mountable uprox+ threaded barrel sensors enable recessed mounting.

Safe operation is ensured if the sensor is recessed mounted by half a thread turn.

	D	W	T	S	G
BI5U	36 mm	15 mm	54 mm	27 mm	30 mm
BI8U	36 mm	24 mm	54 mm	27 mm	48 mm

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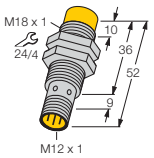
Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
BI8U-M18M-VP44X-H1141	1634877 ✘	S007	1.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
BI8U-EM18MWD-VP44X-H1141	1634897	S007	1.5	-30...+85	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
BI8U-M18M-VN44X-H1141	1634881 ✘	S011	1.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
BI5U-M18M-AD4X-H1144	4405066 ✘	S179	0.01	-25...+70	IP68	CuZn-Cr	LCP	–	–	ñ
BI5U-MT18M-AD4X-H1144	4405068 ✘	S179	0.01	-25...+70	IP68	CuZn-T	LCP	–	–	ñ
BI8U-M18E-AP6X-H1141	1644735 ✘	S002	1.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
BI8U-MT18E-AP6X-H1141	1644752	S002	2.5	-30...+85	IP68	CuZn-T	LCP	–	–	ñ
BI8U-EM18E-AP6X-H1141	1634865	S002	1.5	-30...+85	IP68	V2A (1.4301)	LCP	–	–	ñ
BI8U-M18E-AN6X-H1141	1644751	S005	1.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ

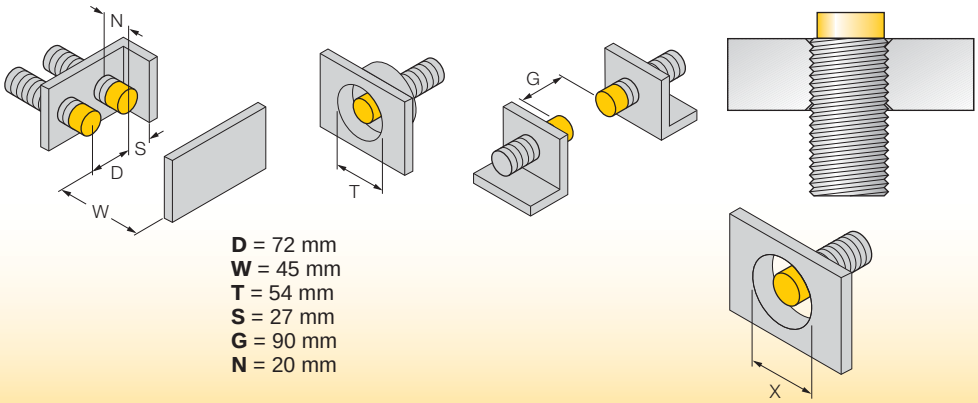
✘ = preferred solution, available at short notice

Technical data

Dimensions/Housing style	Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
 **M18 x 1** {	–	15*, b	© , PNP	10...30 VDC	200 mA, ö	
	teflon	15*, b	© , PNP	10...30 VDC	200 mA, ö	
	–	15*, b	© , PNP	10...30 VDC	200 mA, ö	
	15 bar wash down T -40°C T +100°C	15*, b	© , PNP	10...30 VDC	200 mA, ö	
	É II 3 D 15 bar wash down	15*, b	© , PNP	10...30 VDC	200 mA, ö	
	–	15*, b	¨ , PNP	10...30 VDC	200 mA, ö	
	–	15*, b	© , NPN	10...30 VDC	200 mA, ö	
	teflon	15*, b	© , NPN	10...30 VDC	200 mA, ö	
	–	15*, b	© , NPN	10...30 VDC	200 mA, ö	
	15 bar wash down T -40°C T +100°C	15*, b	© , NPN	10...30 VDC	200 mA, ö	
	É II 3 D 15 bar wash down	15*, b	© , NPN	10...30 VDC	200 mA, ö	

* embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance

Housing type M18 x 1 flush



D = 72 mm
W = 45 mm
T = 54 mm
S = 27 mm
G = 90 mm
N = 20 mm

All non-flush mountable uprox+ threaded barrel sensors can be mounted to the upper edge of the thread.

Thus safe operation with a maximum reduction of the switching distance by 20 % is guaranteed.

When installed in an aperture plate a clearance of x = 70 mm has to be kept

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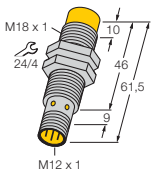
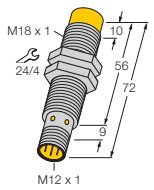
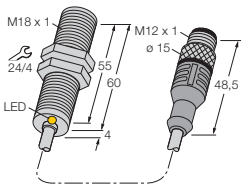
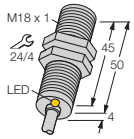
Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
NI15U-M18-AP6X-H1141	1635331 ✘	S002	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
NI15U-MT18-AP6X-H1141	1635333 ✘	S002	1	-30...+85	IP68	CuZn-T	LCP	–	–	ñ
NI15U-EM18-AP6X-H1141	1635332 ✘	S002	1	-30...+85	IP68	V2A (1.4301)	LCP	–	–	ñ
NI15U-EM18WD-AP6X-H1141	1634818 ✘	S002	1	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
NI15U-EM18WD-AP6X-H1141/3D	1634859 ✘	S002	1	-30...+85	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
NI15U-M18-RP6X-H1141	1635450 ✘	S056	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
NI15U-M18-AN6X-H1141	1635335 ✘	S005	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
NI15U-MT18-AN6X-H1141	1635337	S005	1	-30...+85	IP68	CuZn-T	LCP	–	–	ñ
NI15U-EM18-AN6X-H1141	1635336	S005	1	-30...+85	IP68	V2A (1.4301)	LCP	–	–	ñ
NI15U-EM18WD-AN6X-H1141	1634835	S005	1	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
NI15U-EM18WD-AN6X-H1141/3D	1634860	S005	1	-30...+85	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ

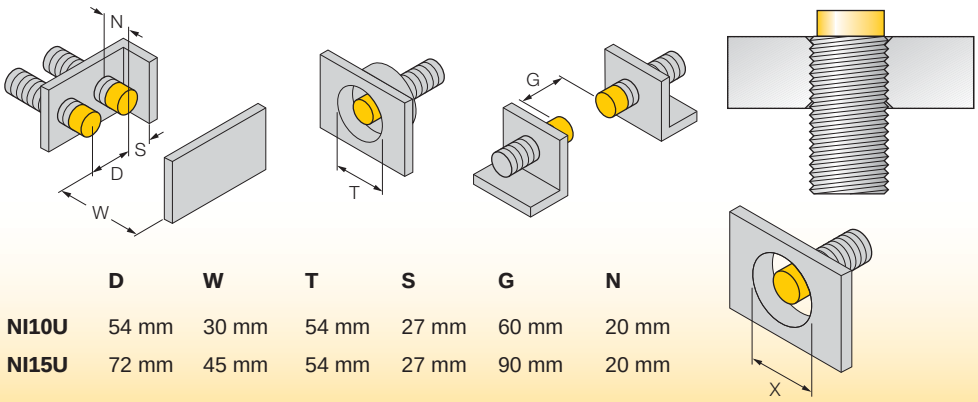
✘ = preferred solution, available at short notice

Technical data

Dimensions/Housing style		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**M18 x 1** {	–	15**, b	ª , PNP	10...55 VDC	200 mA, ö	
		15 bar wash down	15**, b	ª , PNP	10...55 VDC	200 mA, ö	
		–	15**, b	ª , NPN	10...55 VDC	200 mA, ö	
		–	10**, b	© , 2-wire	10...65 VDC	100 mA, ö	
		teflon	10**, b	© , 2-wire	10...65 VDC	100 mA, ö	
	**M18 x 1** {	–	15**, b	© , PNP	10...30 VDC	200 mA, ö	
		teflon	15**, b	© , PNP	10...30 VDC	200 mA, ö	
		–	15**, b	© , PNP	10...30 VDC	200 mA, ö	
		–	15**, b	© , NPN	10...30 VDC	200 mA, ö	
	**M18 x 1** {	teflon	5*, a	© , 2-wire	10...65 VDC	100 mA, ö	
	**M18 x 1**]	–	8*, a	© , PNP	10...30 VDC	200 mA, ö	
		–	8*, a	© , NPN	10...30 VDC	200 mA, ö	

* recessed mounting permitted
** embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance

Housing type M18 x 1 non-flush



	D	W	T	S	G	N
NI10U	54 mm	30 mm	54 mm	27 mm	60 mm	20 mm
NI15U	72 mm	45 mm	54 mm	27 mm	90 mm	20 mm

All non-flush mountable uprox+ threaded barrel sensors can be mounted to the upper edge of the thread.

Thus safe operation with a maximum reduction of the switching distance by 20 % is guaranteed.

When installed in an aperture plate a clearance of x = 70 mm has to be kept

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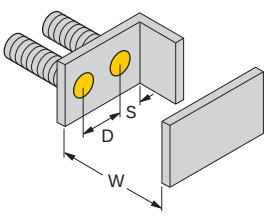
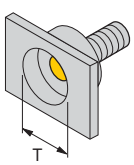
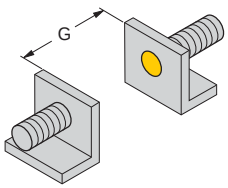
Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
NI15U-M18M-VP44X-H1141	1634879 ✘	S007	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
NI15U-EM18MWD-VP44X-H1141	1634898	S007	1	-30...+85	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
NI15U-M18M-VN44X-H1141	1634883 ✘	S011	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
NI10U-M18M-AD4X-H1144	4405069 ✘	S179	0.01	-25...+70	IP68	CuZn-Cr	LCP	–	–	ñ
NI10U-MT18M-AD4X-H1144	4405071 ✘	S179	0.01	-25...+70	IP68	CuZn-T	LCP	–	–	ñ
NI15U-M18E-AP6X-H1141	1635352	S002	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
Ni15U-MT18E-AP6X-H1141	1635339 ✘	S002	1	-30...+85	IP68	CuZn-T	LCP	–	–	ñ
NI15U-EM18E-AP6X-H1141	1635372	S002	1	-30...+85	IP68	V2A (1.4301)	LCP	–	–	ñ
NI15U-M18E-AN6X-H1141	1635353	S005	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
BI5U-MT18M-AD4X-0,3-RS4.23/XOR	4405049 ✘	S179	0.01	-25...+70	IP68	CuZn-T	PBT	PVC 0,3 m	–	ñ
BI8U-M18-AP6X	1644733 ✘	S001	1.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
BI8U-M18-AN6X	1644736	S004	1.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ

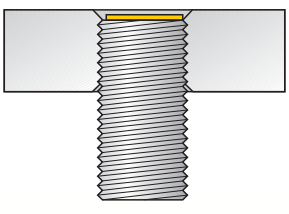
✘ = preferred solution, available at short notice

Housing type M18 x 1 flush







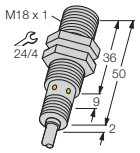
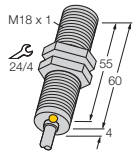
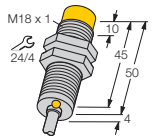


All flush mountable uprox+ threaded barrel sensors enable recessed mounting.

Safe operation is ensured if the sensor is recessed mounted by half a thread turn.

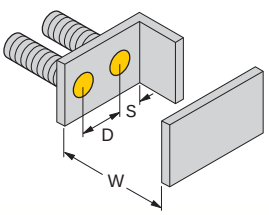
	D	W	T	S	G
BI5U	36 mm	15 mm	54 mm	27 mm	30 mm
BI8U	36 mm	24 mm	54 mm	27 mm	48 mm

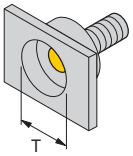
Technical data

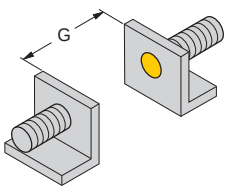
Dimensions/Housing style		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**M18 x 1**]	15 bar wash down T -40°C T +100°C	8*, a	© , PNP	10...30 VDC	200 mA, ö	
		15 bar wash down T -40°C T +100°C	8*, a	© , NPN	10...30 VDC	200 mA, ö	
	**M18 x 1**]	–	8*, a	© , PNP	10...30 VDC	200 mA, ö	
		–	8*, a	ª , PNP	10...55 VDC	200 mA, ö	
		–	8*, a	ª , NPN	10...55 VDC	200 mA, ö	
		–	5*, a	© , 2-wire	10...65 VDC	100 mA, ö	
	**M18 x 1**]	–	15**, b	© , PNP	10...30 VDC	200 mA, ö	
		–	15**, b	© , NPN	10...30 VDC	200 mA, ö	

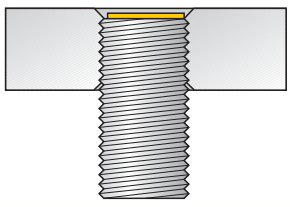
* recessed mounting permitted
** embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance

Housing type M18 x 1 flush









All flush mountable uprox+ threaded barrel sensors enable ecessed mounting.

Safe operation is ensured if the sensor is recessed mounted by half a thread turn.

	D	W	T	S	G
BI5U	36 mm	15 mm	54 mm	27 mm	30 mm
BI8U	36 mm	24 mm	54 mm	27 mm	48 mm

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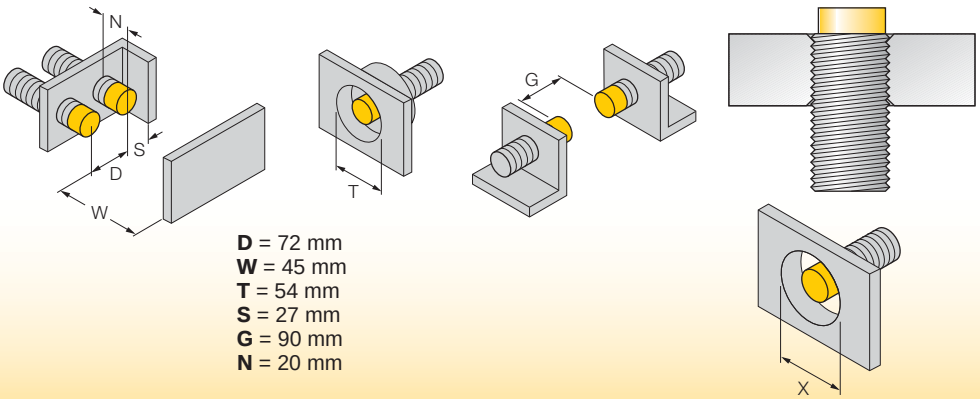
Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
BI8U-EM18WD-AP6X	1634815 ✘	S001	1.5	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	PP 2 m	–	ñ
BI8U-EM18WD-AN6X	1634840	S004	1.5	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	PP 2 m	–	ñ
BI8U-M18E-AP6X	1644732	S001	1.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
BI8U-M18M-VP44X	1634876 ✘	S007	1.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
BI8U-M18M-VN44X	1634880	S010	1.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
BI5U-M18M-AD4X	4405067 ✘	S013	0.01	-25...+70	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
NI15U-M18-AP6X	1635330 ✘	S001	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
NI15U-M18-AN6X	1635334	S004	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ

✘ = preferred solution, available at short notice

Housing type M18 x 1 non-flush



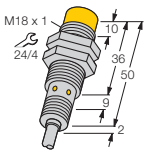
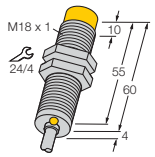
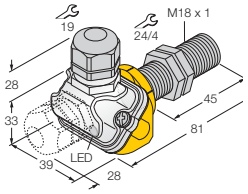
D = 72 mm
W = 45 mm
T = 54 mm
S = 27 mm
G = 90 mm
N = 20 mm

All non-flush mountable uprox+ threaded barrel sensors can be mounted to the upper edge of the thread.

Thus safe operation with a maximum reduction of the switching distance by 20 % is guaranteed.

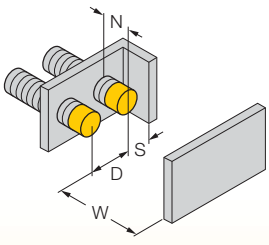
When installed in an aperture plate a clearance of x = 70 mm has to be kept

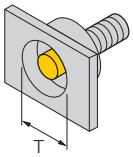
Technical data

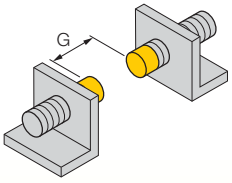
Dimensions/Housing style		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**M18 x 1**]	15 bar wash down T -40°C, T +100°C	15**, b	© , PNP	10...30 VDC	200 mA, ö	
		15 bar wash down T -40°C T +100°C	15**, b	© , NPN	10...30 VDC	200 mA, ö	
	**M18 x 1**]	–	15**, b	ª , PNP	10...55 VDC	200 mA, ö	
		–	15**, b	ª , NPN	10...55 VDC	200 mA, ö	
		–	10**, b	© , 2-wire	10...65 VDC	100 mA, ö	
	**M18 x 1** }	15 bar wash down	8*, a	© , PNP	10...30 VDC	200 mA, ö	

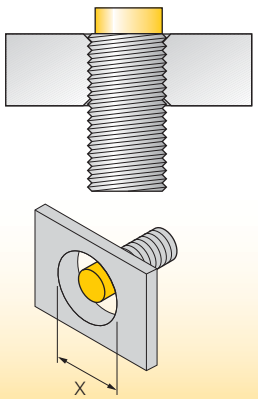
* recessed mounting permitted
** embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance

Housing type M18 x 1 non-flush









	D	W	T	S	G	N
NI10U	54 mm	30 mm	54 mm	27 mm	60 mm	20 mm
NI15U	72 mm	45 mm	54 mm	27 mm	90 mm	20 mm

All non-flush mountable uprox+ threaded barrel sensors can be mounted to the upper edge of the thread.

Thus safe operation with a maximum reduction of the switching distance by 20 % is guaranteed.

When installed in an aperture plate a clearance of x = 70 mm has to be kept

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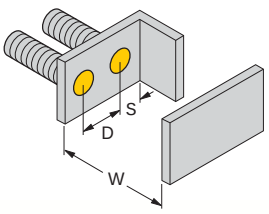
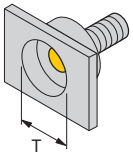
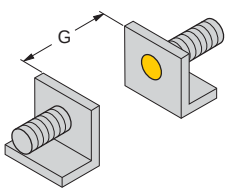
	Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
	NI15U-EM18WD-AP6X	1634817 ✘	S001	1	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	PP 2 m	–	ñ
	NI15U-EM18WD-AN6X	1634836	S004	1	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	PP 2 m	–	ñ
	NI15U-M18M-VP44X	1634878 ✘	S007	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
	NI15U-M18M-VN44X	1634882	S010	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
	NI10U-M18M-AD4X	4405070 ✘	S013	0.01	-25...+70	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
	BI8U-EM18WDTC-AP6X	1634762 ✘	S003	1.5	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ

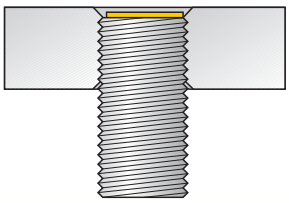
✘ = preferred solution, available at short notice

Housing type M18 x 1 flush







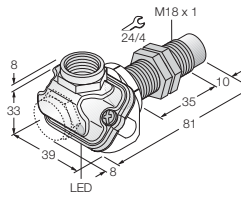


All flush mountable uprox+ threaded barrel sensors enable recessed mounting.

Safe operation is ensured if the sensor is recessed mounted by half a thread turn.

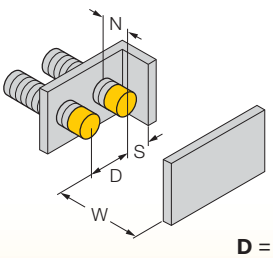
D = 36 mm
W = 24 mm
T = 54 mm
S = 27 mm
G = 48 mm

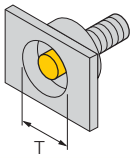
Technical data

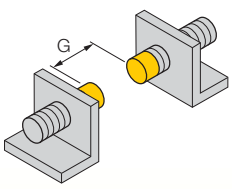
Dimensions/Housing style	Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
 **M18 x 1** }	15 bar wash down	15*, b	© , PNP	10...30 VDC	200 mA, ö	

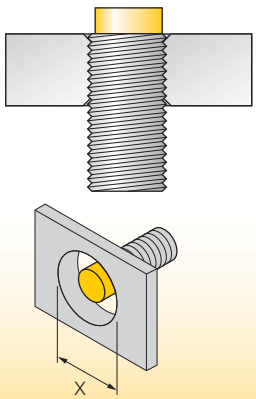
* embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance

Housing type M18 x 1 non-flush









D = 72 mm
W = 45 mm
T = 54 mm
S = 27 mm
G = 90 mm
N = 20 mm

All non-flush mountable uprox+ threaded barrel sensors can be mounted to the upper edge of the thread.

Thus safe operation with a maximum reduction of the switching distance by 20 % is guaranteed.

When installed in an aperture plate a clearance of x = 70 mm has to be kept

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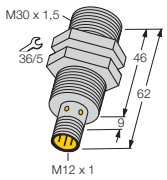
	Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
	NI15U-EM18WDTC-AP6X	1634763 ✘	S003	1	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ

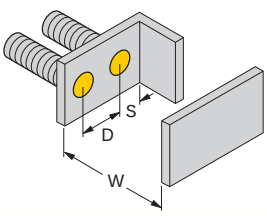
✘ = preferred solution, available at short notice

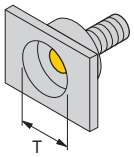
Technical data

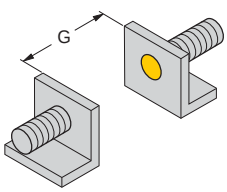
Dimensions/Housing style	Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
 **M30 x 1,5** {	–	15*, a	© , PNP	10...30 VDC	200 mA, ö	
	teflon	15*, a	© , PNP	10...30 VDC	200 mA, ö	
	–	15*, a	© , PNP	10...30 VDC	200 mA, ö	
	10 bar wash down T -40°C T +100°C	15*, a	© , PNP	10...30 VDC	200 mA, ö	
	É II 3 G É II 3 D 10 bar wash down	15*, a	© , PNP	10...30 VDC	200 mA, ö	
	–	15*, a	ª , PNP	10...55 VDC	200 mA, ö	
	10 bar wash down	15*, a	ª , PNP	10...55 VDC	200 mA, ö	
	–	15*, a	¨ , PNP	10...30 VDC	200 mA, ö	
	–	15*, a	© , NPN	10...30 VDC	200 mA, ö	
	teflon	15*, a	© , NPN	10...30 VDC	200 mA, ö	
	10 bar wash down T -40°C T +100°C	15*, a	© , NPN	10...30 VDC	200 mA, ö	
	É II 3 G É II 3 D 10 bar wash down	15*, a	© , NPN	10...30 VDC	200 mA, ö	
	–	15*, a	ª , NPN	10...55 VDC	200 mA, ö	
	–	10*, a	© , 2-wire	10...65 VDC	100 mA, ö	
	teflon	10*, a	© , 2-wire	10...65 VDC	100 mA, ö	

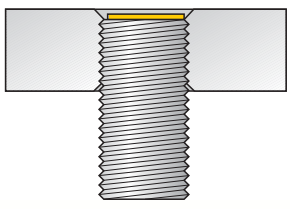
* recessed mounting permitted

Housing type M30 x 1,5 flush









All flush mountable uprox+ threaded barrel sensors enable recessed mounting.

Safe operation is ensured if the sensor is recessed mounted by half a thread turn.

	D	W	T	S	G
BI10U	60 mm	30 mm	90 mm	45 mm	60 mm
BI15U	60 mm	45 mm	90 mm	45 mm	90 mm

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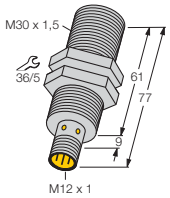
Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
BI15U-M30-AP6X-H1141	1636732 ✘	S002	0.75	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
BI15U-MT30-AP6X-H1141	1636734 ✘	S002	0.75	-30...+85	IP68	CuZn-T	LCP	–	–	ñ
BI15U-EM30-AP6X-H1141	1636733 ✘	S002	0.75	-30...+85	IP68	V2A (1.4301)	LCP	–	–	ñ
BI15U-EM30WD-AP6X-H1141	1634820 ✘	S002	0.75	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
BI15U-EM30WD-AP6X-H1141/3GD	1634855 ✘	S002	0.75	-30...+85	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
BI15U-M30-VP44X-H1141	1634885 ✘	S007	0.75	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
BI15U-EM30WD-VP44X-H1141	1634899	S007	0.75	-30...+85	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
Bi15U-M30-RP6X-H1141	1636739 ✘	S056	0.75	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
BI15U-M30-AN6X-H1141	1636736 ✘	S005	0.75	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
BI15U-MT30-AN6X-H1141	1636738	S005	0.75	-30...+85	IP68	CuZn-T	LCP	–	–	ñ
BI15U-EM30WD-AN6X-H1141	1634834	S005	0.75	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
BI15U-EM30WD-AN6X-H1141/3GD	1634856	S005	0.75	-30...+85	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
BI15U-M30-VN44X-H1141	1634889 ✘	S011	0.75	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
BI10U-M30-AD4X-H1144	4405072 ✘	S179	0.01	-25...+70	IP68	CuZn-Cr	LCP	–	–	ñ
BI10U-MT30-AD4X-H1144	4405074 ✘	S179	0.01	-25...+70	IP68	CuZn-T	LCP	–	–	ñ

✘ = preferred solution, available at short notice

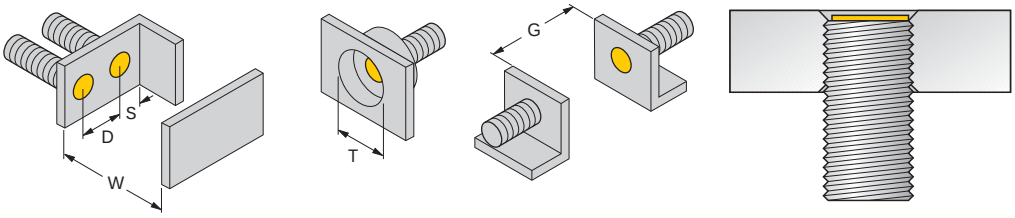
Technical data

Dimensions/Housing style	Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
M30 x 1,5	–	15*, a	© , PNP	10...30 VDC	200 mA, ö	
{						



* recessed mounting permitted

Housing type M30 x 1,5 flush



All flush mountable uprox+ threaded barrel sensors enable recessed mounting.

Safe operation is ensured if the sensor is recessed mounted by half a thread turn.

D = 60 mm
W = 45 mm
T = 90 mm
S = 45 mm
G = 90 mm

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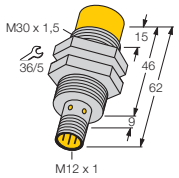
	Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
	BI15U-M30E-AP6X-H1141	1636742	S002	0.75	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ

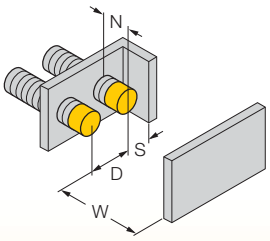
✘ = preferred solution, available at short notice

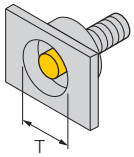
Technical data

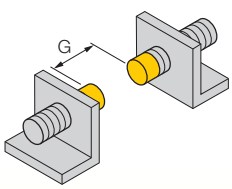
Dimensions/Housing style	Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
 **M30 x 1,5** {	–	30*, b	© , PNP	10...30 VDC	200 mA, ö	
	teflon	30*, b	© , PNP	10...30 VDC	200 mA, ö	
	–	30*, b	© , PNP	10...30 VDC	200 mA, ö	
	10 bar wash down T -40°C T +100°C	30*, b	© , PNP	10...30 VDC	200 mA, ö	
	É II 3 D 10 bar wash down	30*, b	© , PNP	10...30 VDC	200 mA, ö	
	–	30*, b	ª , PNP	10...55 VDC	200 mA, ö	
	10 bar wash down	30*, b	ª , PNP	10...55 VDC	200 mA, ö	
	–	30*, b	¨ , PNP	10...30 VDC	200 mA, ö	
	–	30*, b	© , NPN	10...30 VDC	200 mA, ö	
	teflon	30*, b	© , NPN	10...30 VDC	200 mA, ö	
	–	30*, b	© , NPN	10...30 VDC	200 mA, ö	
	10 bar wash down T -40°C T +100°C	30*, b	© , NPN	10...30 VDC	200 mA, ö	
	É II 3 D 10 bar wash down	30*, b	© , NPN	10...30 VDC	200 mA, ö	
	–	30*, b	ª , NPN	10...55 VDC	200 mA, ö	
	–	15*, b	© , 2-wire	10...65 VDC	100 mA, ö	
	teflon	15*, b	© , 2-wire	10...65 VDC	100 mA, ö	

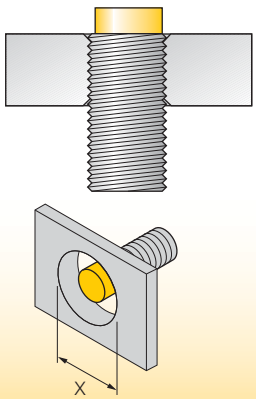
* embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance

Housing type M30 x 1,5 non-flush









	D	W	T	S	G	N
NI15U	90 mm	45 mm	90 mm	45 mm	90 mm	30 mm
NI30U	90 mm	90 mm	90 mm	45 mm	180 mm	30 mm

All non-flush mountable uprox+ threaded barrel sensors can be mounted to the upper edge of the thread.

Thus safe operation with a maximum reduction of the switching distance by 20 % is guaranteed.

When installed in an aperture plate a clearance of x = 140 mm has to be kept

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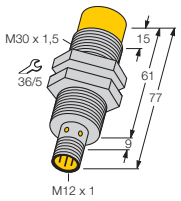
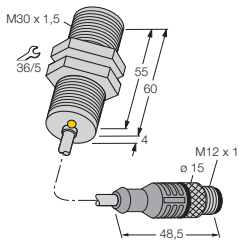
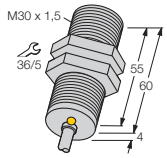
Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
NI30U-M30-AP6X-H1141	1646631 ✘	S002	0.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
NI30U-MT30-AP6X-H1141	1646633 ✘	S002	0.5	-30...+85	IP68	CuZn-T	LCP	–	–	ñ
NI30U-EM30-AP6X-H1141	1646632 ✘	S002	0.5	-30...+85	IP68	V2A (1.4301)	LCP	–	–	ñ
NI30U-EM30WD-AP6X-H1141	1634822 ✘	S002	0.5	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
NI30U-EM30WD-AP6X-H1141/3D	1634861 ✘	S002	0.5	-30...+85	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
NI30U-M30-VP44X-H1141	1634887 ✘	S007	0.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
NI30U-EM30WD-VP44X-H1141	1634904	S007	0.5	-30...+85	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
NI30U-M30-RP6X-H1141	1646636 ✘	S056	0.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
NI30U-M30-AN6X-H1141	1644635 ✘	S005	0.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
NI30U-MT30-AN6X-H1141	1644637	S005	0.5	-30...+85	IP68	CuZn-T	LCP	–	–	ñ
NI30U-EM30-AN6X-H1141	1644636	S005	0.5	-30...+85	IP68	V2A (1.4301)	LCP	–	–	ñ
NI30U-EM30WD-AN6X-H1141	1634832	S005	0.5	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
NI30U-EM30WD-AN6X-H1141/3D	1634862	S005	0.5	-30...+85	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
NI30U-M30-VN44X-H1141	1634891 ✘	S011	0.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
NI15U-M30-AD4X-H1144	4405075 ✘	S179	0.01	-25...+70	IP68	CuZn-Cr	LCP	–	–	ñ
NI15U-MT30-AD4X-H1144	4405077 ✘	S179	0.01	-25...+70	IP68	CuZn-T	LCP	–	–	ñ

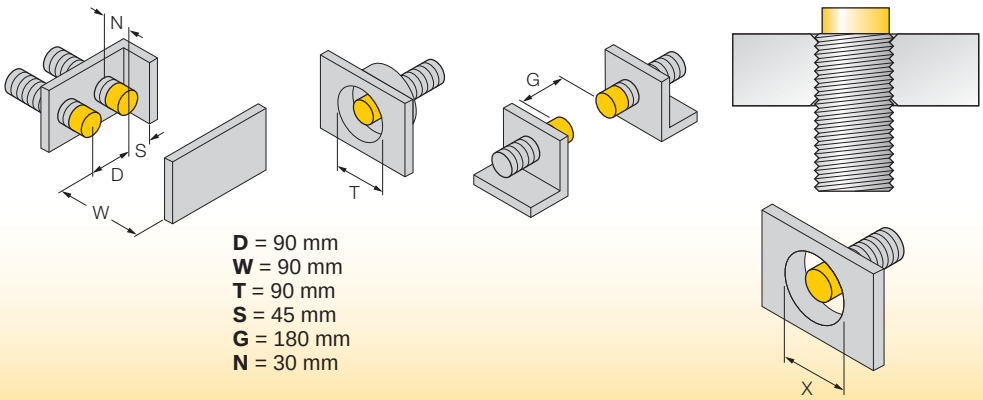
✘ = preferred solution, available at short notice

Technical data

Dimensions/Housing style		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**M30 x 1,5** {	–	30**, b	© , PNP	10...30 VDC	200 mA, ö	
	**M30 x 1,5** {	teflon	10*, a	© , 2-wire	10...65 VDC	100 mA, ö	
	**M30 x 1,5**]	–	15*, a	© , PNP	10...30 VDC	200 mA, ö	
		–	15*, a	© , PNP	10...30 VDC	200 mA, ö	
		–	15*, a	ª , PNP	10...55 VDC	200 mA, ö	
		–	15*, a	© , NPN	10...30 VDC	200 mA, ö	
		–	15*, a	ª , NPN	10...55 VDC	200 mA, ö	
		–	10*, a	© , 2-wire	10...65 VDC	100 mA, ö	

* recessed mounting permitted
** embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance

Housing type M30 x 1,5 non-flush



D = 90 mm
W = 90 mm
T = 90 mm
S = 45 mm
G = 180 mm
N = 30 mm

All non-flush mountable uprox+ threaded barrel sensors can be mounted to the upper edge of the thread.

Thus safe operation with a maximum reduction of the switching distance by 20 % is guaranteed.

When installed in an aperture plate a clearance of x = 140 mm has to be kept.

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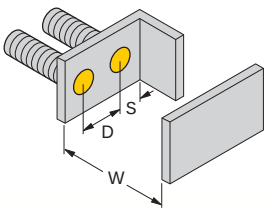
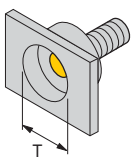
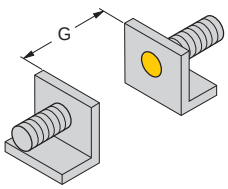
Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
NI30U-M30E-AP6X-H1141	1644756	S002	0.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	ñ
BI10U-MT30-AD4X-0,3-RS4.23/XOR	4405050 ✘	S179	0.01	-25...+70	IP68	CuZn-T	LCP	PVC 0.3 m	–	ñ
BI15U-M30-AP6X	1636731 ✘	S001	0.75	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
BI15U-EM30-AP6X	1636741	S001	0.75	-30...+85	IP68	V2A (1.4301)	LCP	PVC 2 m	–	ñ
BI15U-M30-VP44X	1634884 ✘	S007	0.75	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
BI15U-M30-AN6X	1636735	S004	0.75	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
BI15U-M30-VN44X	1634888	S010	0.75	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
BI10U-M30-AD4X	4405073 ✘	S013	0.01	-25...+70	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ

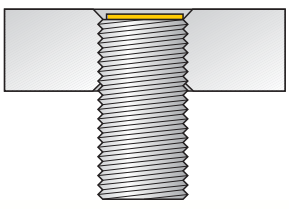
✘ = preferred solution, available at short notice

Housing type M30 x 1,5 flush







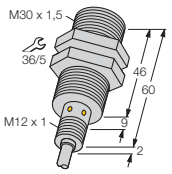
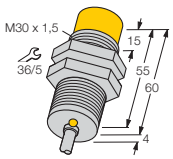
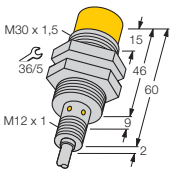


All flush mountable uprox+ threaded barrel sensors enable recessed mounting.

Safe operation is ensured if the sensor is recessed mounted by half a thread turn.

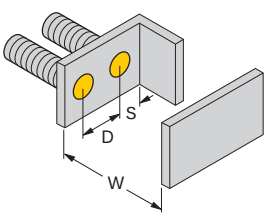
	D	W	T	S	G
BI10U	60 mm	30 mm	90 mm	45 mm	60 mm
BI15U	60 mm	45 mm	90 mm	45 mm	90 mm

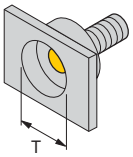
Technical data

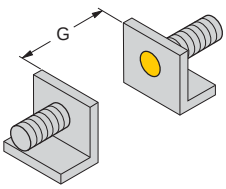
Dimensions/Housing style		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**M30 x 1,5**]	10 bar wash down T -40°C T +100°C	15*, a	© , PNP	10...30 VDC	200 mA, ö	
		10 bar wash down T -40°C T +100°C	15*, a	© , NPN	10...30 VDC	200 mA, ö	
	**M30 x 1,5**]	–	30**, b	© , PNP	10...30 VDC	200 mA, ö	
		–	30**, b	ª , PNP	10...55 VDC	200 mA, ö	
		–	30**, b	¨ , PNP	10...30 VDC	200 mA, ö	
		–	30**, b	© , NPN	10...30 VDC	200 mA, ö	
		–	30**, b	ª , NPN	10...55 VDC	200 mA, ö	
		–	15**, b	© , 2-wire	10...65 VDC	100 mA, ö	
	**M30 x 1,5**]	10 bar wash down T -40°C T +100°C	30**, b	© , PNP	10...30 VDC	200 mA, ö	
		10 bar wash down T -40°C T +100°C	30**, b	© , NPN	10...30 VDC	200 mA, ö	

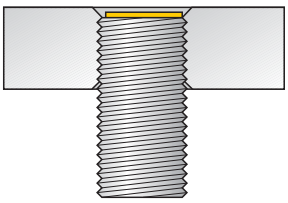
* recessed mounting permitted
** embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance

Housing type M30 x 1,5 flush









All flush mountable uprox+ threaded barrel sensors enable recessed mounting.

Safe operation is ensured if the sensor is recessed mounted by half a thread turn.

D = 60 mm
W = 45 mm
T = 90 mm
S = 45 mm
G = 90 mm

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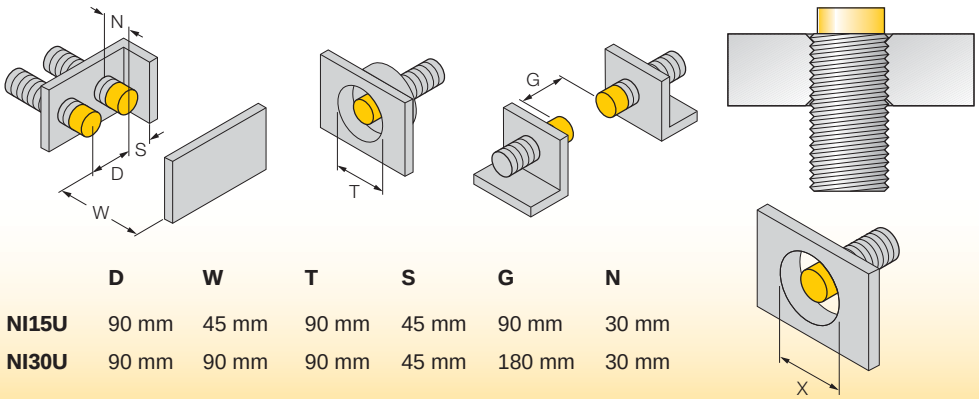
	Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
	BI15U-EM30WD-AP6X	1634819 ✘	S001	0.75	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	PP 2 m	–	ñ
	BI15U-EM30WD-AN6X	1634843	S004	0.75	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	PP 2 m	–	ñ
	NI30U-M30-AP6X	1646630 ✘	S001	0.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
	NI30U-M30-VP44X	1634886 ✘	S007	0.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
	NI30U-M30-RP6X	1646634	S054	0.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
	NI30U-M30-AN6X	1644634	S004	0.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
	NI30U-M30-VN44X	1634890	S010	0.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
	NI15U-M30-AD4X	4405076 ✘	S013	0.01	-25...+70	IP68	CuZn-Cr	LCP	PVC 2 m	–	ñ
	NI30U-EM30WD-AP6X	1634821 ✘	S001	0.5	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	PP 2 m	–	ñ
	NI30U-EM30WD-AN6X	1634833	S004	0.5	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	PP 2 m	–	ñ

✘ = preferred solution, available at short notice

Housing type M30 x 1,5 non-flush



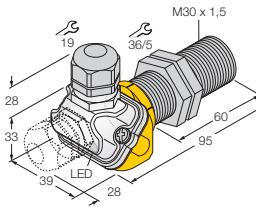
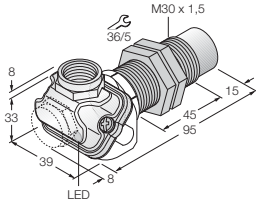
	D	W	T	S	G	N
NI15U	90 mm	45 mm	90 mm	45 mm	90 mm	30 mm
NI30U	90 mm	90 mm	90 mm	45 mm	180 mm	30 mm

All non-flush mountable uprox+ threaded barrel sensors can be mounted to the upper edge of the thread.

Thus safe operation with a maximum reduction of the switching distance by 20 % is guaranteed.

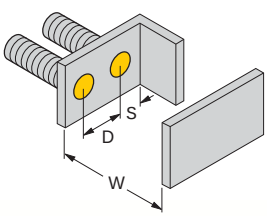
When installed in an aperture plate a clearance of x = 140 mm has to be kept.

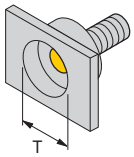
Technical data

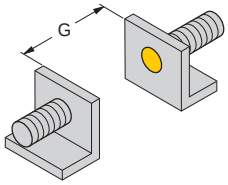
Dimensions/Housing style		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**M30 x 1,5** }	10 bar wash down	15*, a	© , PNP	10...30 VDC	200 mA, ö	
	**M30 x 1,5** }	10 bar wash down	30**, b	© , PNP	10...30 VDC	200 mA, ö	

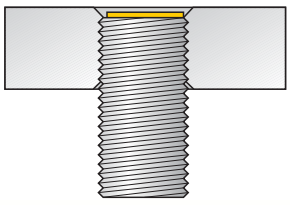
* recessed mounting permitted
** embedding up to the upper edge of the thread is permitted in combination with a reduced operating distance

Housing type M30 x 1,5 flush









All flush mountable uprox+ threaded barrel sensors enable recessed mounting.

Safe operation is ensured if the sensor is recessed mounted by half a thread turn.

D = 60 mm
W = 45 mm
T = 90 mm
S = 45 mm
G = 90 mm

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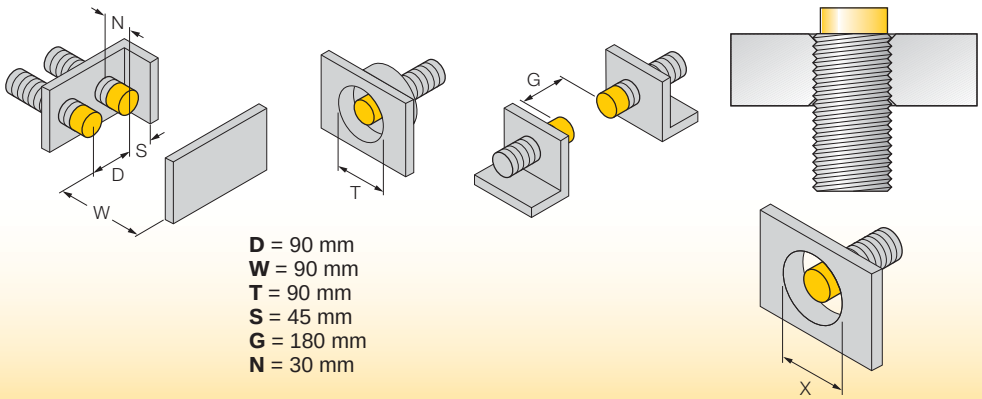
	Type	Ident no.	Connection	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing	Materials Active face	Materials Cable	LED U_B	LED ü
	BI15U-EM30WDTC-AP6X	1634764 ✘	S003	0.75	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ
	NI30U-EM30WDTC-AP6X	1634765 ✘	S003	0.5	-40...+100	IP68 / IP69K	V4A (1.4404)	LCP	–	–	ñ

✘ = preferred solution, available at short notice

Housing type M30 x 1,5 non-flush



D = 90 mm
W = 90 mm
T = 90 mm
S = 45 mm
G = 180 mm
N = 30 mm

All non-flush mountable uprox+ threaded barrel sensors can be mounted to the upper edge of the thread.

Thus safe operation with a maximum reduction of the switching distance by 20 % is guaranteed.

When installed in an aperture plate a clearance of x = 140 mm has to be kept

Sensors with transistor output, 3/4-wire DC

Advantages
- Very low leakage current
- Easy connection to relays or SPS

Voltage supply
- Operating voltage U_B 10...30 VDC
- 10...55 VDC or 10...65 VDC
- Residual ripple W_{ss} 10 %

Switching output
- normally open (N.O.) or normally closed (N.C.) for 3-wire sensors
- Complementary for 4-wire sensors
- Cyclic short circuit protection (overload trip point > I_e + 20 mA) with devices indicating the symbol ö in column operating current
- Wire-break protected
- Full reverse polarity protection
- Off-state current I_r < 0.1 mA
- Voltage drop U_d < 1.8 V
  Si…K08/K10: < 0.7 V
  Bi/Ni.../S34: < 2.5 V
- Hysteresis H: 3...15 %
- Temperature drift
  < ± 10 % (nom. temperature range -25…+70 °C)
  < ± 15 % temperature range -30…+85°C
  < ± 20 % extended temperature range -40…+100 °C)
- Repeat accuracy: R < 2 %
- Utilisation category 13
- Rated insulation voltage U_i 0.5 kV
- Rated conditional short-circuit current 100 A

Environmental conditions
- Degree of protection (IEC 60529/ EN 60529) IP67/IP68/IP69K (see technical data)
- Pollution degree 3
- Shock resistance 30 x g (11 ms)
- Vibration resistance 55 Hz (1 mm)

Series or parallel connection
- When sensors are series connected, voltage drops and readyness delays of the individual sensors must be added up.

Sensors with transistor output, 2-wire DC

Advantages
- Only two wires
- Short-circuit protected

Voltage supply
- Operating voltage U_B 10…65 VDC
- Ripple U_{ss} 10 %

Switching performance
- Normally open (N.O.)
- Cyclic short circuit protection (Overload trip point > I_e + 20 mA)
- Reverse polarity protection
- Off-state current $I_r \leq 0.6$ mA
- Voltage drop U_d
  non polarised version (AD) < 5 V
  polarised version (AG) < 4.2 V
- Hysteresis H ≤ 1…15 %
- Temperature drift ≤ ± 10 %
- Repeat accuracy R < 2 %
- Utilisation category 13
- Rated insulation voltage U_i = 0.5 kV
- Rated conditional short-circuit current 100 A

Environmental conditions
- Degree of protection (IEC 60529/ EN 60529) IP67
- Pollution degree 3
- Shock resistance 30 x g (11 ms)
- Vibration resistance 55 Hz (1 mm)

Series connection of 2-wire sensors

Normally open: UND-configuration
Normally closed: NOR-configuration

When sensors are series connected voltage drops of the individual sensors must be added up. This reduces the usable voltage at the load. Care must be taken not to underrange the minimum admissible supply voltage.

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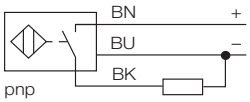
TURCK
Industrial Automation

DC 3-wire, N.O.

(S001)



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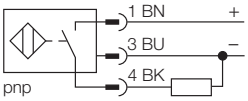

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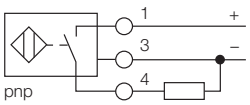

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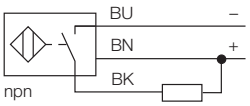

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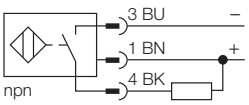

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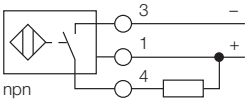

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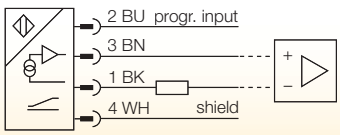
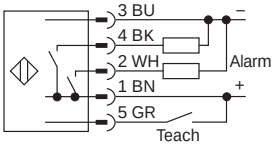


DC 4-wire, complementary

(S007)



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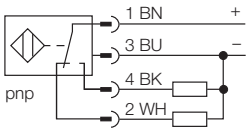

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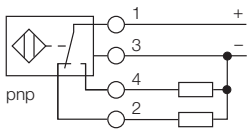

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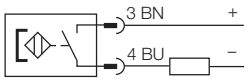

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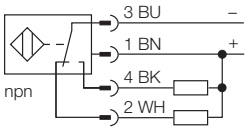

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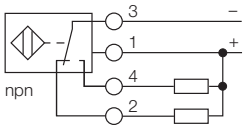
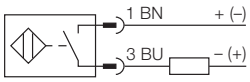


DC 3-wire, N.C.

(S054)



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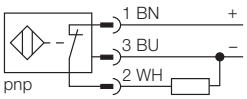

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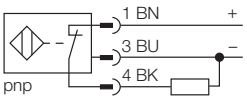

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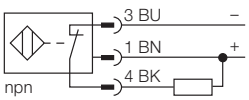
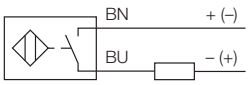


DC 2-wire, N.O.

(S013)



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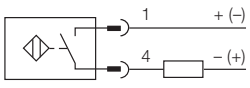

Colour codes

Colour	Code
black	BK
brown	BN
red	RD
orange	OG
yellow	YE
green	GN

Colour codes

Colour	Code
blue	BU
violet	VT
grey	GY
white	WH
pink	PK
green-yellow	GNYE

4

Glossary of terms

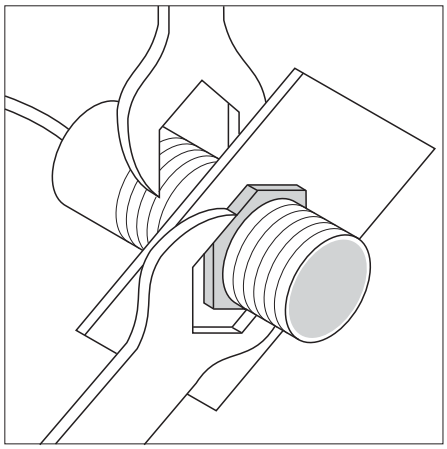

Fig. 1

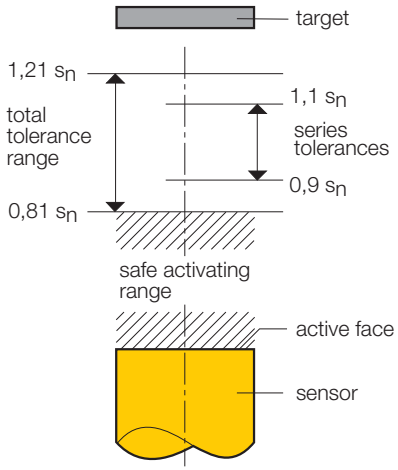

Fig. 2: Tolerances of switching distance for inductive proximity switches

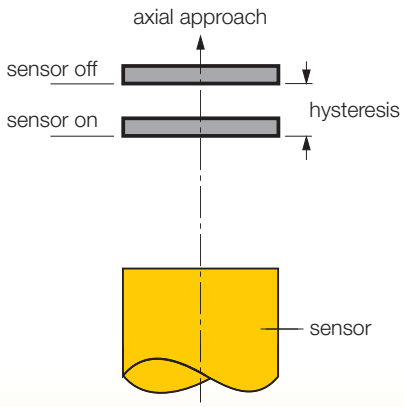

Fig. 3: Hysteresis H

Active face
- The point where the high-frequency magnetic field leaves the sensor. Regarding threaded barrel sensors, the active face is at the front. Concerning rectangular plastic sensors, the zone of the active face is either marked with a target or indicated in a different colour on the housing.

Assured sensing range (S_a) (Fig. 1)
- Distance at which the sensor is securely actuated.
- Correlation to rated operating distance sa < 0.81 . S_n

Degree of protection (Fig. 2)
- Protection against the ingress of water or foreign matter, touch protection
- IP65: full protection against ingress of dust and water.
- IP67: full protection against ingress of dust and protection against submersion of water at 1 m depth for 30 minutes at constant temperature.
- IP68: including IP67
  – 24 hrs. continuous storage at +70 °C
  – 24 hrs. continuous storage at -25 °C
  – 7 days submersion, depth 1 m
  – 10 thermal shock changes from +70°C to -25°C, dwell cycle per temperature: 1h
- IP69K: suited for high pressure steam-jet cleaning according to DIN 40050-9, following EN 60529 EN 60529 (Fig. 5)

Electromagnetic capability (EMC)
- Test and limit values for proximity switches are defined by the product standard EN 60947-5-2

Factor 1
- see Reduction factors

Fixing torque (Fig. 3)
- Concerning threaded barrel sensors, the maximum admissable fixing torque must be observed in order to avoid torsional stress.
- Depending on the housing type the following values apply:
  M8 = 10 Nm
  M12 = 10 Nm (MT12 = 7 Nm)
  M18 = 25 Nm (MT18 = 15 Nm)
  M30 = 75 Nm
  Values shown in the tables relate to the nuts that come with each sensor. If strong vibrations are likely, use liquid threaded fastener on anaerobic base (e.g. loctite 242).

Flush and non-flush mounting
- Sensors for flush mounting can be mounted in metal up to the active face, sensors for non-flush mounting have to protrude the metal.
- Non-flush mountable sensors have larger sensing ranges.
- Non-flush mountable *uprox*®+ sensors can be partially embedded because of the integrated self-compensation
- Flush mountable *uprox*®+ sensors for can be recessed because of the integrated self-compensation

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Glossary of terms

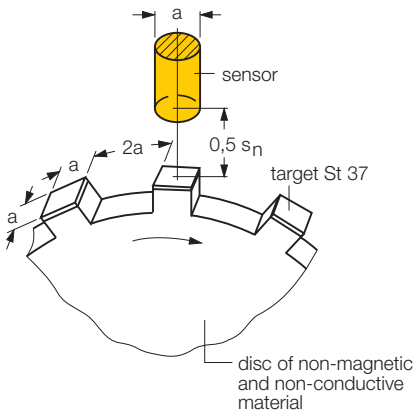

Fig. 4: Switching frequency f

Hysteresis (H) (Fig. 4)
- Differential between the switch-on and the switch-off point of the sensor with axial motion of the target relative to the active face
- Indicated as percentages of the rated operating distance (S_n)

Insulation groups (VDE 0110b)

The classification of insulation groups per VDE 0110 is determined by
- the application
- the decrease of insulation resistance caused by environmental influences such as dust, dirt, humidity, wetting, ageing and corrosion
- and the possible impacts of an insulation failure at the place of installation . Insulation group B comprises equipment for use in private, sales or business premises, Insulation group C comprises equipment which is used mainly in industrial, trading and agricultural locations, in unheated storage rooms, in workshops, in tanks, on tooling machinery etc.

Magnetic field immune
- Magnetic-field immune sensors are insensitive to magnetic fields, as they occur in welding systems for example. All *uprox*®+ sensors are immune to magnetic DC or AC fields due to their special function principle.

Standard target
- The standard target is a rectangular metal plate for determination of the rated operating distance sn
- Material: St37
- Thickness: 1 mm
- Edge lengths 3 . S_n, if 3 . Sn is greater than the diameter of the active face, otherwise just the diameter of the active face.

Minimum operational current (I_m)
- Minimum current in a switch-on state to maintain the function.
- Indicated for 2-wire sensors only.

No-load current I (I_0)
- Current flow between supply voltage and 0 V.
- Indicated for 3 and 4-wire sensors only.

Off-state current (I_r)
- For 2-wire sensors: the current which flows in a non-active condition.
- For 3 and 4-wire sensors: The current which flows in a non-active condition between the output and 0 V (pnp output), i.e. between output and supply voltage (npn output).

Pollution degree
- § 6.1.3.2 of IEC 60947-1 defines 4 pollution degrees: Inductive sensoren by TURCK belong to category 3 as per IEC 60947-1: conductive or dry, non-conductive residue that becomes conductive due to condensation.

Predamping protection
- Prevents predamping of non-flush sensors because of self-compensation at non-flush sensors
- Partial embedding of non-flush mountable sensors with reduced switching distances.

Glossary of terms

Rated operating current (I_e)
- Maximum load current

Rated operating distance (S_n)
- Is measured with axial approach of a standard target.
- Manufacturing tolerances and external influences are not considered.
- The tables only indicate the rated operating distance.

Readiness delay
- Inductive sensors made by TURCK feature a readiness delay of t < 80 ms. Thus failure pulses at the output are suppressed which might occur in the period between power-on and operational readiness of the sensor.

Real switching distance (S_r)
- Switching distance under fixed temperature and supply conditions
- Factory set tolerances are taken into account
- Correlation to rated operating distance
  $0.9 \cdot S_n < S_r < 1.1 \cdot S_n$

Reduction factors (correction factors)
- *uprox*® and *uprox*®+ sensors have the same switching distance regardless of the metal type. The reduction factor is always 1.

Repeat accuracy
- Sensors with switching output (digital):
  Deviation of the switch point indicated in percentage after often repeated switching, under identical conditions and with the same sensor.
  Sensors with analogue output:
  Change of the output value after 8 hours under the same conditions and with the same sensor. Value of the measured range indicated in percentage.

Reverse polarity protection
- Indicates if the sensor is protected agains connection errors.
  uprox®+ sensors for DC current are fully reverse polarity protected. Connection errors related to polarity of the power supply and/or the output do not result into damages of the sensor.

Ripple
- Residual AC voltage superimposed on the DC supply voltage.
- Usually 10 % ripple (peak to peak) of the applied supply voltage is tolerable.

Storage temperature
- The storage temperature may range from -30...+85 °C.
  If the ambient temperature range is higher, this value applies.

Surge current
- The surge current is the current which can flow through the output for a short time.

Switching distance (S)
- Distance at which a change of signal is produced with axial approach.

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Glossary of terms

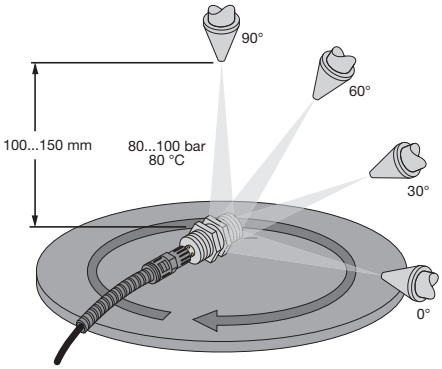

Fig. 5: Degree of protection IP69K

Switch element function
- Normally open: (N.O.): output is open when the sensor is non-activated and closed when the sensor is activated.
- Normally closed (N.C.): output is closed when the sensor is non-activated and open when the sensor is activated.
- Complementary: one of the two outputs is closed when the sensor is non-acitvated and the other one when the sensor is activated.

Switching frequency (f) (Fig. 5)
- Maximum number of changes form the activated to the non-activated and back to the acitvated sensor state per second [Hz].
- Measured with the standard disc (see Fig. 4)
- Maximum switching frequency at an operating distance of $s = S_n/2$ (with a standard disc)

Switch-on pulse suppression
- see Readiness delay

Temperature drift
- Alteration of the switching point or the output values in case of temperature changes.

Utilisation category
- The ultililsation category indicates the area in which the sensors can be applied. The IEC 60947-5-2 defines the category in relation to the correspondent rated current, rated voltage and the load current that has to be switched Inductive sensors by TURCK cover the following categories:
- Direct voltage DC-13: Control of electromagnets
- Alternate current AC-140: Control of smaller electromagnetic loads with holding current > 0.2 A

Usable operating distance (S_u)
- Operating distance which is guaranteed within the permitted temperature and voltage range
- Correlation to rated operating distance
  - $0.9 \cdot S_r < S_u < 1.1 \cdot S_r$
  - $0.81 \cdot S_n < S_u < 1.21 \cdot S_n$

Voltage drop (U_d)
- Voltage of a switched output

Weld-field immune
- see Magnetic field immune

Wire-break protection
- If the supply cable is cut, the output stays off (no malfunction).

Standards and Directives (if relevant)

1) Standards

EN 60947-5-2
Low voltage switchgear and control-gear, Part 5: Control circuit devices and swithcing elements
Section 2: Proximity switches

EN 60079-0
Electrical apparatus for use in explosion hazardous locations
General requirements

EN 60079-11
Electrical apparatus for use in explosion hazardous locations
Intrinsic safety „i“

EN 60079-15
Electrical apparatus for use in explosion hazardous locations
Type of protection „n“

EN 61241-0
General requirements for electrical equipment applied in areas exposed to flammable dust

EN 61241-1
Electrical equipment for application in dust exposed areas, protected by housing

EN 61000-6-4
Electromagnetic compatibility (EMC)
Generic emission standard

EN 61000-6-2
Electromagnetic compatibility (EMC)
Generic immunity standard

EN 60529/IEC 60529/ DIN VDE 0470-1
Degrees of protection provided by enclosures (IP-Code)

EN 60947-5-6 (NAMUR)
Control circuit devices and switching elements, proximity sensors, DC-interface for proximity sensors and switching amplifiers (NAMUR)

IEC 61508 (SIL)
Functional safety of safety related / electronic/ programmable electronic systems

2) Directives

2006/95/EG
Low voltage

2004/108/EG
Electromagnetic compatibility (EMC)

94/9/EG
Explosion protection (ATEX)

CE The CE-sign is neither a seal of quality nor a test sign but serves for free trade within the European Community

By attaching the CE-sign to the products distributed, the manufacturer assures that the protective aims of the applicable directives are fulfilled for these products.

Approvals and Certificates of Conformity on the Net

A large range of sensors with protection type "intrinsic safety" to EN 6079-11 are suited for use in the member states of the European Union. These sensors have additional international approvals in the following countries:

USA	FM
Canada/USA	CSA
Czech Republic	FTZU
Switzerland	SEV
Hungary	BKI
Russia and CIS	ISZ WE
China	NEPSI
Japan	T.I.I.S

An overview of all available approvals can be obtained via the Internet under:

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The individual approvals can be downloaded as PDF file using Acrobat Reader.

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	Features/special features
... bar	admissible pressure on front cap
É II 3 D	Atex Group II Category 3 D
É II 3 G	Atex Group II Category 3 G
É II 3 G D	Atex Group II Category 3 G D
teflon	teflonised housing
wash down	protection rating IP68/IP69K

	Symbols
a	flush mounting
b	non-flush mounting
{	connector device
|	cable device, 2 m cable
}	terminal chamber device
©	N.O. (normally open)
¨	N.C. (normally closed)
ª	complementary
ö	short-circuit protected

		Materials
AL	Aluminium	Standard material, low specific weight, long-life characteristics
CuZn-Cr	Brass, chrome-plated	Standard housing material
CuZn-T	Brass, teflonised	Teflonised for protection against weld-splatter
CuZn	Zinc, die-cast	Good resistance and mechanical strength
LCP	Liquid crystalline copolyester	Outstanding mechanical strength, low thermal expanison good chemical resistance, flame-retardent properties (UL94-V0)
PP	Polypropylene	Excellent chemical resistance, even against acids, alkalis and solvents. High temperature resistance, high level of mechanical rigidity.
PA	Polyamide	Good mechanical and chemical resistance, temperature resistance
PA-X	Polyamide, irradiated	Very good mechanical resistance, high temperature resistance, PA6/12 approved for the food industry
PBT	Polybutylenterephthalat	Very good mechanical resistance, high temperature resistance,
PVC	Polyvinylchloride	Good mechanical, impact and chemical resistance
ULTEM (PEI)	Polyetherimid	High mechanical and temperature resistance, good chemical resistance, flame-retardent and self-extinguishing (UL94-V0), transparent and UV resistant
PUR	Polyurethane	Elastic, wear-free, impact-resistant, oil, grease and solvent tolerance
St37	Mild steel	Excellent corrosion resistance and stability
VA	stainless steel	Excellent resistance to corrosion, high mechanical strength for high requirements
V4A	top-grade stainless steel	Excellent resistance to corrosion, high mechanical strength for high requirements, specified for the food industry

Type index

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TURCK

Industrial Automation

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