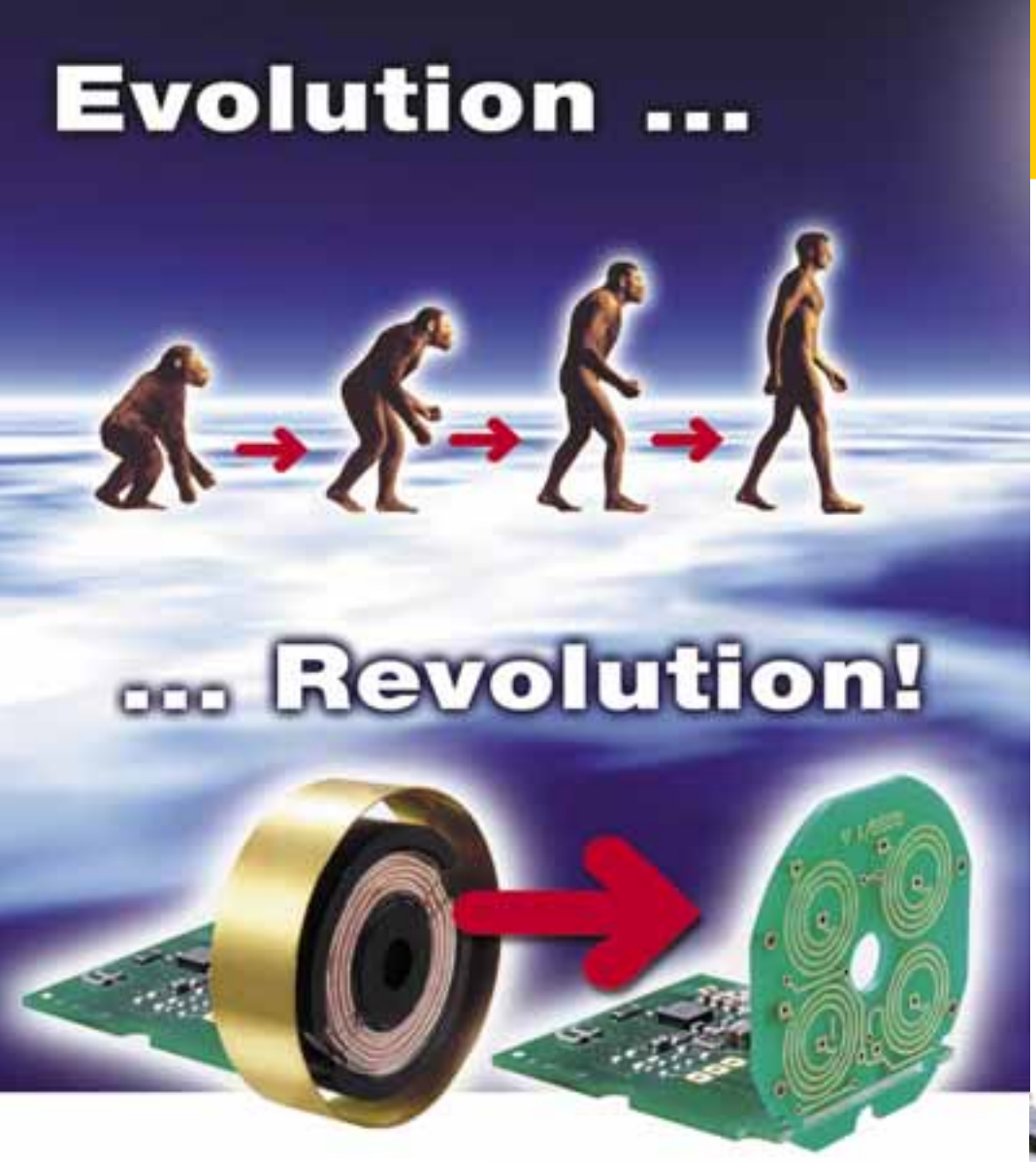

TURCK

Industrial Automation

INDUCTIVE FACTOR 1 SENSORS

uprox®+

THE NEW GENERATION OF INDUCTIVE SENSORS

S1570/01

TYPE CODE

Bi 2U – M12. – AP6X – H1141

U *uprox*®-Factor 1

Rated operating distance [mm]

Function principle:
i = inductive

Mounting mode:
B flush
N non-flush

Internal code
1 standard configuration

Number of contacts

Mechanical design:
1 straight
3 straight with adapter

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

AP6X

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

Voltage range:
4 10…65 VDC ö
6 10…30 VDC ö

Output:
N npn
P pnp

Function:
A N.O. (normally open)
R N.C. (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 teflonised 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

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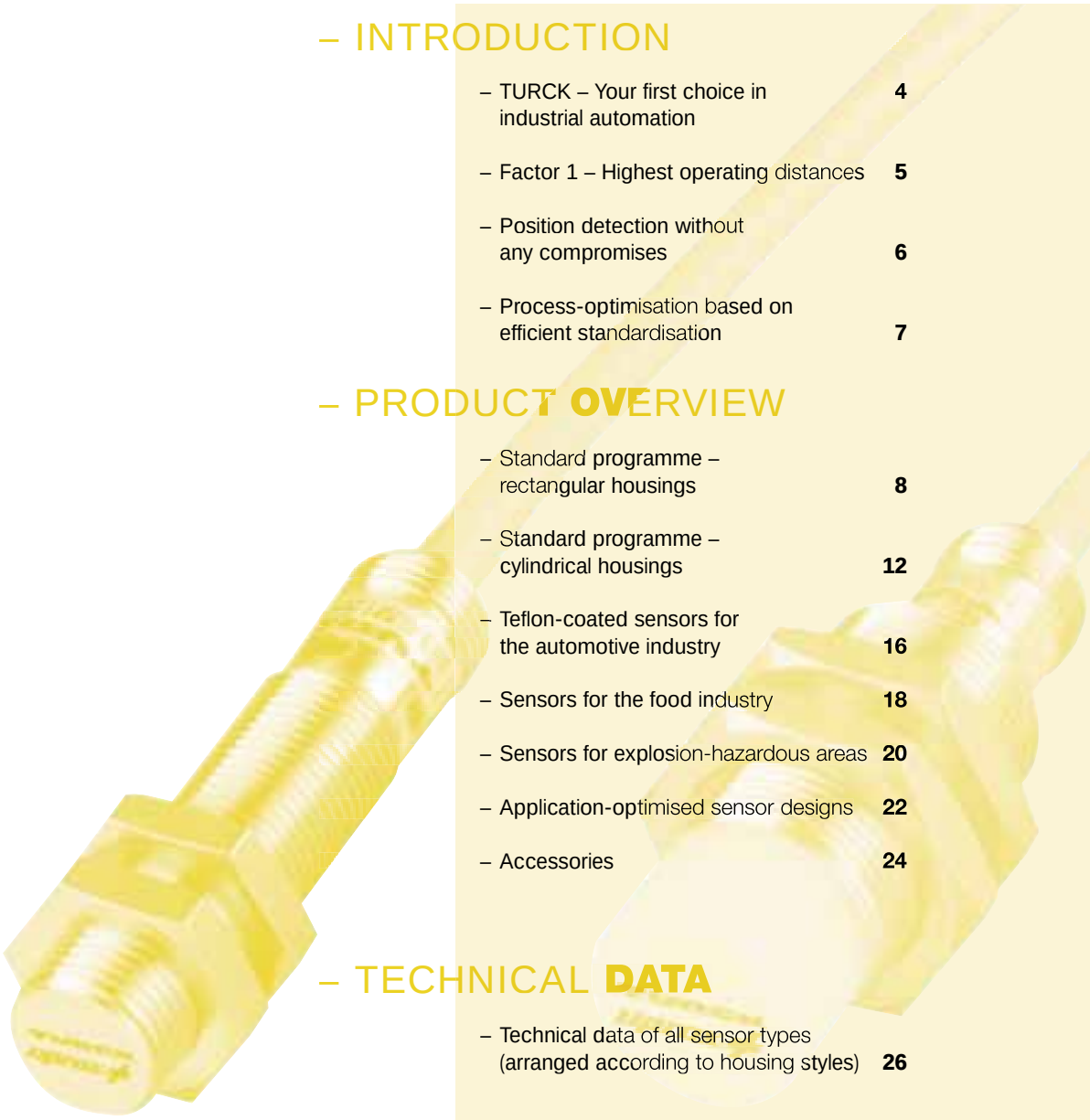
Industrial Automation



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4

TURCK – YOUR FIRST CHOICE IN INDUSTRIAL AUTOMATION

TURCK is one of the leading manufacturers in industrial automation. As a pioneer and pace-maker in sensor technology, TURCK has consistently utilised its lead to develop comprehensive and innovative solutions for the diverse tasks of automation. As a full range supplier of IP67 products, TURCK offers a unique product portfolio for the entire field of industrial automation, ranging from the I/O up to the controller connection level.

The TURCK Group was founded in 1965. Today TURCK in Germany and its subsidiaries in 22 countries work with a staff of 2.300 highly qualified employees. Exclusive agencies in further 53 countries ensure TURCK's worldwide efficient sales and service support. All our activities are focused on the concept of perpetual optimisation of manufacturing processes.

Our close cooperation with the customer is the key factor of success. Based on expert application engineering and competent customer support, TURCK products ensure the productivity and cost-effectivity of industrial installations world-wide.

TURCK capitalises on the potentials of globalisation.
With production sites in Germany, Switzerland, the USA and China, TURCK is capable of adapting swiftly to the specific needs of the diverse markets throughout the world.

Your forward-thinking partner

Our strategy is simple yet challenging: we want to provide our customers with simply the best – quickly, flexibly and reliably.
And following this motto we ensure the efficiency, quality and safety of industrial plants all over the world.

The continuous development of new products and solutions – for the future benefit of our customers and partners – clearly demonstrates that we believe in innovation as a constant process.

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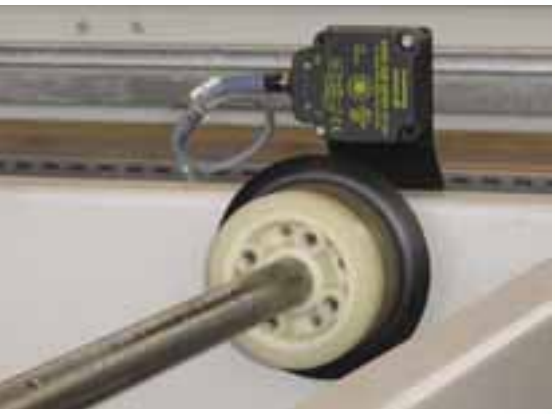
MAXIMUM SWITCHING DISTANCE AND FACTOR 1

TURCK
Industrial Automation

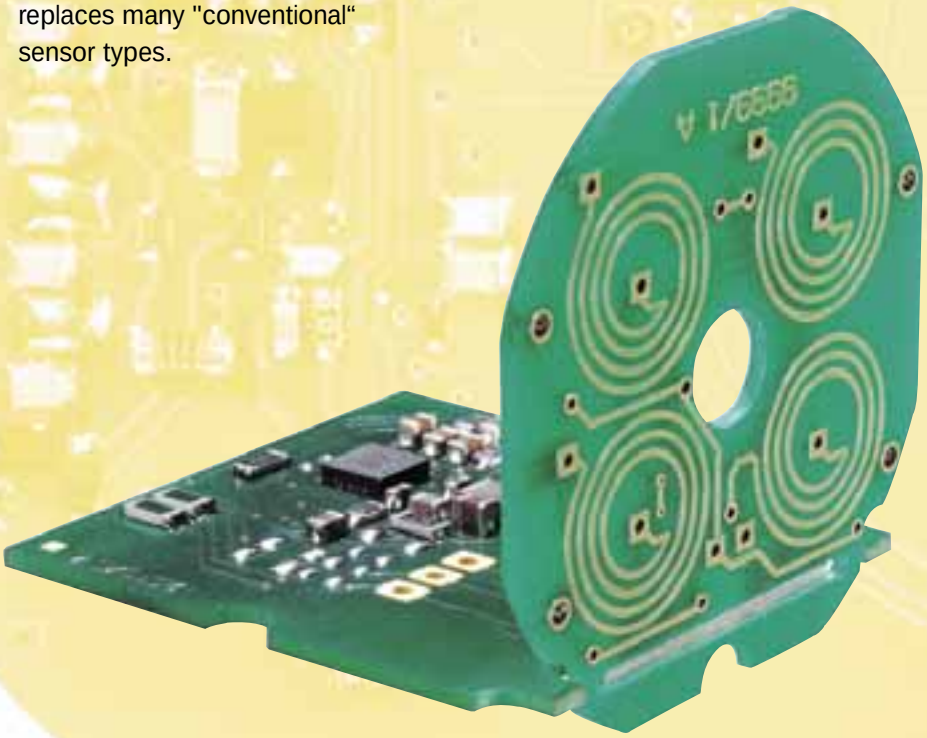
1



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.

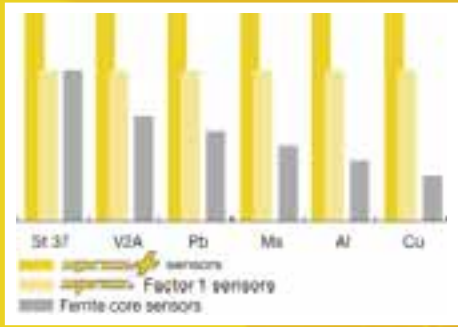
Why not profit from the unique plus points of the new sensor generation?

- Highest switching distance:
  The new uprox+ sensors from TURCK offer factor 1 and the highest switching distance.
- Maximum efficiency due to extensive standardisation in system construction:
  A single uprox+ sensor replaces many "conventional" sensor types.
- Maximum operational safety through simple and safe mounting.
- Maximum housing flexibility for application-optimised solutions.



Factor 1 re-defined

Based on their novel coil concept uprox+ sensors offer unrivalled performance. The core component of the new sensor generation is a flexible patented multicoil system, which replaces the conventional wound coil. The resulting extraordinarily high switching distance and the unique flexibility of the housing concept make uprox+ by far the best factor 1 sensor ever available!



POSITION DETECTION WITHOUT ANY COMPROMISES

Ranging from construction through purchase and production to operation and service, the new uprox+ generation with novel technical features is capable of perfectly solving all applications.

Utilise this unique performance spectrum for effective process optimisation – and thus for distinct cost reductions!

High system availability

Due to the many mounting options, IP68 and IP69K protection rating, the high level of magnetic field immunity and EMC, our new uprox+ sensors offer outstanding operational reliability, also in the harsh industrial environment. They even resist the extremly hostile conditions of the machine engineering sector and the food industry. Make use of these advantages to optimise your production processes:

- 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)

Efficient standardisation

It’s good news that several conventional sensors can be replaced by a single uprox+ sensor.
You will profit from the associated reduction of sensor inventories.

The advantages of the new sensors:

- 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 programme

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.

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PROCESS OPTIMISATION WITH AN INTELLIGENTLY STREAMLINED RANGE

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Industrial Automation

Extremely service-friendly

Owing to their flexible mounting options and their high switching distance, the new uprox+ sensors accept higher mechanical tolerances than traditional standard sensors. These advantages will promptly pay off for you:

- 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

A maximum degree of freedom

Whether recessed mounting of flush-mountable sensors or partial flush-mounting of non-flush devices – the new sensors provide both maximum planning freedom and maximum ease of installation. All the sensor's plus points at a glance:

- 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

A high level of EMC

uprox+ sensors not only exceed the valid standard EN 609947-5-2, but also fulfill the strict provisions of the coming amendment (including resistance tests according to EN 61000-4-6 regarding "conducted interference").
In February 2007 the new version will replace the present proximity switch standard.

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 PROGRAMME
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

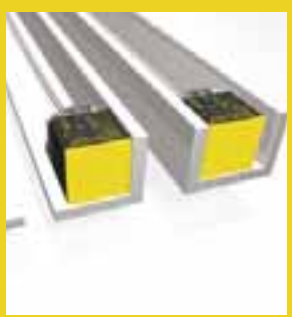
Operating distance:
based on metal and
three-side flush mounting

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	Mounting mode/ Operat. distance S_n	Output	Type designation	Ident. number	Connection
40 x 8 x 8 mm	4 mm*	N.O., NPN	Ni4U-Q8SE-AP6X-V1131	4635808 ✘	connector M8 x 1
40 x 8 x 8 mm	4 mm*	N.C., PNP	Ni4U-Q8SE-RP6X-V1131	4635820 ✘	connector M8 x 1
40 x 8 x 8 mm	4 mm*	N.O., NPN	Ni4U-Q8SE-AN6X-V1131	4635810	connector M8 x 1
40 x 8 x 8 mm	4 mm*	N.O., PNP	Ni4U-Q8SE-AP6X	4635807 ✘	PUR cable, 2 m
40 x 8 x 8 mm	4 mm*	N.O., NPN	Ni4U-Q8SE-AN6X	4635809 ✘	PUR cable, 2 m

Q08

32 x 20 x 8 mm	8 mm	N.O., PNP	Bi8U-Q08-AP6X2-V1131	1662005 ✘	connector M8 x 1
32 x 20 x 8 mm	8 mm	N.O., NPN	Bi8U-Q08-AN6X2-V1131	1662008	connector M8 x 1
32 x 20 x 8 mm	8 mm	N.O., PNP	Bi8U-Q08-AP6X2	1662006 ✘	PUR cable, 2 m
32 x 20 x 8 mm	8 mm	N.O., NPN	Bi8U-Q08-AN6X2	1662007 ✘	PUR cable, 2 m

Q80

92 x 80 x 40 mm	50 mm	complementary, PNP	Bi50U-Q80-VP4X2-H1141	1562000 ✘	connector M12 x 1
92 x 80 x 40 mm	50 mm	N.O., PNP	Bi50U-Q80-AP6X2-H1141	1608940 ✘	connector M12 x 1
92 x 80 x 40 mm	50 mm	complementary, NPN	Bi50U-Q80-VN4X2-H1141	1562001	connector M12 x 1
92 x 80 x 40 mm	50 mm	N.O., NPN	Bi50U-Q80-AN6X2-H1141	1608944	connector M12 x 1
92 x 80 x 40 mm	70 mm**	complementary, PNP	Ni70U-Q80-VP4X2-H1141	1625833 ✘	connector M12 x 1
92 x 80 x 40 mm	70 mm**	N.O., PNP	Ni70U-Q80-AP6X2-H1141	1625832 ✘	connector M12 x 1
92 x 80 x 40 mm	70 mm**	complementary, NPN	Ni70U-Q80-VN4X2-H1141	1625821	connector M12 x 1
92 x 80 x 40 mm	70 mm**	N.O., NPN	Ni70U-Q80-AN6X2-H1141	1625848	connector M12 x 1

K90SR

130 x 75 x 60 mm	100 mm***	complementary, PNP	Ni100U-K90SR-VP4X2-H1141	1625844	connector M12 x 1
130 x 75 x 60 mm	100 mm***	complementary, NPN	Ni100U-K90SR-VN4X2-H1141	1515510	connector M12 x 1
130 x 75 x 60 mm	100 mm***	complementary, PNP	Ni100U-K90SR-VP4X2	1625834 ✘	terminal chamber
130 x 75 x 60 mm	100 mm***	complementary, NPN	Ni100U-K90SR-VN4X2	1515503 ✘	terminal chamber

✘ = preferred solution

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

Further rectangular housing types on page 11
Further technical information on the individual sensors from page 26 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 PROGRAMME
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
S_r = 35 mm

Operating distance:
one-side on metal

Housing
Ni50U-CK40/CP40
S_r = 25 mm

Operating distance:
two-side embedding

Housing
Ni50U-CK40/CP40
S_r = 20 mm

Operating distance:
three-side embedding

Housing
Ni50U-CK40/CP40
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 sensor types

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	Mounting mode/ Operat. distance S_n	Output	Type designation	Ident. number	Connection
65 x 40 x 40 mm	20 mm	complementary, PNP	Bi20U-CK40-VP4X2-H1141	1627216	connector M12 x 1
65 x 40 x 40 mm	20 mm	N.O., PNP	Bi20U-CK40-AP6X2-H1141	1627233 ✘	connector M12 x 1
65 x 40 x 40 mm	20 mm	complementary, NPN	Bi20U-CK40-VN4X2-H1141	1568814	connector M12 x 1
65 x 40 x 40 mm	20 mm	N.O., NPN	Bi20U-CK40-AN6X2-H1141	1627231	connector M12 x 1
65 x 40 x 40 mm	30 mm	N.O., PNP	Bi30U-CK40-AP6X2-H1141	1625829 ✘	connector M12 x 1
65 x 40 x 40 mm	30 mm	N.O., NPN	Bi30U-CK40-AN6X2-H1141	1625820	connector M12 x 1
65 x 40 x 40 mm	50 mm*	complementary, PNP	Ni50U-CK40-VP4X2-H1141	1538302 ✘	connector M12 x 1
65 x 40 x 40 mm	50 mm*	N.O., PNP	Ni50U-CK40-AP6X2-H1141	1625837 ✘	connector M12 x 1
65 x 40 x 40 mm	50 mm*	complementary, NPN	Ni50U-CK40-VN4X2-H1141	1625806	connector M12 x 1
65 x 40 x 40 mm	50 mm*	N.O., NPN	Ni50U-CK40-AN6X2-H1141	1625823 ✘	connector M12 x 1

CP40

114 x 40 x 40 mm	20 mm	complementary, PNP	Bi20U-CP40-VP4X2	1627240 ✘	terminal chamber
114 x 40 x 40 mm	20 mm	N.O., PNP	Bi20U-CP40-AP6X2	1627232 ✘	terminal chamber
114 x 40 x 40 mm	20 mm	complementary, NPN	Bi20U-CP40-VN4X2	1627237	terminal chamber
114 x 40 x 40 mm	20 mm	N.O., NPN	Bi20U-CP40-AN6X2	1627230	terminal chamber
114 x 40 x 40 mm	30 mm	N.O., PNP	Bi30U-CP40-AP6X2	1625830 ✘	terminal chamber
114 x 40 x 40 mm	30 mm	N.O., NPN	Bi30U-CP40-AN6X2	1625102	terminal chamber
114 x 40 x 40 mm	50 mm*	complementary, PNP	Ni50U-CP40-VP4X2	1538303	terminal chamber
114 x 40 x 40 mm	50 mm*	N.O., PNP	Ni50U-CP40-AP6X2	1625831 ✘	terminal chamber
114 x 40 x 40 mm	50 mm*	complementary, NPN	Ni50U-CP40-VN4X2	1625847	terminal chamber
114 x 40 x 40 mm	50 mm*	N.O., NPN	Ni50U-CP40-AN6X2	1625846 ✘	terminal chamber

✘ = preferred solution

* flush mounting permitted in combination with a reduced operating distance

Further technical information on the individual sensors from page 26 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 PROGRAMME
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.

Recessed mounting of flush sensor types

When installing our new uprox+ sensors, merely small metal-free mounting zones have to be observed. For added protection against mechanical damage, they even allow recessed mounting by half a turn of the thread, thus providing absolute safety under all mounting conditions!

Partial embedding of non-flush sensor types

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.

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Ø 6,5

Housing length	Mounting mode/ Operating distance S_n	Output	Type designation	Ident. number	Connection
42 mm	2 mm*	N.O., PNP	Bi2U-EH6,5-AP6X	4281150 ✘	PUR cable, 2 m
42 mm	2 mm*	N.O., NPN	Bi2U-EH6,5-AN6X	4281170 ✘	PUR cable, 2 m
49 mm	2 mm*	N.O., PNP	Bi2U-EH6,5-AP6X-V1131	4281160 ✘	connector M8 x 1
49 mm	2 mm*	N.O., NPN	Bi2U-EH6,5-AN6X-V1131	4281180	connector M8 x 1
42 mm	6 mm**	N.O., PNP	Ni6U-EH6,5-AP6X	4631500 ✘	PUR cable, 2 m
42 mm	6 mm**	N.O., NPN	Ni6U-EH6,5-AN6X	4631520	PUR cable, 2 m
49 mm	6 mm**	N.O., PNP	Ni6U-EH6,5-AP6X-V1131	4631510 ✘	connector M8 x 1
49 mm	6 mm**	N.O., NPN	Ni6U-EH6,5-AN6X-V1131	4631530	connector M8 x 1

M8 x 1

42 mm	2 mm*	N.O., PNP	Bi2U-EG08-AP6X	4602032 ✘	PUR cable, 2 m
42 mm	2 mm*	N.O., NPN	Bi2U-EG08-AN6X	4602035 ✘	PUR cable, 2 m
57 mm	2 mm*	N.O., PNP	Bi2U-EG08-AP6X-H1341	4602034 ✘	connector M12 x 1
57 mm	2 mm*	N.C., PNP	Bi2U-EG08-RP6X-H1341	4602080 ✘	connector M12 x 1
57 mm	2 mm*	N.O., NPN	Bi2U-EG08-AN6X-H1341	4602037	connector M12 x 1
49 mm	2 mm*	N.O., PNP	Bi2U-EG08-AP6X-V1131	4602033 ✘	connector M8 x 1
49 mm	2 mm*	N.C., PNP	Bi2U-EG08-RP6X-V1131	4602091 ✘	connector M8 x 1
49 mm	2 mm*	N.O., NPN	Bi2U-EG08-AN6X-V1131	4602036	connector M8 x 1
42 mm	6 mm**	N.O., PNP	Ni6U-EG08-AP6X	4635800 ✘	PUR cable, 2 m
42 mm	6 mm**	N.O., NPN	Ni6U-EG08-AN6X	4635803 ✘	PUR cable, 2 m
57 mm	6 mm**	N.O., PNP	Ni6U-EG08-AP6X-H1341	4635802 ✘	connector M12 x 1
57 mm	6 mm**	N.C., PNP	Ni6U-EG08-RP6X-H1341	4635830 ✘	connector M12 x 1
57 mm	6 mm**	N.O., NPN	Ni6U-EG08-AN6X-H1341	4635805	connector M12 x 1
49 mm	6 mm**	N.O., PNP	Ni6U-EG08-AP6X-V1131	4635801 ✘	connector M8 x 1
49 mm	6 mm**	N.C., PNP	Ni6U-EG08-RP6X-V1131	4635831 ✘	connector M8 x 1
49 mm	6 mm**	N.O., NPN	Ni6U-EG08-AN6X-V1131	4635804	connector M8 x 1

✘ = preferred solution

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

Further cylindrical housing styles on page 14/15
Further technical information on the individual sensors from page 34 on

A high level of EMC

uprox+ sensors not only exceed the valid standard EN 609947-5-2, but also fulfill the strict provisions of the coming amendment (including resistance tests according to EN 61000-4-6 regarding "conducted interference").
In February 2007 the new version will replace the present proximity switch standard.

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 PROGRAMME
CYLINDRICAL HOUSINGS

M12 x 1

Housing length	Mounting mode/ Operating distance S_n	Output	Type designation	Ident. number	Connection
54 mm	4 mm*	N.O., PNP	Bi4U-M12-AP6X	1634803 ✘	PVC cable, 2 m
54 mm	4 mm*	N.O., NPN	Bi4U-M12-AN6X	1634823	PVC cable, 2 m
52 mm	4 mm*	N.O., PNP	Bi4U-M12-AP6X-H1141	1634804 ✘	connector M12 x 1
52 mm	4 mm*	N.C., PNP	Bi4U-M12-RP6X-H1141	1634846 ✘	connector M12 x 1
52 mm	4 mm*	N.O., NPN	Bi4U-M12-AN6X-H1141	1634824 ✘	connector M12 x 1
62 mm	4 mm*	N.O., PNP	Bi4U-M12E-AP6X-H1141	1634845 ✘	connector M12 x 1
52 mm	4 mm*	N.O., PNP	Bi4U-M12-AP6X-V1131	1634780 ✘	connector M8 x 1
52 mm	4 mm*	N.O., NPN	Bi4U-M12-AN6X-V1131	1635430	connector M8 x 1

M12 x 1

54 mm	10 mm**	N.O., PNP	Ni10U-M12-AP6X	1634805	PVC cable, 2 m
54 mm	10 mm**	N.O., NPN	Ni10U-M12-AN6X	1634825	PVC cable, 2 m
52 mm	10 mm**	N.O., PNP	Ni10U-M12-AP6X-H1141	1634806 ✘	connector M12 x 1
52 mm	10 mm**	N.C., PNP	Ni10U-M12-RP6X-H1141	1634848 ✘	connector M12 x 1
52 mm	10 mm**	N.O., NPN	Ni10U-M12-AN6X-H1141	1634826 ✘	connector M12 x 1
52 mm	10 mm**	N.O., PNP	Ni10U-M12-AP6X-V1131	1634790 ✘	connector M8 x 1
52 mm	10 mm**	N.O., NPN	Ni10U-M12-AN6X-V1131	1634795	connector M8 x 1

M18 x 1

54 mm	8 mm*	N.O., PNP	Bi8U-M18-AP6X	1644733 ✘	PVC cable, 2 m
54 mm	8 mm*	N.O., NPN	Bi8U-M18-AN6X	1644736	PVC cable, 2 m
52 mm	8 mm*	N.O., PNP	Bi8U-M18-AP6X-H1141	1644731 ✘	connector M12 x 1
52 mm	8 mm*	N.C., PNP	Bi8U-M18-RP6X-H1141	1644750 ✘	connector M12 x 1
52 mm	8 mm*	N.O., NPN	Bi8U-M18-AN6X-H1141	1644737 ✘	connector M12 x 1
72 mm	8 mm*	N.O., PNP	Bi8U-M18E-AP6X-H1141	1644735 ✘	connector M12 x 1

M18 x 1

54 mm	15 mm**	N.O., PNP	Ni15U-M18-AP6X	1635330 ✘	PVC cable, 2 m
54 mm	15 mm**	N.O., NPN	Ni15U-M18-AN6X	1635334	PVC cable, 2 m
52 mm	15 mm**	N.O., PNP	Ni15U-M18-AP6X-H1141	1635331 ✘	connector M12 x 1
52 mm	15 mm**	N.C., PNP	Ni15U-M18-RP6X-H1141	1635450 ✘	connector M12 x 1
52 mm	15 mm**	N.O., NPN	Ni15U-M18-AN6X-H1141	1635335 ✘	connector M12 x 1

✘ = preferred solution

* recessed mounting permitted

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

Further technical information on the individual sensors from page 34 on

Recessed mounting of flush sensor types

When installing our new uprox+ sensors, merely small metal-free mounting zones have to be observed. For added protection against mechanical damage, they even allow recessed mounting by half a turn of the thread, thus providing absolute safety under all mounting conditions!

Partial embedding on non-flush sensor types

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.

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M30 x 1,5

Housing length	Mouting mode/ Operating distance S_n	Output	Type designation	Ident. number	Connection
64 mm	15 mm*	N.O., PNP	Bi15U-M30-AP6X	1636731 ✘	PVC cable, 2 m
64 mm	15 mm*	N.O., NPN	Bi15U-M30-AN6X	1636735	PVC cable, 2 m
62 mm	15 mm*	N.O., PNP	Bi15U-M30-AP6X-H1141	1636732 ✘	connector M12 x 1
62 mm	15 mm*	N.C., PNP	Bi15U-M30-RP6X-H1141	1636739 ✘	connector M12 x 1
62 mm	15 mm*	N.O., NPN	Bi15U-M30-AN6X-H1141	1636736 ✘	connector M12 x 1

M30 x 1,5

64 mm	30 mm**	N.O., PNP	Ni30U-M30-AP6X	1646630 ✘	PVC cable, 2 m
64 mm	30 mm**	N.O., NPN	Ni30U-M30-AN6X	1644634	PVC cable, 2 m
62 mm	30 mm**	N.O., PNP	Ni30U-M30-AP6X-H1141	1646631 ✘	connector M12 x 1
62 mm	30 mm**	N.C., PNP	Ni30U-M30-RP6X-H1141	1646636 ✘	connector M12 x 1
62 mm	30 mm**	N.O., NPN	Ni30U-M30-AN6X-H1141	1644635	connector M12 x 1

✘ = preferred solution

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**

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

Further technical information on the individual sensors from page 34 on

A high level of EMC

uprox+ sensors not only exceed the valid standard EN 609947-5-2, but also fulfill the strict provisions of the coming amendment (including resistance tests according to EN 61000-4-6 regarding "conducted interference").
In February 2007 the new version will replace the present proximity switch standard.

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.

TEFLONISED 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 teflonised 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

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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M12 x 1

Housing length	Mounting mode/ Operating distance S_n	Output	Type designation	Ident. number	Connection
52 mm	4 mm*	N.O., PNP	Bi4U-MT12-AP6X-H1141	1634809 ✘	connector M12 x 1
52 mm	4 mm*	N.O., NPN	Bi4U-MT12-AN6X-H1141	1634829	connector M12 x 1
52 mm	10 mm**	N.O., PNP	Ni10U-MT12-AP6X-H1141	1634810 ✘	connector M12 x 1
52 mm	10 mm**	N.O., NPN	Ni10U-MT12-AN6X-H1141	1634830	connector M12 x 1

M18 x 1

52 mm	8 mm*	N.O., PNP	Bi8U-MT18-AP6X-H1141	1644730 ✘	connector M12 x 1
52 mm	8 mm*	N.O., NPN	Bi8U-MT18-AN6X-H1141	1644739	connector M12 x 1
52 mm	15 mm**	N.O., PNP	Ni15U-MT18-AP6X-H1141	1635333 ✘	connector M12 x 1
52 mm	15 mm**	N.O., NPN	Ni15U-MT18-AN6X-H1141	1635337	connector M12 x 1

M30 x 1,5

62 mm	15 mm*	N.O., PNP	Bi15U-MT30-AP6X-H1141	1636734 ✘	connector M12 x 1
62 mm	15 mm*	N.O., NPN	Bi15U-MT30-AN6X-H1141	1636738	connector M12 x 1
62 mm	30 mm**	N.O., PNP	Ni30U-MT30-AP6X-H1141	1646633 ✘	connector M12 x 1
62 mm	30 mm**	N.O., NPN	Ni30U-MT30-AN6X-H1141	1644637	connector M12 x 1

✘ = preferred solution

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

Further technical information on the individual sensors from page 34 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!

A high level of EMC

uprox+ sensors not only exceed the valid standard EN 609947-5-2, but also fulfill the strict provisions of the coming amendment (including resistance tests according to EN 61000-4-6 regarding "conducted interference").
In February 2007 the new version will replace the present proximity switch standard.

SENSORS FOR THE FOOD INDUSTRY

The wash-down sensors of the uprox+ series are the perfect solution for all requirements of foodstuffs production. The proven and novel sensor features help optimise all kinds of applications, for instance, in dairies, breweries, the manufacture of bakery products and frozen foods, or packaging and filling processes.

The combination of the most advanced manufacturing and printed coil technologies generates a triple operating distance compared to conventional sensors with a ferrite core. However, sensors with an extremely high operating distance are always associated with complex mounting procedures. With uprox+ these problems have been eliminated.
The novel multiple coil construction and integrated pre-daming protection with self-compensation permit mounting with very small metal-free zones. This minimises installation errors and enhances the freedom in planning and constructing machines and systems.

The recessed mounting option protects the sensor against mechanical damage. Reduction factors are no longer an issue, since detection is not affected by different materials such as iron, stainless steel, copper, aluminium and brass.

A special double lip sealing system prevents the ingress of cleaning agents between LCP front cap, threaded barrel and connector insert and effectively seals the sensor. Even aggressive detergents and disinfectants, whether alkaline or acid, can cause no harm to the sensor, whose sensitive measuring core is protected by a robust V4A stainless steel housing.

The sensors easily exceed the requirements of protection degree IP68 and IP69K and withstand the cyclic cleaning procedures, placing high demands on the field devices employed in the food and beverage industry.

The devices are cleaned and disinfected daily at high temperatures (80 °C and more) and under high pressure with chemical cleaning agents. The uprox+ food and beverage series from TURCK has proven its capabilities under the strict test requirements of the independent test lab Ecolab.

The resistance of the materials against detergents and disinfectants, the housing's sealing system and the high level of EMC of the electronics ensure fail-safe operation in hostile industrial environments.

The sensor family uprox+ masters standard applications just as well as application-specific tasks. It stands for highest system availability, optimum service-friendliness, efficient standardisation and maximum degrees of freedom.
Profit from all these benefits to optimise your production processes!

Test procedure
Henkel-Ecolab test method R&D-P3-E No. 37
Withstand and immersion test:
complete immersion in the test medium
Test duration: 14 days
Evaluation: gravimetric analysis;
mass differential in %,
visual assessment of swelling, embrittlement, change of colour, comparison with the 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 140) are resistant to all common acid and alkaline detergents and disinfectants. Consequently, damages through aggressive cleansers are avoided.

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M12 x 1

Housing length	Mounting mode/ Operating distance S_n	Output	Type designation	Ident. number	Connection
52 mm	4 mm*	N.O., PNP	Bi4U-EM12WD-AP6X-H1141	1634812 ✘	connector M12 x 1
52 mm	4 mm*	N.O., NPN	Bi4U-EM12WD-AN6X-H1141	1634841	connector M12 x 1
52 mm	4 mm*	N.O., PNP	Bi4U-EM12WD-AP6X	1634811 ✘	PVC cable, 2 m
52 mm	4 mm*	N.O., NPN	Bi4U-EM12WD-AN6X	1634842	PVC cable, 2 m
52 mm	10 mm**	N.O., PNP	Ni10U-EM12WD-AP6X-H1141	1634814 ✘	connector M12 x 1
52 mm	10 mm**	N.O., NPN	Ni10U-EM12WD-AN6X-H1141	1634837	connector M12 x 1
52 mm	10 mm**	N.O., PNP	Ni10U-EM12WD-AP6X	1634813 ✘	PVC cable, 2 m
52 mm	10 mm**	N.O., NPN	Ni10U-EM12WD-AN6X	1634838	PVC cable, 2 m

M18 x 1

52 mm	8 mm*	N.O., PNP	Bi8U-EM18WD-AP6X-H1141	1634816 ✘	connector M12 x 1
52 mm	8 mm*	N.O., NPN	Bi8U-EM18WD-AN6X-H1141	1634839	connector M12 x 1
56 mm	8 mm*	N.O., PNP	Bi8U-EM18WD-AP6X	1634815 ✘	PVC cable, 2 m
56 mm	8 mm*	N.O., NPN	Bi8U-EM18WD-AN6X	1634840	PVC cable, 2 m
52 mm	15 mm**	N.O., PNP	Ni15U-EM18WD-AP6X-H1141	1634818 ✘	connector M12 x 1
52 mm	15 mm**	N.O., NPN	Ni15U-EM18WD-AN6X-H1141	1634835	connector M12 x 1
56 mm	15 mm**	N.O., PNP	Ni15U-EM18WD-AP6X	1634817 ✘	PVC cable, 2 m
56 mm	15 mm**	N.O., NPN	Ni15U-EM18WD-AN6X	1634836	PVC cable, 2 m

M30 x 1,5

62 mm	15 mm*	N.O., PNP	Bi15U-EM30WD-AP6X-H1141	1634820 ✘	connector M12 x 1
62 mm	15 mm*	N.O., NPN	Bi15U-EM30WD-AN6X-H1141	1634834	connector M12 x 1
66 mm	15 mm*	N.O., PNP	Bi15U-EM30WD-AP6X	1634819 ✘	PVC cable, 2 m
66 mm	15 mm*	N.O., NPN	Bi15U-EM30WD-AN6X	1634843	PVC cable, 2 m
62 mm	30 mm**	N.O., PNP	Ni30U-EM30WD-AP6X-H1141	1634822 ✘	connector M12 x 1
62 mm	30 mm**	N.O., NPN	Ni30U-EM30WD-AN6X-H1141	1634832	connector M12 x 1
66 mm	30 mm**	N.O., PNP	Ni30U-EM30WD-AP6X	1634821 ✘	PVC cable, 2 m
66 mm	30 mm**	N.O., NPN	Ni30U-EM30WD-AN6X	1634833	PVC cable, 2 m

✘ = preferred solution

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

Further technical information on the individual sensors from page 34 on

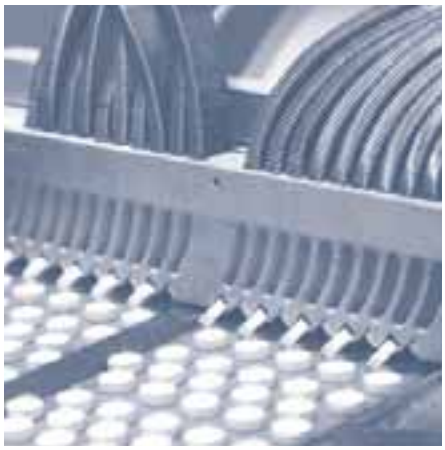
Factor 1

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 FOR THE EXPLOSION HAZARDOUS AREA



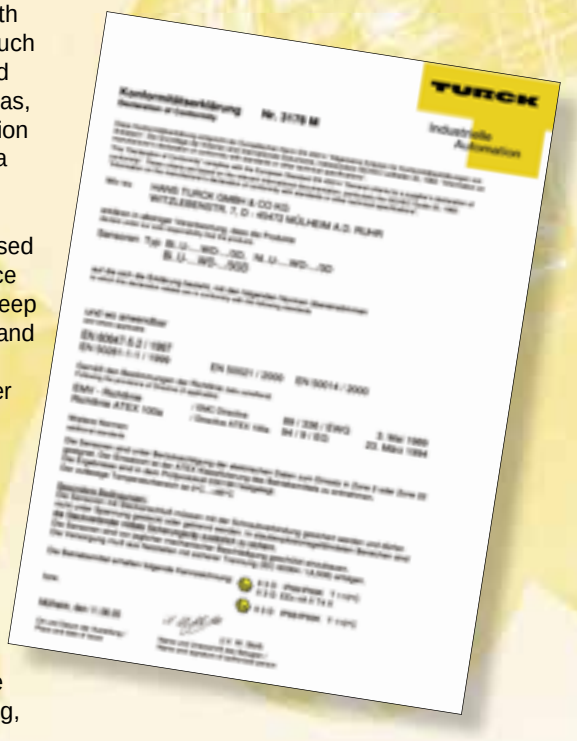
No matter whether for installations in the chemical, petrochemical or pharmaceutical industry, in mills, in food and animal food processing – an ATEX approval for inductive sensors for these sectors is indispensable. In 1994 the new EC directive 94/9/EC was passed. The name ATEX is derived from the directive's 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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EM12WD

Dimensions/ Housing length	Mounting mode/ Operat. dist. S_n	Output	Type designation	Ident. number	Connection
52 mm	4 mm*	N.O., PNP	Bi4U-EM12WD-AP6X-H1141/3D	1634851 ✘	connector M12 x 1
52 mm	4 mm*	N.O., NPN	Bi4U-EM12WD-AN6X-H1141/3D	1634852	connector M12 x 1
52 mm	10 mm**	N.O., PNP	Ni10U-EM12WD-AP6X-H1141/3D	1634857 ✘	connector M12 x 1
52 mm	10 mm**	N.O., NPN	Ni10U-EM12WD-AN6X-H1141/3D	1634858	connector M12 x 1

EM18WD

52 mm	8 mm*	N.O., PNP	Bi8U-EM18WD-AP6X-H1141/3GD	1634853 ✘	connector M12 x 1
52 mm	8 mm*	N.O., NPN	Bi8U-EM18WD-AN6X-H1141/3GD	1634854	connector M12 x 1
52 mm	15 mm**	N.O., PNP	Ni15U-EM18WD-AP6X-H1141/3D	1634859 ✘	connector M12 x 1
52 mm	15 mm**	N.O., NPN	Ni15U-EM18WD-AN6X-H1141/3D	1634860	connector M12 x 1

EM30WD

62 mm	15 mm*	N.O., PNP	Bi15U-EM30WD-AP6X-H1141/3GD	1634855 ✘	connector M12 x 1
62 mm	15 mm*	N.O., NPN	Bi15U-EM30WD-AN6X-H1141/3GD	1634856	connector M12 x 1
62 mm	30 mm**	N.O., PNP	Ni30U-EM30WD-AP6X-H1141/3D	1634861 ✘	connector M12 x 1
62 mm	30 mm**	N.O., NPN	Ni30U-EM30WD-AN6X-H1141/3D	1634862	connector M12 x 1

Q80

92 x 80 x 40 mm	50 mm	complementary, PNP	Bi50U-Q80-VP4X2-H1141/3GD	1562004	connector M12 x 1
92 x 80 x 40 mm	50 mm	N.O., PNP	Bi50U-Q80-AP6X2-H1141/3GD	1608946 ✘	connector M12 x 1

CP40

114 x 40 x 40 mm	20 mm	N.O., PNP	Bi20U-CP40-AP6X2/3D	1627236 ✘	terminal chamber

✘ = preferred solution

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

Further technical information on the individual sensors from page 34 on

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 damage through aggressive cleansers is 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-OPTIMISED SENSOR DESIGNS

Q40

Dimensions	Mounting mode/ Operating distance S_n	Output	Type designation	Ident. number	Connection
67 x 40 x 52,5 mm	22 mm	N.O., PNP	Ni22U-Q40-AP6X2-H1141	4690229 ✘	connector M12 x 1

✘ = preferred solution

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 uprox+ 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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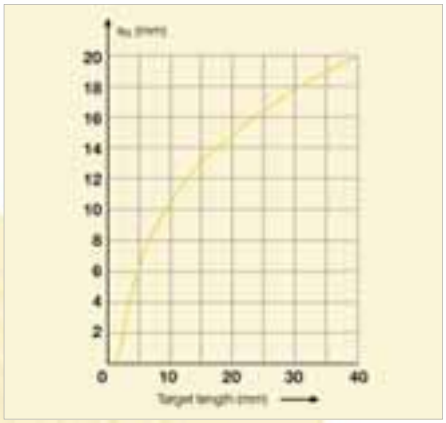
TS12

Dimensions	Switching frequency/ Min. pulse duration	Output	Type designation	Ident. number	Connection
80 x 17 x 12 mm	80 Hz, 100 ms	N.O., PNP	Ni20U-TS12-AP6X2-V1131	1646640 ✘	connector M8 x 1
80 x 17 x 12 mm	80 Hz, 100 ms	N.O., NPN	Ni20U-TS12-AN6X2-V1131	1625822	connector M8 x 1

✘ = 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.

Recessed mounting of flush sensor types

When installing our new uprox+ sensors, merely small metal-free mounting zones have to be observed. For added protection against mechanical damage, they even allow recessed mounting by half a turn of the thread, thus providing absolute safety under all mounting conditions!

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

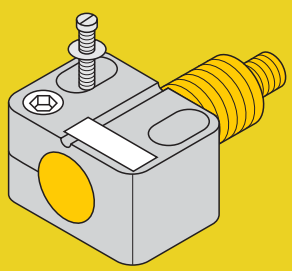
	Type designation	Description		Ident. number
BST08B/ BST08N 	BST-08B	Fixing clamp with dead-stop for cylindrical sensors	Ø 8 mm	6947210 ✘
	BST-08N	Fixing clamp without dead-stop for cylindrical sensors	Ø 8 mm	6947211 ✘
BST12B/ BST12N 	BST-12B	Fixing clamp with dead-stop for cylindrical sensors	Ø 12 mm	6947212 ✘
	BST-12N	Fixing clamp without dead-stop for cylindrical sensors	Ø 12 mm	6947213 ✘
BST18B/ BST18N 	BST-18B	Fixing clamp with dead-stop for cylindrical sensors	Ø 18 mm	6947214 ✘
	BST-18N	Fixing clamp without dead-stop for cylindrical sensors	Ø 18 mm	6947215 ✘
BST30B/ BST30N 	BST-30B	Fixing clamp with dead-stop for cylindrical sensors	Ø 30 mm	6947216 ✘
	BST-30N	Fixing clamp without dead-stop for cylindrical sensors	Ø 30mm	6947217 ✘
BST-BS 	BST-BS	Labelling plates for BST fixing clamps		6947220 ✘
BST-UH/ BST-UV 	BST-UH	Mounting aid for BST fixing clamps		6947219 ✘
	BST-UV	Mounting aid for BST fixing clamps		6947218 ✘
BS865 	BS865	Fixing clamp for cylindrical sensors	Ø 6,5 mm	69476 ✘
MBS65 	MBS65	Fixing clamp for cylindrical sensors	Ø 6,5 mm	69478 ✘
BS12 	BS12	Fixing clamp for cylindrical sensors	Ø 12 mm	69470 ✘
BS18 	BS18	Fixing clamp for cylindrical sensors	Ø 18 mm	69471 ✘

✘ = preferred solution

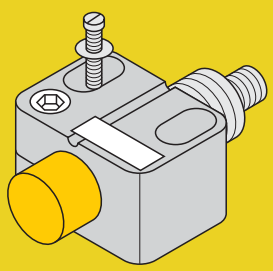
Fixing clamps:

- Mounting:
  B with stop, N without stop
- Position of fixing clamps is retained during sensor replacement
- Modular construction with mounting aid
- Universal labelling plates

Version B – with stop



Version N – without stop



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	Type designation	Description		Ident. number
BSN18 	BSN18	Fixing clamp for cylindrical sensors	Ø 18 mm	69472 ✘
JS 025/037 	JS 025/037	Mounting rail for CP40 and CK40 sensors		69429 ✘
MF-CK40-1S/...2S/...3S 	MF-CK40-1S	Protective clamp for CK40 sensors "one-side"		6900481 ✘
	MF-CK40-2S	Protective clamp for CK40 sensor style "angled"		6900482 ✘
	MF-CK40-3S	Protective clamp for CK40 "U profile"		6900483 ✘
MW-Q08/ Q10 	MW-Q08/Q10	Fixing clamp for Q08 sensors		6945007 ✘
SG40  **SG40/2**	SG40	Protective housing for CP40 sensors		69500 ✘
	SG40/2	Temperature-resistant protective housing for CP40 sensors		69497 ✘
QM-08, QM-12 QM-18, QM-30 	QM-08	Quick-mount for cylindrical sensors	Ø 8 mm	6945100 ✘
	QM-12	Quick-mount for cylindrical sensors	Ø 12 mm	6945101 ✘
	QM-18	Quick-mount for cylindrical sensors	Ø 18 mm	6945102 ✘
	QM-30	Quick-mount for cylindrical sensors	Ø 30 mm	6945103 ✘

✘ = preferred solution

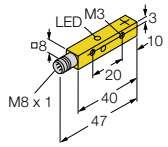
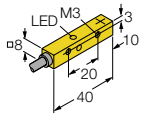
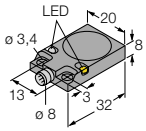
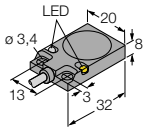
TURCK offers a versatile range of accessories for mounting and protection of the uprox+ series.

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.

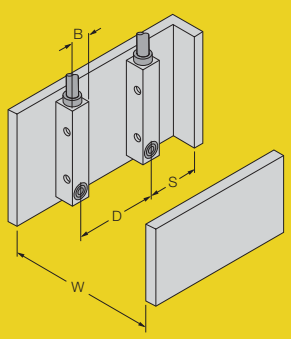
Added protection against mechanical damage is provided by the protective fixing clamps, which additionally simplify installation of the CK40 und CP40 sensor series.

TECHNICAL DATA

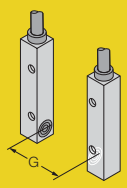
Dimensions/Housing style [mm]		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**Q8SE** {		4* b	© , PNP	10...30 VDC	150 DC, ö	
			4* b	¨ , PNP	10...30 VDC	150 DC, ö	
			4* b	© , NPN	10...30 VDC	150 DC, ö	
	**Q8SE** |		4* b	© , PNP	10...30 VDC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

* flush mounting permitted in combination with a reduced operating distance

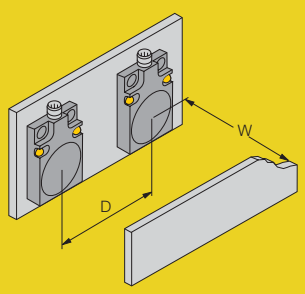
Housing type Q8SE



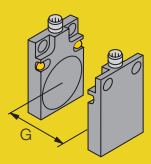
B = 8 mm
D = 24 mm
G = 24 mm
S = 12 mm
W = 12 mm



Housing type Q08



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



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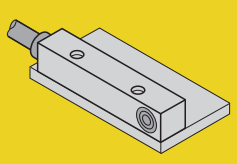
Type	Ident no.	Connection (å 61)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials (å 63) Housing	Active face	Cable	LED U_B	LED ü
Ni4U-Q8SE-AP6X-V1131	4635808 ✘	S002	1	-30...+85	IP68	PP	PP			•
Ni4U-Q8SE-RP6X-V1131	4635820 ✘	S056	1	-30...+85	IP68	PP	PP			•
Ni4U-Q8SE-AN6X-V1131	4635810	S005	1	-30...+85	IP68	PP	PP			•
Ni4U-Q8SE-AP6X	4635807 ✘	S001	1	-30...+85	IP68	PP	PP	PUR 2 m		•
Ni4U-Q8SE-AN6X	4635809 ✘	S004	1	-30...+85	IP68	PP	PP	PUR 2 m		•
Bi8U-Q08-AP6X2-V1131	1662005 ✘	S002	0.25	-25...+70	IP68	GD-Zn	LCP		•	•
Bi8U-Q08-AN6X2-V1131	1662008	S005	0.25	-25...+70	IP68	GD-Zn	LCP		•	•
Bi8U-Q08-AP6X2	1662006 ✘	S001	0.25	-25...+70	IP68	GD-Zn	LCP	PUR 2 m	•	•
Bi8U-Q08-AN6X2	1662007 ✘	S004	0.25	-25...+70	IP68	GD-Zn	LCP	PUR 2 m	•	•

✘ = preferred solution

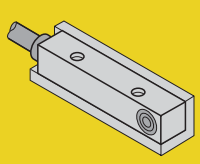
Housing type Q8SE

Based on metal plus

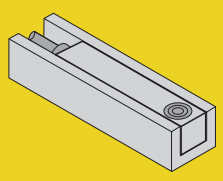
1-side flush mounting:
S_r = 3,5 mm



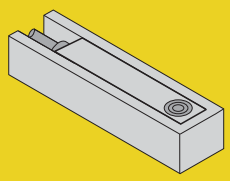
• 1-side flush mounting:
S_r = 3,0 mm



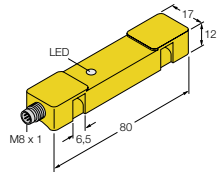
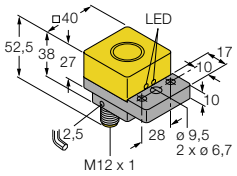
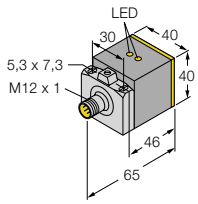
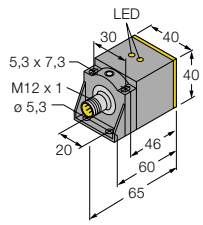
• 2-side flush mounting:
S_r = 2,5 mm



• 3-side flush mounting:
S_r = 2,0 mm

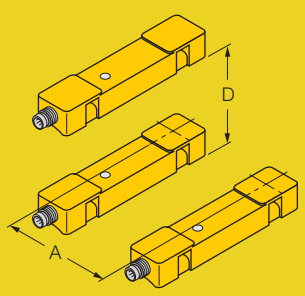


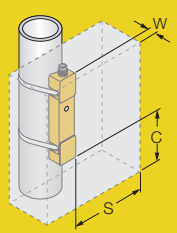
TECHNICAL DATA

Dimensions/Housing style [mm]		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**TS12** {	static output	20 b	© , PNP	10...30 VDC	200 DC, ö	
		static output	20 b	© , NPN	10...30 VDC	200 DC, ö	
	**Q40** {		22 b	© , PNP	10...30 VDC	200 DC, ö	
	**CK40** {		20 a	ª , PNP	10...65 VDC	200 DC, ö	
			20 a	© , PNP	10...30 VDC	200 DC, ö	
			20 a	ª , NPN	10...65 VDC	200 DC, ö	
			20 a	© , NPN	10...30 VDC	200 DC, ö	
	**CK40** {		30 a	© , PNP	10...30 VDC	200 DC, ö	
			30 a	© , NPN	10...30 VDC	200 DC, ö	
			50* b	ª , PNP	10...65 VDC	200 DC, ö	
			50* b	© , PNP	10...30 VDC	200 DC, ö	
			50* b	ª , NPN	10...65 VDC	200 DC, ö	
			50* b	© , NPN	10...30 VDC	200 DC, ö	

* flush mounting permitted in combination with a reduced operating distance

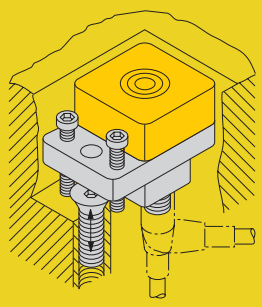
Housing type TS12





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

Housing type Q40



The sensor type Q40 is specially suited for parts position control in large stamping press tools.

The height-adjustable support screw enables precise adjustment of the sensor's position in the tool.

The sensor permits recessed mounting for added mechanical protection.

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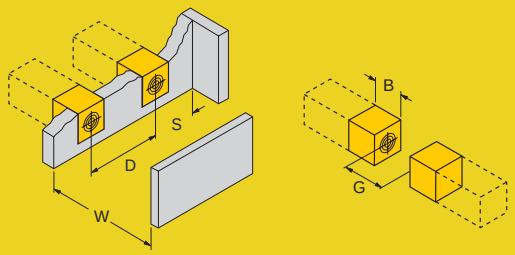
Type	Ident no.	Connection (å 61)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials (å 63) Housing	Active face	Cable	LED U_B	LED ü
Ni20U-TS12-AP6X2-V1131	1646640 ✘	S002	0.008	-25...+70	IP68	PBT			•	•
Ni20U-TS12-AN6X2-V1131	1625822	S005	0.008	-25...+70	IP68	PBT			•	•
Ni22U-Q40-AP6X2-H1141	4690229 ✘	S002	0.25	-30...+85	IP68	PBT	PBT		•	•
Bi20U-CK40-VP4X2-H1141	1627216	S008	0.25	0...+70	IP68	PBT	PA-X		•	•
Bi20U-CK40-AP6X2-H1141	1627233 ✘	S002	0.25	0...+70	IP68	PBT	PA-X		•	•
Bi20U-CK40-VN4X2-H1141	1568814	S011	0.25	0...+70	IP68	PBT	PA-X		•	•
Bi20U-CK40-AN6X2-H1141	1627231	S005	0.25	0...+70	IP68	PBT	PA-X		•	•
Bi30U-CK40-AP6X2-H1141	1625829 ✘	S002	0.25	-10...+60	IP68	PBT	PA-X		•	•
Bi30U-CK40-AN6X2-H1141	1625820	S005	0.25	-10...+60	IP68	PBT	PA-X		•	•
Ni50U-CK40-VP4X2-H1141	1538302 ✘	S008	0.25	-25...+70	IP68	PBT	PA-X		•	•
Ni50U-CK40-AP6X2-H1141	1625837 ✘	S002	0.25	-25...+70	IP68	PBT	PA-X		•	•
Ni50U-CK40-VN4X2-H1141	1625806	S011	0.25	-25...+70	IP68	PBT	PA-X		•	•
Ni50U-CK40-AN6X2-H1141	1625823 ✘	S005	0.25	-25...+70	IP68	PBT	PA-X		•	•

✘ = preferred solution

3

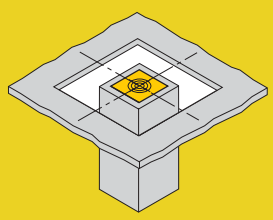
Housing type CK40/CP40 flush

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

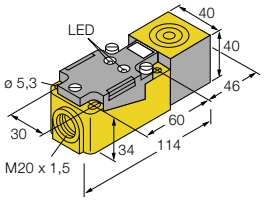


When installing the sensor in an aperture plate (sheet metal, e.g., a step plate) the sensor must be fully embedded in metal to ensure reliable detection of the target.

Bi30U...

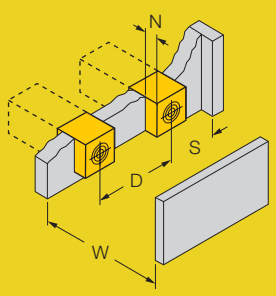


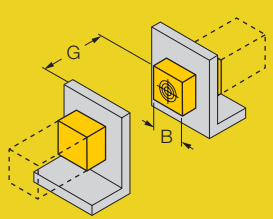
TECHNICAL DATA

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

* flush mounting permitted in combination with a reduced operating distance

Housing type CK40/CP40 non-flush

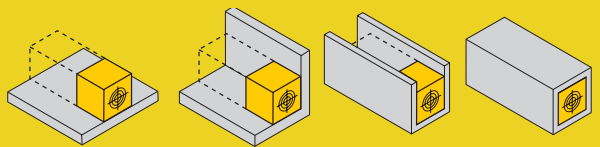




B = 40 mm **N** = 30 mm
D = 240 mm **S** = 20 mm
G = 300 mm **W** = 105 mm

Housing type CK40/CP40 non-flush

1-side	**2-side:**	**3-side:**	**4-side:**
S_r = 35 mm	S_r = 35 mm	S_r = 35 mm	S_r = 35 mm
D = 240 mm	D = 240 mm	D = 80 mm	D = 60 mm



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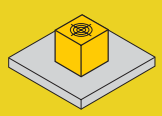
Type	Ident no.	Connection (å 61)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials (å 63) Housing	Active face	Cable	LED U_B	LED ü
Bi20U-CP40-VP4X2	1627240 ✘	S009	0.25	0...+70	IP68	PBT	PA-X		•	•
Bi20U-CP40-AP6X2	1627232 ✘	S003	0.25	0...+70	IP68	PBT	PA-X		•	•
Bi20U-CP40-AP6X2/3D	1627236 ✘	S003	0.25	0...+70	IP68	PBT	PA-X		•	•
Bi20U-CP40-VN4X2	1627237	S012	0.25	0...+70	IP68	PBT	PA-X		•	•
Bi20U-CP40-AN6X2	1627230	S006	0.25	0...+70	IP68	PBT	PA-X		•	•
Bi30U-CP40-AP6X2	1625830 ✘	S003	0.25	-10...+60	IP68	PBT	PA-X		•	•
Bi30U-CP40-AN6X2	1625102	S006	0.25	-10...+60	IP68	PBT	PA-X		•	•
Ni50U-CP40-VP4X2	1538303	S009	0.25	-25...+70	IP68	PBT	PA-X		•	•
Ni50U-CP40-AP6X2	1625831 ✘	S003	0.25	-25...+70	IP68	PBT	PA-X		•	•
Ni50U-CP40-VN4X2	1625847	S012	0.25	-25...+70	IP68	PBT	PA-X		•	•
Ni50U-CP40-AN6X2	1625846 ✘	S006	0.25	-25...+70	IP68	PBT	PA-X		•	•

✘ = preferred solution

3

Housing type CK40/CP40 non-flush

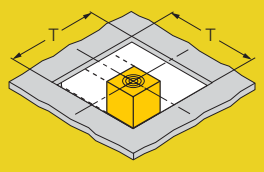


- based on metal without reduction of the operating distance
- recessed mounting at a reducted operating distance

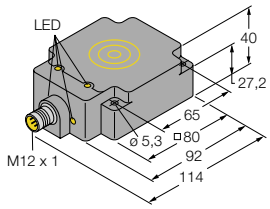
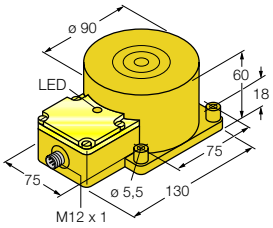
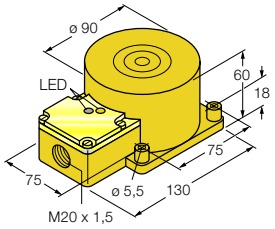
Recessed mounting in metal:
x = 10 mm: S_r = 20 mm
x = 20 mm: Sr = 20 mm
x = 30 mm: S_r = 20 mm
x = 40 mm: S_r = 20 mm

Sensor protruding the metal surface:
y = 10 mm: S_r = 40 mm
y = 20 mm: S_r = 50 mm
y = 30 mm: S_r = 50 mm
y = 40 mm: S_r = 50 mm

Mounting in an aperture plate:
T = 100 mm; sensor with reversing bracket
- based on metal S_r = 50 mm
- based on metal and one-side embedding S_r = 25 mm
- based on metal and two-side embedding S_r = 15 mm
- based on metal and three-side embedding S_r = 12 mm

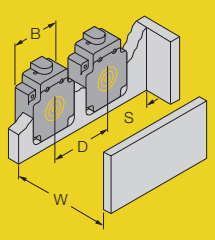


TECHNICAL DATA

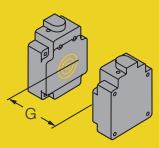
Dimensions/Housing style [mm]		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**Q80** {		50 a	ª , PNP	10...65 VDC	200 DC, ö	
		É II 3 G / II 3 D	50 a	ª , PNP	10...65 VDC	200 DC, ö	
			50 a	© , PNP	10...30 VDC	200 DC, ö	
		É II 3 G / II 3 D	50 a	© , PNP	10...30 VDC	200 DC, ö	
			50 a	ª , NPN	10...65 VDC	200 DC, ö	
			50 a	© , NPN	10...30 VDC	200 DC, ö	
			70** b	ª , PNP	10...65 VDC	200 DC, ö	
			70** b	© , PNP	10...30 VDC	200 DC, ö	
	**K90SR** {		100*** b	ª , PNP	10...65 VDC	200 DC, ö	
			100*** b	ª , NPN	10...65 VDC	200 DC, ö	
	**K90SR** }		100*** b	ª , PNP	10...65 VDC	200 DC, ö	
			100*** b	ª , NPN	10...65 VDC	200 DC, ö	

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

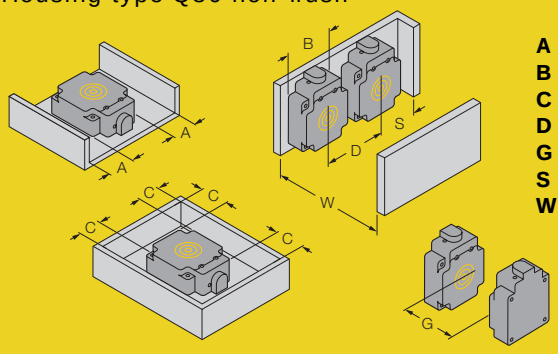
Housing type Q80 flush



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



Housing type Q80 non-flush



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

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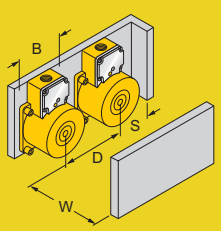
Type	Ident no.	Connection (å 61)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials (å 63) Housing	Active face	Cable	LED U_B	LED ü
Bi50U-Q80-VP4X2-H1141	1562000 ✘	S008	0.25	-25...+70	IP68	PBT	PBT		•	•
Bi50U-Q80-VP4X2-H1141/3GD	1562004	S008	0.25	0...+50	IP68	PBT	PBT		•	•
Bi50U-Q80-AP6X2-H1141	1608940 ✘	S002	0.25	-25...+70	IP68	PBT	PBT		•	•
Bi50U-Q80-AP6X2-H1141/3GD	1608946 ✘	S002	0.25	0...+50	IP68	PBT	PBT		•	•
Bi50U-Q80-VN4X2-H1141	1562001	S011	0.25	-25...+70	IP68	PBT	PBT		•	•
Bi50U-Q80-AN6X2-H1141	1608944	S005	0.25	-25...+70	IP68	PBT	PBT		•	•
Ni70U-Q80-VP4X2-H1141	1625833 ✘	S008	0.25	-25...+70	IP68	PBT	PBT		•	•
Ni70U-Q80-AP6X2-H1141	1625832 ✘	S002	0.25	-25...+70	IP68	PBT	PBT		•	•
Ni100U-K90SR-VP4X2-H1141	1625844	S008	0.25	-30...+85	IP68	PBT	PBT		•	•
Ni100U-K90SR-VN4X2-H1141	1515510	S011	0.25	-30...+85	IP68	PBT	PBT		•	•
Ni100U-K90SR-VP4X2	1625834 ✘	S009	0.25	-30...+85	IP68	PBT	PBT		•	•
Ni100U-K90SR-VN4X2	1515503 ✘	S012	0.25	-30...+85	IP68	PBT	PBT		•	•

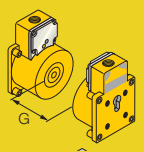
✘ = preferred solution

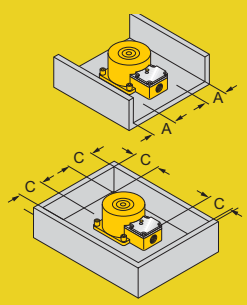
3

Housing type K90



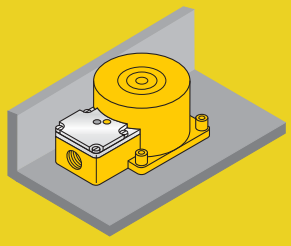
B = 90 mm
D = 270 mm
G = 600 mm
S = 90 mm
W = 300 mm



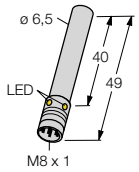
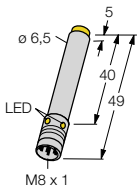
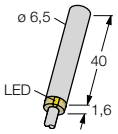
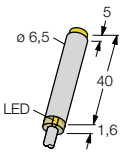


A = 100 mm
C = 200 mm

1-side flush mounting:
S_r = 70 mm

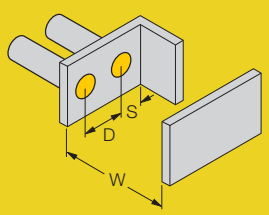


TECHNICAL DATA

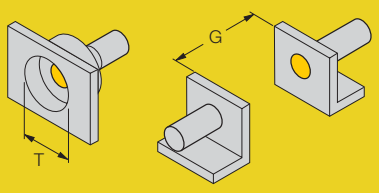
Dimensions/Housing style [mm]		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**6,5 mm** {		2* a 2* a	© , PNP © , NPN	10...30 VDC 10...30 VDC	150 DC, ö 150 DC, ö	
	**6,5 mm** {		6** b 6** b	© , PNP © , NPN	10...30 VDC 10...30 VDC	150 DC, ö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

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

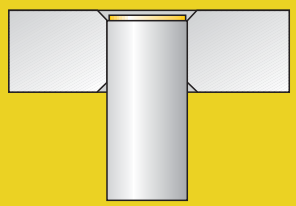
Housing type Ø 6,5 mm flush



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



All flush cylindrical uprox+ sensors permit recessed mounting.
Secure operation at an insertion depth of 0.5 mm is ensured.



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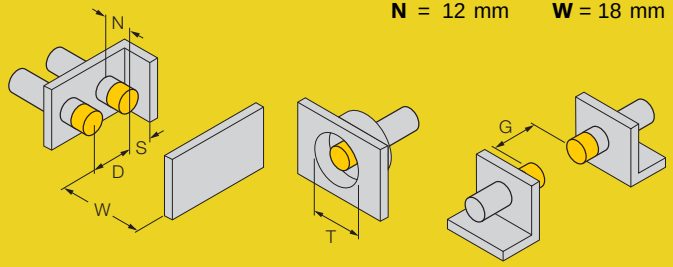
Type	Ident no.	Connection (å 61)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials (å 63) Housing	Active face	Cable	LED U_B	LED ü
Bi2U-EH6,5-AP6X-V1131	4281160 ✘	S002	1	-25...+70	IP68	VA	PA			•
Bi2U-EH6,5-AN6X-V1131	4281180	S005	1	-25...+70	IP68	VA	PA			•
Ni6U-EH6,5-AP6X-V1131	4631510 ✘	S002	1	-25...+70	IP68	VA	PA			•
Ni6U-EH6,5-AN6X-V1131	4631530	S005	1	-25...+70	IP68	VA	PA			•
Bi2U-EH6,5-AP6X	4281150 ✘	S001	1	-25...+70	IP68	VA	PA	PUR 2 m		•
Bi2U-EH6,5-AN6X	4281170 ✘	S004	1	-25...+70	IP68	VA	PA	PUR 2 m		•
Ni6U-EH6,5-AP6X	4631500 ✘	S001	1	-25...+70	IP68	VA	PA	PUR 2 m		•
Ni6U-EH6,5-AN6X	4631520	S004	1	-25...+70	IP68	VA	PA	PUR 2 m		•

✘ = preferred solution

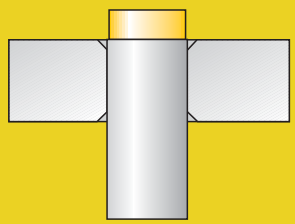
3

Housing type Ø 6,5 mm non-flush

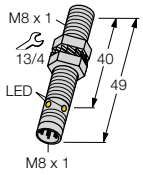
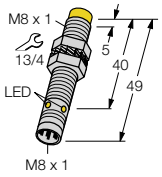
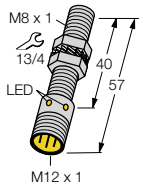
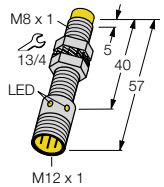
D = 26 mm **S** = 10 mm
G = 36 mm **T** = 26 mm
N = 12 mm **W** = 18 mm



All non-flush cylindrical uprox+ sensors permit embedding up to the upper edge of the thread. Secure operation of the Ø 6,5 mm sensor type is ensured in combination with a reduced operating distance of max. 30 %.



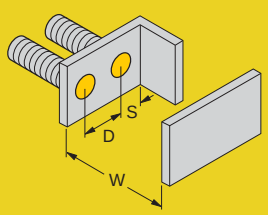
TECHNICAL DATA

Dimensions/Housing style [mm]		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 DC, ö	
			2* a	© , PNP	10...30 VDC	150 DC, ö	
	{		2* a	© , NPN	10...30 VDC	150 DC, ö	
	**M8 x 1**		6** b	© , PNP	10...30 VDC	150 DC, ö	
			6** b	© , PNP	10...30 VDC	150 DC, ö	
	{		6** b	© , NPN	10...30 VDC	150 DC, ö	
	**M8 x 1**		2* a	© , PNP	10...30 VDC	150 DC, ö	
			2* a	© , PNP	10...30 VDC	150 DC, ö	
	{		2* a	© , NPN	10...30 VDC	150 DC, ö	
	**M8 x 1**		6** b	© , PNP	10...30 VDC	150 DC, ö	
			6** b	© , PNP	10...30 VDC	150 DC, ö	
	{		6** b	© , NPN	10...30 VDC	150 DC, ö	

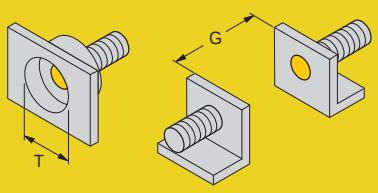
* recessed mounting permitted

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

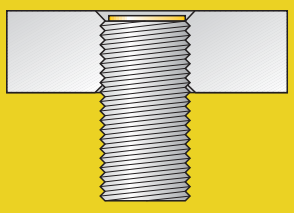
Housing type M8 x 1 flush



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



All flush threaded barrel uprox+ sensors permit recessed mounting. At an installation depth of half a turn of the thread secure operation is ensured.



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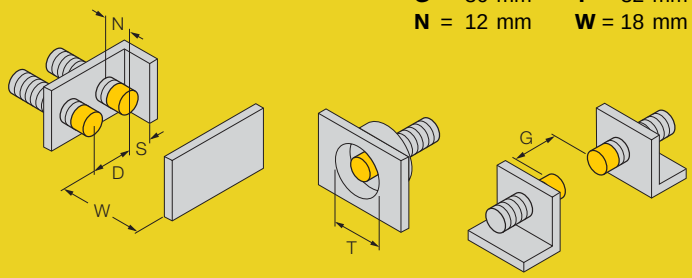
Type	Ident no.	Connection (å 61)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials (å 63) Housing	Active face	Cable	LED U_B	LED ü
Bi2U-EG08-AP6X-V1131	4602033 ✘	S002	1	-25...+70	IP68	VA	PA			•
Bi2U-EG08-RP6X-V1131	4602091 ✘	S136	1	-25...+70	IP68	VA	PA			•
Bi2U-EG08-AN6X-V1131	4602036	S005	1	-25...+70	IP68	VA	PA			•
Ni6U-EG08-AP6X-V1131	4635801 ✘	S002	1	-25...+70	IP68	VA	PA			•
Ni6U-EG08-RP6X-V1131	4635831 ✘	S136	1	-25...+70	IP68	VA	PA			•
Ni6U-EG08-AN6X-V1131	4635804	S005	1	-25...+70	IP68	VA	PA			•
Bi2U-EG08-AP6X-H1341	4602034 ✘	S002	1	-25...+70	IP68	VA	PA			•
Bi2U-EG08-RP6X-H1341	4602080 ✘	S056	1	-25...+70	IP68	VA	PA			•
Bi2U-EG08-AN6X-H1341	4602037	S005	1	-25...+70	IP68	VA	PA			•
Ni6U-EG08-AP6X-H1341	4635802 ✘	S002	1	-25...+70	IP68	VA	PA			•
Ni6U-EG08-RP6X-H1341	4635830 ✘	S056	1	-25...+70	IP68	VA	PA			•
Ni6U-EG08-AN6X-H1341	4635805	S005	1	-25...+70	IP68	VA	PA			•

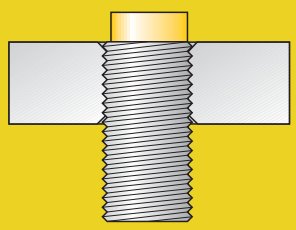
✘ = preferred solution

Housing type M8 x 1 non-flush

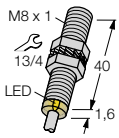
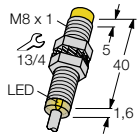
D = 32 mm **S** = 12 mm
G = 36 mm **T** = 32 mm
N = 12 mm **W** = 18 mm

All non-flush cylindrical uprox+ sensors permit embedding up to the upper edge of the thread. Secure operation of the M8 x 1 sensor type is ensured at a reduced operation distance of max. 30 %.



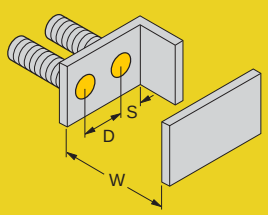


TECHNICAL DATA

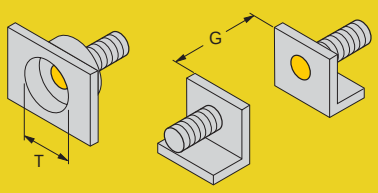
Dimensions/Housing style [mm]		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**M8 x 1**		2* a	© , PNP	10...30 VDC	150 DC, ö	
			2* a	© , NPN	10...30 VDC	150 DC, ö	
	**M8 x 1**		6** b	© , PNP	10...30 VDC	150 DC, ö	
			6** b	© , NPN	10...30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

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

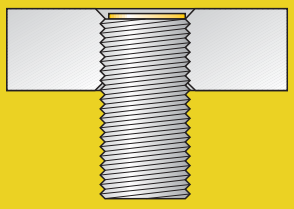
Housing type M8 x 1 flush



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



All flush threaded barrel uprox+ sensors permit recessed mounting. At an installation depth of half a turn of the thread secure operation is ensured.



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Type	Ident no.	Connection (å 61)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials (å 63) Housing	Active face	Cable	LED U_B	LED ü
Bi2U-EG08-AP6X	4602032 ✘	S001	1	-25...+70	IP68	VA	PA	PUR 2 m		•
Bi2U-EG08-AN6X	4602035 ✘	S004	1	-25...+70	IP68	VA	PA	PUR 2 m		•
Ni6U-EG08-AP6X	4635800 ✘	S001	1	-25...+70	IP68	VA	PA	PUR 2 m		•
Ni6U-EG08-AN6X	4635803 ✘	S004	1	-25...+70	IP68	VA	PA	PUR 2 m		•

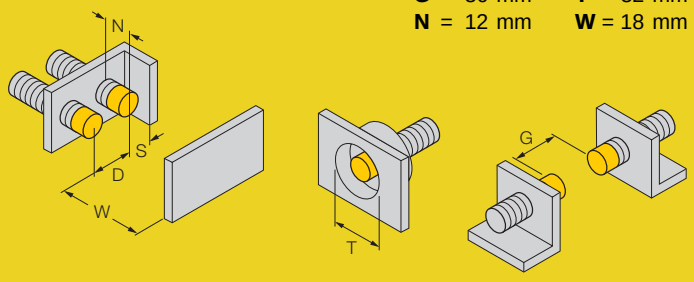
✘ = preferred solution

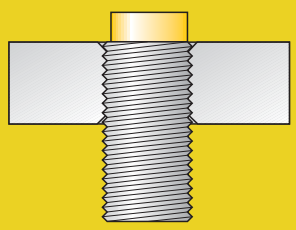
3

Housing type M8 x 1 non-flush

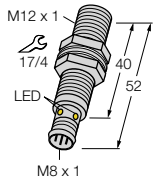
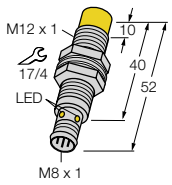
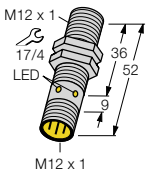
D = 32 mm **S** = 12 mm
G = 36 mm **T** = 32 mm
N = 12 mm **W** = 18 mm

All non-flush cylindrical uprox+ sensors permit embedding up to the upper edge of the thread. Secure operation of the M8 x 1 sensor type is ensured at a reduced operation distance of max. 30 %.





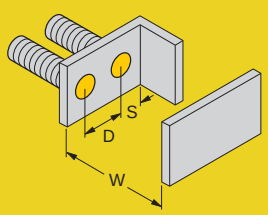
TECHNICAL DATA

Dimensions/Housing style [mm]		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 DC, ö	
	{		4* a	© , NPN	10...30 VDC	200 DC, ö	
	**M12 x 1**		10** b	© , PNP	10...30 VDC	200 DC, ö	
	{		10** b	© , NPN	10...30 VDC	200 DC, ö	
	**M12 x 1**		4* a	© , PNP	10...30 VDC	200 DC, ö	
			4* a	¨ , PNP	10...30 VDC	200 DC, ö	
	{		4* a	© , NPN	10...30 VDC	200 DC, ö	
		wash down, 20 bar	4* a	© , PNP	10...30 VDC	200 DC, ö	
		wash down, 20 bar	4* a	© , NPN	10...30 VDC	200 DC, ö	
		É II 3 D wash down, 20 bar	4* a	© , PNP	10...30 VDC	200 DC, ö	
		É II 3 D wash down, 20 bar	4* a	© , NPN	10...30 VDC	200 DC, ö	
		teflon	4* a	© , PNP	10...30 VDC	200 DC, ö	
		teflon	4* a	© , NPN	10...30 VDC	200 DC, ö	

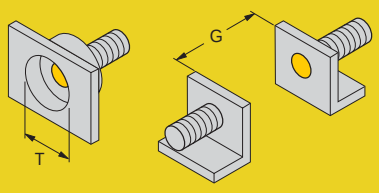
* recessed mounting permitted

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

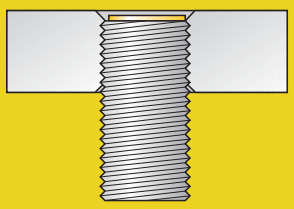
Housing type M12 x 1 flush



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



All flush threaded barrel uprox+ sensors permit recessed mounting. At an installation depth of half a turn of the thread secure operation is ensured.



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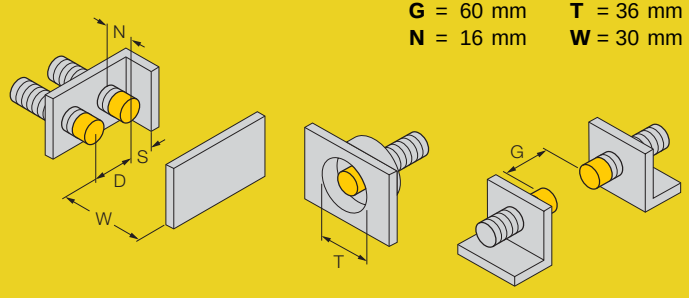
Type	Ident no.	Connection (å 61)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials (å 63) Housing	Active face	Cable	LED U_B	LED ü
Bi4U-M12-AP6X-V1131	1634780 ✘	S002	2	-30...+85	IP68	CuZn-Cr	LCP			•
Bi4U-M12-AN6X-V1131	1635430	S005	2	-30...+85	IP68	CuZn-Cr	LCP			•
Ni10U-M12-AP6X-V1131	1634790 ✘	S002	1	-30...+85	IP68	CuZn-Cr	LCP			•
Ni10U-M12-AN6X-V1131	1634795	S005	1	-30...+85	IP68	CuZn-Cr	LCP			•
Bi4U-M12-AP6X-H1141	1634804 ✘	S002	2	-30...+85	IP68	CuZn-Cr	LCP			•
Bi4U-M12-RP6X-H1141	1634846 ✘	S056	2	-30 ...+85	IP68	CuZn-Cr	LCP			•
Bi4U-M12-AN6X-H1141	1634824 ✘	S005	2	-30 ...+85	IP68	CuZn-Cr	LCP			•
Bi4U-EM12WD-AP6X-H1141	1634812 ✘	S002	2	-30...+85	IP68 / IP69K	V4A	LCP			•
Bi4U-EM12WD-AN6X-H1141	1634841	S005	2	-30 ...+85	IP68 / IP69K	V4A	LCP			•
Bi4U-EM12WD-AP6X-H1141/3D	1634851 ✘	S002	2	-30 ...+85	IP68 / IP69K	V4A	LCP			•
Bi4U-EM12WD-AN6X-H1141/3D	1634852	S005	2	-30 ...+85	IP68 / IP69K	V4A	LCP			•
Bi4U-MT12-AP6X-H1141	1634809 ✘	S002	2	-30 ...+85	IP68	CuZn-T	LCP			•
Bi4U-MT12-AN6X-H1141	1634829	S005	2	-30 ...+85	IP68	CuZn-T	LCP			•

✘ = preferred solution

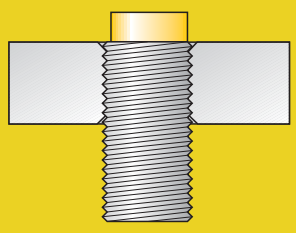
3

Housing type M12 x 1 non-flush

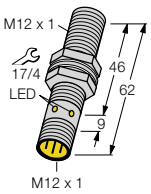
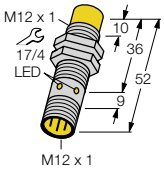
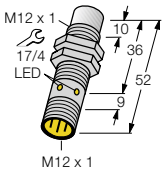
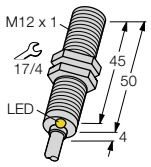
D = 36 mm **S** = 18 mm
G = 60 mm **T** = 36 mm
N = 16 mm **W** = 30 mm



All non-flush cylindrical uprox+ sensors permit embedding up to the upper edge of the thread. Secure operation of the M12 x 1 sensor type is ensured at a reduced operation distance of max. 20 %.

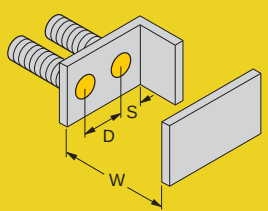


TECHNICAL DATA

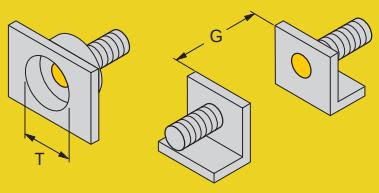
Dimensions/Housing style [mm]		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**M12 x 1** {		4* a	© , PNP	10...30 VDC	200 DC, ö	
	**M12 x 1** {		10** b	© , PNP	10...30 VDC	200 DC, ö	
			10** b	¨ , PNP	10...30 VDC	200 DC, ö	
			10** b	© , NPN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

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

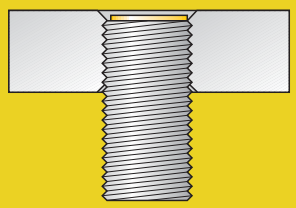
Housing type M12 x 1 flush



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



All flush threaded barrel uprox+ sensors permit recessed mounting. At an installation depth of half a turn of the thread secure operation is ensured.



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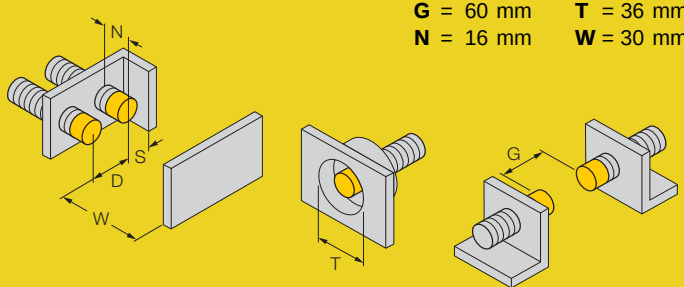
Type	Ident no.	Connection (å 61)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials (å 63) Housing	Active face	Cable	LED U_B	LED ü
Bi4U-M12E-AP6X-H1141	1634845 ✘	S002	2	-30...+85	IP68	CuZn-Cr	LCP			•
Ni10U-M12-AP6X-H1141	1634806 ✘	S002	1	-30...+85	IP68	CuZn-Cr	LCP			•
Ni10U-M12-RP6X-H1141	1634848 ✘	S056	1	-30...+85	IP68	CuZn-Cr	LCP			•
Ni10U-M12-AN6X-H1141	1634826 ✘	S005	1	-30...+85	IP68	CuZn-Cr	LCP			•
Ni10U-EM12WD-AP6X-H1141	1634814 ✘	S002	1	-30...+85	IP68 / IP69K	V4A	LCP			•
Ni10U-EM12WD-AN6X-H1141	1634837	S005	1	-30...+85	IP68 / IP69K	V4A	LCP			•
Ni10U-EM12WD-AP6X-H1141/3D	1634857 ✘	S002	1	-30...+85	IP68 / IP69K	V4A	LCP			•
Ni10U-EM12WD-AN6X-H1141/3D	1634858	S005	1	-30...+85	IP68 / IP69K	V4A	LCP			•
Ni10U-MT12-AP6X-H1141	1634810 ✘	S002	1	-30...+85	IP68	CuZn-T	LCP			•
Ni10U-MT12-AN6X-H1141	1634830	S005	1	-30...+85	IP68	CuZn-T	LCP			•
Bi4U-M12-AP6X	1634803 ✘	S001	2	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m		•
Bi4U-M12-AN6X	1634823	S004	2	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m		•

✘ = preferred solution

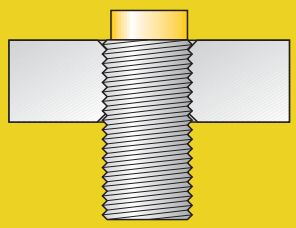
3

Housing type M12 x 1 non-flush

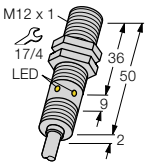
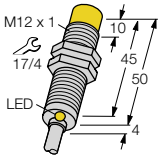
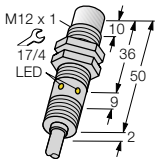
D = 36 mm **S** = 18 mm
G = 60 mm **T** = 36 mm
N = 16 mm **W** = 30 mm



All non-flush cylindrical uprox+ sensors permit embedding up to the upper edge of the thread. Secure operation of the M12 x 1 sensor type is ensured at a reduced operation distance of max. 20 %.

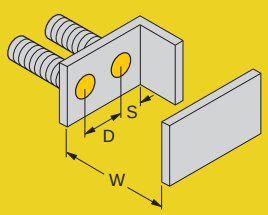


TECHNICAL DATA

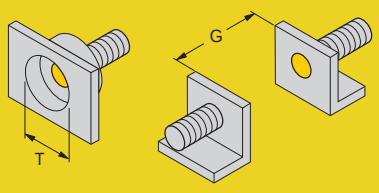
Dimensions/Housing style [mm]		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**M12 x 1**	wash down, 20 bar	4* a	© , PNP	10...30 VDC	200 DC, ö	
		wash down, 20 bar	4* a	© , NPN	10...30 VDC	200 DC, ö	
	**M12 x 1**		10** b	© , PNP	10...30 VDC	200 DC, ö	
			10** b	© , NPN	10...30 VDC	200 DC, ö	
	**M12 x 1**	wash down, 20 bar	10** b	© , PNP	10...30 VDC	200 DC, ö	
		wash down, 20 bar	10** b	© , NPN	10...30 VDC	200 DC, ö	

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

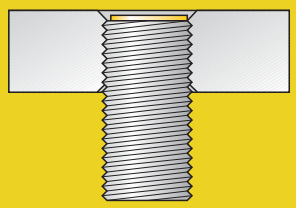
Housing type M12 x 1 flush



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



All flush threaded barrel uprox+ sensors permit recessed mounting. At an installation depth of half a turn of the thread secure operation is ensured.



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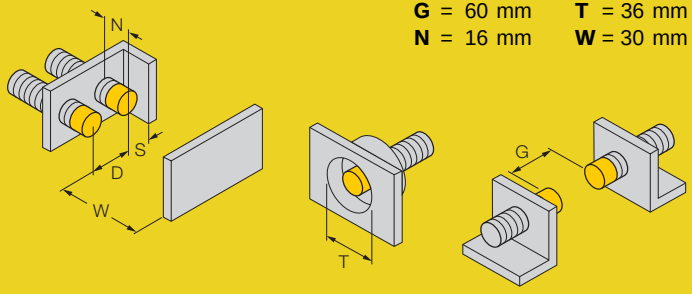
Type	Ident no.	Connection (å 61)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials (å 63) Housing	Active face	Cable	LED U_B	LED ü
Bi4U-EM12WD-AP6X	1634811 ✘	S001	2	-30...+85	IP68 / IP69K	V4A	LCP	PVC 2 m		•
Bi4U-EM12WD-AN6X	1634842	S004	2	-30...+85	IP68 / IP69K	V4A	LCP	PVC 2 m		•
Ni10U-M12-AP6X	1634805 ✘	S001	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m		•
Ni10U-M12-AN6X	1634825	S004	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m		•
Ni10U-EM12WD-AP6X	1634813 ✘	S001	1	-30...+85	IP68 / IP69K	V4A	LCP	PVC 2 m		•
Ni10U-EM12WD-AN6X	1634838	S004	1	-30...+85	IP68 / IP69K	V4A	LCP	PVC 2 m		•

✘ = preferred solution

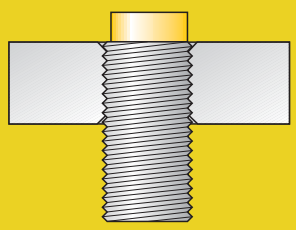
3

Housing type M12 x 1 non-flush

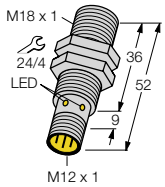
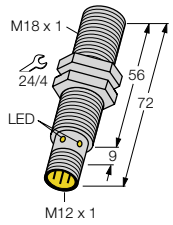
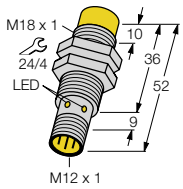
D = 36 mm **S** = 18 mm
G = 60 mm **T** = 36 mm
N = 16 mm **W** = 30 mm



All non-flush cylindrical uprox+ sensors permit embedding up to the upper edge of the thread. Secure operation of the M12 x 1 sensor type is ensured at a reduced operation distance of max. 20 %.



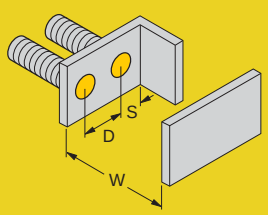
TECHNICAL DATA

Dimensions/Housing style [mm]		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 DC, ö	
			8* a	¨ , PNP	10...30 VDC	200 DC, ö	
	{		8* a	© , NPN	10...30 VDC	200 DC, ö	
		wash down, 15 bar	8* a	© , PNP	10...30 VDC	200 DC, ö	
		wash down, 15 bar	8* a	© , NPN	10...30 VDC	200 DC, ö	
		É II 3 G / II 3 D wash down, 15 bar	8* a	© , PNP	10...30 VDC	200 DC, ö	
		É II 3 G / II 3 D wash down, 15 bar	8* a	© , NPN	10...30 VDC	200 DC, ö	
		teflon	8* a	© , PNP	10...30 VDC	200 DC, ö	
		teflon	8* a	© , NPN	10...30 VDC	200 DC, ö	
	**M18 x 1**		8* a	© , PNP	10...30 VDC	200 DC, ö	
	{						
	**M18 x 1**		15** b	© , PNP	10...30 VDC	200 DC, ö	
			15** b	¨ , PNP	10...30 VDC	200 DC, ö	
	{		15** b	© , NPN	10...30 VDC	200 DC, ö	

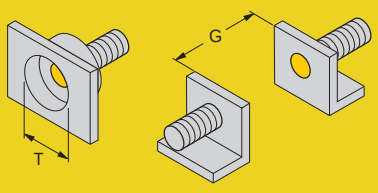
* recessed mounting permitted

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

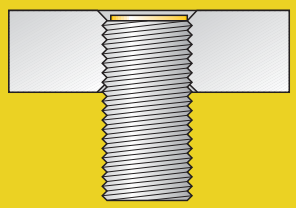
Housing type M18 x 1 flush



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



All flush threaded barrel uprox+ sensors permit recessed mounting. At an installation depth of half a turn of the thread secure operation is ensured.



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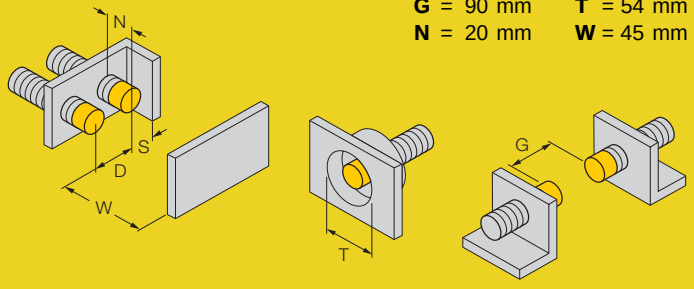
Type	Ident no.	Connection (å 61)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials (å 63) Housing	Active face	Cable	LED U_B	LED ü
Bi8U-M18-AP6X-H1141	1644731 ✘	S002	1.5	-30...+85	IP68	CuZn-Cr	LCP			•
Bi8U-M18-RP6X-H1141	1644750 ✘	S056	1.5	-30...+85	IP68	CuZn-Cr	LCP			•
Bi8U-M18-AN6X-H1141	1644737 ✘	S005	1.5	-30...+85	IP68	CuZn-Cr	LCP			•
Bi8U-EM18WD-AP6X-H1141	1634816 ✘	S002	1.5	-30...+85	IP68 / IP69K	V4A	LCP			•
Bi8U-EM18WD-AN6X-H1141	1634839	S005	1.5	-30...+85	IP68 / IP69K	V4A	LCP			•
Bi8U-EM18WD-AP6X-H1141/3GD	1634853 ✘	S002	1.5	-30...+85	IP68 / IP69K	V4A	LCP			•
Bi8U-EM18WD-AN6X-H1141/3GD	1634854	S005	1.5	-30...+85	IP68 / IP69K	V4A	LCP			•
Bi8U-MT18-AP6X-H1141	1644730 ✘	S002	1.5	-30...+85	IP68	CuZn-T	LCP			•
Bi8U-MT18-AN6X-H1141	1644739	S005	1.5	-30...+85	IP68	CuZn-T	LCP			•
Bi8U-M18E-AP6X-H1141	1644735 ✘	S002	1.5	-30...+85	IP68	CuZn-Cr	LCP			•
Ni15U-M18-AP6X-H1141	1635331 ✘	S002	1	-30...+85	IP68	CuZn-Cr	LCP			•
Ni15U-M18-RP6X-H1141	1635450 ✘	S056	1	-30...+85	IP68	CuZn-Cr	LCP			•
Ni15U-M18-AN6X-H1141	1635335	S005	1	-30...+85	IP68	CuZn-Cr	LCP			•

✘ = preferred solution

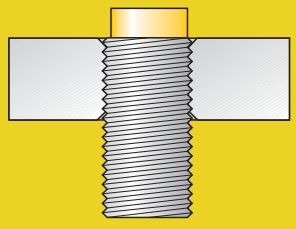
3

Housing type M18 x 1 non-flush

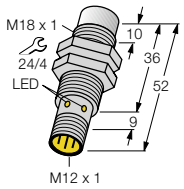
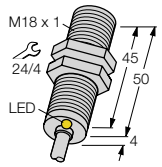
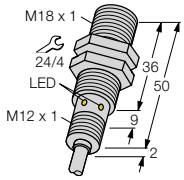
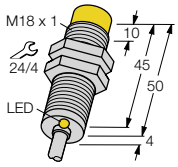
D = 72 mm **S** = 27 mm
G = 90 mm **T** = 54 mm
N = 20 mm **W** = 45 mm



All non-flush cylindrical uprox+ sensors permit embedding up to the upper edge of the thread. Secure operation of the M18 x 1 sensor type is ensured at a reduced operation distance of max. 20 %.

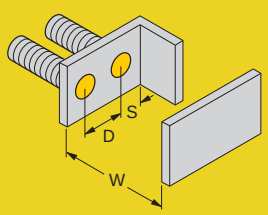


TECHNICAL DATA

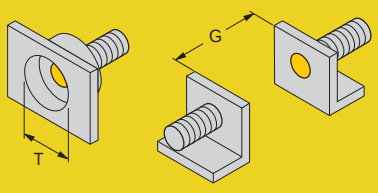
Dimensions/Housing style [mm]		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**M18 x 1** {	wash down, 15 bar	15** b	© , PNP	10...30 VDC	200 DC, ö	
		wash down, 15 bar	15** b	© , NPN	10...30 VDC	200 DC, ö	
		É II 3 D, wash down, 15 bar	15** b	© , PNP	10...30 VDC	200 DC, ö	
		É II 3 D, wash down, 15 bar	15** b	© , NPN	10...30 VDC	200 DC, ö	
		teflon	15** b	© , PNP	10...30 VDC	200 DC, ö	
		teflon	15** b	© , NPN	10...30 VDC	200 DC, ö	
	**M18 x 1** |		8* a	© , PNP	10...30 VDC	200 DC, ö	
			8* a	© , NPN	10...30 VDC	200 DC, ö	
	**M18 x 1** |	wash down, 15 bar	8* a	© , PNP	10...30 VDC	200 DC, ö	
		wash down, 15 bar	8* a	© , NPN	10...30 VDC	200 DC, ö	
	**M18 x 1** |		15** b	© , PNP	10...30 VDC	200 DC, ö	
			15** b	© , NPN	10...30 VDC	200 DC, ö	

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

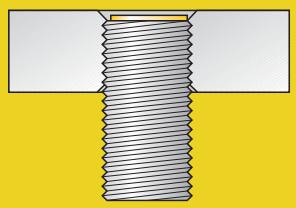
Housing type M18 x 1 flush



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



All flush threaded barrel uprox+ sensors permit recessed mounting. At an installation depth of half a turn of the thread secure operation is ensured.



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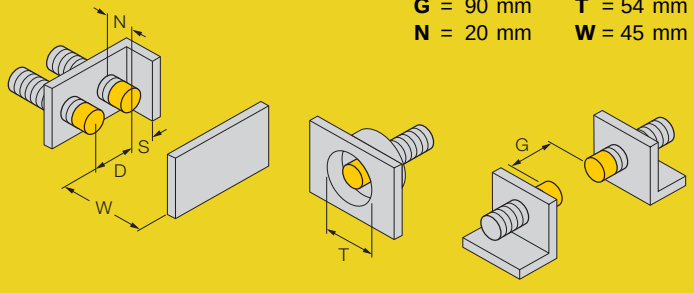
Type	Ident no.	Connection (å 61)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials (å 63) Housing	Active face	Cable	LED U_B	LED ü
Ni15U-EM18WD-AP6X-H1141	1634818 ✘	S002	1	-30...+85	IP68 / IP69K	V4A	LCP			•
Ni15U-EM18WD-AN6X-H1141	1634835	S005	1	-30...+85	IP68 / IP69K	V4A	LCP			•
Ni15U-EM18WD-AP6X-H1141/3D	1634859 ✘	S002	1	-30...+85	IP68 / IP69K	V4A	LCP			•
Ni15U-EM18WD-AN6X-H1141/3D	1634860	S005	1	-30...+85	IP68 / IP69K	V4A	LCP			•
Ni15U-MT18-AP6X-H1141	1635333 ✘	S002	1	-30...+85	IP68	CuZn-T	LCP			•
Ni15U-MT18-AN6X-H1141	1635337	S005	1	-30...+85	IP68	CuZn-T	LCP			•
Bi8U-M18-AP6X	1644733 ✘	S001	1.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m		•
Bi8U-M18-AN6X	1644736	S004	1.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m		•
Bi8U-EM18WD-AP6X	1634815 ✘	S001	1.5	-30...+85	IP68 / IP69K	V4A	LCP	PVC 2 m		•
Bi8U-EM18WD-AN6X	1634840	S004	1.5	-30...+85	IP68 / IP69K	V4A	LCP	PVC 2 m		•
Ni15U-M18-AP6X	1635330 ✘	S001	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m		•
Ni15U-M18-AN6X	1635334	S004	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m		•

✘ = preferred solution

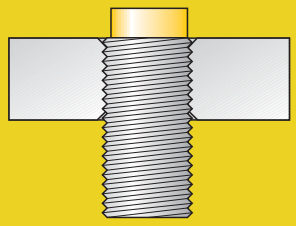
3

Housing type M18 x 1 non-flush

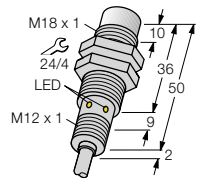
D = 72 mm **S** = 27 mm
G = 90 mm **T** = 54 mm
N = 20 mm **W** = 45 mm



All non-flush cylindrical uprox+ sensors permit embedding up to the upper edge of the thread. Secure operation of the M18 x 1 sensor type is ensured at a reduced operation distance of max. 20 %.

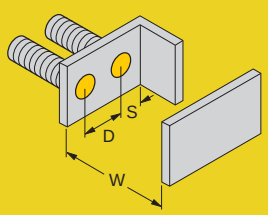


TECHNICAL DATA

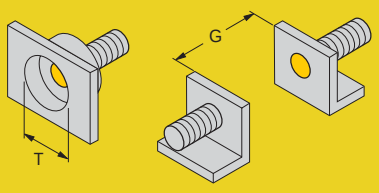
Dimensions/Housing style [mm]		Features	Rated operating distance S_n [mm]	Output	Operational voltage U_B [V]	Operational current I_e [mA]	
	**M18 x 1**	wash down, 15 bar	15** b	© , PNP	10...30 VDC	200 DC, ö	
		wash down, 15 bar	15** b	© , NPN	10...30 VDC	200 DC, ö	

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

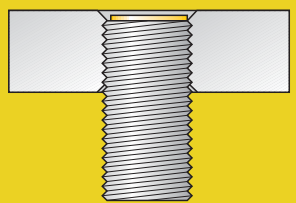
Housing type M18 x 1 flush



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



All flush threaded barrel uprox+ sensors permit recessed mounting. At an installation depth of half a turn of the thread secure operation is ensured.



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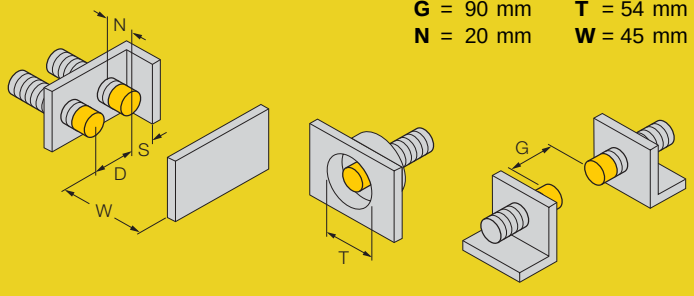
	Type	Ident no.	Connection (å 61)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials (å 63) Housing	Active face	Cable	LED U_B	LED ü
	Ni15U-EM18WD-AP6X	1634817	S001	1	-30 ...+85	IP68 / IP69K	V4A	LCP	PVC 2 m		•
	Ni15U-EM18WD-AN6X	1634836	S004	1	-30 ...+85	IP68 / IP69K	V4A	LCP	PVC 2 m		•

✘ = preferred solution

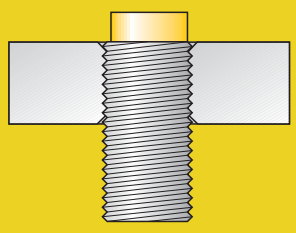
3

Housing type M18 x 1 non-flush

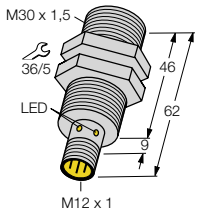
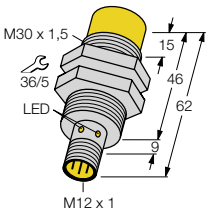
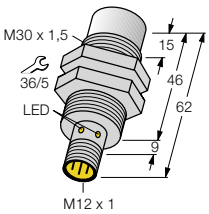
D = 72 mm **S** = 27 mm
G = 90 mm **T** = 54 mm
N = 20 mm **W** = 45 mm



All non-flush cylindrical uprox+ sensors permit embedding up to the upper edge of the thread. Secure operation of the M18 x 1 sensor type is ensured at a reduced operation distance of max. 20 %.



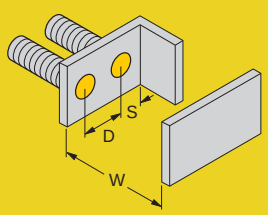
TECHNICAL DATA

Dimensions/Housing style [mm]		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 DC, ö	
			15* a	¨ , PNP	10...30 VDC	200 DC, ö	
	{		15* a	© , NPN	10...30 VDC	200 DC, ö	
		wash down, 10 bar	15* a	© , PNP	10...30 VDC	200 DC, ö	
		wash down, 10 bar	15* a	© , NPN	10...30 VDC	200 DC, ö	
		É II 3 G / II 3 D, wash down, 10 bar	15* a	© , PNP	10...30 VDC	200 DC, ö	
		É II 3 G / II 3 D, wash down, 10 bar	15* a	© , NPN	10...30 VDC	200 DC, ö	
		teflon	15* a	© , PNP	10...30 VDC	200 DC, ö	
		teflon	15* a	© , NPN	10...30 VDC	200 DC, ö	
	**M30 x 1,5**		30** b	© , PNP	10...30 VDC	200 DC, ö	
			30** b	¨ , PNP	10...30 VDC	200 DC, ö	
	{		30** b	© , NPN	10...30 VDC	200 DC, ö	
	**M30 x 1,5**	wash down, 10 bar	30** b	© , PNP	10...30 VDC	200 DC, ö	
		wash down, 10 bar	30** b	© , NPN	10...30 VDC	200 DC, ö	
	{	É II 3 D, wash down, 10 bar	30** b	© , PNP	10...30 VDC	200 DC, ö	
		É II 3 D, wash down, 10 bar	30** b	© , NPN	10...30 VDC	200 DC, ö	
		teflon	30** b	© , PNP	10...30 VDC	200 DC, ö	
		teflon	30** b	© , NPN	10...30 VDC	200 DC, ö	

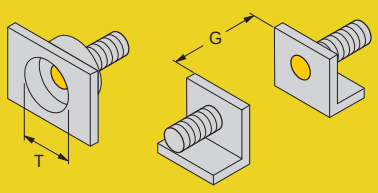
* recessed mounting permitted

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

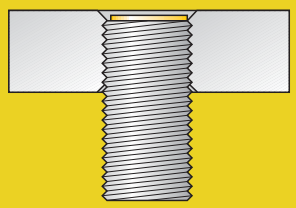
Housing type M30 x 1,5 flush



D = 60 mm
G = 90 mm
S = 45 mm
T = 90 mm
W = 40 mm



All flush threaded barrel uprox+ sensors permit recessed mounting. At an installation depth of half a turn of the thread secure operation is ensured.



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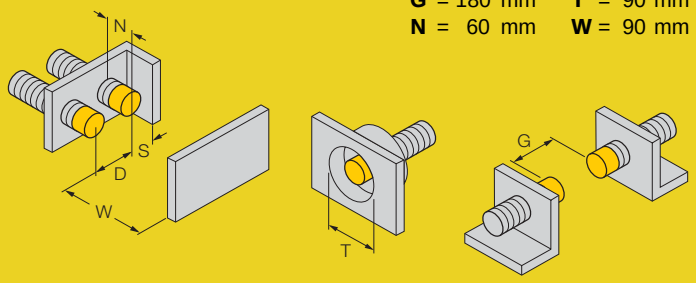
Type	Ident no.	Connection (å 61)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials (å 63) Housing	Active face	Cable	LED U_B	LED ü
Bi15U-M30-AP6X-H1141	1636732 ✘	S002	0.75	-30 ...+85	IP68	CuZn-Cr	LCP			•
Bi15U-M30-RP6X-H1141	1636739 ✘	S056	0.75	-30 ...+85	IP68	CuZn-Cr	LCP			•
Bi15U-M30-AN6X-H1141	1636736 ✘	S005	0.75	-30 ...+85	IP68	CuZn-Cr	LCP			•
Bi15U-EM30WD-AP6X-H1141	1634820 ✘	S002	0.75	-30 ...+85	IP68 / IP69K	V4A	LCP			•
Bi15U-EM30WD-AN6X-H1141	1634834	S005	0.75	-30 ...+85	IP68 / IP69K	V4A	LCP			•
Bi15U-EM30WD-AP6X-H1141/3GD	1634855 ✘	S002	0.75	-30 ...+85	IP68 / IP69K	V4A	LCP			•
Bi15U-EM30WD-AN6X-H1141/3GD	1634856	S005	0.75	-30 ...+85	IP68 / IP69K	V4A	LCP			•
Bi15U-MT30-AP6X-H1141	1636734 ✘	S002	0.75	-30 ...+85	IP68	CuZn-T	LCP			•
Bi15U-MT30-AN6X-H1141	1636738	S005	0.75	-30 ...+85	IP68	CuZn-T	LCP			•
Ni30U-M30-AP6X-H1141	1646631 ✘	S002	0.5	-30 ...+85	IP68	CuZn-Cr	LCP			•
Ni30U-M30-RP6X-H1141	1646636 ✘	S056	0.5	-30 ...+85	IP68	CuZn-Cr	LCP			•
Ni30U-M30-AN6X-H1141	1644635	S005	0.5	-30 ...+85	IP68	CuZn-Cr	LCP			•
Ni30U-EM30WD-AP6X-H1141	1634822 ✘	S002	0.5	-30 ...+85	IP68 / IP69K	V4A	LCP			•
Ni30U-EM30WD-AN6X-H1141	1634832	S005	0.5	-30 ...+85	IP68 / IP69K	V4A	LCP			•
Ni30U-EM30WD-AP6X-H1141/3D	1634861 ✘	S002	0.5	-30 ...+85	IP68 / IP69K	V4A	LCP			•
Ni30U-EM30WD-AN6X-H1141/3D	1634862	S005	0.5	-30 ...+85	IP68 / IP69K	V4A	LCP			•
Ni30U-MT30-AP6X-H1141	1646633 ✘	S002	0.5	-30 ...+85	IP68	CuZn-T	LCP			•
Ni30U-MT30-AN6X-H1141	1644637	S005	0.5	-30 ...+85	IP68	CuZn-T	LCP			•

✘ = preferred solution

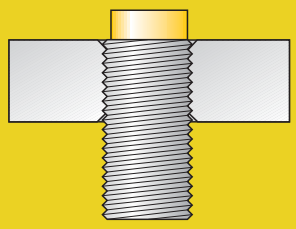
3

Housing type M30 x 1,5 non-flush

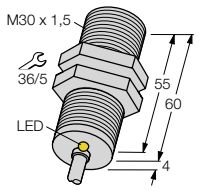
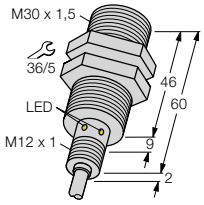
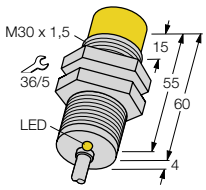
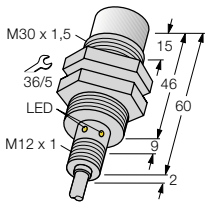
D = 90 mm **S** = 45 mm
G = 180 mm **T** = 90 mm
N = 60 mm **W** = 90 mm



All non-flush cylindrical uprox+ sensors permit embedding up to the upper edge of the thread. Secure operation of the M30 x 1,5 sensor type is ensured at a reduced operation distance of max. 20 %.



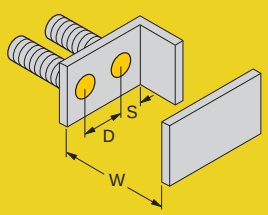
TECHNICAL DATA

Dimensions/Housing style [mm]		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 DC, ö	
			15* a	© , NPN	10...30 VDC	200 DC, ö	
	**M30 x 1,5**	wash down, 10 bar	15* a	© , PNP	10...30 VDC	200 DC, ö	
		wash down, 10 bar	15* a	© , NPN	10...30 VDC	200 DC, ö	
	**M30 x 1,5**		30** b	© , PNP	10...30 VDC	200 DC, ö	
			30** b	© , NPN	10...30 VDC	200 DC, ö	
	**M30 x 1,5**	wash down, 10 bar	30** b	© , PNP	10...30 VDC	200 DC, ö	
		wash down, 10 bar	30** b	© , NPN	10...30 VDC	200 DC, ö	

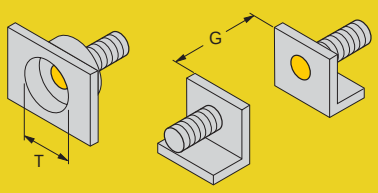
* recessed mounting permitted

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

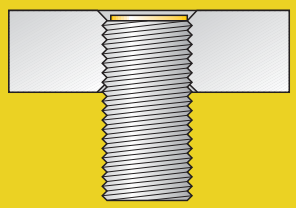
Housing type M30 x 1,5 flush



D = 60 mm
G = 90 mm
S = 45 mm
T = 90 mm
W = 40 mm



All flush threaded barrel uprox+ sensors permit recessed mounting. At an installation depth of half a turn of the thread secure operation is ensured.



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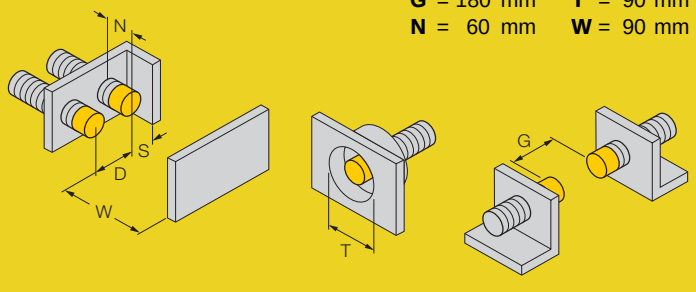
Type	Ident no.	Connection (å 61)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials (å 63) Housing	Active face	Cable	LED U_B	LED ü
Bi15U-M30-AP6X	1636731 ✘	S001	0.75	-30 ...+85	IP68	CuZn-Cr	LCP	PVC 2 m		•
Bi15U-M30-AN6X	1636735	S004	0.75	-30 ...+85	IP68	CuZn-Cr	LCP	PVC 2 m		•
Bi15U-EM30WD-AP6X	1634819 ✘	S001	0.75	-30 ...+85	IP68 / IP69K	V4A	LCP	PVC 2 m		•
Bi15U-EM30WD-AN6X	1634843	S004	0.75	-30 ...+85	IP68 / IP69K	V4A	LCP	PVC 2 m		•
Ni30U-M30-AP6X	1646630 ✘	S001	0.5	-30 ...+85	IP68	CuZn-Cr	LCP	PVC 2 m		•
Ni30U-M30-AN6X	1644634	S004	0.5	-30 ...+85	IP68	CuZn-Cr	LCP	PVC 2 m		•
Ni30U-EM30WD-AP6X	1634821 ✘	S001	0.5	-30 ...+85	IP68 / IP69K	V4A	LCP	PVC 2 m		•
Ni30U-EM30WD-AN6X	1634833	S004	0.5	-30 ...+85	IP68 / IP69K	V4A	LCP	PVC 2 m		•

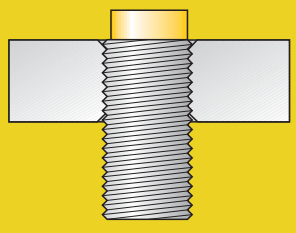
✘ = preferred solution

Housing type M30 x 1,5 non-flush

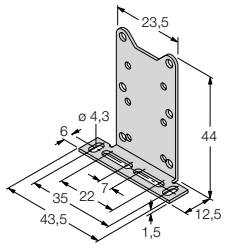
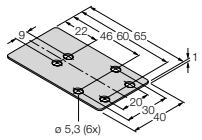
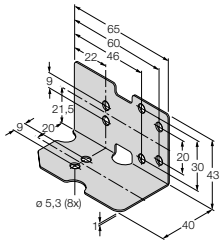
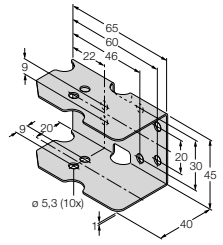
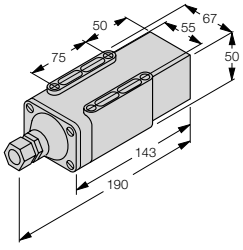
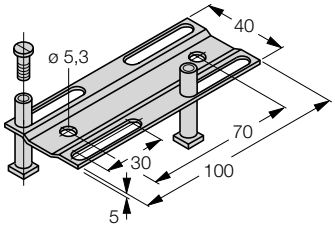
D = 90 mm **S** = 45 mm
G = 180 mm **T** = 90 mm
N = 60 mm **W** = 90 mm



All non-flush cylindrical uprox+ sensors permit embedding up to the upper edge of the thread. Secure operation of the M30 x 1,5 sensor type is ensured at a reduced operation distance of max. 20 %.



TECHNICAL DATA – ACCESSORIES

Dimensions/Housing style [mm]	Type	Ident no.	Materials (å 63)	For Sensors
	**MWQ08/Q10** Mounting bracket	6945007 ✘	VA	rectangular Q08
	**MF-CK40-1S** Protective clamp „one-side“	6900481 ✘	VA	rectangular CK40
	**MF-CK40-2S** Protective clamp „bracket“	6900482 ✘	VA	rectangular CK40
	**MF-CK40-3S** Protective clamp „u-profile“	6900483 ✘	VA	rectangular CK40
	**SG40** **SG40/2** Protective housing	69500 ✘ 69497 ✘	PA Ultem	rectangular CP40 rectangular CP40
	**JS 025/037** Mounting rail	69429 ✘	VA	rectangular CK40 und CP40

✘ = preferred solution

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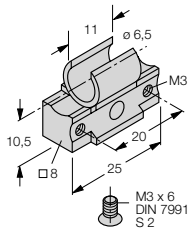
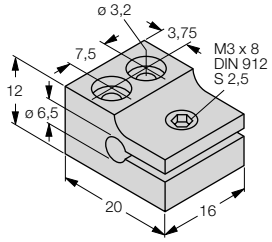
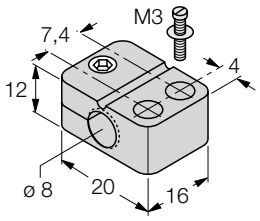
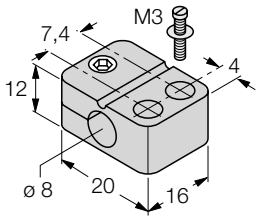
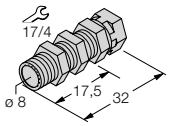
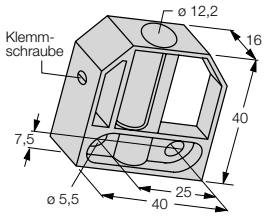
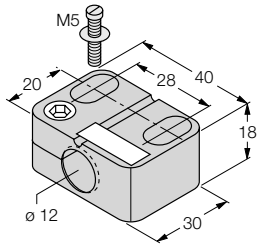
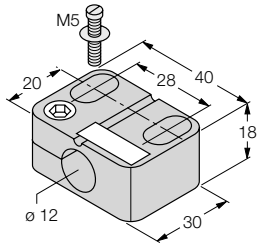
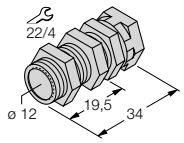
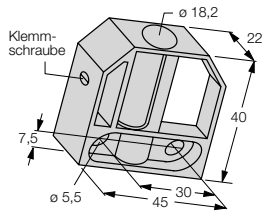
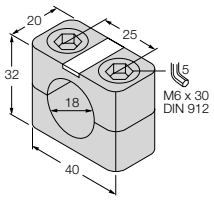
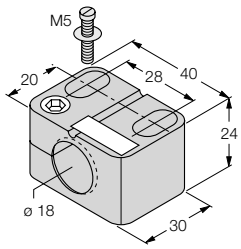
Dimensions/Housing style [mm]	Type	Ident no.	Materials (å 63)	For Sensors
	**BS865**	69476 ✘	Al	smooth barrel Ø 6,5 mm
	**MBS65** Fixing clamp	69478 ✘	Al	smooth barrel Ø 6,5 mm
	**BST-08B** Fixing clamp	6947210 ✘	PA	threaded barrel M8
	**BST-08N** Fixing clamp	6947211 ✘	PA	threaded barrel M8
	**QM-08** Quick-mount	6945100 ✘	CuZn-Cr	threaded barrel M8
	**BS12** Fixing clamp	69470 ✘	PBT	threaded barrel M12

✘ = preferred solution

3

TECHNICAL DATA – ACCESSORIES

Dimensions/Housing style [mm]	Type	Ident no.	Materials (å 63)	For Sensors
	**BST-12B** Fixing clamp	6947212 ✘	PA	threaded barrel M12
	**BST-12N** Fixing clamp	6947213 ✘	PA	threaded barrel M12
	**QM-12** Quick mount	6945101 ✘	CuZn-Cr	threaded barrel M12
	**BS18** Fixing clamp	69471 ✘	PA	threaded barrel M18
	**BSN18** Fixing clamp	69472 ✘	PBT	threaded barrel M18
	**BST-18B** Fixing clamp	6947214 ✘	PA	threaded barrel M18

✘ = preferred solution

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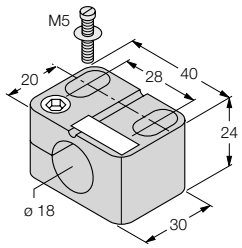
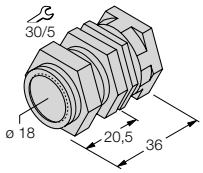
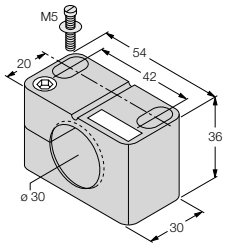
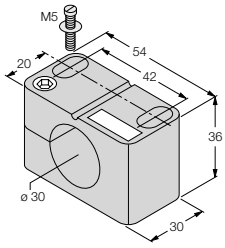
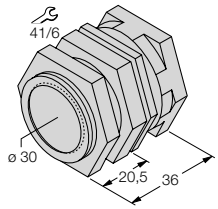
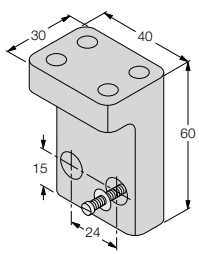
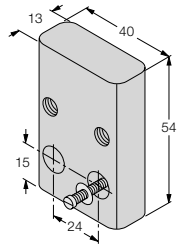
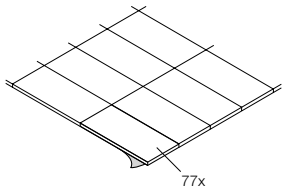
Dimensions/Housing style [mm]	Type	Ident no.	Materials (å 63)	For Sensors
	**BST-18N** Fixing clamp	6947215 ✘	PA	threaded barrel M18
	**QM-18** Quick-mount	6945102 ✘	CuZn-Cr	threaded barrel M18
	**BST-30B** Fixing clamp	6947216 ✘	PA	threaded barrel M30
	**BST-30N** Fixing clamp	6947217 ✘	PA	threaded barrel M30
	**QM-30** Quick-mount	6945103 ✘	CuZn-Cr	threaded barrel M30
	**BST-UH** Mounting accessories	6947219 ✘	PA	

✘ = preferred solution

3

TECHNICAL DATA – ACCESSORIES

Dimensions/Housing style [mm]	Type	Ident no.	Materials (å 63)	For Sensors
	**BST-UV** Mounting accesories	6947218 ✘	PA	
	**BST-BS** Labelling plates	6947220 ✘	PA	

✘ = preferred solution

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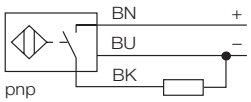
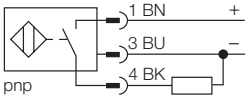
Wiring diagrams

DC 3-wire, N.O.

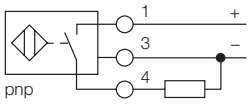
(S001)



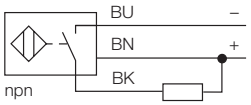
(S002)



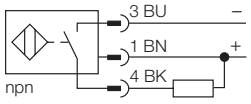
(S003)



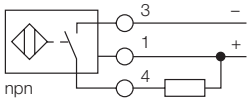
(S004)



(S005)

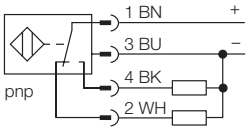


(S006)

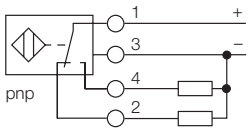


DC 4-wire, complementary

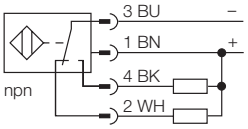
(S008)



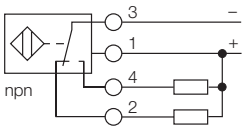
(S009)



(S011)

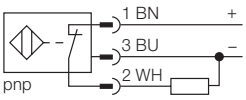


(S012)

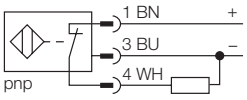


DC 3-wire, N.C.

(S056)



(S136)



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

Standards and directives (if applicable)

1) Standards

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

EN 50014
Electrical apparatus for use in explosi-on hazardous locations
General requirements

EN 50020
Electrical apparatus for use in explosi-on hazardous locations
Intrinsic Safety „i“

EN 60079-15 (EN 50021)
Electrical apparatus for use in explosi-on hazardous locations
Type of protection „N“

EN 50081-2
Electromagnetic compatibility (EMC);
Generic emission standard

EN 50082-2
Electromagnetic compatibility (EMC);
Generic immunity standard

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

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

2) Directives

73/23/EWG
Low voltage

89/336/EWG
Electromagnetic compatibility (EMC)

93/68/EWG
CE-Marking

94/9/EG
Explosion protection (ATEX 100a)

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

By affixing the CE-mark to his products, 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 50020 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:

www.turck.com
Worldwide Headquarters,
Germany Download

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

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Materials

	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
static output	static output (ring sensors)
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)
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
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

Terms and explanations (A-F)

Assured operating distance (s_a) (Fig 2)
- Operating distance, at which the sensor is securely actuated.
- Correlation to rated operating distance $s_a < 0.81 \cdot s_n$

Electromagnetic compatibility (EMC)
- Tests procedures and admissible limit values are specified by the proximity switch standard EN 60947-5-2

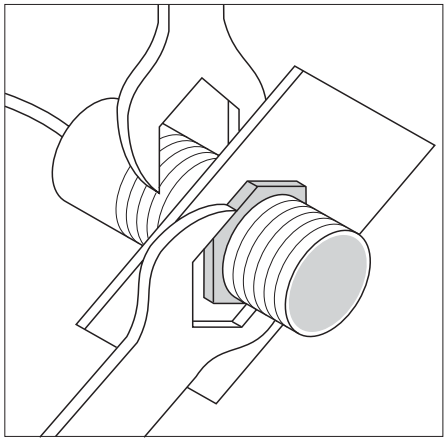

Fig. 1

Factor 1 (see reduction factor)

Fixing torque (Fig. 1)
- Must be observed for all threaded constructions to avoid torsional stress:
  M8 = 10 Nm
  M12 = 10 Nm
  M18 = 25 Nm
  M30 = 90 Nm
  If strong vibrations are likely, use liquid threaded fastener on anaerobic base (e. g. Loctite 242).

Flush and non-flush mounting
- Non-flush uprox+ sensors also permit partial flush mounting due to the integrated self-compensation function; also see technical data
- Flush uprox+ sensors also permit recessed mounting due the in-built self-compensation function; (see technical data)
- Sensors for flush mounting can be mounted in metal up to the active face; sensors for non-flush mounting have to protrude the metal surface.
- Non-flush mountable sensors provide higher operating distances

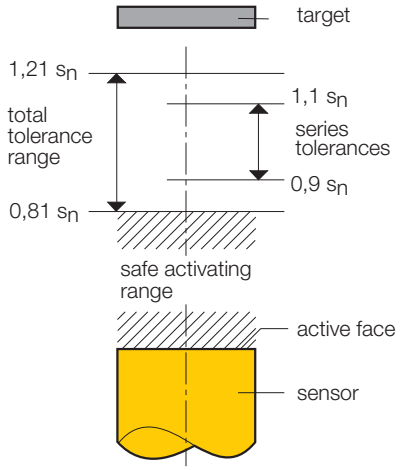

Fig. 2: Operating distance tolerances of inductive proximity switches

Terms and explanations (G-O)

Hysteresis (H) (Fig. 3)
- Differential between the switch-on and the switch-off point of the sensor with axial motion of the target relative to the active face.
- Specified in % of 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 usage

Insulation group B
comprises equipment for use in private, sales or business premises, in high-precision mechanics, laboratories, in locations used for medical purposes etc.

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.

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

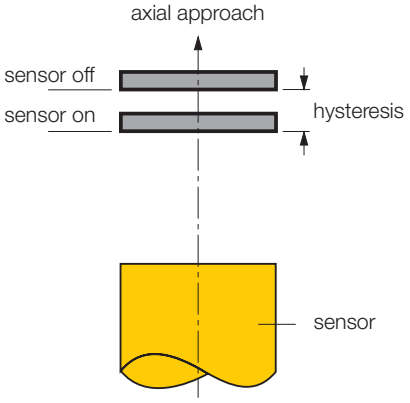

Fig. 3: Hysteresis H

No-load current (I_0)
- The current that flows between the operating voltage and 0 V.
- Is only specified for 3 and 4wire sensors.

OFF-state current (I_r)
- For 2-wire sensors: the current flow in a non-active condition.
- For 3- and 4-wire sensors: the current flow in a non-active condition between the output and 0 V (pnp-output), resp. the output and supply voltage (npn-output).

Operating distance (s)
- Distance at which the signal changes upon axial target approach.

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Terms and explanations (P-R)

Pre-damping protection
- Prevents pre-damping of non-flush sensors due to a self-compensation function
- Permits partial flush-mounting of non-flush sensors at a reduced operating distance

Protection degree
- Protection against the ingress of water or foreign matter, touch protection.
- IP65: complete protection against dust and water
- IP67: Complete protection against dust and the ingress of water at a water depth of 1 m for a duration of 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 temperature shock cycles from +70 °C to -25 °C, dwell cycle per temperature 1 hour
- IP69K: suited for high pressure steam-jet cleaning per DIN 40050-9, following EN 60529

Rated operational 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 taken into account.
- The selection tables only indicate the rated operating distance.

Real operating distance (s_r)
- Switching distance under fixed temperature and supply conditions.
- Manufacturing tolerances are taken into account.
- Correlation to rated operating distance $0.9 \cdot s_n < s_r < 1.1 \cdot s_n$

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

Reduction factors (correction factors)
- uprox+ sensors have the same operating distance for all metals
- The operating distance of inductive Ferrite core sensors depends on the target material.
- The maximum distance is achieved with steel St37, with all other metals you will have to reckon with reduced operating distances.
- The reduction factor specifies to which fraction the operating distance is reduced when using other metals than St37.
- Typical values for the reduction factor of ferrite core sensors:

Material	Reduction factor
Steel (St37)	1
Brass	0.35...0.5
Copper	0.25...0.45
Alumuinium	0.35...0.50
Stainless	0.6...1

- uprox+ sensors feature the same operating distance for all metals. Thus the reduction factor is always 1.

Terms and explanations (S-Z)

Standard target
- Square metal plate that is used to determine the rated operating distance.
- Material: St 37
- 1 mm thick
- Size 3 · sn, if 3 · sn exceeds the diameter of the active face; or else the diameter of the active face

Storage temperature
- The storage temperature is specified with -30...+85° C.
  If the ambient temperature is higher, then this value applies.

Switching element (output) function
- N.O. (NO): In a non-activated state, the output is open and closed in the active state.
- N.C. (NC): In a non-activated state, the output is closed and opened in the active state.
- Complementary (changeover): One of the outputs is closed in the non-activated state and the other in the active state.

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

Switch-on/switch-off delay
- Prevents error signals during switch-on/off of the power supply or during short power failures (e.g. a loose contact)

Useable operating distance (su)
- 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)
- The voltage of a switched output

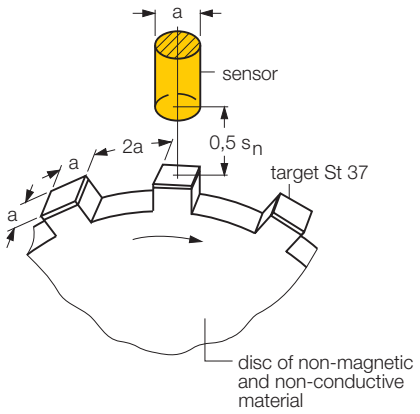

Fig. 4: Swithing frequency f

Wire-break protection
- If a power line is cut, then the output is inhibited (no malfunction).

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