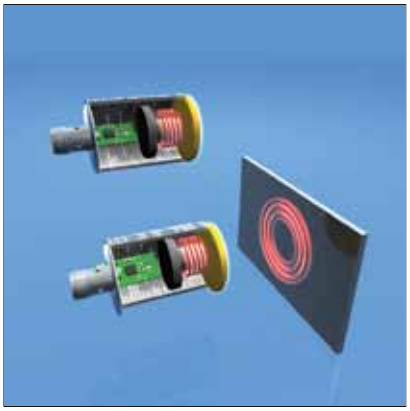
Inductive sensors

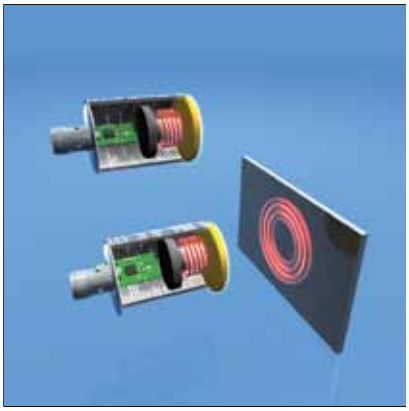


Inductive Sensors – The full range

Inductive sensors are designed for contactless and wear-free detection of metal targets. They are extremely resistant to environmental influences, very reliable, feature high switching frequencies and are durable.
There are as many application possibilities as sensor types: The sensors detect motion states at machines, open/close position of grippers and pincers or are applied for parts inspection.
The entire program of inductive sensors comprises factor 1 sensors *uprox*® and *uprox*®+ as well as versions with conventional ferrite core technology. Nearly all types are flush as well as non-flush mountable. Moreover, the product portfolio offers very flexible non-flush mountable sensors for recessed or flush mounting.
Only extremely resistant housing materials are used. In order to comply with environmental conditions of individual applications, we provide them in diverse material qualities. We offer of course all standard connection technologies and electrical output types.
Special applications often require special sensors. Most requirements are fulfilled as a standard by *uprox*®+ sensors, such as Factor 1, magnetic field immunity, protection rating IP68/IP69K and many more. You find the sensors with functional descriptions for all applications in the TURCK product portfolio:

- Ring sensors
- Slot sensors
- Dual sensors for valve control
- Analog inductive sensors
- Inductive sensors for underwater applications
- Pressure-resistant inductive sensors
- Selective inductive sensors
- and many more

Our strengths – Your advantages



Wear-free operation

Inductive proximity switches are designed for wear-free and contactless detection of metal objects. For this purpose they use a high-frequency electromagnetic AC field that interacts with the target. Conventional inductive sensors generate the AC field via an LC resonant circuit with a ferrite core coil. Eddy currents are induced in the metal target. They withdraw energy from the field which in turn leads to a decrease of the oscillating amplitude. The decrease is detected and analysed by the inductive sensor. For more details on inductive sensors see chapter „*uprox*®+ inductive factor 1 sensors“

Extensive product range

TURCK customers can choose from a broad range of standard products. The entire range of sensors and accessories holds the perfect solution for your individual application and meets increasing requirements in the long term. Nearly all types are flush as well as non-flush mountable. The product portfolio also includes very flexible non-flush mountable sensors that can also be partially or even fully installed. The devices are available as standard products ex stock.

Inductive sensors for special applications

Special applications often require special sensors. Most requirements are fulfilled as a standard by *uprox*®+ sensors, such as Factor 1, magnetic field immunity, protection classes IP68/IP69K and many more. You find the sensors and functional descriptions for all applications in the TURCK product portfolio: Ring, slot, dual sensors for valve control, sensors with analog output, with extended temperature range, for underwater use, pressure resistant inductive sensors and sensors with selective properties.

Many different designs

Many designs are available and each is optimally adjusted to different application conditions. From the compact rectangular version 5 x 5 x 25 mm to the 90 x 130 x 60 mm version with extremely large switching distance. Also available are sensor sizes ranging from M4 to PG36 threaded barrels as well as Ø 3 mm to Ø 40 mm smooth barrels. Nearly all types are flush as well as non-flush mountable. The product portfolio also includes very flexible non-flush mountable sensors that can also be partially or even fully installed.

Application compliant housing materials

Only extremely resistant housing materials are used. In order to comply with the ambient conditions of individual applications, our sensors are incorporated in different housing materials: Plastic versions PA, PP, PBT or ABS, brass (threaded barrel), chrome-plated or PTFE-coated, stainless steel in different qualities up to high-quality V4A, 1.4404.

Many different output and connection possibilities

We offer all connection types available on the market: Ø 8 mm, M8, M12, 1/2" and 7/8" connectors, cables in different lengths and sheath qualities (standard length 2 m) pigtail - i.e. short cable with male end M8 or M12, terminal chamber - incl. the new innovative TC version with removable terminal block and variable cable outlet. All standard electrical versions are available: NAMUR, 2, 3 and 4-wire DC, PNP/NPN output or 2-wire AC/DC. Also available are fieldbus capable dual sensors for DeviceNet™ or AS-interface®.

For special applications

Ring sensors

TURCK ring sensors with integrated electronics are very compact and thus fit in many places. They are used in many different systems such as in assembly lines or component feeding systems where they detect small, fast moving metal parts reliably and quickly. The *uprox*®+ sensors of theTS12 series are an innovative replacement for various ring sensors. You only need one sensor type to operate applications with different tube diameters.

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Slot sensors

The slot sensors are U-shaped and the active face is located between the two arms. If an object passes through the slot, the sensor is actuated. Slot sensors detect laterally approaching targets regardless of their distance to the active face.

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Dual sensors for rotary actuators

In the chemical, petro-chemical and food industry, position control on rotary actuators is of major importance. TURCK dual sensors detect the end position of rotary actuators reliably. They are easily mounted and wired, thus making them a cost-efficient solution for your systems.

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Sensors with analog output

Inductive sensors with analog output accomplish simple control tasks. They provide a current, voltage or frequency signal that is proportional to the target's distance. TURCK analog sensors provide a linear output signal across the entire measuring range.

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Extended temperature range

The product portfolio even includes sensors for applications with ambient temperatures of -60 °C or +250 °C. These TURCK sensors are typically used in deep freezing systems, outdoors, in metal foundries, in drying furnaces of varnishing stations or the glass industry for example.

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Inductive sensors for underwater applications

TURCK offers sensors in fully pressure and seawater tight housings for subsea applications. They are made for continuous use under water. Mounted in plastic M18 threaded barrels, they can even be used at water depths of up to 500 m. Also included in the TURCK product portfolio are CP40 sensors. They are fully encapsulated in the SG40/2 housing. In addition, they feature large switching distances, are IP68 rated and are made for water depths of up to 500 m. They are mainly used in locks, weirs and offshore areas.

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For special applications

Pressure-resistant sensors

We offer application optimized, pressure resistant as well as high-pressure resistant devices. The *uprox*®+ Washdown sensors resist pressures up to 20 bar. They combined the unique *uprox* ® advantages in a single product, such as largest switching distance for example, factor 1 and protection rating IP68/IP69K. The high-pressure resistant sensors are incorporated in a stainless steel housing and are ideally suited for hydraulic systems. Special seals and additional outer seals at the front as well as an O-ring enable application in high pressure systems of up to 500 bar.

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Selective sensors

TURCK's sensor series NF, FE and NF/FE with distinctive function are particularly suited for applications in which ferritic metals have to be distinguished from non-ferritic ones. They distinguish between workpiece and tool or between workpieces made of different materials and accomplish simple coding tasks.

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Type code

B	i	.	4	U	–	M12	.	–	A	P	6	X	–	H1	1	4	1	/	L100
B	i	.	4	U	Functional principle	–	M12	.	Design	–	A	P	6	X	Electrical version	–			

Special functions

FE	selective behaviour: ferrite only
U	*uprox*® or *uprox*®+ factor 1 sensors
NF	selective behaviour: non-ferrite only
R	ring sensor

Rated operating distance

…	or slot width ring diameter [mm]

Options

D	high-pressure resistant

Functional principle

i	inductive

Fitting

B	flush
N	non-flush
S	slot sensor

Additional information

D	climate-proof
E	long-sized housing
K	short-sized housing
M	medium-sized housing
S	lateral active face
SK	terminal chamber, angled cable outlet
SR, TC	terminal chamber with straight/angled cable outlet
WD	wash down resistant to aggressive cleaning agents, Protection class IP68/69K

Housing

CA25	rectangular, 25 x 25 flexible active face
CA40, CK40, CP40, QV40	rectangular, 40 x 40, flexible active face
CP80	rectangular, 80 x 80
DSC, DSU	dual sensor for monitoring of rotary actuators height in mm
EG, EM	threaded barrel, stainless steel, Ø in [mm]
EGT, GT, MT	threaded barrel, metal PTFE-coated, Ø in [mm]
EH, H	smooth barrel, metal, Ø in [mm]
GS	threaded barrel, metal, lateral active face, Ø in [mm]
G, M	threaded barrel, metal, Ø in [mm]
HS	smooth barrel, metal, lateral active face, Ø in [mm]
K	smooth barrel, plastic, or slot-shaped
P, S	threaded barrel, plastic Ø in [mm], housing style 'S' also available as ring sensor BI/NI…R
Q, QN, QP	rectangular, height in mm
TS	tube sensor detection of small parts, height in mm
W	ring sensor, height in mm

Indication

X	LED
X…	number of LEDs or multicolor LED

Voltage range

3	10…300 VDC / 20…250 VAC
4	10…65 VDC, Ⓚ
6	10…30 VDC, Ⓚ
7	10…30 VDC (TTL compatibel)
30	10…300 VDC / 20…250 VDC, Ⓚ
31	10…300 VDC / 20…250 VAC, Ⓚ max. 100 mA
41	10…55 VDC
44	10…55 VDC, Ⓚ
45	8.4…65 VDC, Ⓚ, load dump and EMC protected acc. to e1 approval

Output mode

D	2-wire DC, non-polarized
G	2-wire DC, polarized
N	NPN
P	PNP
Z, DZ	2-wire AC/DC

Output function

A	working current NO
ASI	AS-Interface® connection
DA	dynamic output, working current NO
Dnet	DeviceNet™
F	working current NO/ closed current NC, programmable via connection
LF	analog output (frequency)
LI	analog output (current)
LI-Exi	analog output (current), intrinsically save
LIU, SIU	analog output (voltage and current)
LU	analog output (current)
R	closed current NC
Y0, Y1	output acc. to EN 60947-5-6 (NAMUR)
V	changeover contact

H1 1 4 1 Electrical connection: connector / **L100** Special versions

Assignment
- **1** standard assignment or customized

Number of contacts
- **…** … contacts

Connector type
- **1** straight
- **3** straight, with adapter

Connector type
- **B1** connector type 7/8“
- **B3** connector type 1/2“
- **H1** connector type M12 x 1
- **V1, V2** connector type M8 x 1 / Ø 8 mm

Features
- **3G** approval ATEX II 3 G
- **3D** approval ATEX II 3 D
- **3GD** approval ATEX II 3 G and II 3 D
- **L100** device length 100 mm
- **L80** device length 80 mm
- **S34** magnetic-field resistant
- **S97** extended temperature range: -40 °C
- **S100** extended temperature range: +100 °C
- **S120** extended temperature range: +120 °C
- **S139** seawater-proof housing
- **S369** CP40 housing fully encapsulated in SG40 protective housing, seawater-proof
- **S907** extended temperature range: +160 °C
- **S929** extended temperature range: -60 °C
- **S1102** extended temperature range: +250 °C

x.x PSG 3 M Pigtail: Cable connection with connector

Assignment
- **M** rotatable nut
- **S** fixed thread

… contacts
- **…** … contacts

Connector type
- **PSG** connector M8 x 1, straight
- **RS** connector M12 x 1, straight rotatable nut

Cable length
- … [m]

…M Cable connection

Cable connection
- **…M** cable length [m]

Designs and variants

	Design	Switching distance	Electrical connection	Output	Page
Q5SE 	Rectangular Q5SE 5 x 5 x 25 mm	0.8 mm,	2 m cable	_⌒, PNP	63
Q5,5 	Rectangular Q5,5 8 x 5.5 x 28 mm	2 mm, 3.5 mm,	2 m cable	_⌒, NPN _⌒, PNP	63
Q06 	Rectangular Q06 17.3 x 6 x 27.8 mm	3 mm,	2 m cable	_⌒, NPN _⌒, PNP	64
Q6,5 	Rectangular Q6,5 17 x 6.5 x 20 mm	1 mm, 2 mm,	2 m cable	_⌒, PNP	64
Q8SE 	Rectangular Q8SE 8 x 8 x 40 mm	4 mm,	2 m cable connector, M8 x 1	_⌒, PNP _⌒, NPN	65
Q08 	Rectangular Q08 20 x 8 x 32 mm	8 mm, 5 mm, 7 mm,	2 m cable connector, Ø8 mm connector, M8 x 1 0.5 m cable with connector, M12 x 1 1 m cable with connector, M12 x 1	_⌒, PNP _⌒, NPN ⎓⌒, PNP ⎓⌒, NPN NAMUR Analog output, 0...20 mA, 0...10 V	119
QP08 	Rectangular QP08 20 x 8 x 32 mm	10 mm,	2 m cable 0.3 m cable with connector, M8 x 1	_⌒, NPN _⌒, PNP	66

	Design	Switching distance	Electrical connection	Output	Page
Q9,5 	Rectangular Q9,5 17 x 9.5 x 20 mm	2 mm,	2 m cable	_⁄‾⁄‾, PNP	66
Q10 	Rectangular Q10 25 x 10.8 x 42 mm	8 mm,	2 m cable connector, M8 x 1	_⁄‾⁄‾, PNP _⁄‾⁄‾, NPN	67
Q10S 	Rectangular Q10S 16 x 10.2 x 27.8 mm	2 mm, 5 mm,	2 m cable 0.2 m connector, M8 x 1 0.3 m cable with connector, M8 x 1	NAMUR _⁄‾⁄‾, NPN _⁄‾⁄‾, PNP _⁄‾⁄‾, NPN _⁄‾⁄‾, PNP _⁄‾⁄‾	67
Q12 	Rectangular Q12 26 x 12 x 40 mm	5 mm, 2 mm, 4 mm,	2 m cable 7 m cable connector, M8 x 1 connector, M12 x 1	_⁄‾⁄‾, PNP _⁄‾⁄‾, NPN _⁄‾⁄‾, PNP _⁄‾⁄‾, NPN _⁄‾⁄‾	68
Q18 	Rectangular Q18 18 x 18 x 29 mm	5 mm,	2 m cable	_⁄‾⁄‾, PNP _⁄‾⁄‾, NPN	69
Q20 	Rectangular Q20 ring sensor Q20 40 x 20 x 68 mm	15 mm, 25 mm,	connector, M12 x 1 2 m cable	Analog output, 0...10 V _⁄‾⁄‾, PNP _⁄‾⁄‾, NPN NAMUR Analog output, 0...20 mA, 0...10 V	69, 104, 120
Q25 	Rectangular Q25 25 x 25.5 x 38.5 mm	10 mm,	2 m cable	_⁄‾⁄‾, NPN _⁄‾⁄‾, PNP	70

Designs and variants

	Design	Switching distance	Electrical connection	Output	Page
CA25 	Rectangular CA25 25 x 25 x 40 mm	10 mm, 15 mm,	connector, M8 x 1 connector, M12 x 1	, PNP	70
QN26 	Rectangular QN26 26 x 26 x 43 mm	10 mm,	0.15 m cable with connector, M12 x 1	, 2-wire	71
CK40 	Rectangular CK40 40 x 40 x 65 mm	15 mm, 20 mm, 20 mm, 25 mm, 30 mm, 35 mm, 40 mm, 50 mm,	connector, M12 x 1 connector, 7/8" connector, 1/2"	, NPN , PNP , NPN , PNP , 2-wire NAMUR Analog output, 0...20 mA, 0...10 V	71, 121
CP40 	Rectangular CP40 40 x 40 x 114 mm 67 x 50 x 190 mm	15 mm, 20 mm, 20 mm, 30 mm, 35 mm, 40 mm, 50 mm,	terminal chamber connector, M12 x 1 30 m cable	, NPN , PNP , NPN , PNP , NAMUR , 2-wire Analog output, 0...20 mA, 0...10 V	72, 121, 130, 134, 147, 153
QV40 	Rectangular QV40 40 x 40 x 65 mm	20 mm, 50 mm,	connector, M12 x 1	, PNP	73
Q42 	Rectangular Q42 42.5 x 42.5 x 68 mm	50 mm,	connector, M12 x 1	, PNP	73
Q80 	Rectangular Q80 80 x 40 x 92 mm	50 mm, 75 mm, 60 mm,	connector, M12 x 1 2 m cable	, NPN , PNP , NPN , PNP NAMUR Analog output, 0...20 mA, 0...10 V	74, 122

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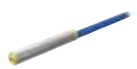
	Design	Switching distance	Electrical connection	Output	Page
CP80 	Rectangular CP80 80 x 41 x 80 mm	40 mm, 40 mm, 50 mm, 75 mm,	terminal chamber connector, M12 x 1	, NPN , PNP , NAMUR	75, 130, 134
K90 	Rectangular K90SR 75 x 60 x 130 mm	100 mm, 60 mm, 50 mm,	connector, M12 x 1 terminal chamber	, PNP , NPN , NAMUR	75
Q130 	Rectangular Q130 57 x 48 x 130 mm	30 mm,	2 m cable connector, 7/8"	, NPN , PNP 	76
M5 	threaded barrel M5 x 0.5 Ø 5 x 30 mm Ø 5 x 42.5 mm	1 mm,	2 m cable connector, M8 x 1	NAMUR , PNP , NPN , PNP	79
M8 	threaded barrel M8 x 1 Ø 8 x 23.6 mm Ø 8 x 47 mm Ø 8 x 49 mm Ø 8 x 57 mm Ø 8 x 31 mm Ø 8 x 23.6 mm Ø 8 x 41.6 mm Ø 8 x 57 mm Ø 8 x 39 mm Ø 8 x 42 mm	1.5 mm, 6 mm, 4 mm, 3 mm, 2 mm,	connector, M12 x 1 2 m cable	NAMUR , 2-wire , PNP , NPN , PNP , PNP , NPN Analog output, 0...10 V	79, 80, 81, 82, 135, 149

Designs and variants

	Design	Switching distance	Electrical connection	Output	Page
M12 	threaded barrel M12 x 1 Ø 12 x 100 mm Ø 12 x 34 mm Ø 12 x 42 mm Ø 12 x 52 mm Ø 12 x 54 mm Ø 12 x 60 mm Ø 12 x 62 mm Ø 12 x 63 mm Ø 12 x 64 mm Ø 12 x 65 mm Ø 12 x 67 mm Ø 12 x 70 mm Ø 12 x 71 mm Ø 12 x 72 mm Ø 12 x 75 mm Ø 12 x 80 mm	2 mm, 2.5 mm, 3 mm, 4 mm, 4 mm, 5 mm, 8 mm, 10 mm,	2 m cable 7 m cable terminal chamber terminal chamber, removablee cage clamp terminals connector, M12 x 1 connector, M8 x 1 connector, 1/2"	NAMUR , 2-wire , PNP , NPN , PNP , PNP , NPN Analog output, 0...20 mA, 0...10 V	82, 83, 84, 85, 86, 123, 129, 132, 135, 136, 140, 149, 153
M18 	threaded barrel M18 x 1 Ø 18 x 30 mm Ø 18 x 34 mm Ø 18 x 46 mm Ø 18 x 52 mm Ø 18 x 54 mm Ø 18 x 61.5 mm Ø 18 x 64 mm Ø 18 x 65 mm Ø 18 x 67 mm Ø 18 x 71 mm Ø 18 x 72 mm Ø 18 x 75 mm Ø 18 x 77 mm Ø 18 x 80 mm Ø 18 x 81 mm Ø 18 x 82 mm Ø 18 x 87 mm Ø 18 x 95 mm Ø 18 x 97 mm Ø 18 x 103 mm Ø 18 x 107.5 mm Ø 18 x 139 mm	5 mm, 7 mm, 7 mm, 8 mm, 8 mm, 10 mm, 12 mm, 14 mm, 15 mm,	2 m cable 7 m cable terminal chamber terminal chamber, removablee cage clamp terminals connector, M12 x 1 connector, 1/2" connector, 7/8"	NAMUR , 2-wire , PNP , NPN , PNP , NPN , PNP Analog output, 4...20 mA , PNP/Analog output, 0...10 V Analog output, 4...20 mA, 0...10 V	86, 87, 88, 89, 90, 123, 124, 125, 129, 132, 137, 138, 141, 142, 147, 150, 154

	Design	Switching distance	Electrical connection	Output	Page
M30 	threaded barrel M30 x 1.5 Ø 30 x 44 mm Ø 30 x 62 mm Ø 30 x 64 mm Ø 30 x 66 mm Ø 30 x 72 mm Ø 30 x 80 mm Ø 30 x 80 mm Ø 30 x 87 mm Ø 30 x 95 mm Ø 30 x 97 mm Ø 30 x 100 mm Ø 30 x 110 mm Ø 30 x 115 mm	10 mm, 12 mm, 15 mm, 15 mm, 20 mm, 20 mm, 30 mm,	2 m cable 7 m cable terminal chamber terminal chamber, removablee cage clamp terminals connector, M12 x 1 connector, 1/2" connector, 7/8"	NAMUR , 2-wire , PNP , NPN , PNP , NPN , PNP , ,	90, 91, 92, 93, 94, 125, 126, 132, 132, 138, 139, 141, 142, 151, 154
G47 	threaded barrel G47 Ø 47 x 96 mm Ø 47 x 70 mm Ø 47 x 106 mm	25 mm, 20 mm, 40 mm, 25 mm,	terminal chamber 2 m cable	, PNP , NPN , NAMUR , PNP , NPN ,	94
Ø 3 mm 	smooth barrel 3 mm Ø 3 x 27 mm	1 mm,	2 m cable	, PNP , NPN	97
Ø 4 mm 	smooth barrel 4 mm Ø 4 x 30 mm Ø 4 x 42.5 mm	1 mm,	2 m cable connector, M8 x 1 0.3 m connector, M12 x 1	NAMUR , PNP , NPN , PNP Analog output, 0...20 mA, 0...10 V	97, 127
Ø 6,5 mm 	smooth barrel 6.5 mm Ø 6.5 x 23.6 mm Ø 6.5 x 31 mm Ø 6.5 x 32 mm Ø 6.5 x 42 mm Ø 6.5 x 49 mm	1.5 mm, 2 mm, 3 mm, 6 mm,	2 m cable connector, M8 x 1	NAMUR , PNP , NPN , PNP Analog output, 0...10 V	98, 127
Ø 11 mm 	smooth barrel 11 mm Ø 11 x 34 mm Ø 11 x 54 mm Ø 11 x 75 mm	2 mm, 5 mm,	2 m cable terminal chamber	NAMUR , PNP	99

Designs and variants

	Design	Switching distance	Electrical connection	Output	Page
Ø 20 mm 	smooth barrel 20 mm Ø 20 x 54 mm Ø 20 x 77 mm Ø 20 x 79 mm	10 mm,	2 m cable terminal chamber	, PNP , NPN 	100
Ø 34 mm 	smooth barrel 34 mm Ø 34 x 80 mm Ø 34 x 106 mm	20 mm,	2 m cable terminal chamber	, PNP	100
Ø 40 mm 	smooth barrel 40 mm Ø 40 x 90 mm	30 mm, 20 mm,	terminal chamber	, PNP , NPN ,	101
TS12 	Rectangular TS12 17 x 12 x 80 mm	20 mm,	connector, M8 x 1	, PNP , NPN	103
Q14 – Switching output 	ring sensor Q14 30 x 14 x 62.5 mm	–	connector, M12 x 1	, PNP , NPN Analog output, 0...10 V	103, 104
W30 	ring sensor W30 35 x 30 x 60 mm	–	connector, M12 x 1	, PNP , NPN	105
Q80 	ring sensor Q80 80 x 40 x 92 mm		connector, M12 x 1	, PNP Analog output, 0...10 V	105, 118

	Design	Switching distance	Electrical connection	Output	Page
S32SR 	ring sensor S32SR 100 x 32 x 175 mm	–	terminal chamber	⎓, PNP	106
S32XL 	ring sensor S32XL 137.5 x 32 x 180 mm	–	connector, M12 x 1	⎓, PNP Analog output, 0...10 V	106, 118
K08 	slot sensor K08 15 x 8 x 11 mm	–	0.5 m cable	NAMUR ⎓, PNP ⎓, NPN	109
K09 	slot sensor K09 9 x 14 x 20 mm	–	0.5 m cable	NAMUR	109
K10 	slot sensor K10 15 x 10 x 19 mm	–	0.5 m cable	NAMUR ⎓, PNP	110
K30 	slot sensor K30 60 x 30 x 48 mm	–	2 m cable	NAMUR ⎓, PNP ⎓, NPN ⏚ ⎓	110
DSC26 	dual sensor for valve monitoring DSC26 42 x 26 x 28 mm	4 mm, ⊐	2 m cable connector, M12 x 1	NAMUR ⎓, PNP	113
DSU35 	dual sensor for valve monitoring DSU35 60 x 35 x 59 mm 60 x 35.4 x 59 mm 60 x 35 x 62 mm	4 mm, ⊐	2 m cable connector, M12 x 1 terminal chamber	NAMUR ⎓, PNP ⎓, 2-wire 2x ⎓ ⎓, AS-i V2.1 ⎓, DeviceNet	113

Designs and variants

	Design	Switching distance	Electrical connection	Output	Page
EH6.5 – 2 outputs 0...10 V – Distinction of ferrous metals 	smooth barrel 6.5 mm Ø 6.5 x 41.6 mm		0.2 m connector, M12 x 1	Analog output, 0...10 V	117
Q14 – outputs 0...10 V und 0...20 mA 	Rectangular Q14 30 x 14 x 52 mm ring sensor Q14	10 mm, 20 mm,	connector, M8 x 1 2 m cable	Analog output, 0...20 mA, 0...10 V ⎯⎽⎯, PNP ⎯⎽⎯, NPN NAMUR ⎯⎽⎯ Analog output, 0...10 V	119, 120
+120 °C – Ø160 mm 	Rectangular Q160 60 x 160 mm	100 mm,	2 m cable	⎯⎽⎯, PNP	140
+250 °C – Q40 – Sensor 	Rectangular CQ40 40 x 40 x 52 mm	25 mm,	5 m connector, M12 x 1	⎯⎽⎯, PNP	143
+250 °C – Q80 – Sensor 	Rectangular CQ80 80 x 41 x 92 mm	40 mm,	5 m connector, M12 x 1	⎯⎽⎯, PNP	143
+250 °C – EM30 – Amplifier 	threaded barrel M30 x 1.5 Ø 30 x 83 mm	–	connector, M12 x 1	⎯⎽⎯, PNP	144

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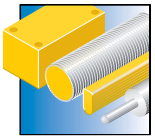
Rectangular designs

Rectangular inductive sensors fit to measure. Thanks to large switching distances and rugged housing materials, these sensors are highly reliable and secure. They are quickly and firmly mounted thanks to threaded holes in the housing. All standard electrical output and connection types are available.

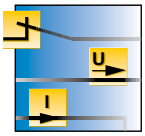
Features

- Stable and resistant plastic housings
- Large switching distances
- Perfect mounting
- All connection types

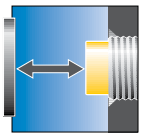
Properties



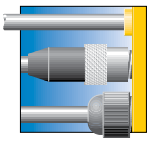
Designs
From the small compact Q5SE to the big sized K90 Ø 90 mm version



Electrical versions
NAMUR, 2, 3 and 4-wire DC, 2-wire AC/DC



Switching distances
0.8 mm for exact position detection, 100 mm for long ranges



Electrical connections
Cable, connector, terminal chamber and pigtail

Materials
Rugged and chemical-resistant plastic and metal housings for all types of applications

Special features
Factor 1, extended temperature range, approvals (et al. ATEX and SIL)

Internet link
Scan the QR code to access our products on the internet

Q5SE

General data

Connection	2 m cable	**Operating voltage**	10…30 VDC
Output	⎍, PNP	**Switching distance**	0.8 mm, ⊐
Housing material	Al, anodized	**Dimensions**	5 x 5 x 25 mm

Active face on top

Types and data – selection table

Type	w	d
BI0,8-Q5SE-AP6X	w012	d082

Q5.5

General data

Connection	2 m cable	**Operating voltage**	10…30 VDC
Output	⎍, PNP	**Housing material**	PP-GF20
Dimensions	8 x 5.5 x 28 mm		

Types and data – selection table

Type	Switching distance	w	d
BI2-Q5,5-AP6X	2 mm, ⊐	w012	d083
NI3,5-Q5,5-AP6X	3.5 mm, ⊐	w012	d083

Many different types available, also as NPN version, see type code

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

Q06

General data

Connection	2 m cable	**Operating voltage**	10…30 VDC
Output	PNP	**Switching distance**	3 mm
Housing material	PBT	**Dimensions**	17.3 x 6 x 27.8 mm

Types and data – selection table

Type	w	d
BI3-Q06-AP6X2	w012	d084

Many different types available, also as NPN version, see type code

Q6.5

General data

Connection	2 m cable	**Operating voltage**	10…30 VDC
Output	PNP	**Housing material**	PP
Dimensions	17 x 6.5 x 20 mm		

Types and data – selection table

Type	Switching distance	w	d
BI1-Q6,5-AP6/S34	1 mm	w012	d085
NI2-Q6,5-AP6/S34	2 mm	w012	d085

Q8SE

General data

Operating voltage	10…30 VDC	**Output**	⎯◺⎯, PNP
Switching distance	4 mm, ⊢▭⊣	**Housing material**	PP
Dimensions	8 x 8 x 40 mm		

Lateral active face

Types and data – selection table

Type	Connection	w	d
NI4U-Q8SE-AP6X	2 m cable	w012	d086
NI4U-Q8SE-AP6X-V1131	male, M8 x 1	w013	d087

Many different types available, also as NPN version, see type code

Q08

General data

Housing material	GD-Zn	**Dimensions**	20 x 8 x 32 mm

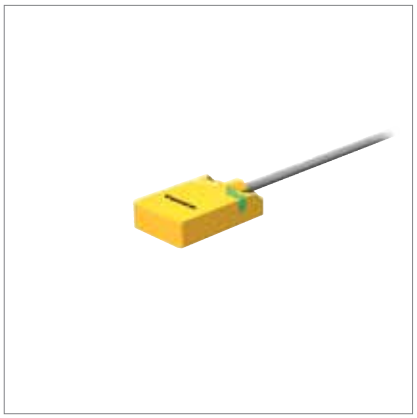
Types and data – selection table

Type	Connection	Operating voltage	Output	Switching distance	w	d
BI8U-Q08-AP6X2	2 m cable	10…30 VDC	⎯◺⎯, PNP	8 mm, ⊢▭⊣	w012	d088
BI8U-Q08-AP6X2-V1131	male, Ø 8 mm	10…30 VDC	⎯◺⎯, PNP	8 mm, ⊢▭⊣	w013	d089
BI5U-Q08-AP6X2	2 m cable	10…30 VDC	⎯◺⎯, PNP	5 mm, ⊢▭⊣	w012	d090
BI5U-Q08-AP6X2-V1131	male, Ø 8 mm	10…30 VDC	⎯◺⎯, PNP	5 mm, ⊢▭⊣	w013	d091
BI5U-Q08-AP6X2-V2131	male, M8 x 1	10…30 VDC	⎯◺⎯, PNP	5 mm, ⊢▭⊣	w013	d092
BI5U-Q08-AP6X2-0,5XOR-RS4	0.5 m Cable with connector, M12 x 1	10…30 VDC	⎯◺⎯, PNP	5 mm, ⊢▭⊣	w013	d093
BI5U-Q08-AP6X2-1XOR-RS4	1 m Cable with connector, M12 x 1	10…30 VDC	⎯◺⎯, PNP	5 mm, ⊢▭⊣	w013	d093
BI7-Q08-VP6X2	2 m cable	10…30 VDC	⎯◺⎯, PNP	7 mm, ⊢▭⊣	w010	d090
BI7-Q08-VP6X2-V1141	male, Ø 8 mm	10…30 VDC	⎯◺⎯, PNP	7 mm, ⊢▭⊣	w005	d091
BI5-Q08-Y1X	2 m cable	8.2 VDC	NAMUR	5 mm, ⊢▭⊣	w014	d090
BI5-Q08-VP6X2	2 m cable	10…30 VDC	⎯◺⎯, PNP	5 mm, ⊢▭⊣	w010	d090

Many different types available, also as NPN version, see type code

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

QP08



General data

Operating voltage	10…30 VDC	**Output**	⎯◺, PNP
Switching distance	10 mm, ⫤	**Housing material**	PP
Dimensions	20 x 8 x 32 mm		

Types and data – selection table

Type	Connection	w	d
NI10U-QP08-AP6X2	2 m cable	w012	d094
NI10U-QP08-AP6X2-0,3-PSG3M	0.3 m Cable with connector, M8 x 1	w013	d095

Many different types available, also as NPN version, see type code

Q9.5

General data

Connection	2 m cable	**Operating voltage**	10…30 VDC
Output	⎯◺, PNP	**Switching distance**	2 mm, ⫤
Housing material	PP	**Dimensions**	17 x 9.5 x 20 mm

Types and data – selection table

Type	w	d
NI2-Q9,5-AP6/S34	w012	d096

Q10

General data

Operating voltage	10…30 VDC	**Output**	⎯◺, PNP
Switching distance	8 mm, ⊐	**Housing material**	PBT
Dimensions	25 x 10.8 x 42 mm		

Types and data – selection table

Type	Connection	w	d
BI8U-Q10-AP6X2	2 m cable	w012	d097
BI8U-Q10-AP6X2-V1131	male, M8 x 1	w013	d098

Many different types available, also as NPN version, see type code

Q10S

General data

Housing material	PP-GF20	**Dimensions**	16 x 10.2 x 27.8 mm

Lateral active face

Types and data – selection table

Type	Connection	Operating voltage	Output	Switching distance	w	d
BI2-Q10S-Y1X	2 m cable	8.2 VDC	NAMUR	2 mm, ⊐	w014	d099
BI2-Q10S-AP6X	2 m cable	10…30 VDC	⎯◺, PNP	2 mm, ⊐	w012	d099
BI2-Q10S-VP6X	2 m cable	10…30 VDC	⎯◺, PNP	2 mm, ⊐	w010	d099
BI2-Q10S-AZ31X	2 m cable	20…250 VAC / 10…300 VDC	⎯◺	2 mm, ⊐	w015	d099
BI2-Q10S-AP6X-0,2-PSG3M	0.2 m male, M8 x 1	10…30 VDC	⎯◺, PNP	2 mm, ⊐	w013	d100
NI5U-Q10S-AP6X	2 m cable	10…30 VDC	⎯◺, PNP	5 mm, ⊐	w012	d099
NI5U-Q10S-AP6X-0,3-PSG3M	0.3 m Cable with connector, M8 x 1	10…30 VDC	⎯◺, PNP	5 mm, ⊐	w013	d100

Many different types available, also as NPN version, see type code

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

Q12

General data

Housing material	PA	**Dimensions**	26 x 12 x 40 mm

Types and data – selection table

Type	Connection	Operating voltage	Output	Switching distance	w	d
BI5U-Q12-AP6X2	2 m cable	10…30 VDC	, PNP	5 mm,	w012	d101
BI5U-Q12-VP6X2 7M	7 m cable	10…30 VDC	, PNP	5 mm,	w010	d101
BI5U-Q12-AP6X2-V1131	male, M8 x 1	10…30 VDC	, PNP	5 mm,	w013	d010
BI5U-Q12-AP6X2-H1141	male, M12 x 1	10…30 VDC	, PNP	5 mm,	w013	d102
BI2-Q12-AZ31X	2 m cable	20…250 VAC / 10…300 VDC		2 mm,	w015	d103
NI4-Q12-AZ31X	2 m cable	20…250 VAC / 10…300 VDC		4 mm,	w015	d103

Many different types available, also as NPN version, see type code

Q14

General data

Housing material	PBT	**Dimensions**	30 x 14 x 52 mm

Types and data – selection table

Type	Connection	Operating voltage	Output	Switching distance	w	d
BI10U-Q14-AP6X2	2 m cable	10…30 VDC	, PNP	10 mm,	w012	d104
BI10U-Q14-AP6X2-V1131	male, M8 x 1	10…30 VDC	, PNP	10 mm,	w013	d105
BI10-Q14-Y1X	2 m cable	8.2 VDC	NAMUR	10 mm,	w014	d106
BI10-Q14-ADZ32X2	2 m cable	20…250 VAC / 10…300 VDC		10 mm,	w016	d104
NI20-Q14-AP6X2	2 m cable	10…30 VDC	, PNP	20 mm,	w012	d104
NI20-Q14-AP6X2-V1131	male, M8 x 1	10…30 VDC	, PNP	20 mm,	w013	d105

Many different types available, also as NPN version, see type code

Q18

General data

Connection	2 m cable	**Operating voltage**	10…30 VDC
Output	⎯◺⎯, PNP	**Switching distance**	5 mm, ⊐
Housing material	PBT	**Dimensions**	18 x 18 x 29 mm

Types and data – selection table

Type	w	d
NI5-Q18-AP6X	w012	d107

Many different types available, also as NPN version, see type code

Q20

General data

Housing material	PBT	**Dimensions**	40 x 20 x 68 mm

Types and data – selection table

Type	Connection	Operating voltage	Output	Switching distance	w	d
BI15U-Q20-AP6X2	2 m cable	10…30 VDC	⎯◺⎯, PNP	15 mm, ⊐	w012	d108
BI15U-Q20-AP6X2-H1141	male, M12 x 1	10…30 VDC	⎯◺⎯, PNP	15 mm, ⊐	w013	d109
BI15-Q20-Y1X	2 m cable	8.2 VDC	NAMUR	15 mm, ⊐	w014	d110
BI15-Q20-Y1X-H1141	male, M12 x 1	8.2 VDC	NAMUR	15 mm, ⊐	w017	d109
NI25-Q20-AP6X2	2 m cable	10…30 VDC	⎯◺⎯, PNP	25 mm, ⊐	w012	d108
NI25-Q20-AP6X2-H1141	male, M12 x 1	10…30 VDC	⎯◺⎯, PNP	25 mm, ⊐	w013	d109

Many different types available, also as NPN version, see type code

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

Q25

General data

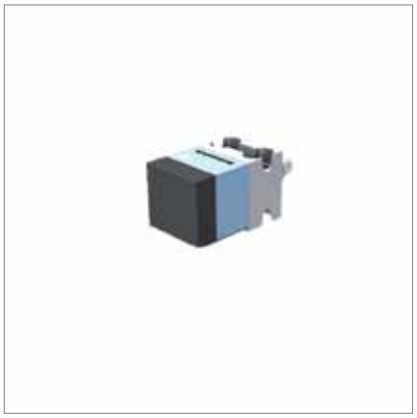
Connection	2 m cable	**Operating voltage**	10…30 VDC
Output	⎽◺⎽, PNP	**Switching distance**	10 mm, ⇨
Housing material	PBT	**Dimensions**	25 x 25.5 x 38.5 mm

Types and data – selection table

Type	w	d
NI10-Q25-AP6X	w012	d111

Many different types available, also as NPN version, see type code

CA25



General data

Operating voltage	10…30 VDC	**Output**	⎽◺⎽, PNP
Housing material	GD-CuZn	**Dimensions**	25 x 25 x 40 mm

Variable orientation of active face in 5 directions

Types and data – selection table

Type	Connection	Switching distance	w	d
BI10U-CA25-AP6X2-V1131	male, M8 x 1	10 mm, ⇨	w013	d112
BI10U-CA25-AP6X2-H1141	male, M12 x 1	10 mm, ⇨	w013	d113
NI15U-CA25-AP6X2-V1131	male, M8 x 1	15 mm, ⇨	w013	d112
NI15U-CA25-AP6X2-H1141	male, M12 x 1	15 mm, ⇨	w013	d113

QN26

General data

Connection	0.15 m Cable with connector, M12 x 1	**Operating voltage**	10…65 VDC
Output	⎯◟⎯, 2-wire	**Switching distance**	10 mm, ▭
Dimensions	26 x 26 x 43 mm		

Variable orientation of active face in 4 directions

Types and data – selection table

Type	Housing material	w	d
BI10-QN26-AD4X-0,15-RS4.23/S90	PBT	w018	d114
BI10-QN26-AD4X-0,15XOR-RS4.23/S100-S1589	PBT, weldguard coated	w018	d115

CK40

General data

Housing material	PBT	**Dimensions**	40 x 40 x 65 mm

Variable orientation of active face in 5 directions

Types and data – selection table

Type	Connection	Operating voltage	Output	Switching distance	w	d
BI30U-CK40-AP6X2-H1141	male, M12 x 1	10…30 VDC	⎯◟⎯, PNP	30 mm, ▭	w013	d116
BI20U-CK40-AP6X2-H1141	male, M12 x 1	10…30 VDC	⎯◟⎯, PNP	20 mm, ▭	w013	d013
BI20U-CK40-VP4X2-H1141	male, M12 x 1	10…65 VDC	⎯◟⎯, PNP	20 mm, ▭	w005	d013
BI15U-CK40-AP6X2-H1141	male, M12 x 1	10…30 VDC	⎯◟⎯, PNP	15 mm, ▭	w013	d013
BI15U-CK40-VP4X2-H1141	male, M12 x 1	10…65 VDC	⎯◟⎯, PNP	15 mm, ▭	w005	d013
BI15U-CK40-AD4X-H1144	male, M12 x 1	10…65 VDC	⎯◟⎯, 2-wire	15 mm, ▭	w018	d013
BI15U-CK40-ADZ30X2-B1131	male, 7/8“	20…250 VAC / 10…300 VDC	⎯◟⎯	15 mm, ▭	w019	d117
BI15U-CK40-ADZ30X2-B3131	male, 1/2“	20…250 VAC / 10…300 VDC	⎯◟⎯	15 mm, ▭	w020	d118
BI15-CK40-Y1X-H1141	male, M12 x 1	8.2 VDC	NAMUR	15 mm, ▭	w017	d119
BI15-CK40-AP6X2-H1141	male, M12 x 1	10…30 VDC	⎯◟⎯, PNP	15 mm, ▭	w013	d013
BI15-CK40-AD4X-H1141	male, M12 x 1	10…65 VDC	⎯◟⎯, 2-wire	15 mm, ▭	w021	d119
NI50U-CK40-AP6X2-H1141	male, M12 x 1	10…30 VDC	⎯◟⎯, PNP	50 mm, ▭	w013	d116
NI50U-CK40-VP4X2-H1141	male, M12 x 1	10…65 VDC	⎯◟⎯, PNP	50 mm, ▭	w005	d116
NI40U-CK40-AP6X2-H1141	male, M12 x 1	10…30 VDC	⎯◟⎯, PNP	40 mm, ▭	w013	d116
NI35U-CK40-AP6X2-H1141	male, M12 x 1	10…30 VDC	⎯◟⎯, PNP	35 mm, ▭	w013	d116

Table continues on the next page…

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Type	Connection	Operating voltage	Output	Switching distance	w	d
NI35U-CK40-AD4X-H1144	male, M12 x 1	10…65 VDC	, 2-wire	35 mm,	w018	d116
NI35U-CK40-ADZ30X2-B1131	male, 7/8"	20…250 VAC / 10…300 VDC		35 mm,	w019	d120
NI35U-CK40-ADZ30X2-B3131	male, 1/2"	20…250 VAC / 10…300 VDC		35 mm,	w020	d121
NI25U-CK40-AP6X2-H1141	male, M12 x 1	10…30 VDC	, PNP	25 mm,	w013	d116
NI25U-CK40-VP4X2-H1141	male, M12 x 1	10…65 VDC	, PNP	25 mm,	w005	d116
NI35-CK40-AP6X2-H1141	male, M12 x 1	10…30 VDC	, PNP	35 mm,	w013	d116
NI20-CK40-Y1X-H1141	male, M12 x 1	8.2 VDC	NAMUR	20 mm,	w017	d119
NI20-CK40-AP6X2-H1141	male, M12 x 1	10…30 VDC	, PNP	20 mm,	w013	d013
NI20-CK40-AD4X-H1141	male, M12 x 1	10…65 VDC	, 2-wire	20 mm,	w021	d119

Many different types available, also as NPN version, see type code

CP40

General data

Housing material PBT **Dimensions** 40 x 40 x 114 mm

Variable orientation of active face in 9 directions

Types and data – selection table

Type	Connection	Operating voltage	Output	Switching distance	w	d
BI30U-CP40-AP6X2	Terminal chamber	10…30 VDC	, PNP	30 mm,	w022	d122
BI20U-CP40-AP6X2	Terminal chamber	10…30 VDC	, PNP	20 mm,	w022	d122
BI20U-CP40-VP4X2	Terminal chamber	10…65 VDC	, PNP	20 mm,	w023	d122
BI15U-CP40-AP6X2	Terminal chamber	10…30 VDC	, PNP	15 mm,	w022	d122
BI15U-CP40-VP4X2	Terminal chamber	10…65 VDC	, PNP	15 mm,	w023	d122
BI15U-CP40-VP4X2-H1141	male, M12 x 1	10…65 VDC	, PNP	15 mm,	w005	d123
BI15U-CP40-FDZ30X2	Terminal chamber	20…250 VAC / 10…300 VDC	,	15 mm,	w024	d122
BI20-CP40-Y1X	Terminal chamber	8.2 VDC	NAMUR	20 mm,	w025	d124
BI15-CP40-Y1X	Terminal chamber	8.2 VDC	NAMUR	15 mm,	w025	d124
BI15-CP40-AP6X2	Terminal chamber	10…30 VDC	, PNP	15 mm,	w022	d122
BI15-CP40-VP4X2	Terminal chamber	10…65 VDC	, PNP	15 mm,	w023	d122
BI15-CP40-AD4X	Terminal chamber	10…65 VDC	, 2-wire	15 mm,	w026	d124
BI15-CP40-FZ3X2	Terminal chamber	20…250 VAC / 10…300 VDC	,	15 mm,	w024	d122
NI50U-CP40-AP6X2	Terminal chamber	10…30 VDC	, PNP	50 mm,	w022	d122
NI50U-CP40-AP6X2-H1141	male, M12 x 1	10…30 VDC	, PNP	50 mm,	w013	d123
NI50U-CP40-VP4X2	Terminal chamber	10…65 VDC	, PNP	50 mm,	w023	d122
NI40U-CP40-AP6X2	Terminal chamber	10…30 VDC	, PNP	40 mm,	w022	d122
NI40U-CP40-VP4X2	Terminal chamber	10…65 VDC	, PNP	40 mm,	w023	d122
NI40U-CP40-VP4X2-H1141	male, M12 x 1	10…65 VDC	, PNP	40 mm,	w005	d123
NI40U-CP40-FDZ30X2	Terminal chamber	20…250 VAC / 10…300 VDC	,	40 mm,	w024	d122
NI35-CP40-VP4X2	Terminal chamber	10…65 VDC	, PNP	35 mm,	w023	d122
NI35-CP40-FZ3X2	Terminal chamber	20…250 VAC / 10…300 VDC	,	35 mm,	w024	d122
NI20-CP40-Y1X	Terminal chamber	8.2 VDC	NAMUR	20 mm,	w025	d124

Table continues on the next page…

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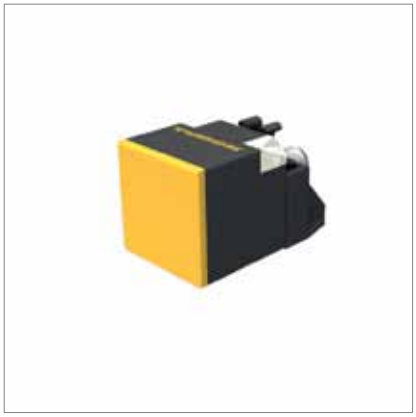
Type	Connection	Operating voltage	Output	Switching distance	w	d
NI20-CP40-AP6X2	Terminal chamber	10…30 VDC	, PNP	20 mm,	w022	d122
NI20-CP40-VP4X2	Terminal chamber	10…65 VDC	, PNP	20 mm,	w023	d122
NI20-CP40-AD4X	Terminal chamber	10…65 VDC	, 2-wire	20 mm,	w026	d124
NI20-CP40-FZ3X2	Terminal chamber	20…250 VAC / 10…300 VDC	,	20 mm,	w024	d122

Many different types available, also as NPN version, see type code

QV40



General data

Connection	male, M12 x 1	**Operating voltage**	10…30 VDC
Output	, PNP	**Housing material**	PBT
Dimensions	40 x 40 x 65 mm		

Variable orientation of active face in 5 directions

Types and data – selection table

Type	Switching distance	w	d
BI20U-QV40-AP6X2-H1141	20 mm,	w013	d125
NI50U-QV40-AP6X2-H1141	50 mm,	w013	d125

Q42

General data

Connection	male, M12 x 1	**Operating voltage**	10…30 VDC
Output	, PNP	**Switching distance**	50 mm,
Housing material	PA	**Dimensions**	42.5 x 42.5 x 68 mm

Types and data – selection table

Type	w	d
NI50U-Q42FWD-VP6X-H1141	w005	d126
NI50U-Q42TWD-VP6X-H1141	w005	d127

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

Q80

General data

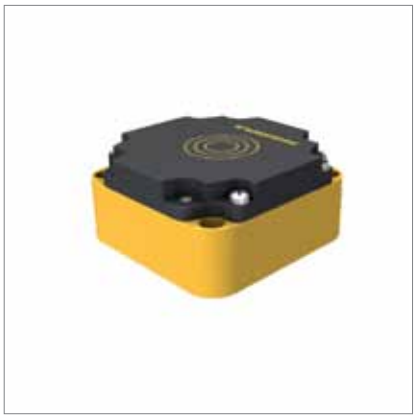
Housing material	PBT	**Dimensions**	80 x 40 x 92 mm

Types and data – selection table

Type	Connection	Operating voltage	Output	Switching distance	w	d
BI50U-Q80-AP6X2-H1141	male, M12 x 1	10…30 VDC	, PNP	50 mm,	w013	d128
BI50U-Q80-VP4X2-H1141	male, M12 x 1	10…65 VDC	, PNP	50 mm,	w005	d128
BI50U-Q80-VP4X2-H1141/3GD	male, M12 x 1	10…65 VDC	, PNP	50 mm,	w005	d128
BI50-Q80-Y1X	2 m cable	8.2 VDC	NAMUR	50 mm,	w014	d129
NI75U-Q80-AP6X2-H1141	male, M12 x 1	10…30 VDC	, PNP	75 mm,	w013	d128
NI75U-Q80-VP4X2-H1141	male, M12 x 1	10…65 VDC	, PNP	75 mm,	w005	d128
NI60-Q80-Y1X	2 m cable	8.2 VDC	NAMUR	60 mm,	w014	d129

Many different types available, also as NPN version, see type code

CP80



General data

Housing material	PBT	**Dimensions**	80 x 41 x 80 mm

Types and data – selection table

Type	Connection	Operating voltage	Output	Switching distance	w	d
BI40-CP80-VP4X2	Terminal chamber	10…65 VDC	, PNP	40 mm,	w023	d130
BI40-CP80-VP4X2-H1141	male, M12 x 1	10…65 VDC	, PNP	40 mm,	w005	d131
BI40-CP80-FZ3X2	Terminal chamber	20…250 VAC / 10…300 VDC	,	40 mm,	w024	d130
NI75U-CP80-VP4X2	Terminal chamber	10…65 VDC	, PNP	75 mm,	w023	d130
NI75U-CP80-VP4X2-H1141	male, M12 x 1	10…65 VDC	, PNP	75 mm,	w005	d131
NI75U-CP80-FDZ30X2	Terminal chamber	20…250 VAC / 10…300 VDC	,	75 mm,	w024	d130
NI50-CP80-VP4X2	Terminal chamber	10…65 VDC	, PNP	50 mm,	w023	d130
NI50-CP80-FZ3X2	Terminal chamber	20…250 VAC / 10…300 VDC	,	50 mm,	w024	d130
NI40-CP80-Y1	Terminal chamber	8.2 VDC	NAMUR	40 mm,	w025	d132
NI40-CP80-VP4X2	Terminal chamber	10…65 VDC	, PNP	40 mm,	w023	d130
NI40-CP80-FZ3X2	Terminal chamber	20…250 VAC / 10…300 VDC	,	40 mm,	w024	d130

Many different types available, also as NPN version, see type code

K90

General data

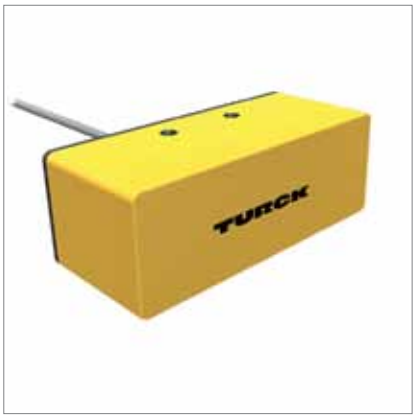
Housing material	PBT	**Dimensions**	75 x 60 x 130 mm

Types and data – selection table

Type	Connection	Operating voltage	Output	Switching distance	w	d
NI50-K90SR-Y1	Terminal chamber	8.2 VDC	NAMUR	50 mm,	w025	d133
NI100U-K90SR-VP4X2-H1141	male, M12 x 1	10…65 VDC	, PNP	100 mm,	w005	d134
NI100U-K90SR-VP4X2	Terminal chamber	10…65 VDC	, PNP	100 mm,	w023	d135
NI60-K90SR-VP4X2	Terminal chamber	10…65 VDC	, PNP	60 mm,	w023	d135
NI60-K90SR-FZ3X2	Terminal chamber	20…250 VAC / 10…300 VDC	,	60 mm,	w024	d135

Many different types available, also as NPN version, see type code

Q130



General data

Switching distance	30 mm,	**Housing material**	PBT
Dimensions	57 x 48 x 130 mm		

Types and data – selection table

Type	Connection	Operating voltage	Output	w	d
NI30-Q130-VP4X2	2 m cable	10…65 VDC	, PNP	w010	d136
NI30-Q130-ADZ30X2-B1131	male, 7/8“	20…250 VAC / 10…300 VDC		w027	d137
NI30-Q130-ADZ30X2	2 m cable	20…250 VAC / 10…300 VDC		w028	d136

Many different types available, also as NPN version, see type code

Wiring diagrams on page 658 Dimension drawing on page 670 Accessories on page 560

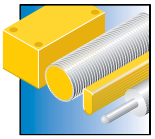
Cylindrical design - Thread

Threaded barrel sensors are available for all types of applications, ranging from the small 5 mm version to the big size PG36. In order to comply with the ambient conditions of individual applications, most sensors are available in different housing materials. The range of accessories is broad and enhances the functionality of the sensors if needed.

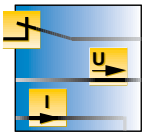
Features

- Rugged 4-hole LED
- Different thread lengths
- Rugged housing materials
- Connection cable with approved sheath quality
- Many different electrical output functions

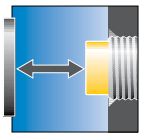
Properties



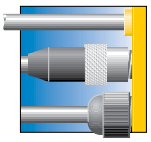
Designs
All standard thread sizes M5 x 0.5, M8 x 1, M12 x 1, M18 x 1, M30 x 1.5 and PG36 (G47)



Electrical versions
NAMUR, 2, 3 and 4-wire DC, 2-wire AC/DC



Switching distances
non-flush 1 … 25 mm and flush 3 mm … 25 mm



Electrical connections
Cable, connector, terminal chamber and pigtail

Materials
Chrome-plated brass (optionally PTFE-coated), stainless steel or rugged plastic housings

Special features
Factor 1, all metals extended temperature range, approvals (et al. ATEX and SIL)

Internet link
Scan the QR code to access our products on the internet

M5

General data

Switching distance 1 mm, **Housing material** V4A (1.4404)

Types and data – selection table

Type	Connection	Operating voltage	Output	Dimensions	w	d
BI1-EG05-Y1	2 m cable	8.2 VDC	NAMUR	Ø 5 x 30 mm	w014	d138
BI1-EG05-AP6X-V1331	male, M8 x 1	10…30 VDC	, PNP	Ø 5 x 42.5 mm	w013	d139
BI1-EG05-RP6X-V1331	male, M8 x 1	10…30 VDC	, PNP	Ø 5 x 42.5 mm	w029	d139
BI1-EG05-AP6X	2 m cable	10…30 VDC	, PNP	Ø 5 x 30 mm	w012	d140
BI1-EG05-RP6X	2 m cable	10…30 VDC	, PNP	Ø 5 x 30 mm	w030	d140

Many different types available, also as NPN version, see type code

M8 – NAMUR

General data

Operating voltage 8.2 VDC **Output** NAMUR

Types and data – selection table

Type	Connection	Switching distance	Housing material	Dimensions	w	d
BI1,5-EG08K-Y1-H1341	male, M12 x 1	1.5 mm,	V4A (1.4404)	Ø 8 x 39 mm	w017	d141
BI1,5-EG08-Y1-H1341	male, M12 x 1	1.5 mm,	V4A (1.4404)	Ø 8 x 57 mm	w017	d142
NI3-EG08K-Y1-H1341	male, M12 x 1	3 mm,	V4A (1.4404)	Ø 8 x 39 mm	w017	d143
BI1,5-EG08K-Y1	2 m cable	1.5 mm,	V4A (1.4404)	Ø 8 x 23.6 mm	w014	d144
NI3-EG08K-Y1	2 m cable	3 mm,	V4A (1.4404)	Ø 8 x 23.6 mm	w014	d145
BI1,5-GS880-Y1	2 m cable	1.5 mm,	V2A (1.4301)	Ø 8 x 47 mm	w014	d146

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

M8 – 2-wire DC

General data

Operating voltage	10…55 VDC	**Output**	⎯◺, 2-wire
Housing material	V4A (1.4404)		

Types and data – selection table

Type	Connection	Switching distance	Dimensions	w	d
BI2-EG08-AG41X-H1341	male, M12 x 1	2 mm,	Ø 8 x 57 mm	w031	d027
NI4-EG08-AG41X	2 m cable	4 mm,	Ø 8 x 41.6 mm	w032	d147
BI2-EG08-AG41X	2 m cable	2 mm,	Ø 8 x 42 mm	w032	d148

M8 – 3-wire DC

General data

Operating voltage	10…30 VDC

Types and data – selection table

Type	Connection	Output	Switching distance	Housing material	Dimensions	w	d
BI1,5-EG08K-AP6X-V1131	male, M8 x 1	⎯◺, PNP	1.5 mm,	V4A (1.4404)	Ø 8 x 31 mm	w013	d149
BI2-EG08K-AP6X-V1131	male, M8 x 1	⎯◺, PNP	2 mm,	V4A (1.4404)	Ø 8 x 31 mm	w013	d149
BI1,5U-EG08-AP6X-V1131	male, M8 x 1	⎯◺, PNP	1.5 mm,	V4A (1.4404)	Ø 8 x 49 mm	w013	d150
BI1,5U-EGT08-AP6X-V1131	male, M8 x 1	⎯◺, PNP	1.5 mm,	V2A (1.4301), PTFE-coated	Ø 8 x 49 mm	w013	d150
BI2U-EG08-AP6X-V1131	male, M8 x 1	⎯◺, PNP	2 mm,	V4A (1.4404)	Ø 8 x 49 mm	w013	d150
BI2-EG08-AP6X-V1131	male, M8 x 1	⎯◺, PNP	2 mm,	V4A (1.4404)	Ø 8 x 49 mm	w013	d150
BI2U-EGT08-AP6X-V1131	male, M8 x 1	⎯◺, PNP	2 mm,	V2A (1.4301), PTFE-coated	Ø 8 x 49 mm	w013	d150
BI2U-EG08-RP6X-V1131	male, M8 x 1	⊣◺, PNP	2 mm,	V4A (1.4404)	Ø 8 x 49 mm	w029	d150
BI1,5-EG08-AP6X-V1131	male, M8 x 1	⎯◺, PNP	1.5 mm,	V4A (1.4404)	Ø 8 x 49 mm	w013	d150
NI3-EG08K-AP6X-V1131	male, M8 x 1	⎯◺, PNP	3 mm,	V4A (1.4404)	Ø 8 x 31 mm	w013	d151
NI3-EG08-AP6X-V1131	male, M8 x 1	⎯◺, PNP	3 mm,	V4A (1.4404)	Ø 8 x 49 mm	w013	d152
NI4U-EG08-AP6X-V1131	male, M8 x 1	⎯◺, PNP	4 mm,	V4A (1.4404)	Ø 8 x 49 mm	w013	d153
NI6U-EG08-AP6X-V1131	male, M8 x 1	⎯◺, PNP	6 mm,	V4A (1.4404)	Ø 8 x 49 mm	w013	d153
NI6U-EG08-RP6X-V1131	male, M8 x 1	⊣◺, PNP	6 mm,	V4A (1.4404)	Ø 8 x 49 mm	w029	d153
BI1,5-EG08K-AP6X-H1341	male, M12 x 1	⎯◺, PNP	1.5 mm,	V4A (1.4404)	Ø 8 x 39 mm	w013	d154
BI2-EG08K-AP6X-H1341	male, M12 x 1	⎯◺, PNP	2 mm,	V4A (1.4404)	Ø 8 x 39 mm	w013	d154

Table continues on the next page…

… Table starts on previous page

Type	Connection	Output	Switching distance	Housing material	Dimensions	w	d
BI1,5U-EG08-AP6X-H1341	male, M12 x 1	_⌒, PNP	1.5 mm, ⫢	V4A (1.4404)	Ø 8 x 57 mm	w013	d027
BI1,5U-EGT08-AP6X-H1341	male, M12 x 1	_⌒, PNP	1.5 mm, ⫢	V2A (1.4301), PTFE-coated	Ø 8 x 57 mm	w013	d155
BI2U-EG08-AP6X-H1341	male, M12 x 1	_⌒, PNP	2 mm, ⫢	V4A (1.4404)	Ø 8 x 57 mm	w013	d027
BI2-EG08-AP6X-H1341	male, M12 x 1	_⌒, PNP	2 mm, ⫢	V4A (1.4404)	Ø 8 x 57 mm	w013	d027
BI2U-EGT08-AP6X-H1341	male, M12 x 1	_⌒, PNP	2 mm, ⫢	V2A (1.4301), PTFE-coated	Ø 8 x 57 mm	w013	d027
BI2U-EG08-RP6X-H1341	male, M12 x 1	⊣⌒, PNP	2 mm, ⫢	V4A (1.4404)	Ø 8 x 57 mm	w008	d027
BI1,5-EG08WD-AP6X-H1341	male, M12 x 1	_⌒, PNP	1.5 mm, ⫢	V4A (1.4404)	Ø 8 x 57 mm	w013	d027
BI1,5-EG08-AP6X-H1341	male, M12 x 1	_⌒, PNP	1.5 mm, ⫢	V4A (1.4404)	Ø 8 x 57 mm	w013	d027
NI3-EG08K-AP6X-H1341	male, M12 x 1	_⌒, PNP	3 mm, ⫢	V4A (1.4404)	Ø 8 x 39 mm	w013	d156
NI4U-EG08-AP6X-H1341	male, M12 x 1	_⌒, PNP	4 mm, ⫢	V4A (1.4404)	Ø 8 x 57 mm	w013	d157
NI6U-EG08-AP6X-H1341	male, M12 x 1	_⌒, PNP	6 mm, ⫢	V4A (1.4404)	Ø 8 x 57 mm	w013	d157
NI6U-EG08-RP6X-H1341	male, M12 x 1	⊣⌒, PNP	6 mm, ⫢	V4A (1.4404)	Ø 8 x 57 mm	w008	d157
NI3-EG08-AP6X-H1341	male, M12 x 1	_⌒, PNP	3 mm, ⫢	V4A (1.4404)	Ø 8 x 57 mm	w013	d158
BI1,5-EG08K-AP6X	2 m cable	_⌒, PNP	1.5 mm, ⫢	V4A (1.4404)	Ø 8 x 23.6 mm	w012	d159
BI2-EG08K-AP6X	2 m cable	_⌒, PNP	2 mm, ⫢	V4A (1.4404)	Ø 8 x 23.6 mm	w012	d159
BI1,5U-EG08-AP6X	2 m cable	_⌒, PNP	1.5 mm, ⫢	V4A (1.4404)	Ø 8 x 42 mm	w012	d148
BI2U-EG08-AP6X	2 m cable	_⌒, PNP	2 mm, ⫢	V4A (1.4404)	Ø 8 x 42 mm	w012	d148
BI2-EG08-AP6X	2 m cable	_⌒, PNP	2 mm, ⫢	V4A (1.4404)	Ø 8 x 42 mm	w012	d148
BI1,5-EG08-AP6X	2 m cable	_⌒, PNP	1.5 mm, ⫢	V4A (1.4404)	Ø 8 x 42 mm	w012	d148
NI3-EG08K-AP6X	2 m cable	_⌒, PNP	3 mm, ⫢	V4A (1.4404)	Ø 8 x 23.6 mm	w012	d160
NI4U-EG08-AP6X	2 m cable	_⌒, PNP	4 mm, ⫢	V4A (1.4404)	Ø 8 x 42 mm	w012	d161
NI6U-EG08-AP6X	2 m cable	_⌒, PNP	6 mm, ⫢	V4A (1.4404)	Ø 8 x 42 mm	w012	d161
NI3-EG08-AP6X	2 m cable	_⌒, PNP	3 mm, ⫢	V4A (1.4404)	Ø 8 x 41.6 mm	w012	d147

Many different types available, also as NPN version, see type code

M8 – 4-wire DC

General data

Connection	male, M12 x 1	**Operating voltage**	10…30 VDC
Output	⊣⌒, PNP	**Switching distance**	2 mm, ⫢
Housing material	V4A (1.4404)		

Types and data – selection table

Type	Dimensions	w	d
BI2-EG08-VP6X-H1341	Ø 8 x 57 mm	w005	d027
BI2-EG08K-VP6X-H1341	Ø 8 x 39 mm	w005	d154

Many different types available, also as NPN version, see type code

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

M8 – 2-wire AC/DC

General data

Connection	2 m cable	**Operating voltage**	20…132 VAC / 10…140 VDC
Output	⎯◝	**Switching distance**	2 mm, ⊣
Housing material	V4A (1.4404)	**Dimensions**	Ø 8 x 42 mm

Types and data – selection table

Type	w	d
BI2-EG08-AZ14X	w033	d148

M12 – NAMUR

General data

Operating voltage	8.2 VDC	**Output**	NAMUR

Types and data – selection table

Type	Connection	Switching distance	Housing material	Dimensions	w	d
NI5-EM12WDTC-Y1X	Terminal chamber, Removable cage clamp terminals	5 mm, ⊣	V4A (1.4404)	Ø 12 x 70 mm	w025	d162
BI2-EM12WDTC-Y1X	Terminal chamber, Removable cage clamp terminals	2 mm, ⊣	V4A (1.4404)	Ø 12 x 70 mm	w025	d163
BI2-G12SK-Y1X	Terminal chamber	2 mm, ⊣	CuZn-Cr	Ø 12 x 65 mm	w025	d164
BI2-EG12SK-Y1X	Terminal chamber	2 mm, ⊣	V2A (1.4301)	Ø 12 x 65 mm	w025	d164
BI2-P12SK-Y1X	Terminal chamber	2 mm, ⊣	PA	Ø 12 x 70 mm	w025	d165
NI5-P12SK-Y1X	Terminal chamber	5 mm, ⊣	PA	Ø 12 x 70 mm	w025	d165
NI5-G12SK-Y1X	Terminal chamber	5 mm, ⊣	CuZn-Cr	Ø 12 x 65 mm	w025	d166
NI5-EG12SK-Y1X	Terminal chamber	5 mm, ⊣	V2A (1.4301)	Ø 12 x 65 mm	w025	d166
NI5-G12-Y1X	2 m cable	5 mm, ⊣	CuZn-Cr	Ø 12 x 34 mm	w014	d167
BI2-P12-Y1X	2 m cable	2 mm, ⊣	PA	Ø 12 x 34 mm	w014	d168
NI5-P12-Y1X	2 m cable	5 mm, ⊣	PA	Ø 12 x 34 mm	w014	d168
BI2-G12-Y1X	2 m cable	2 mm, ⊣	CuZn-Cr	Ø 12 x 34 mm	w014	d169
BI2-M12-Y1X-H1141	male, M12 x 1	2 mm, ⊣	CuZn-Cr	Ø 12 x 52 mm	w017	d170
BI2-EM12-Y1X-H1141	male, M12 x 1	2 mm, ⊣	V2A (1.4301)	Ø 12 x 52 mm	w017	d170
NI5-M12-Y1X-H1141	male, M12 x 1	5 mm, ⊣	CuZn-Cr	Ø 12 x 52 mm	w017	d171
NI5-EM12-Y1X-H1141	male, M12 x 1	5 mm, ⊣	V2A (1.4301)	Ø 12 x 52 mm	w017	d171

M12 – 2-wire DC

General data

Operating voltage 10…65 VDC **Output** ⎓, 2-wire

Types and data – selection table

Type	Connection	Switching distance	Housing material	Dimensions	w	d
BI2-M12-AD4X-H1141	male, M12 x 1	2 mm,	CuZn-Cr	Ø 12 x 52 mm	w021	d170
BI2U-M12E-AD4X-H1144	male, M12 x 1	2 mm,	CuZn-Cr	Ø 12 x 62 mm	w018	d172
BI2U-MT12E-AD4X-H1144	male, M12 x 1	2 mm,	CuZn-T	Ø 12 x 62 mm	w018	d173
NI4-M12-AD4X-H1141	male, M12 x 1	4 mm,	CuZn-Cr	Ø 12 x 52 mm	w021	d171
NI8-M12-AD4X-H1141	male, M12 x 1	8 mm,	CuZn-Cr	Ø 12 x 52 mm	w021	d171
NI5U-M12E-AD4X-H1144	male, M12 x 1	5 mm,	CuZn-Cr	Ø 12 x 62 mm	w018	d174
NI5U-MT12E-AD4X-H1144	male, M12 x 1	5 mm,	CuZn-T	Ø 12 x 62 mm	w018	d175
BI3-G12K-AD4X	2 m cable	3 mm,	CuZn-Cr	Ø 12 x 34 mm	w034	d169
NI4-M12-AD4X	2 m cable	4 mm,	CuZn-Cr	Ø 12 x 54 mm	w034	d176
NI8-M12-AD4X	2 m cable	8 mm,	CuZn-Cr	Ø 12 x 54 mm	w034	d176
NI5U-M12E-AD4X	2 m cable	5 mm,	CuZn-Cr	Ø 12 x 64 mm	w034	d177
NI8-G12K-AD4X	2 m cable	8 mm,	CuZn-Cr	Ø 12 x 34 mm	w034	d167
BI2U-M12E-AD4X	2 m cable	2 mm,	CuZn-Cr	Ø 12 x 64 mm	w034	d178
BI2-S12-AD4X	2 m cable	2 mm,	PA	Ø 12 x 60 mm	w034	d179
NI4-S12-AD4X	2 m cable	4 mm,	PA	Ø 12 x 64 mm	w034	d179
BI2-M12-AD4X	2 m cable	2 mm,	CuZn-Cr	Ø 12 x 54 mm	w034	d180
BI3-M12-AD4X	2 m cable	3 mm,	CuZn-Cr	Ø 12 x 54 mm	w034	d180

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

M12 – 3-wire DC

General data

Operating voltage 10…30 VDC

Types and data – selection table

Type	Connection	Output	Switching distance	Housing material	Dimensions	w	d
NI8U-EG12SK-AP6X	Terminal chamber	_⌒_, PNP	8 mm, ⊐	V2A (1.4301)	Ø 12 x 75 mm	w022	d181
NI5-G12SK-AP6X	Terminal chamber	_⌒_, PNP	5 mm, ⊐	CuZn-Cr	Ø 12 x 75 mm	w022	d181
NI10U-EM12WDTC-AP6X	Terminal chamber, Removable cage clamp terminals	_⌒_, PNP	10 mm, ⊐	V4A (1.4404)	Ø 12 x 80 mm	w022	d182
BI3U-EG12SK-AP6X	Terminal chamber	_⌒_, PNP	3 mm, ⊐	V2A (1.4301)	Ø 12 x 75 mm	w022	d183
BI2-G12SK-AP6X	Terminal chamber	_⌒_, PNP	2 mm, ⊐	CuZn-Cr	Ø 12 x 75 mm	w022	d183
BI3U-P12SK-AP6X	Terminal chamber	_⌒_, PNP	3 mm, ⊐	PA	Ø 12 x 75 mm	w022	d184
NI8U-P12SK-AP6X	Terminal chamber	_⌒_, PNP	8 mm, ⊐	PA	Ø 12 x 75 mm	w022	d184
BI2-P12SK-AP6X	Terminal chamber	_⌒_, PNP	2 mm, ⊐	PA	Ø 12 x 75 mm	w022	d184
NI5-P12SK-AP6X	Terminal chamber	_⌒_, PNP	5 mm, ⊐	PA	Ø 12 x 75 mm	w022	d184
BI4U-EM12WDTC-AP6X	Terminal chamber, Removable cage clamp terminals	_⌒_, PNP	4 mm, ⊐	V4A (1.4404)	Ø 12 x 80 mm	w022	d185
BI4U-M12-AP6X-V1131	male, M8 x 1	_⌒_, PNP	4 mm, ⊐	CuZn-Cr	Ø 12 x 52 mm	w013	d186
NI10U-M12-AP6X-V1131	male, M8 x 1	_⌒_, PNP	10 mm, ⊐	CuZn-Cr	Ø 12 x 52 mm	w013	d039
NI10U-M12-AP6X	2 m cable	_⌒_, PNP	10 mm, ⊐	CuZn-Cr	Ø 12 x 54 mm	w012	d176
NI8U-M12-AP6X	2 m cable	_⌒_, PNP	8 mm, ⊐	CuZn-Cr	Ø 12 x 54 mm	w012	d176
NI8U-EM12-AP6X	2 m cable	_⌒_, PNP	8 mm, ⊐	V2A (1.4301)	Ø 12 x 54 mm	w012	d176
NI10U-EM12WD-AP6X	2 m cable	_⌒_, PNP	10 mm, ⊐	V4A (1.4404)	Ø 12 x 52 mm	w012	d187
NI5-G12K-AP6X	2 m cable	_⌒_, PNP	5 mm, ⊐	CuZn-Cr	Ø 12 x 34 mm	w012	d167
BI4U-EM12WD-AP6X	2 m cable	_⌒_, PNP	4 mm, ⊐	V4A (1.4404)	Ø 12 x 52 mm	w012	d188
BI3U-M12-AP6X	2 m cable	_⌒_, PNP	3 mm, ⊐	CuZn-Cr	Ø 12 x 54 mm	w012	d180
BI3U-EM12-AP6X	2 m cable	_⌒_, PNP	3 mm, ⊐	V2A (1.4301)	Ø 12 x 54 mm	w012	d180
BI4U-M12-AP6X	2 m cable	_⌒_, PNP	4 mm, ⊐	CuZn-Cr	Ø 12 x 54 mm	w012	d180
BI2-M12-AP6X	2 m cable	_⌒_, PNP	2 mm, ⊐	CuZn-Cr	Ø 12 x 54 mm	w012	d180
BI4-M12-AP6X	2 m cable	_⌒_, PNP	4 mm, ⊐	CuZn-Cr	Ø 12 x 54 mm	w012	d180
BI3U-S12-AP6X	2 m cable	_⌒_, PNP	3 mm, ⊐	PBT	Ø 12 x 54 mm	w012	d189
NI8U-S12-AP6X	2 m cable	_⌒_, PNP	8 mm, ⊐	PBT	Ø 12 x 54 mm	w012	d189
BI2-G12K-AP6X	2 m cable	_⌒_, PNP	2 mm, ⊐	CuZn-Cr	Ø 12 x 34 mm	w012	d169
BI4-G12K-AP6X	2 m cable	_⌒_, PNP	4 mm, ⊐	CuZn-Cr	Ø 12 x 34 mm	w012	d169
BI4-M12-AP6X 7M	7 m cable	_⌒_, PNP	4 mm, ⊐	CuZn-Cr	Ø 12 x 54 mm	w012	d180
BI2-G12K-AP6X-H1141	male, M12 x 1	_⌒_, PNP	2 mm, ⊐	CuZn-Cr	Ø 12 x 42 mm	w013	d190
BI3U-M12-AP6X-H1141	male, M12 x 1	_⌒_, PNP	3 mm, ⊐	CuZn-Cr	Ø 12 x 52 mm	w013	d170
BI3U-EM12-AP6X-H1141	male, M12 x 1	_⌒_, PNP	3 mm, ⊐	V2A (1.4301)	Ø 12 x 52 mm	w013	d170
BI4U-M12-AP6X-H1141	male, M12 x 1	_⌒_, PNP	4 mm, ⊐	CuZn-Cr	Ø 12 x 52 mm	w013	d170
BI4U-MT12-AP6X-H1141	male, M12 x 1	_⌒_, PNP	4 mm, ⊐	CuZn-T	Ø 12 x 52 mm	w013	d191
BI4U-EM12WD-AP6X-H1141	male, M12 x 1	_⌒_, PNP	4 mm, ⊐	V4A (1.4404)	Ø 12 x 52 mm	w013	d170
Bi4U-M12-RP6X-H1141	male, M12 x 1	⊣⌒_, PNP	4 mm, ⊐	CuZn-Cr	Ø 12 x 52 mm	w008	d170
BI2-M12-AP6X-H1141	male, M12 x 1	_⌒_, PNP	2 mm, ⊐	CuZn-Cr	Ø 12 x 52 mm	w013	d170
BI4-M12-AP6X-H1141	male, M12 x 1	_⌒_, PNP	4 mm, ⊐	CuZn-Cr	Ø 12 x 52 mm	w013	d170

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Type	Connection	Output	Switching distance	Housing material	Dimensions	w	d
BI3U-MT12-AP6X-H1141	male, M12 x 1	PNP	3 mm,	CuZn-T	Ø 12 x 52 mm	w013	d191
BI3U-S12-AP6X-H1141	male, M12 x 1	PNP	3 mm,	PBT	Ø 12 x 52 mm	w013	d192
NI8U-S12-AP6X-H1141	male, M12 x 1	PNP	8 mm,	PBT	Ø 12 x 52 mm	w013	d192
NI8U-M12EE-AP6X-H1141	male, M12 x 1	PNP	8 mm,	CuZn-Cr	Ø 12 x 72 mm	w013	d193
BI3U-M12EE-AP6X-H1141	male, M12 x 1	PNP	3 mm,	CuZn-Cr	Ø 12 x 72 mm	w013	d194
NI10U-M12-AP6X-H1141	male, M12 x 1	PNP	10 mm,	CuZn-Cr	Ø 12 x 52 mm	w013	d171
NI10U-MT12-AP6X-H1141	male, M12 x 1	PNP	10 mm,	CuZn-T	Ø 12 x 52 mm	w013	d195
NI10U-EM12WD-AP6X-H1141	male, M12 x 1	PNP	10 mm,	V4A (1.4404)	Ø 12 x 52 mm	w013	d196
NI10U-M12-RP6X-H1141	male, M12 x 1	PNP	10 mm,	CuZn-Cr	Ø 12 x 52 mm	w008	d171
NI10U-EM12WD-AP6X-H1141/3GD	male, M12 x 1	PNP	10 mm,	V4A (1.4404)	Ø 12 x 52 mm	w013	d196
NI8U-M12-AP6X-H1141	male, M12 x 1	PNP	8 mm,	CuZn-Cr	Ø 12 x 52 mm	w013	d171
NI8U-MT12-AP6X-H1141	male, M12 x 1	PNP	8 mm,	CuZn-T	Ø 12 x 52 mm	w013	d195
NI8U-EM12-AP6X-H1141	male, M12 x 1	PNP	8 mm,	V2A (1.4301)	Ø 12 x 52 mm	w013	d171
BI4U-EM12WD-AP6X-H1141/3GD	male, M12 x 1	PNP	4 mm,	V4A (1.4404)	Ø 12 x 52 mm	w013	d170
NI8-M12-AP6X-H1141	male, M12 x 1	PNP	8 mm,	CuZn-Cr	Ø 12 x 52 mm	w013	d171
NI10U-M12E-AP6X-H1141	male, M12 x 1	PNP	10 mm,	CuZn-Cr	Ø 12 x 62 mm	w013	d174

Many different types available, also as NPN version, see type code

M12 – 4-wire DC

General data

Output PNP **Housing material** CuZn-Cr

Types and data – selection table

Type	Connection	Operating voltage	Switching distance	Dimensions	w	d
NI10U-M12E-VP44X	2 m cable	10…55 VDC	10 mm,	Ø 12 x 64 mm	w010	d177
BI4U-M12E-VP44X	2 m cable	10…55 VDC	4 mm,	Ø 12 x 64 mm	w010	d178
BI4-M12-VP6X	2 m cable	10…30 VDC	4 mm,	Ø 12 x 54 mm	w010	d180
BI4-M12-VP6X 7M	7 m cable	10…30 VDC	4 mm,	Ø 12 x 54 mm	w010	d180
NI8-M12-VP6X 7M	7 m cable	10…30 VDC	8 mm,	Ø 12 x 54 mm	w010	d176
BI3U-M12E-VP4X-H1141	male, M12 x 1	10…65 VDC	3 mm,	Ø 12 x 62 mm	w005	d172
BI4U-M12E-VP44X-H1141	male, M12 x 1	10…55 VDC	4 mm,	Ø 12 x 62 mm	w035	d172
BI4U-M12-VP44X-H1141 L80	male, M12 x 1	10…55 VDC	4 mm,	Ø 12 x 80 mm	w035	d197
BI4U-M12-VP44X-H1141 L100	male, M12 x 1	10…55 VDC	4 mm,	Ø 12 x 100 mm	w035	d198
NI10U-M12E-VP44X-H1141	male, M12 x 1	10…55 VDC	10 mm,	Ø 12 x 62 mm	w035	d174
NI8U-M12E-VP4X-H1141	male, M12 x 1	10…65 VDC	8 mm,	Ø 12 x 62 mm	w005	d174
NI8-M12-VP6X-H1141	male, M12 x 1	10…30 VDC	8 mm,	Ø 12 x 52 mm	w005	d171
BI4-M12-VP6X-H1141	male, M12 x 1	10…30 VDC	4 mm,	Ø 12 x 52 mm	w005	d170

Many different types available, also as NPN version, see type code

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M12 – 2-wire AC/DC

General data

Operating voltage 20…250 VAC / 10… 300 VDC **Output**

Types and data – selection table

Type	Connection	Switching distance	Housing material	Dimensions	w	d
BI2U-G12-ADZ32X-B3131	male, 1/2"	2 mm,	CuZn-Cr	Ø 12 x 71 mm	w036	d199
NI8U-G12-ADZ32X-B3131	male, 1/2"	8 mm,	CuZn-Cr	Ø 12 x 71 mm	w036	d200
BI2-S12-AZ31X	2 m cable	2 mm,	PA	Ø 12 x 60 mm	w015	d179
NI4-S12-AZ31X	2 m cable	4 mm,	PA	Ø 12 x 64 mm	w015	d179
BI2-M12-AZ31X	2 m cable	2 mm,	CuZn-Cr	Ø 12 x 64 mm	w015	d178
NI4-M12-AZ31X	2 m cable	4 mm,	CuZn-Cr	Ø 12 x 64 mm	w015	d201

M18 – NAMUR

General data

Operating voltage 8.2 VDC **Output** NAMUR

Types and data – selection table

Type	Connection	Switching distance	Housing material	Dimensions	w	d
BI5-M18-Y1X-H1141	male, M12 x 1	5 mm,	CuZn-Cr	Ø 18 x 52 mm	w017	d202
BI5-EM18-Y1X-H1141	male, M12 x 1	5 mm,	V2A (1.4305)	Ø 18 x 52 mm	w017	d202
NI10-M18-Y1X-H1141	male, M12 x 1	10 mm,	CuZn-Cr	Ø 18 x 52 mm	w017	d203
NI10-EM18-Y1X-H1141	male, M12 x 1	10 mm,	V2A (1.4301)	Ø 18 x 52 mm	w017	d203
BI5-P18-Y1X	2 m cable	5 mm,	PA	Ø 18 x 34 mm	w014	d204
NI10-P18-Y1X	2 m cable	10 mm,	PA	Ø 18 x 34 mm	w014	d204
BI5-G18-Y1X	2 m cable	5 mm,	CuZn-Cr	Ø 18 x 34 mm	w014	d205
NI10-G18-Y1X	2 m cable	10 mm,	CuZn-Cr	Ø 18 x 34 mm	w014	d206
NI14-G18-Y1X	2 m cable	14 mm,	CuZn-Cr	Ø 18 x 34 mm	w014	d206
BI5-EM18WDTC-Y1X	Terminal chamber, Removable cage clamp terminals	5 mm,	V4A (1.4404)	Ø 18 x 71 mm	w025	d207
NI10-EM18WDTC-Y1X	Terminal chamber, Removable cage clamp terminals	10 mm,	V4A (1.4404)	Ø 18 x 71 mm	w025	d208

Table continues on the next page…

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Type	Connection	Switching distance	Housing material	Dimensions	w	d
BI5-G18SK-Y1X	Terminal chamber	5 mm,	CuZn-Cr	Ø 18 x 67 mm	w025	d209
BI5-EG18SK-Y1X	Terminal chamber	5 mm,	V2A (1.4301)	Ø 18 x 67 mm	w025	d209
NI10-P18SK-Y1X	Terminal chamber	10 mm,	PA	Ø 18 x 67 mm	w025	d210
NI10-EG18SK-Y1X	Terminal chamber	10 mm,	V2A (1.4301)	Ø 18 x 67 mm	w025	d211
BI5-P18SK-Y1X	Terminal chamber	5 mm,	PA	Ø 18 x 67 mm	w025	d210
NI10-G18SK-Y1X	Terminal chamber	10 mm,	CuZn-Cr	Ø 18 x 67 mm	w025	d211

M18 – 2-wire DC

General data

Operating voltage 10…65 VDC **Output** , 2-wire

Types and data – selection table

Type	Connection	Switching distance	Housing material	Dimensions	w	d
BI5-M18-AD4X-H1141	male, M12 x 1	5 mm,	CuZn-Cr	Ø 18 x 52 mm	w021	d202
BI7-M18-AD4X-H1141	male, M12 x 1	7 mm,	CuZn-Cr	Ø 18 x 52 mm	w021	d202
BI5U-M18M-AD4X-H1144	male, M12 x 1	5 mm,	CuZn-Cr	Ø 18 x 61.5 mm	w018	d212
BI5U-MT18M-AD4X-H1144	male, M12 x 1	5 mm,	CuZn-T	Ø 18 x 61.5 mm	w018	d212
NI10U-M18M-AD4X-H1144	male, M12 x 1	10 mm,	CuZn-Cr	Ø 18 x 61.5 mm	w018	d213
NI10U-MT18M-AD4X-H1144	male, M12 x 1	10 mm,	CuZn-T	Ø 18 x 61.5 mm	w018	d214
NI8-M18-AD4X-H1141	male, M12 x 1	8 mm,	CuZn-Cr	Ø 18 x 52 mm	w021	d203
BI7-G18K-AD4X	2 m cable	7 mm,	CuZn-Cr	Ø 18 x 34 mm	w034	d205
BI5-M18-AD4X	2 m cable	5 mm,	CuZn-Cr	Ø 18 x 54 mm	w034	d215
BI7-M18-AD4X	2 m cable	7 mm,	CuZn-Cr	Ø 18 x 54 mm	w034	d215
NI10U-M18M-AD4X	2 m cable	10 mm,	CuZn-Cr	Ø 18 x 64 mm	w034	d216
BI5-S18-AD4X	2 m cable	5 mm,	PA	Ø 18 x 64 mm	w034	d217
NI8-S18-AD4X	2 m cable	8 mm,	PA	Ø 18 x 64 mm	w034	d217
NI8-M18-AD4X	2 m cable	8 mm,	CuZn-Cr	Ø 18 x 54 mm	w034	d218

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M18 – 3-wire DC

General data

Operating voltage 10…30 VDC

Types and data – selection table

Type	Connection	Output	Switching distance	Housing material	Dimensions	w	d
BI5-G18KK-AP6-H1141	male, M12 x 1	_⌐¯_, PNP	5 mm, ⊢	CuZn-Cr	Ø 18 x 30 mm	w013	d219
BI8-M18K-AP6X-H1141	male, M12 x 1	_⌐¯_, PNP	8 mm, ⊢	CuZn-Cr	Ø 18 x 46 mm	w013	d220
BI5U-M18-AP6X-H1141	male, M12 x 1	_⌐¯_, PNP	5 mm, ⊢	CuZn-Cr	Ø 18 x 52 mm	w013	d202
BI8U-M18-AP6X-H1141	male, M12 x 1	_⌐¯_, PNP	8 mm, ⊢	CuZn-Cr	Ø 18 x 52 mm	w013	d202
BI8U-M18-RP6X-H1141	male, M12 x 1	⊣⌐¯_, PNP	8 mm, ⊢	CuZn-Cr	Ø 18 x 52 mm	w008	d202
BI8-M18-AP6X-H1141	male, M12 x 1	_⌐¯_, PNP	8 mm, ⊢	CuZn-Cr	Ø 18 x 52 mm	w013	d202
BI5-M18-AP6X-H1141	male, M12 x 1	_⌐¯_, PNP	5 mm, ⊢	CuZn-Cr	Ø 18 x 52 mm	w013	d202
BI8U-MT18-AP6X-H1141	male, M12 x 1	_⌐¯_, PNP	8 mm, ⊢	CuZn-T	Ø 18 x 52 mm	w013	d221
BI8U-EM18WD-AP6X-H1141	male, M12 x 1	_⌐¯_, PNP	8 mm, ⊢	V4A (1.4404)	Ø 18 x 52 mm	w013	d202
BI8U-EM18WD-AP6X-H1141/3GD	male, M12 x 1	_⌐¯_, PNP	8 mm, ⊢	V4A (1.4404)	Ø 18 x 52 mm	w013	d202
BI5U-EM18-AP6X-H1141	male, M12 x 1	_⌐¯_, PNP	5 mm, ⊢	V2A (1.4301)	Ø 18 x 52 mm	w013	d202
BI5U-MT18-AP6X-H1141	male, M12 x 1	_⌐¯_, PNP	5 mm, ⊢	CuZn-T	Ø 18 x 52 mm	w013	d221
BI5U-S18-AP6X-H1141	male, M12 x 1	_⌐¯_, PNP	5 mm, ⊢	PBT	Ø 18 x 52 mm	w013	d222
NI12U-S18-AP6X-H1141	male, M12 x 1	_⌐¯_, PNP	12 mm, ⊢	PBT	Ø 18 x 52 mm	w013	d222
BI8U-MT18E-AP6X-H1141	male, M12 x 1	_⌐¯_, PNP	8 mm, ⊢	CuZn-T	Ø 18 x 72 mm	w013	d223
BI5U-MT18E-AP6X-H1141	male, M12 x 1	_⌐¯_, PNP	5 mm, ⊢	CuZn-T	Ø 18 x 72 mm	w013	d223
NI12U-EM18-AP6X-H1141	male, M12 x 1	_⌐¯_, PNP	12 mm, ⊢	V2A (1.4301)	Ø 18 x 52 mm	w013	d203
NI12U-MT18-AP6X-H1141	male, M12 x 1	_⌐¯_, PNP	12 mm, ⊢	CuZn-T	Ø 18 x 52 mm	w013	d224
NI12U-M18-AP6X-H1141	male, M12 x 1	_⌐¯_, PNP	12 mm, ⊢	CuZn-Cr	Ø 18 x 52 mm	w013	d203
NI15U-M18-RP6X-H1141	male, M12 x 1	⊣⌐¯_, PNP	15 mm, ⊢	CuZn-Cr	Ø 18 x 52 mm	w008	d203
NI15U-MT18-AP6X-H1141	male, M12 x 1	_⌐¯_, PNP	15 mm, ⊢	CuZn-T	Ø 18 x 52 mm	w013	d224
NI15U-M18-AP6X-H1141	male, M12 x 1	_⌐¯_, PNP	15 mm, ⊢	CuZn-Cr	Ø 18 x 52 mm	w013	d203
NI15U-EM18WD-AP6X-H1141/3GD	male, M12 x 1	_⌐¯_, PNP	15 mm, ⊢	V4A (1.4404)	Ø 18 x 52 mm	w013	d225
NI15U-EM18WD-AP6X-H1141	male, M12 x 1	_⌐¯_, PNP	15 mm, ⊢	V4A (1.4404)	Ø 18 x 52 mm	w013	d225
NI12U-M18E-AP6X-H1141	male, M12 x 1	_⌐¯_, PNP	12 mm, ⊢	CuZn-Cr	Ø 18 x 72 mm	w013	d226
BI8U-M18E-AP6X-H1141	male, M12 x 1	_⌐¯_, PNP	8 mm, ⊢	CuZn-Cr	Ø 18 x 72 mm	w013	d223
NI14-M18-AP6X-H1141	male, M12 x 1	_⌐¯_, PNP	14 mm, ⊢	CuZn-Cr	Ø 18 x 52 mm	w013	d203
BI5-G18K-AP6X	2 m cable	_⌐¯_, PNP	5 mm, ⊢	CuZn-Cr	Ø 18 x 34 mm	w012	d205
BI5U-M18-AP6X	2 m cable	_⌐¯_, PNP	5 mm, ⊢	CuZn-Cr	Ø 18 x 54 mm	w012	d215
BI8U-M18-AP6X	2 m cable	_⌐¯_, PNP	8 mm, ⊢	CuZn-Cr	Ø 18 x 54 mm	w012	d215
BI5-M18-AP6X	2 m cable	_⌐¯_, PNP	5 mm, ⊢	CuZn-Cr	Ø 18 x 54 mm	w012	d215
BI5U-EM18-AP6X	2 m cable	_⌐¯_, PNP	5 mm, ⊢	V2A (1.4301)	Ø 18 x 54 mm	w012	d215
BI8U-EM18WD-AP6X	2 m cable	_⌐¯_, PNP	8 mm, ⊢	V4A (1.4404)	Ø 18 x 52 mm	w012	d227
BI5U-S18-AP6X	2 m cable	_⌐¯_, PNP	5 mm, ⊢	PBT	Ø 18 x 64 mm	w012	d217
NI12U-S18-AP6X	2 m cable	_⌐¯_, PNP	12 mm, ⊢	PBT	Ø 18 x 64 mm	w012	d217
NI10-G18K-AP6X	2 m cable	_⌐¯_, PNP	10 mm, ⊢	CuZn-Cr	Ø 18 x 34 mm	w012	d206

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Type	Connection	Output	Switching distance	Housing material	Dimensions	w	d
NI15U-EM18WD-AP6X	2 m cable	PNP	15 mm	V4A (1.4404)	Ø 18 x 52 mm	w012	d228
NI15U-M18-AP6X	2 m cable	PNP	15 mm	CuZn-Cr	Ø 18 x 54 mm	w012	d218
NI12U-M18-AP6X	2 m cable	PNP	12 mm	CuZn-Cr	Ø 18 x 54 mm	w012	d218
NI12U-EM18-AP6X	2 m cable	PNP	12 mm	V2A (1.4301)	Ø 18 x 54 mm	w012	d229
BI8-M18-AP6X	2 m cable	PNP	8 mm	CuZn-Cr	Ø 18 x 54 mm	w012	d215
BI8-M18-AP6X 7M	7 m cable	PNP	8 mm	CuZn-Cr	Ø 18 x 54 mm	w012	d215
NI15U-EM18WDTC-AP6X	Terminal chamber, Removable cage clamp terminals	PNP	15 mm	V4A (1.4404)	Ø 18 x 81 mm	w022	d230
BI5-G18SK-AP6X	Terminal chamber	PNP	5 mm	CuZn-Cr	Ø 18 x 77 mm	w022	d231
BI5U-EG18SK-AP6X	Terminal chamber	PNP	5 mm	V2A (1.4301)	Ø 18 x 77 mm	w022	d231
BI5U-P18SK-AP6X	Terminal chamber	PNP	5 mm	PBT	Ø 18 x 77 mm	w022	d232
NI12U-P18SK-AP6X	Terminal chamber	PNP	12 mm	PBT	Ø 18 x 77 mm	w022	d232
BI5-P18SK-AP6X	Terminal chamber	PNP	5 mm	PA	Ø 18 x 77 mm	w022	d232
NI10-P18SK-AP6X	Terminal chamber	PNP	10 mm	PA	Ø 18 x 77 mm	w022	d232
BI8U-EM18WDTC-AP6X	Terminal chamber, Removable cage clamp terminals	PNP	8 mm	V4A (1.4404)	Ø 18 x 81 mm	w022	d233
NI10-G18SK-AP6X	Terminal chamber	PNP	10 mm	CuZn-Cr	Ø 18 x 77 mm	w022	d234
NI12U-EG18SK-AP6X	Terminal chamber	PNP	12 mm	V2A (1.4301)	Ø 18 x 77 mm	w022	d234

Many different types available, also as NPN version, see type code

M18 – 4-wire DC

General data

Output PNP **Housing material** CuZn-Cr

Types and data – selection table

Type	Connection	Operating voltage	Switching distance	Dimensions	w	d
BI8U-M18M-VP44X-H1141	male, M12 x 1	10…55 VDC	8 mm	Ø 18 x 61.5 mm	w035	d212
NI15U-M18M-VP44X-H1141	male, M12 x 1	10…55 VDC	15 mm	Ø 18 x 61.5 mm	w035	d213
NI14-M18-VP6X-H1141	male, M12 x 1	10…30 VDC	14 mm	Ø 18 x 52 mm	w005	d203
BI8-M18-VP6X-H1141	male, M12 x 1	10…30 VDC	8 mm	Ø 18 x 52 mm	w005	d202
BI8U-M18M-VP44X	2 m cable	10…55 VDC	8 mm	Ø 18 x 64 mm	w010	d235
NI15U-M18M-VP44X	2 m cable	10…55 VDC	15 mm	Ø 18 x 64 mm	w010	d216
NI14-M18-VP6X 7M	7 m cable	10…30 VDC	14 mm	Ø 18 x 54 mm	w010	d218
BI8-M18-VP6X 7M	7 m cable	10…30 VDC	8 mm	Ø 18 x 54 mm	w010	d215
BI8-M18-VP6X	2 m cable	10…30 VDC	8 mm	Ø 18 x 54 mm	w010	d215

Many different types available, also as NPN version, see type code

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M18 – 2-wire AC/DC

General data

Operating voltage 20…250 VAC / 10… 300 VDC **Output**

Types and data – selection table

Type	Connection	Switching distance	Housing material	Dimensions	w	d
BI5-M18-AZ3X	2 m cable	5 mm,	CuZn-Cr	Ø 18 x 64 mm	w028	d235
BI5U-M18-ADZ30X2	2 m cable	5 mm,	CuZn-Cr	Ø 18 x 64 mm	w028	d236
NI8-P18-AZ3/S139-S90	2 m cable	8 mm,	POM	Ø 18 x 80 mm	w028	d237
BI5-P18-AZ3/S139-S90	2 m cable	5 mm,	POM	Ø 18 x 80 mm	w028	d237
BI5-S18-AZ3X	2 m cable	5 mm,	PA	Ø 18 x 64 mm	w028	d217
NI8-S18-AZ3X	2 m cable	8 mm,	PA	Ø 18 x 64 mm	w028	d217
NI12U-M18-ADZ30X2	2 m cable	12 mm,	CuZn-Cr	Ø 18 x 65 mm	w028	d238
NI8-M18-AZ3X	2 m cable	8 mm,	CuZn-Cr	Ø 18 x 64 mm	w033	d216
BI5U-G18-ADZ30X2-B1331	male, 7/8"	5 mm,	CuZn-Cr	Ø 18 x 82 mm	w027	d239
NI12U-G18-ADZ30X2-B1331	male, 7/8"	12 mm,	CuZn-Cr	Ø 18 x 82 mm	w027	d240
BI5U-G18-ADZ30X2-B3331	male, 1/2"	5 mm,	CuZn-Cr	Ø 18 x 82 mm	w027	d241
NI12U-G18-ADZ30X2-B3331	male, 1/2"	12 mm,	CuZn-Cr	Ø 18 x 82 mm	w027	d242

M30 – NAMUR

General data

Operating voltage 8.2 VDC **Output** NAMUR

Types and data – selection table

Type	Connection	Switching distance	Housing material	Dimensions	w	d
BI10-EM30-Y1X-H1141	male, M12 x 1	10 mm,	V2A (1.4301)	Ø 30 x 62 mm	w017	d243
BI10-M30-Y1X-H1141	male, M12 x 1	10 mm,	CuZn-Cr	Ø 30 x 62 mm	w017	d243
NI15-EM30-Y1X-H1141	male, M12 x 1	15 mm,	V2A (1.4301)	Ø 30 x 62 mm	w017	d244
NI15-M30-Y1X-H1141	male, M12 x 1	15 mm,	CuZn-Cr	Ø 30 x 62 mm	w017	d244
BI10-P30-Y1X	2 m cable	10 mm,	PA	Ø 30 x 44 mm	w014	d245
NI15-P30-Y1X	2 m cable	15 mm,	PA	Ø 30 x 44 mm	w014	d245
BI10-G30-Y1X	2 m cable	10 mm,	CuZn-Cr	Ø 30 x 44 mm	w014	d246

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Type	Connection	Switching distance	Housing material	Dimensions	w	d
NI15-G30-Y1X	2 m cable	15 mm,	CuZn-Cr	Ø 30 x 44 mm	w014	d247
BI10-P30SK-Y1X	Terminal chamber	10 mm,	PA	Ø 30 x 72 mm	w025	d248
NI15-P30SK-Y1X	Terminal chamber	15 mm,	PA	Ø 30 x 72 mm	w025	d248
BI10-EG30SK-Y1X	Terminal chamber	10 mm,	V2A (1.4301)	Ø 30 x 72 mm	w025	d249
BI10-G30SK-Y1X	Terminal chamber	10 mm,	CuZn-Cr	Ø 30 x 72 mm	w025	d249
NI15-EG30SK-Y1X	Terminal chamber	15 mm,	V2A (1.4301)	Ø 30 x 72 mm	w025	d250
NI15-G30SK-Y1X	Terminal chamber	15 mm,	CuZn-Cr	Ø 30 x 72 mm	w025	d250
BI10-EM30WDTC-Y1X	Terminal chamber, Removable cage clamp terminals	10 mm,	V4A (1.4404)	Ø 30 x 80 mm	w025	d251
NI15-EM30WDTC-Y1X	Terminal chamber, Removable cage clamp terminals	15 mm,	V4A (1.4404)	Ø 30 x 80 mm	w025	d252

M30 – 2-wire DC

General data

Operating voltage 10…65 VDC **Output** , 2-wire

Types and data – selection table

Type	Connection	Switching distance	Housing material	Dimensions	w	d
BI10-M30-AD4X-H1141	male, M12 x 1	10 mm,	CuZn-Cr	Ø 30 x 62 mm	w021	d243
BI10U-M30-AD4X-H1144	male, M12 x 1	10 mm,	CuZn-Cr	Ø 30 x 62 mm	w018	d243
BI10U-MT30-AD4X-H1144	male, M12 x 1	10 mm,	CuZn-T	Ø 30 x 62 mm	w018	d064
NI15-M30-AD4X-H1141	male, M12 x 1	15 mm,	CuZn-Cr	Ø 30 x 62 mm	w021	d244
NI15U-M30-AD4X-H1144	male, M12 x 1	15 mm,	CuZn-Cr	Ø 30 x 62 mm	w018	d244
NI15U-MT30-AD4X-H1144	male, M12 x 1	15 mm,	CuZn-T	Ø 30 x 62 mm	w018	d253
NI20-M30-AD4X-H1141	male, M12 x 1	20 mm,	CuZn-Cr	Ø 30 x 62 mm	w021	d244
BI12-G30K-AD4X	2 m cable	12 mm,	CuZn-Cr	Ø 30 x 44 mm	w034	d246
BI10-S30-AD4X	2 m cable	10 mm,	PA	Ø 30 x 64 mm	w034	d254
NI15-S30-AD4X	2 m cable	15 mm,	PA	Ø 30 x 64 mm	w034	d254
BI10-M30-AD4X	2 m cable	10 mm,	CuZn-Cr	Ø 30 x 64 mm	w034	d255
BI10U-M30-AD4X	2 m cable	10 mm,	CuZn-Cr	Ø 30 x 64 mm	w034	d255
NI20-G30K-AD4X	2 m cable	20 mm,	CuZn-Cr	Ø 30 x 44 mm	w034	d247
NI15-M30-AD4X	2 m cable	15 mm,	CuZn-Cr	Ø 30 x 64 mm	w034	d256
NI20-M30-AD4X	2 m cable	20 mm,	CuZn-Cr	Ø 30 x 64 mm	w034	d256
NI15U-M30-AD4X	2 m cable	15 mm,	CuZn-Cr	Ø 30 x 64 mm	w034	d256

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

M30 – 3-wire DC

General data

Operating voltage 10…30 VDC

Types and data – selection table

Type	Connection	Output	Switching distance	Housing material	Dimensions	w	d
Bi15U-M30-RP6X-H1141	male, M12 x 1	⊣⌐, PNP	15 mm,	CuZn-Cr	Ø 30 x 62 mm	w008	d243
BI15U-M30-AP6X-H1141	male, M12 x 1	_⌐, PNP	15 mm,	CuZn-Cr	Ø 30 x 62 mm	w013	d243
BI15U-MT30-AP6X-H1141	male, M12 x 1	_⌐, PNP	15 mm,	CuZn-T	Ø 30 x 62 mm	w013	d064
BI15U-EM30WD-AP6X-H1141	male, M12 x 1	_⌐, PNP	15 mm,	V4A (1.4404)	Ø 30 x 62 mm	w013	d243
BI15U-EM30WD-AP6X-H1141/3GD	male, M12 x 1	_⌐, PNP	15 mm,	V4A (1.4404)	Ø 30 x 62 mm	w013	d243
BI10-M30-AP6X-H1141	male, M12 x 1	_⌐, PNP	10 mm,	CuZn-Cr	Ø 30 x 62 mm	w013	d243
BI10U-M30-AP6X-H1141	male, M12 x 1	_⌐, PNP	10 mm,	CuZn-Cr	Ø 30 x 62 mm	w013	d243
BI10U-EM30-AP6X-H1141	male, M12 x 1	_⌐, PNP	10 mm,	V2A (1.4301)	Ø 30 x 62 mm	w013	d243
BI10U-MT30-AP6X-H1141	male, M12 x 1	_⌐, PNP	10 mm,	CuZn-T	Ø 30 x 62 mm	w013	d064
BI15-M30-AP6X-H1141	male, M12 x 1	_⌐, PNP	15 mm,	CuZn-Cr	Ø 30 x 62 mm	w013	d243
BI10U-S30-AP6X-H1141	male, M12 x 1	_⌐, PNP	10 mm,	PBT	Ø 30 x 62 mm	w013	d257
NI20U-S30-AP6X-H1141	male, M12 x 1	_⌐, PNP	20 mm,	PBT	Ø 30 x 62 mm	w013	d257
NI30U-M30-RP6X-H1141	male, M12 x 1	⊣⌐, PNP	30 mm,	CuZn-Cr	Ø 30 x 62 mm	w008	d244
NI30U-M30-AP6X-H1141	male, M12 x 1	_⌐, PNP	30 mm,	CuZn-Cr	Ø 30 x 62 mm	w013	d244
NI30U-MT30-AP6X-H1141	male, M12 x 1	_⌐, PNP	30 mm,	CuZn-T	Ø 30 x 62 mm	w013	d253
NI30U-EM30WD-AP6X-H1141/3GD	male, M12 x 1	_⌐, PNP	30 mm,	V4A (1.4404)	Ø 30 x 62 mm	w013	d258
NI20U-M30-AP6X-H1141	male, M12 x 1	_⌐, PNP	20 mm,	CuZn-Cr	Ø 30 x 62 mm	w013	d244
NI20U-EM30-AP6X-H1141	male, M12 x 1	_⌐, PNP	20 mm,	V2A (1.4301)	Ø 30 x 62 mm	w013	d244
NI20U-MT30-AP6X-H1141	male, M12 x 1	_⌐, PNP	20 mm,	CuZn-T	Ø 30 x 62 mm	w013	d253
NI20-M30-AP6X-H1141	male, M12 x 1	_⌐, PNP	20 mm,	CuZn-Cr	Ø 30 x 62 mm	w013	d244
BI10-G30K-AP6X	2 m cable	_⌐, PNP	10 mm,	CuZn-Cr	Ø 30 x 44 mm	w012	d246
BI10U-S30-AP6X	2 m cable	_⌐, PNP	10 mm,	PA	Ø 30 x 64 mm	w012	d254
NI20U-S30-AP6X	2 m cable	_⌐, PNP	20 mm,	PA	Ø 30 x 64 mm	w012	d254
BI15U-M30-AP6X	2 m cable	_⌐, PNP	15 mm,	CuZn-Cr	Ø 30 x 64 mm	w012	d255
BI10-M30-AP6X	2 m cable	_⌐, PNP	10 mm,	CuZn-Cr	Ø 30 x 64 mm	w012	d255
BI10U-EM30-AP6X	2 m cable	_⌐, PNP	10 mm,	V2A (1.4301)	Ø 30 x 64 mm	w012	d255
BI10U-M30-AP6X	2 m cable	_⌐, PNP	10 mm,	CuZn-Cr	Ø 30 x 64 mm	w012	d259
BI15U-EM30WD-AP6X	2 m cable	_⌐, PNP	15 mm,	V4A (1.4404)	Ø 30 x 66 mm	w012	d260
NI30U-M30-AP6X	2 m cable	_⌐, PNP	30 mm,	CuZn-Cr	Ø 30 x 64 mm	w012	d256
NI20U-M30-AP6X	2 m cable	_⌐, PNP	20 mm,	CuZn-Cr	Ø 30 x 64 mm	w012	d256
NI20U-EM30-AP6X	2 m cable	_⌐, PNP	20 mm,	V2A (1.4301)	Ø 30 x 64 mm	w012	d256
BI15-M30-AP6X	2 m cable	_⌐, PNP	15 mm,	CuZn-Cr	Ø 30 x 64 mm	w012	d255
BI15-M30-AP6X 7M	7 m cable	_⌐, PNP	15 mm,	CuZn-Cr	Ø 30 x 64 mm	w012	d255
BI10-G30SK-AP6X	Terminal chamber	_⌐, PNP	10 mm,	CuZn-Cr	Ø 30 x 87 mm	w022	d261
BI10U-EG30SK-AP6X	Terminal chamber	_⌐, PNP	10 mm,	V2A (1.4301)	Ø 30 x 87 mm	w022	d261
NI20U-EG30SK-AP6X	Terminal chamber	_⌐, PNP	20 mm,	V2A (1.4301)	Ø 30 x 87 mm	w022	d262
BI10-P30SK-AP6X	Terminal chamber	_⌐, PNP	10 mm,	PA	Ø 30 x 87 mm	w022	d263

Table continues on the next page…

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Type	Connection	Output	Switching distance	Housing material	Dimensions	w	d
BI10U-P30SK-AP6X	Terminal chamber	, PNP	10 mm,	PA	Ø 30 x 87 mm	w022	d263
NI15-P30SK-AP6X	Terminal chamber	, PNP	15 mm,	PA	Ø 30 x 87 mm	w022	d263
NI20U-P30SK-AP6X	Terminal chamber	, PNP	20 mm,	PA	Ø 30 x 87 mm	w022	d263
BI15U-EM30WDTC-AP6X	Terminal chamber, Removable cage clamp terminals	, PNP	15 mm,	V4A (1.4404)	Ø 30 x 95 mm	w022	d264
BI10-P30SR-AP6X	Terminal chamber	, PNP	10 mm,	ABS	Ø 30 x 115 mm	w022	d265
NI15-P30SR-AP6X	Terminal chamber	, PNP	15 mm,	ABS	Ø 30 x 115 mm	w022	d265
NI15-G30SK-AP6X	Terminal chamber	, PNP	15 mm,	CuZn-Cr	Ø 30 x 87 mm	w022	d262
NI30U-EM30WDTC-AP6X	Terminal chamber, Removable cage clamp terminals	, PNP	30 mm,	V4A (1.4404)	Ø 30 x 95 mm	w022	d266

Many different types available, also as NPN version, see type code

M30 – 4-wire DC

General data

Output , PNP

Housing material CuZn-Cr

Types and data – selection table

Type	Connection	Operating voltage	Switching distance	Dimensions	w	d
BI15U-M30-VP44X-H1141	male, M12 x 1	10…55 VDC	15 mm,	Ø 30 x 62 mm	w035	d243
NI30U-M30-VP44X-H1141	male, M12 x 1	10…55 VDC	30 mm,	Ø 30 x 62 mm	w035	d244
NI20-M30-VP6X-H1141	male, M12 x 1	10…30 VDC	20 mm,	Ø 30 x 62 mm	w005	d244
BI15-M30-VP6X-H1141	male, M12 x 1	10…30 VDC	15 mm,	Ø 30 x 62 mm	w005	d243
BI15U-M30-VP44X	2 m cable	10…55 VDC	15 mm,	Ø 30 x 64 mm	w010	d255
NI30U-M30-VP44X	2 m cable	10…55 VDC	30 mm,	Ø 30 x 64 mm	w010	d256
NI20-M30-VP6X 7M	7 m cable	10…30 VDC	20 mm,	Ø 30 x 64 mm	w010	d256
BI15-M30-VP6X 7M	7 m cable	10…30 VDC	15 mm,	Ø 30 x 64 mm	w010	d255
BI15-M30-VP6X	2 m cable	10…30 VDC	15 mm,	Ø 30 x 64 mm	w010	d255

Many different types available, also as NPN version, see type code

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

M30 – 2-wire AC/DC

General data

Operating voltage 20…250 VAC / 10…300 VDC

Types and data – selection table

Type	Connection	Output	Switching distance	Housing material	Dimensions	w	d
BI10-S30-AZ3X	2 m cable	⎯◟	10 mm, ▭	PA	Ø 30 x 64 mm	w028	d254
NI15-S30-AZ3X	2 m cable	⎯◟	15 mm, ▭	PA	Ø 30 x 64 mm	w028	d254
BI10-M30-AZ3X	2 m cable	⎯◟	10 mm, ▭	CuZn-Cr	Ø 30 x 64 mm	w033	d255
BI10U-M30-ADZ30X2	2 m cable	⎯◟	10 mm, ▭	CuZn-Cr	Ø 30 x 64 mm	w028	d267
NI15-M30-AZ3X	2 m cable	⎯◟	15 mm, ▭	CuZn-Cr	Ø 30 x 64 mm	w033	d256
NI20U-M30-ADZ30X2	2 m cable	⎯◟	20 mm, ▭	CuZn-Cr	Ø 30 x 64 mm	w028	d268
BI10-P30SR-FZ3X2	Terminal chamber	⊣◟, ⎯◟	10 mm, ▭	ABS	Ø 30 x 115 mm	w024	d269
NI15-P30SR-FZ3X2	Terminal chamber	⊣◟, ⎯◟	15 mm, ▭	ABS	Ø 30 x 115 mm	w024	d269
BI10U-G30-ADZ30X2-B1131	male, 7/8“	⎯◟	10 mm, ▭	CuZn-Cr	Ø 30 x 80 mm	w027	d270
NI20U-G30-ADZ30X2-B1131	male, 7/8“	⎯◟	20 mm, ▭	CuZn-Cr	Ø 30 x 80 mm	w027	d271
BI10U-G30-ADZ30X2-B3131	male, 1/2“	⎯◟	10 mm, ▭	CuZn-Cr	Ø 30 x 80 mm	w027	d272
NI20U-G30-ADZ30X2-B3131	male, 1/2“	⎯◟	20 mm, ▭	CuZn-Cr	Ø 30 x 80 mm	w027	d273

G47

General data

Housing material CuZn-Cr

Types and data – selection table

Type	Connection	Operating voltage	Output	Switching distance	Dimensions	w	d
BI20-G47-Y1X	2 m cable	8.2 VDC	NAMUR	20 mm, ▭	Ø 47 x 70 mm	w014	d274
BI20-G47-AP4X	2 m cable	10…65 VDC	⎯◟, PNP	20 mm, ▭	Ø 47 x 70 mm	w012	d274
NI25-G47-AP4X	2 m cable	10…65 VDC	⎯◟, PNP	25 mm, ▭	Ø 47 x 70 mm	w012	d275
BI25-G47SR-VP4X2	Terminal chamber	10…65 VDC	⊣◟, PNP	25 mm, ▭	Ø 47 x 96 mm	w023	d276
NI40-G47SR-VP4X2	Terminal chamber	10…65 VDC	⊣◟, PNP	40 mm, ▭	Ø 47 x 106 mm	w023	d277
BI20-G47-AZ3X	2 m cable	20…250 VAC / 10…300 VDC	⎯◟	20 mm, ▭	Ø 47 x 70 mm	w028	d274
NI25-G47-AZ3X	2 m cable	20…250 VAC / 10…300 VDC	⎯◟	25 mm, ▭	Ø 47 x 70 mm	w028	d275

Table continues on the next page…

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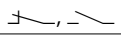
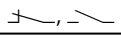
Type	Connection	Operating voltage	Output	Switching distance	Dimensions	w	d
BI25-G47SR-FZ3X2	Terminal chamber	20…250 VAC / 10…300 VDC		25 mm, 	Ø 47 x 96 mm	w024	d276
NI40-G47SR-FZ3X2	Terminal chamber	20…250 VAC / 10…300 VDC		40 mm, 	Ø 47 x 106 mm	w024	d277

Many different types available, also as NPN version, see type code

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

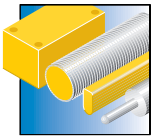
Cylindrical designs – Smooth barrel

No matter if you choose a compact Ø 3 mm or a rugged Ø 40 mm version: The smooth barrels from TURCK are available with different switching distances, many connection possibilities and high protection rating. All these features are required as a standard in industrial automation.

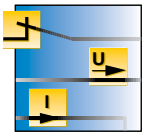
Features

- Cables, connector or terminal chamber
- Mounting bracket included in delivery
- Electrical versions NAMUR, DC and AC/DC
- Stainless steel and plastic housings

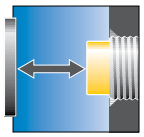
Properties



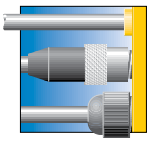
Designs
Ø 3 mm for confined spaces up to Ø 40 mm



Electrical versions
NAMUR, 2, 3 and 4-wire DC, 2-wire AC/DC



Switching distances
Large switching distances, optionally with factor 1, without reduction factor



Electrical connections
Cable, terminal chamber, M8 and M12 connectors

Materials
Stainless steel sensors up to Ø 6.5 mm diameter, bigger sizes in PA or PBT

Special features
Ø 4 mm, Ø 6.5 mm, with lateral active face, integrated rotation speed monitoring

Internet link
Scan the QR code to access our products on the internet

Ø 3 mm

General data

Connection	2 m cable	**Operating voltage**	10…30 VDC
Output	⎯◺⎯, PNP	**Switching distance**	1 mm, ⊐
Housing material	V2A (1.4301)	**Dimensions**	Ø 3 x 27 mm

Types and data – selection table

Type	w	d
BI1-EH03-AP7X	w012	d278

Many different types available, also as NPN version, see type code

Ø 4 mm

General data

Switching distance	1 mm, ⊐

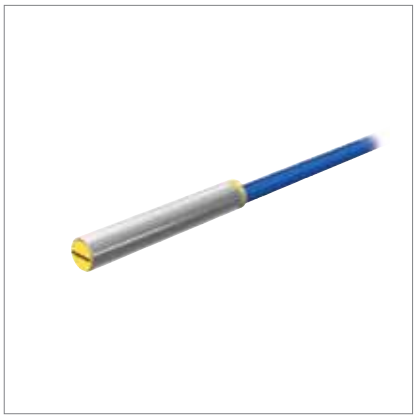
Types and data – selection table

Type	Connection	Operating voltage	Output	Housing material	Dimensions	w	d
BI1-EH04-Y1	2 m cable	8.2 VDC	NAMUR	V4A (1.4404)	Ø 4 x 30 mm	w014	d279
BI1-HS540-Y1	2 m cable	8.2 VDC	NAMUR	V2A (1.4301)	Ø 4 x 30 mm	w014	d280
BI1-EH04-AP6X-V1331	male, M8 x 1	10…30 VDC	⎯◺⎯, PNP	V4A (1.4404)	Ø 4 x 42.5 mm	w013	d281
BI1-EH04-RP6X-V1331	male, M8 x 1	10…30 VDC	⊣◺⎯, PNP	V4A (1.4404)	Ø 4 x 42.5 mm	w029	d281
BI1-EH04-AP6X	2 m cable	10…30 VDC	⎯◺⎯, PNP	V4A (1.4404)	Ø 4 x 30 mm	w012	d282
BI1-EH04-RP6X	2 m cable	10…30 VDC	⊣◺⎯, PNP	V4A (1.4404)	Ø 4 x 30 mm	w030	d282
BI1-HS540-RP6X	2 m cable	10…30 VDC	⊣◺⎯, PNP	V2A (1.4301)	Ø 4 x 30 mm	w030	d283
BI1-HS540-AP6X	2 m cable	10…30 VDC	⎯◺⎯, PNP	V2A (1.4301)	Ø 4 x 30 mm	w012	d283

Many different types available, also as NPN version, see type code

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

Ø 6.5 mm – NAMUR



General data

Connection	2 m cable	**Operating voltage**	8.2 VDC
Output	NAMUR		

Types and data – selection table

Type	Switching distance	Housing material	Dimensions	w	d
BI1,5-EH6,5K-Y1	1.5 mm,	V4A (1.4404)	Ø 6.5 x 23.6 mm	w014	d284
BI1,5-HS865-Y1	1.5 mm,	CuZn-Cr	Ø 6.5 x 32 mm	w014	d285
NI3-EH6,5K-Y1	3 mm,	V4A (1.4404)	Ø 6.5 x 23.6 mm	w014	d286

Ø 6.5 mm – 3-wire DC

General data

Operating voltage	10…30 VDC

Types and data – selection table

Type	Connection	Output	Switching distance	Housing material	Dimensions	w	d
BI1,5-EH6,5K-AP6X-V1131	male, M8 x 1	, PNP	1.5 mm,	V4A (1.4404)	Ø 6.5 x 31 mm	w013	d287
BI2-EH6,5K-AP6X-V1131	male, M8 x 1	, PNP	2 mm,	V4A (1.4404)	Ø 6.5 x 31 mm	w013	d287
BI2-EH6,5K-RP6X-V1131	male, M8 x 1	, PNP	2 mm,	V4A (1.4404)	Ø 6.5 x 31 mm	w029	d287
BI2U-EH6,5-AP6X-V1131	male, M8 x 1	, PNP	2 mm,	V2A (1.4301)	Ø 6.5 x 49 mm	w013	d288
BI2U-EH6,5-RP6X-V1131	male, M8 x 1	, PNP	2 mm,	V2A (1.4301)	Ø 6.5 x 49 mm	w029	d288
BI1,5-EH6,5-AP6X-V1131	male, M8 x 1	, PNP	1.5 mm,	V2A (1.4301)	Ø 6.5 x 49 mm	w013	d288
BI2-EH6,5-AP6X-V1131	male, M8 x 1	, PNP	2 mm,	V2A (1.4301)	Ø 6.5 x 49 mm	w013	d288
NI3-EH6,5K-AP6X-V1131	male, M8 x 1	, PNP	3 mm,	V4A (1.4404)	Ø 6.5 x 31 mm	w013	d289
NI6U-EH6,5-AP6X-V1131	male, M8 x 1	, PNP	6 mm,	V2A (1.4301)	Ø 6.5 x 49 mm	w013	d290
NI6U-EH6,5-RP6X-V1131	male, M8 x 1	, PNP	6 mm,	V2A (1.4301)	Ø 6.5 x 49 mm	w029	d290
NI3-EH6,5-AP6X-V1131	male, M8 x 1	, PNP	3 mm,	V2A (1.4301)	Ø 6.5 x 49 mm	w013	d290
BI1,5-EH6,5K-AP6X	2 m cable	, PNP	1.5 mm,	V4A (1.4404)	Ø 6.5 x 23.6 mm	w012	d291
BI2-EH6,5K-RP6X	2 m cable	, PNP	2 mm,	V4A (1.4404)	Ø 6.5 x 23.6 mm	w030	d291
BI2-EH6,5K-AP6X	2 m cable	, PNP	2 mm,	V4A (1.4404)	Ø 6.5 x 23.6 mm	w012	d291
BI1,5-HS865-AP6X	2 m cable	, PNP	1.5 mm,	CuZn-Cr	Ø 6.5 x 32 mm	w012	d285
BI2U-EH6,5-AP6X	2 m cable	, PNP	2 mm,	V2A (1.4301)	Ø 6.5 x 42 mm	w012	d292

Table continues on the next page…

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Type	Connection	Output	Switching distance	Housing material	Dimensions	w	d
BI2-EH6,5-AP6X	2 m cable	_⌒_, PNP	2 mm, ⊐	V2A (1.4301)	Ø 6.5 x 42 mm	w012	d292
BI2U-EH6,5-RP6X	2 m cable	⊥⌒_, PNP	2 mm, ⊐	V2A (1.4301)	Ø 6.5 x 42 mm	w030	d292
NI3-EH6,5K-AP6X	2 m cable	_⌒_, PNP	3 mm, ⊐	V4A (1.4404)	Ø 6.5 x 23.6 mm	w012	d293
NI3-EH6,5-AP6X	2 m cable	_⌒_, PNP	3 mm, ⊐	V2A (1.4301)	Ø 6.5 x 42 mm	w012	d294
NI6U-EH6,5-AP6X	2 m cable	_⌒_, PNP	6 mm, ⊐	V2A (1.4301)	Ø 6.5 x 42 mm	w012	d294

Many different types available, also as NPN version, see type code

Ø 11 mm

General data

Housing material PA

Fixing clamp BS11 included in delivery

Types and data – selection table

Type	Connection	Operating voltage	Output	Switching distance	Dimensions	w	d
NI5-K11-Y1	2 m cable	8.2 VDC	NAMUR	5 mm, ⊐	Ø 11 x 34 mm	w014	d295
BI2-K11-Y1	2 m cable	8.2 VDC	NAMUR	2 mm, ⊐	Ø 11 x 34 mm	w014	d295
BI2-K11-AP6X	2 m cable	10…30 VDC	_⌒_, PNP	2 mm, ⊐	Ø 11 x 54 mm	w012	d296
NI5-K11-AP6X	2 m cable	10…30 VDC	_⌒_, PNP	5 mm, ⊐	Ø 11 x 54 mm	w012	d296
BI2-K11SK-AP6X	Terminal chamber	10…30 VDC	_⌒_, PNP	2 mm, ⊐	Ø 11 x 75 mm	w022	d297
NI5-K11SK-AP6X	Terminal chamber	10…30 VDC	_⌒_, PNP	5 mm, ⊐	Ø 11 x 75 mm	w022	d297

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

Ø 20 mm

General data

Switching distance	10 mm,	**Housing material**	PBT

Fixing clamp BS20 included in delivery

Types and data – selection table

Type	Connection	Operating voltage	Output	Dimensions	w	d
NI10-K20-AP6X	2 m cable	10…30 VDC	, PNP	Ø 20 x 54 mm	w012	d298
NI10-K20SK-AP6X	Terminal chamber	10…30 VDC	, PNP	Ø 20 x 77 mm	w022	d299
NI10-K20-AZ3X	2 m cable	20…250 VAC / 10…300 VDC		Ø 20 x 79 mm	w028	d300
NI10-K20SK-AZ3X	Terminal chamber	20…250 VAC / 10…300 VDC		Ø 20 x 77 mm	w037	d299

Many different types available, also as NPN version, see type code

Ø 34 mm

General data

Operating voltage	10…65 VDC	**Output**	, PNP
Switching distance	20 mm,	**Housing material**	PBT

Fixing clamp BS34.1 included in delivery

Types and data – selection table

Type	Connection	Dimensions	w	d
NI20-K34-VP4X	2 m cable	Ø 34 x 80 mm	w010	d301
NI20-K34SR-VP4X2	Terminal chamber	Ø 34 x 106 mm	w023	d302

Ø 40 mm

General data

Connection	Terminal chamber	**Housing material**	ABS
Dimensions	Ø 40 x 90 mm		

Fixing clamp BS40 included in delivery

Types and data – selection table

Type	Operating voltage	Output	Switching distance	w	d
NI20-K40SR-VP4X2	10…65 VDC	, PNP	20 mm,	w023	d303
NI30-K40SR-VP4X2	10…65 VDC	, PNP	30 mm,	w023	d303
NI30-K40SR-FZ3X2	20…250 VAC / 10…300 VDC	,	30 mm,	w024	d303
NI20-K40SR-FZ3X2	20…250 VAC / 10…300 VDC	,	20 mm,	w024	d303

Many different types available, also as NPN version, see type code

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

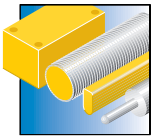
Ring sensors

TURCK ring sensors are compact and universally mountable. They are used in many different systems such as in assembly lines or component feeding systems where they detect small and fast moving metal parts reliably and quickly. The *uprox*®+ Factor 1 sensors of the TS12 series are used in feeding systems composed by hoses with different diameters. The TS12 can therefore be used as an innovative replacement for ring sensors.

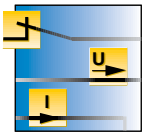
Features

- Ring diameter 6…100 mm
- Static, dynamic and analog versions
- Integrated amplifier or separate probe-amplifier combination
- High sensitivity, adjustable, up to Ø 0.1 mm wire diameter
- Compact design
- The innovative TS12 *uprox*®+ factor 1 series

Properties

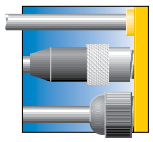


Designs
From the compact rectangular Q14 to the proven S32



Electrical versions
3-wire NO or antivalent PNP/NPN; static, dynamic or analog output

Measuring ranges
Ring diameters of Ø 6…100 mm detect steel balls from Ø 0.6 mm as well as wires Ø 0.4 mm and bigger



Electrical connections
Connection cable, 2 m; male M8 x 1, M12 x 1

Materials
Plastic housing in PBT, PA, ABS and POM

Special features
Versions with separate ring and amplifier; S32XL ring diameter Ø 100 mm

Internet link
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TS12

General data

Connection	male, M8 x 1	**Operating voltage**	10…30 VDC
Output	⎯⎽⎯, PNP	**Housing material**	PBT
Dimensions	17 x 12 x 80 mm		

Can be used as a universal replacement for ring sensors
For small parts detection

Types and data – selection table

Type	w	d
NI20U-TS12-AP6X2-V1131	w013	d304

Many different types available, also as NPN version, see type code

Q14– Switching output

General data

Connection	male, M12 x 1	**Operating voltage**	10…30 VDC
Output	⎯⎽⎯, PNP	**Housing material**	PBT
Dimensions	30 x 14 x 62.5 mm		

Tailback detection

Types and data – selection table

Type	Inside ring diameter D	w	d
BI20R-Q14-AP6X2-H1141	20.1 mm	w013	d305
BI15R-Q14-AP6X2-H1141	15.1 mm	w013	d306
BI10R-Q14-AP6X2-H1141	10.1 mm	w013	d307
BI6R-Q14-AP6X2-H1141	6.1 mm	w013	d308

Many different types available, also as NPN version, see type code

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

Q14 - Voltage output

General data

Inside ring diameter D	20.1 mm	**Connection**	male, M12 x 1
Operating voltage	15…30 VDC	**Output**	Analog output, 0…10 V
Housing material	PBT	**Dimensions**	30 x 14 x 62.5 mm

Tailback detection

Types and data – selection table

Type	w	d
BI20R-Q14-LU-H1141	w038	d309

Q20

General data

Inside ring diameter D	30.1 mm	**Connection**	male, M12 x 1
Operating voltage	10…30 VDC	**Output**	_⌒‾, PNP
Housing material	PBT	**Dimensions**	40 x 20 x 68 mm

Tailback detection

Types and data – selection table

Type	w	d
BI30R-Q20-AP6X2-H1141	w013	d310

Many different types available, also as NPN version, see type code

W30

General data

Connection	male, M12 x 1	**Operating voltage**	10…30 VDC
Output	⎯⎽⎯, PNP	**Housing material**	PA
Dimensions	35 x 30 x 60 mm		

Dynamic output behaviour
For the detection of small and fast moving parts

Types and data – selection table

Type	Inside ring diameter D	w	d
BI30R-W30-DAP6X-H1141	30.1 mm	w013	d311
BI20R-W30-DAP6X-H1141	20.1 mm	w013	d312
BI15R-W30-DAP6X-H1141	15.1 mm	w013	d313
BI10R-W30-DAP6X-H1141	10.1 mm	w013	d314
BI6R-W30-DAP6X-H1141	6.1 mm	w013	d315

Many different types available, also as NPN version, see type code

Q80

General data

Connection	male, M12 x 1	**Operating voltage**	10…30 VDC
Output	⎯⎽⎯, PNP	**Housing material**	PBT
Dimensions	80 x 40 x 92 mm		

Tailback detection

Types and data – selection table

Type	Inside ring diameter D	w	d
BI65R-Q80-AP6X2-H1141	65 mm	w013	d316
BI50R-Q80-AP6X2-H1141	50 mm	w013	d317

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

S32SR

General data

Connection	Terminal chamber	**Operating voltage**	10…55 VDC
Output	⎓, PNP	**Housing material**	ABS
Dimensions	100 x 32 x 175 mm		

Tailback detection

Types and data – selection table

Type	Inside ring diameter D	Steel wire diameter (St37)	w	d
NI65R-S32SR-VP44X	65 mm	2 mm	w023	d318
NI40R-S32SR-VP44X	40 mm	1 mm	w023	d319
NI20R-S32SR-VP44X	20 mm	0.4 mm	w023	d320

S32XL

General data

Inside ring diameter D	100 mm	**Connection**	male, M12 x 1
Operating voltage	10…55 VDC	**Output**	⎓, PNP
Housing material	POM	**Dimensions**	137.5 x 32 x 180 mm
Steel wire diameter (St37)	4 mm		

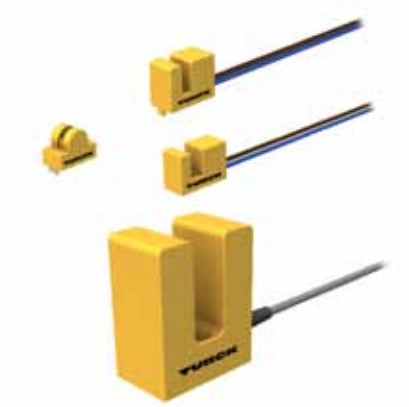
Tailback detection

Types and data – selection table

Type	w	d
NI100R-S32XL-VP44X-H1141	w035	d321

Wiring diagrams on page 658 Dimension drawing on page 670 Accessories on page 560

Slot sensors

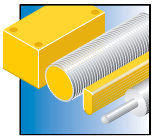


The slot sensors are U-shaped and the active face is located between the two arms. The sensor is activated when an object passes through the slot. Slot sensors detect laterally approaching targets reliably, regardless of their distance to the active face.
Slot sensors are thus applicable as limit value detectors on analog pointer instruments or on trailing chain capable conveyor systems, on which the positioning element may move due to the chain tolerance.

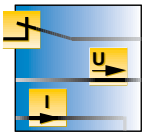
Features

- Sloth width 2 …15 mm
- Compact design for confined spaces
- High repeatability
- All designs available with NAMUR output (incl. SIL2)
- Robust plastic housings

Properties

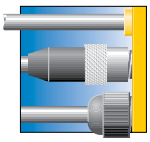


Designs
From the K08 for confined spaces to the K30 with large slot width



Electrical versions
3 and 4-wire DC; NAMUR

Measuring ranges
Slot widths 2 …15 mm



Electrical connections
Strands, 0.5 m or connection cable, 2 m

Materials
PA or PBT housings

Special features
ATEX approved and SIL2 qualified NAMUR devices

Internet link
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K08

General data

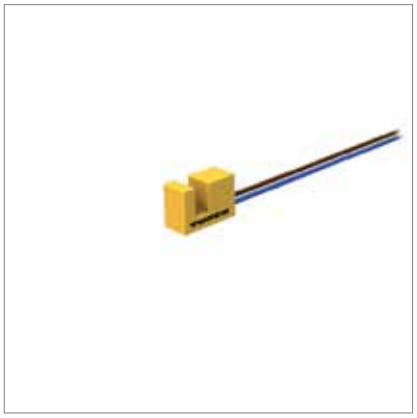
Connection	0.5 m cable	**Housing material**	Vestamide
Dimensions	15 x 8 x 11 mm	**Slot width**	2 mm

Types and data – selection table

Type	Operating voltage	Output	w	d
SI2-K08-Y1	8.2 VDC	NAMUR	w014	d322
SI2-K08-AP7	10…30 VDC	_⌒‾, PNP	w012	d323

Many different types available, also as NPN version, see type code

K09



General data

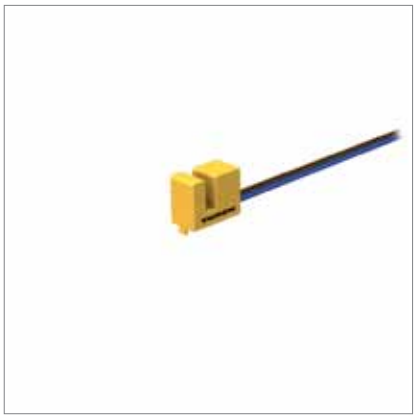
Connection	0.5 m cable	**Operating voltage**	8.2 VDC
Output	NAMUR	**Housing material**	PBT
Dimensions	9 x 14 x 20 mm	**Slot width**	5 mm

Types and data – selection table

Type	w	d
SI5-K09-Y1	w014	d324

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

K10



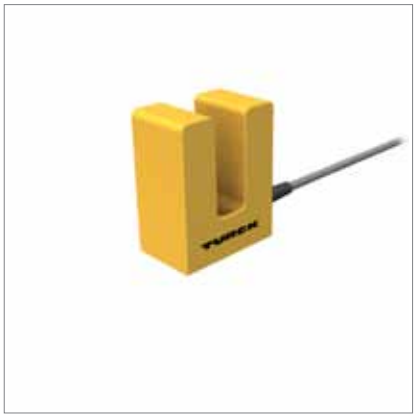
General data

Connection	0.5 m cable	**Housing material**	PBT
Dimensions	15 x 10 x 19 mm	**Slot width**	3.5 mm

Types and data – selection table

Type	Operating voltage	Output	w	d
SI3,5-K10-Y1	8.2 VDC	NAMUR	w014	d325
SI3,5-K10-Y1X	8.2 VDC	NAMUR	w014	d326
SI3,5-K10-AP6X	10…30 VDC	_⌒, PNP	w012	d327

K30



General data

Connection	2 m cable	**Housing material**	PBT
Dimensions	60 x 30 x 48 mm	**Slot width**	15 mm

Types and data – selection table

Type	Operating voltage	Output	w	d
SI15-K30-Y1X	8.2 VDC	NAMUR	w014	d328
SI15-K30-AP6X	10…30 VDC	_⌒, PNP	w012	d328
SI15-K30-RZ3	20…250 VAC / 10…300 VDC	⊣⌒	w039	d329
SI15-K30-AZ3	20…250 VAC / 10…300 VDC	_⌒	w028	d329

Many different types available, also as NPN version, see type code

Wiring diagrams on page 658 Dimension drawing on page 670 Accessories on page 560

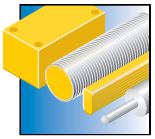
Dual sensors for rotary actuators

In the chemical, petro-chemical and food industry, position control on rotary actuators is of great importance. TURCK dual sensors detect the end position of rotary actuators reliably. They are precisely tailored to the requirements of many different systems and application conditions. Simple mounting and cable routing reduce the expenses for installation.

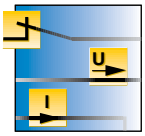
Features

- Safe protection against environmental conditions
- High resistance to chemicals and cleaning agents
- Integrated valve control
- Bus-compatible
- Direct mounting on rotary actuator
- Robust and impact-resistant
- Repairs of the drive system without disconnection of wiring
- Absolutely maintenance-free
- Broad range of actuating elements and accessories
- Compliant with worldwide standards like ATEX and SIL

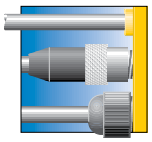
Properties



Designs
Robust, impact-resistant and compact housing



Electrical versions
2, 3 and 4-wire DC, 2-wire AC/DC, NAMUR,



Electrical connections
Terminal chamber with removable terminal strip, cable or male M12

Materials
Robust and chemical resistant PP housing

Special features
ATEX approved and SIL2 qualified NAMUR devices

Internet link
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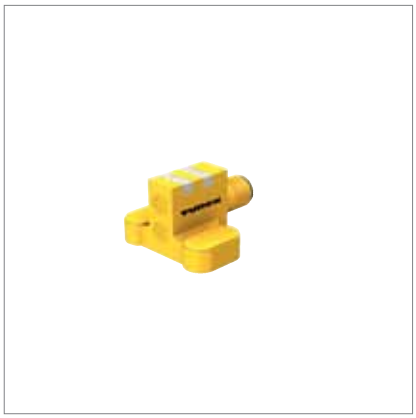
DSC26



General data

Switching distance 4 mm, ⊏⊐

Housing material PP

Dimensions 42 x 26 x 28 mm

For more details on actuators (pucks) and mounting accessories see chapter „Accessories“

Types and data – selection table

Type	Connection	Operating voltage	Output	w	d
NI4-DSC26-2Y1X2	2 m cable	8.2 VDC	NAMUR	w040	d330
NI4-DSC26-2Y1X2-H1140	male, M12 x 1	8.2 VDC	NAMUR	w041	d331
NI4-DSC26-2AP6X2-H1141	male, M12 x 1	10…30 VDC	_⊼_, PNP	w042	d331
NI4-DSC26-2AP6X2	2 m cable	10…30 VDC	_⊼_, PNP	w043	d330

DSU35

General data

Switching distance 4 mm, ⊏⊐

Housing material plastic, PA12-GF20

For more details on actuators (pucks) and mounting accessories see chapter „Accessories“

Types and data – selection table

Type	Connection	Operating voltage	Output	Dimensions	w	d
NI4-DSU35-2Y1X2	2 m cable	8.2 VDC	NAMUR	60 x 35 x 59 mm	w040	d332
NI4-DSU35-2Y1X2-H1140	male, M12 x 1	8.2 VDC	NAMUR	60 x 35.4 x 59 mm	w041	d333
NI4-DSU35TC-2Y1X2	Terminal chamber	8.2 VDC	NAMUR	60 x 35 x 62 mm	w044	d334
NI4-DSU35TC-2Y1X2/S933	Terminal chamber	8.2 VDC	NAMUR	60 x 35 x 62 mm	w044	d334
NI4-DSU35TC-2Y1X2/S97	Terminal chamber	8.2 VDC	NAMUR	60 x 35 x 62 mm	w044	d334
NI4-DSU35-2AP4X2	2 m cable	10…65 VDC	_⊼_, PNP	60 x 35 x 59 mm	w043	d332
NI4-DSU35-2AP4X2-H1141	male, M12 x 1	10…65 VDC	_⊼_, PNP	60 x 35.4 x 59 mm	w042	d333
NI4-DSU35TC-2AP4X2	Terminal chamber	10…65 VDC	_⊼_, PNP	60 x 35 x 62 mm	w045	d334
NI4-DSU35TC-2AD4X2	Terminal chamber	10…65 VDC	_⊼_, 2-wire	60 x 35 x 62 mm	w046	d334
NI4-DSU35TC-2AP4X2/3GD	Terminal chamber	10…65 VDC	_⊼_, PNP	60 x 35 x 62 mm	w045	d334
NI4-DSU35-2ADZ30X2	2 m cable	20…250 VAC / 10…300 VDC	2x _⊼_	60 x 35 x 59 mm	w047	d332
NI4-DSU35TC-2ADZ30X2	Terminal chamber	20…250 VAC / 10…300 VDC	2x _⊼_	60 x 35 x 62 mm	w048	d334

Table continues on the next page…

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

. . . Table starts on previous page

Type	Connection	Operating voltage	Output	Dimensions	w	d
NI4-DSU35-2ASIX4-H1140	male, M12 x 1	18…33 VDC	_⟍⟍_, AS-i V2.1	60 x 35.4 x 59 mm	w049	d335
NI4-DSU35-2DNETX5-H1150	male, M12 x 1	11…25 VDC	_⟍⟍_, DeviceNet™	60 x 35.4 x 59 mm	w050	d336

Wiring diagrams on page 658 Dimension drawing on page 670 Accessories on page 560

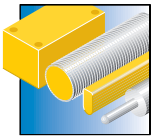
Sensors with analog output

Inductive sensors with analog output provide a current, voltage or frequency signal and are ideally suited for simple control tasks. They are used in many applications, requiring more than just simple digital position indication. Typical applications are for example tension control, winding/unwinding motion or separation of parts according to size and material.

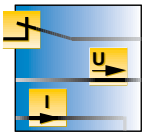
Features

- High repeatability
- Large measuring ranges
- Current, voltage and frequency output
- Optionally adjustable switching output
- Many different designs
- Excellent EMC protection
- Short-circuit and reverse-polarity protection
- All connection types

Properties

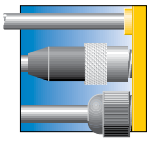


Designs
Compact rectangular, threaded and smooth barrels as well as ring shaped versions



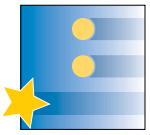
Electrical versions
0…10 V or 0…20 mA, 3/4-wire; 4…20 mA 2-wire intrinsically safe

Measuring ranges
High-precision 0.1…1.5 mm, large range 10…50 mm, ring sensors Ø 20, 50, 100 mm



Electrical connections
Cable, connector or terminal chamber

Materials
Rugged and chemical-resistant plastic and metal housings for all types of applications



Special features
Sensors for metal detection; ATEX approved versions

Internet link
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EH6.5 – 2 outputs 0…10 V – Metal distinction

General data

Connection	0.2 m male, M12 x 1	**Operating voltage**	15…30 VDC
Housing material	V2A (1.4301)	**Ambient temperature**	-25…+70 °C
Dimensions	Ø 6.5 x 41.6 mm	**Measuring accuracy**	< 1 % of full scale

Types and data – selection table

Type	w	d
BI1,5-EH6,5-0,2-Q20-2LU-H1141/S950	w051	d337

Q20 – 2 outputs 0…10 V – Metal distinction

General data

Connection	male, M12 x 1	**Operating voltage**	15…30 VDC
Housing material	PBT	**Ambient temperature**	-25…+70 °C
Dimensions	40 x 20 x 68 mm	**Measuring accuracy**	< 1 % of full scale

Types and data – selection table

Type	w	d
BI15-Q20-2LU-H1141/S950	w051	d338

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

Q80 – 2 outputs 0…10 V – Metal distinction

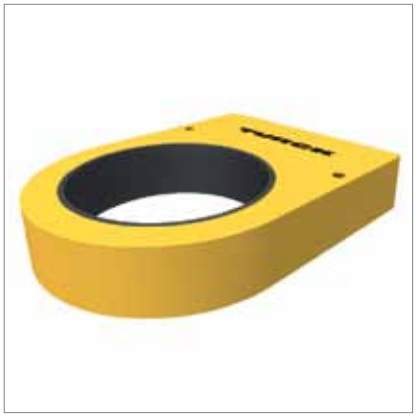
General data

Inside ring diameter D	50 mm	**Connection**	male, M12 x 1
Operating voltage	15…30 VDC	**Housing material**	PBT
Ambient temperature	-25…+70 °C	**Dimensions**	80 x 40 x 92 mm
Measuring accuracy	<1 % of full scale		

Types and data – selection table

Type	w	d
BI50R-Q80-2LU-H1141/S950	w051	d339

S32XL – 2 outputs 0…10 V – Metal distinction



General data

Inside ring diameter D	100 mm	**Connection**	male, M12 x 1
Operating voltage	15…30 VDC	**Housing material**	POM
Ambient temperature	-25…+70 °C	**Dimensions**	137.5 x 32 x 180 mm
Measuring accuracy	< 1 % of full scale		

Types and data – selection table

Type	w	d
NI100R-S32XL-2LU-H1141/S950	w051	d340

Q08 – Output 0…10 V and 0…20 mA

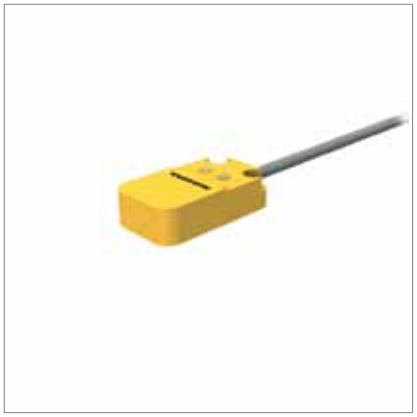
General data

Linearity deviation	5 % of full scale	**Measuring range**	1…4 mm
Connection	2 m cable	**Operating voltage**	15…30 VDC
Switching distance		**Housing material**	GD-Zn
Ambient temperature	-25 °C	**Dimensions**	20 x 8 x 32 mm
Repeatability	1 % of measuring range |A - B|		

Types and data – selection table

Type	w	d
BI7-Q08-LIU	w052	d341

Q14 – Output 0…10 V and 0…20 mA



General data

Linearity deviation	3 % of full scale	**Measuring range**	3…8 mm
Operating voltage	15…30 VDC	**Switching distance**	
Housing material	PBT	**Ambient temperature**	-25…+70 °C
Dimensions	30 x 14 x 52 mm	**Repeatability**	1 % of measuring range |A - B|

Types and data – selection table

Type	Connection	w	d
BI10-Q14-LIU-V1141	male, M8 x 1	w053	d342
BI10-Q14-LIU	2 m cable	w052	d343

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

Q14 – Ring sensor – Output 0…10 V

General data

Inside ring diameter D	20.1 mm	**Operating voltage**	15…30 VDC
Output	Analog output, 0…10 V	**Housing material**	PBT
Ambient temperature	-25…+70 °C	**Repeatability**	1 % of measuring range |A - B|

Types and data – selection table

Type	Connection	Dimensions	w	d
BI20R-Q14-LU-H1141	male, M12 x 1	30 x 14 x 62.5 mm	w038	d309
BI20R-Q14-LU	2 m cable	30 x 14 x 52 mm	w054	d344

Q20 – Output 0…10 V and 0…20 mA

General data

Linearity deviation	3 % of full scale	**Measuring range**	4…11 mm
Operating voltage	15…30 VDC	**Switching distance**	
Housing material	PBT	**Ambient temperature**	-25…+70 °C
Dimensions	40 x 20 x 68 mm	**Repeatability**	1 % of measuring range |A - B|

Types and data – selection table

Type	Connection	w	d
BI15-Q20-LIU-H1141	male, M12 x 1	w053	d338
BI15-Q20-LIU	2 m cable	w052	d345

CK40 – Output 0…10 V and 0…20 mA

General data

Connection	male, M12 x 1	**Operating voltage**	15…30 VDC
Housing material	PBT	**Ambient temperature**	-25…+70 °C
Dimensions	40 x 40 x 65 mm	**Repeatability**	1 % of measuring range |A - B|

Variable orientation of active face in 5 directions

Types and data – selection table

Type	Linearity deviation	Measuring range	Switching distance	w	d
BI15-CK40-LIU-H1141	3 % of full scale	4…11 mm		w053	d346
NI25-CK40-LIU-H1141	5 % of full scale	5…25 mm		w053	d346

CP40 – Output 0…10 V and 0…20 mA

General data

Connection	Terminal chamber	**Operating voltage**	15…30 VDC
Housing material	PBT	**Ambient temperature**	-25…+70 °C
Dimensions	40 x 40 x 114 mm	**Repeatability**	1 % of measuring range |A - B|

Variable orientation of active face in 9 directions

Types and data – selection table

Type	Linearity deviation	Measuring range	Switching distance	w	d
BI15-CP40-LIU	3 % of full scale	4…11 mm		w055	d347
NI25-CP40-LIU	5 % of full scale	5…25 mm		w055	d347

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

Q80 – Output 0…10 V and 0…20 mA

General data

Linearity deviation	5 % of full scale	**Measuring range**	10…50 mm
Connection	male, M12 x 1	**Operating voltage**	15…30 VDC
Switching distance		**Housing material**	PBT
Ambient temperature	-25…+70 °C	**Dimensions**	80 x 40 x 92 mm
Repeatability	1 % of measuring range |A - B|		

Types and data – selection table

Type	w	d
NI50-Q80-LIU-H1141	w053	d348

M8 – Voltage output 0…10 V

General data

Linearity deviation	3 % of full scale	**Measuring range**	0.25…1.25 mm
Operating voltage	15…30 VDC	**Switching distance**	
Housing material	V4A (1.4404)	**Ambient temperature**	-25…+70 °C
Repeatability	1 % of measuring range |A - B|		

Types and data – selection table

Type	Connection	Dimensions	w	d
BI1,5-EG08-LU-H1341	male, M12 x 1	Ø 8 x 57 mm	w038	d142
BI1,5-EG08-LU	2 m cable	Ø 8 x 42 mm	w054	d349

M12 – Output 0…10 V and 0…20 mA

General data

Operating voltage	15…30 VDC	**Housing material**	CuZn-Cr
Repeatability	1 % of measuring range |A - B|		

Types and data – selection table

Type	Linearity deviation	Measuring range	Connection	Switching distance	Ambient temperature	Dimensions	w	d
BI4-M12-LIU-H1141	5 % of full scale	0.5…3 mm	male, M12 x 1		-25 °C	Ø 12 x 62 mm	w053	d350
BI4-M12-LIU	5 % of full scale	0.5…3 mm	2 m cable		-25 °C	Ø 12 x 64 mm	w052	d351
BI2-M12-LIU-H1141	3 % of full scale	1…2.5 mm	male, M12 x 1		-25…+70 °C	Ø 12 x 62 mm	w053	d350
BI2-M12-LIU	3 % of full scale	1…2.5 mm	2 m cable		-25…+70 °C	Ø 12 x 64 mm	w052	d351
NI5-M12-LIU-H1141	5 % of full scale	0.5…4 mm	male, M12 x 1		-25…+70 °C	Ø 12 x 62 mm	w053	d352
NI5-M12-LIU	5 % of full scale	0.5…4 mm	2 m cable		-25…+70 °C	Ø 12 x 64 mm	w052	d353

M18 – Output 0…10 V and 0…20 mA

General data

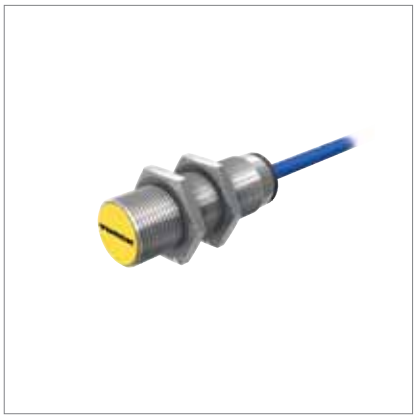
Operating voltage	15…30 VDC	**Housing material**	CuZn-Cr
Repeatability	1 % of measuring range |A - B|		

Types and data – selection table

Type	Linearity deviation	Measuring range	Connection	Switching distance	Ambient temperature	Dimensions	w	d
BI8-M18E-LIU-H1141	5 % of full scale	1…5 mm	male, M12 x 1		-25 °C	Ø 18 x 72 mm	w053	d354
BI8-M18-LIU	5 % of full scale	1…5 mm	2 m cable		-25 °C	Ø 18 x 64 mm	w052	d236
BI5-M18E-LIU-H1141	3 % of full scale	2…4 mm	male, M12 x 1		-25…+70 °C	Ø 18 x 72 mm	w053	d354
BI5-M18-LIU	3 % of full scale	2…4 mm	2 m cable		-25…+70 °C	Ø 18 x 64 mm	w052	d236
NI10-M18E-LIU-H1141	5 % of full scale	1…7 mm	male, M12 x 1		-25…+70 °C	Ø 18 x 72 mm	w053	d355
NI10-M18-LIU	5 % of full scale	1…7 mm	2 m cable		-25…+70 °C	Ø 18 x 64 mm	w052	d356

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

M18 – Current output 4…20 mA – Intrinsically safe



General data

Linearity deviation	5 % of full scale	**Measuring range**	1…5 mm
Connection	2 m cable	**Operating voltage**	14…30 VDC
Switching distance		**Housing material**	CuZn-Cr
Ambient temperature	-25 °C	**Dimensions**	Ø 18 x 64 mm
Repeatability	1 % of measuring range |A - B|		

Types and data – selection table

Type	w	d
BI8-M18-LI-EXI	w056	d236

M18 – Voltage output 0…10 V and 3-wire PNP

General data

Linearity deviation	5 % of full scale	**Connection**	2 m cable
Operating voltage	15…30 VDC	**Switching distance**	
Housing material	CuZn-Cr	**Ambient temperature**	-25…+70 °C
Dimensions	Ø 18 x 54 mm	**Repeatability**	1 % of measuring range |A - B|
Measuring range	1…5 mm		

Types and data – selection table

Type	w	d
BI8-M18-LUAP6X	w057	d357

M18 – Inductive linear position sensor – Output 0…10 V and 0…20 mA

General data

Connection	2 m cable	**Operating voltage**	15…30 VDC
Switching distance		**Housing material**	CuZn-Cr
Ambient temperature	-25…+70 °C	**Repeatability**	1 % of measuring range |A - B|

Actuation via short-circuiting ring (included in delivery), blind hole or similar

Types and data – selection table

Type	Linearity deviation	Measuring range	Dimensions	w	d
WI70-M18-LIU5	3 % of full scale	0…70 mm	Ø 18 x 139 mm	w052	d358
WI40-M18-LIU5	2 % of full scale	0…40 mm	Ø 18 x 107.5 mm	w052	d359

M30 – Output 0…10 V and 0…20 mA

General data

Operating voltage	15…30 VDC	**Switching distance**	
Housing material	CuZn-Cr	**Repeatability**	1 % of measuring range |A - B|

Types and data – selection table

Type	Linearity deviation	Measuring range	Connection	Ambient temperature	Dimensions	w	d
BI15-M30E-LIU-H1141	5 % of full scale	2…10 mm	male, M12 x 1	-25 °C	Ø 30 x 77 mm	w053	d360
BI15-M30-LIU	5 % of full scale	2…10 mm	2 m cable	-25 °C	Ø 30 x 64 mm	w052	d259
BI10-M30E-LIU-H1141	3 % of full scale	3…8 mm	male, M12 x 1	-25…+70 °C	Ø 30 x 77 mm	w053	d360
BI10-M30-LIU	3 % of full scale	3…8 mm	2 m cable	-25…+70 °C	Ø 30 x 64 mm	w052	d259

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

M30 – Voltage output 4…20 mA – Intrinsically safe

General data

Linearity deviation	5 % of full scale	**Measuring range**	2…10 mm
Connection	2 m cable	**Operating voltage**	14…30 VDC
Switching distance		**Housing material**	CuZn-Cr
Ambient temperature	-25 °C	**Dimensions**	Ø 30 x 64 mm
Repeatability	1 % of measuring range |A - B|		

Types and data – selection table

Type	w	d
BI15-M30-LI-EXI	w056	d259

M30 – Voltage output 0…10 V and 3-wire PNP

General data

Linearity deviation	5 % of full scale	**Measuring range**	2…10 mm
Operating voltage	15…30 VDC	**Connection**	2 m cable
Housing material	CuZn-Cr	**Switching distance**	
Dimensions	Ø 30 x 64 mm	**Ambient temperature**	-25…+70 °C
		Repeatability	1 % of measuring range |A - B|

Types and data – selection table

Type	w	d
BI15-M30-LUAP6X	w057	d361

Ø 4 mm – Output 0…10 V and 0…20 mA

General data

Measuring range	0.1…1.5 mm	**Connection**	0.3 m male, M12 x 1
Operating voltage	15…30 VDC	**Switching distance**	
Housing material	V4A (1.4404)	**Ambient temperature**	-25…+70 °C
Dimensions	Ø 4 x 30 mm	**Repeatability**	1 % of measuring range |A - B|

Types and data – selection table

Type	w	d
BI1,5-EH04-0,3-M12-SIU-H1141	w053	d362

Ø 6.5 mm – Voltage output 0…10 V

General data

Linearity deviation	3 % of full scale	**Measuring range**	0.25…1.25 mm
Connection	2 m cable	**Operating voltage**	15…30 VDC
Switching distance		**Housing material**	V2A (1.4301)
Ambient temperature	-25…+70 °C	**Dimensions**	Ø 6.5 x 42 mm
Repeatability	1 % of measuring range |A - B|		

Types and data – selection table

Type	w	d
BI1,5-EH6,5-LU	w054	d363

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

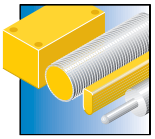
Sensors with extended temperature range

Many different sensors are available for applications characterized by extreme ambient temperatures of -60 °C or +250 °C. These TURCK devices are typically used in deep freezing systems, outdoor applications, in metal foundries, the glass industry or in drying furnaces of varnishing stations used in the automotive industry.
Our climate-proof versions in stainless steel housings are exellently suited for humid environments affected by sudden temperature changes of up to +120 °C.

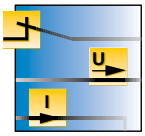
Features

- Six different series for temperatures of -60 °C up to +250 °C
- Complete product families with all housing types: M8, M12, M18, M30, 40 x 40, 80 x 80
- Specially sealed sensors for wet environments
- Different cable materials tailored to the temperature ranges
- Excellent EMC properties

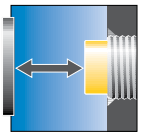
Properties



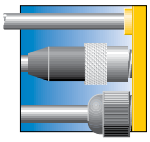
Designs
Broad range of devices from the 8 mm threaded barrel up to the 80 x 80 mm rectangular version



Electrical versions
NAMUR -40…+100 °C;
3/4-wire DC: -60…+250 °C;
2-wire AC: -40…+120 °C



Switching distances
7 mm at temperatures of -60 °C; 40 mm at temperatures of +250 °C



Electrical connections
Cable, connector, terminal chamber and pigtail; sensors with external amplifier for temperatures of +160 °C and higher

Materials
Rugged, temperature resistant housing materials and cable qualities

Special features
Washdown; pressure-resistant active face

Internet link
Scan the QR code to access our products on the internet

-60 °C – M12

General data

Connection	2 m cable	**Operating voltage**	10…30 VDC
Output	⎓, PNP	**Housing material**	V4A (1.4571)
Ambient temperature	-60…+60 °C		

Types and data – selection table

Type	Switching distance	Dimensions	w	d
BI2-EM12WD-AP6/S929	2 mm,	Ø 12 x 63 mm	w012	d364
NI4-EM12WD-AP6/S929	4 mm,	Ø 12 x 67 mm	w012	d365

-60 °C – M18

General data

Connection	2 m cable	**Operating voltage**	10…30 VDC
Output	⎓, PNP	**Housing material**	V4A (1.4571)
Ambient temperature	-60…+60 °C		

Types and data – selection table

Type	Switching distance	Dimensions	w	d
BI5-EM18WD-AP6X/S929	5 mm,	Ø 18 x 67 mm	w012	d366
NI7-EM18WD-AP6X/S929	7 mm,	Ø 18 x 75 mm	w012	d367

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

-40 °C – CP40

General data

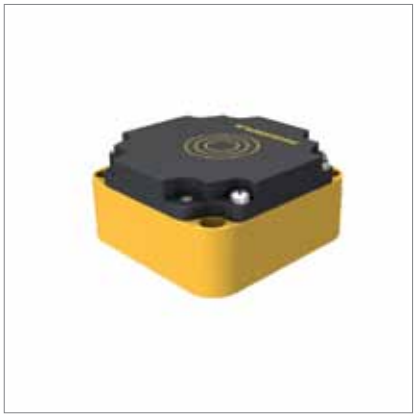
Connection	Terminal chamber	**Housing material**	PBT
Ambient temperature	-40…+70 °C	**Dimensions**	40 x 40 x 114 mm

Variable orientation of active face in 9 directions

Types and data – selection table

Type	Operating voltage	Output	Switching distance	w	d
BI15-CP40-VP4X2/S97	10…65 VDC	, PNP	15 mm,	w023	d122
NI20-CP40-VP4X2/S97	10…65 VDC	, PNP	20 mm,	w023	d122
BI15-CP40-Y1X/S97	8.2 VDC	NAMUR	15 mm,	w025	d124
BI15-CP40-FZ3X2/S97	20…250 VAC / 10…300 VDC	,	15 mm,	w024	d122
NI20-CP40-FZ3X2/S97	20…250 VAC / 10…300 VDC	,	20 mm,	w024	d122

-40 °C – CP80



General data

Connection	Terminal chamber	**Switching distance**	40 mm,
Housing material	PBT	**Ambient temperature**	-40…+70 °C
Dimensions	80 x 41 x 80 mm		

Types and data – selection table

Type	Operating voltage	Output	w	d
NI40-CP80-Y1/S97	8.2 VDC	NAMUR	w025	d132
NI40-CP80-VP4X2/S97	10…65 VDC	, PNP	w023	d130
NI40-CP80-FZ3X2/S97	20…250 VAC / 10…300 VDC	,	w024	d130

-40 °C – M12 – NAMUR

General data

Operating voltage	8.2 VDC	**Output**	NAMUR
Ambient temperature	-40…+70 °C		

Types and data – selection table

Type	Connection	Switching distance	Housing material	Dimensions	w	d
BI2-P12-Y1X/S97	2 m cable	2 mm, ▨	PA	Ø 12 x 34 mm	w014	d168
NI5-P12-Y1X/S97	2 m cable	5 mm, ▨	PA	Ø 12 x 34 mm	w014	d168
NI5-EM12WDTC-Y1X	Terminal chamber, Removable cage clamp terminals	5 mm, ▨	V4A (1.4404)	Ø 12 x 70 mm	w025	d162
BI2-EM12WDTC-Y1X	Terminal chamber, Removable cage clamp terminals	2 mm, ▨	V4A (1.4404)	Ø 12 x 70 mm	w025	d163

-40 °C – M12 – 3-wire DC

General data

Operating voltage	10…30 VDC	**Output**	⎯◺⎯, PNP
Housing material	V4A (1.4404)		

Types and data – selection table

Type	Connection	Switching distance	Dimensions	w	d
BI4U-EM12WD-AP6X-H1141	male, M12 x 1	4 mm, ▨	Ø 12 x 52 mm	w013	d170
NI10U-EM12WD-AP6X-H1141	male, M12 x 1	10 mm, ▨	Ø 12 x 52 mm	w013	d196
BI4U-EM12WD-AP6X	2 m cable	4 mm, ▨	Ø 12 x 52 mm	w012	d188
NI10U-EM12WD-AP6X	2 m cable	10 mm, ▨	Ø 12 x 52 mm	w012	d187
BI4U-EM12WDTC-AP6X	Terminal chamber, Removable cage clamp terminals	4 mm, ▨	Ø 12 x 80 mm	w022	d185
NI10U-EM12WDTC-AP6X	Terminal chamber, Removable cage clamp terminals	10 mm, ▨	Ø 12 x 80 mm	w022	d182

Many different types available, also as NPN version, see type code

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

-40 °C – S18 – NAMUR

General data

Operating voltage	8.2 VDC	**Output**	NAMUR
Ambient temperature	-40…+70 °C		

Types and data – selection table

Type	Connection	Switching distance	Housing material	Dimensions	w	d
NI10-P18-Y1X/S97	2 m cable	10 mm, ⊏	PA	Ø 18 x 34 mm	w014	d204
BI5-P18-Y1X/S97	2 m cable	5 mm, ⊏	PA	Ø 18 x 34 mm	w014	d204
BI5-EM18WDTC-Y1X	Terminal chamber, Removable cage clamp terminals	5 mm, ⊏	V4A (1.4404)	Ø 18 x 71 mm	w025	d207
NI10-EM18WDTC-Y1X	Terminal chamber, Removable cage clamp terminals	10 mm, ⊏	V4A (1.4404)	Ø 18 x 71 mm	w025	d208

-40 °C – M18 – 3-wire DC

General data

Operating voltage	10…30 VDC	**Output**	⎽◺⎽, PNP
Housing material	V4A (1.4404)		

Types and data – selection table

Type	Connection	Switching distance	Dimensions	w	d
BI8U-EM18WD-AP6X	2 m cable	8 mm, ⊏	Ø 18 x 52 mm	w012	d227
NI15U-EM18WD-AP6X	2 m cable	15 mm, ⊏	Ø 18 x 52 mm	w012	d228
BI8U-EM18WD-AP6X-H1141	male, M12 x 1	8 mm, ⊏	Ø 18 x 52 mm	w013	d202
NI15U-EM18WD-AP6X-H1141	male, M12 x 1	15 mm, ⊏	Ø 18 x 52 mm	w013	d225
BI8U-EM18WDTC-AP6X	Terminal chamber, Removable cage clamp terminals	8 mm, ⊏	Ø 18 x 81 mm	w022	d233
NI15U-EM18WDTC-AP6X	Terminal chamber, Removable cage clamp terminals	15 mm, ⊏	Ø 18 x 81 mm	w022	d230

Many different types available, also as NPN version, see type code

-40 °C – M30 – NAMUR

General data

Operating voltage	8.2 VDC	**Output**	NAMUR
Ambient temperature	-40…+70 °C		

Types and data – selection table

Type	Connection	Switching distance	Housing material	Dimensions	w	d
BI10-P30-Y1X/S97	2 m cable	10 mm, ⊐	PA	Ø 30 x 44 mm	w014	d245
NI15-P30-Y1X/S97	2 m cable	15 mm, ⊐	PA	Ø 30 x 44 mm	w014	d245
BI10-EM30WDTC-Y1X	Terminal chamber, Removable cage clamp terminals	10 mm, ⊐	V4A (1.4404)	Ø 30 x 80 mm	w025	d251
NI15-EM30WDTC-Y1X	Terminal chamber, Removable cage clamp terminals	15 mm, ⊐	V4A (1.4404)	Ø 30 x 80 mm	w025	d252

-40 °C – M30 – 3-wire DC

General data

Operating voltage	10…30 VDC	**Output**	⎯◺⎯, PNP
Housing material	V4A (1.4404)	**Ambient temperature**	-40…+100 °C

Removable terminal strip and variable cable outlet

Types and data – selection table

Type	Connection	Switching distance	Dimensions	w	d
BI15U-EM30WDTC-AP6X	Terminal chamber, Removable cage clamp terminals	15 mm, ⊐	Ø 30 x 95 mm	w022	d264
NI30U-EM30WDTC-AP6X	Terminal chamber, Removable cage clamp terminals	30 mm, ⊐	Ø 30 x 95 mm	w022	d266
BI15U-EM30WD-AP6X	2 m cable	15 mm, ⊐	Ø 30 x 66 mm	w012	d260
NI30U-EM30WD-AP6X	2 m cable	30 mm, ⊐	Ø 30 x 66 mm	w012	d368
BI15U-EM30WD-AP6X-H1141	male, M12 x 1	15 mm, ⊐	Ø 30 x 62 mm	w013	d243
NI30U-EM30WD-AP6X-H1141	male, M12 x 1	30 mm, ⊐	Ø 30 x 62 mm	w013	d258

Many different types available, also as NPN version, see type code

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

+100 °C – CP40

General data

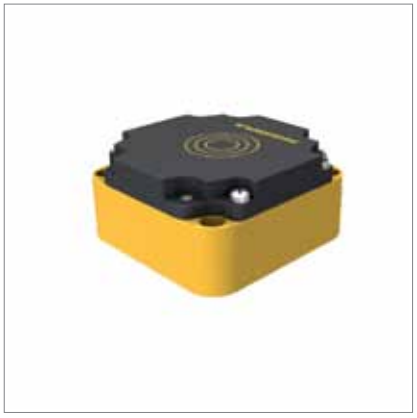
Connection	Terminal chamber	**Housing material**	PBT
Ambient temperature	-25…+100 °C	**Dimensions**	40 x 40 x 114 mm

Variable orientation of active face in 9 directions

Types and data – selection table

Type	Operating voltage	Output	Switching distance	w	d
BI15-CP40-VP4X2/S100	10…65 VDC	, PNP	15 mm,	w023	d122
NI20-CP40-VP4X2/S100	10…65 VDC	, PNP	20 mm,	w023	d122
BI15-CP40-Y1X/S100	8.2 VDC	NAMUR	15 mm,	w025	d124
NI20-CP40-Y1X/S100	8.2 VDC	NAMUR	20 mm,	w025	d124
BI15-CP40-FZ3X2/S100	20…250 VAC / 10…300 VDC	,	15 mm,	w024	d122
NI20-CP40-FZ3X2/S100	20…250 VAC / 10…300 VDC	,	20 mm,	w024	d122

+100 °C – CP80



General data

Connection	Terminal chamber	**Switching distance**	40 mm,
Housing material	PBT	**Ambient temperature**	-25…+100 °C
Dimensions	80 x 41 x 80 mm		

Types and data – selection table

Type	Operating voltage	Output	w	d
NI40-CP80-Y1/S100	8.2 VDC	NAMUR	w025	d132
NI40-CP80-VP4X2/S100	10…65 VDC	, PNP	w023	d130
NI40-CP80-FZ3X2/S100	20…250 VAC / 10…300 VDC	,	w024	d130

+100 °C – M8

General data

Connection	2 m cable	**Operating voltage**	10…30 VDC
Output	_⌒_, PNP	**Switching distance**	2 mm,
Housing material	V4A (1.4404)	**Ambient temperature**	-25…+100 °C
Dimensions	Ø 8 x 42 mm		

Types and data – selection table

Type	w	d
BI2-EG08-AP6X/S100	w012	d148

Many different types available, also as NPN version, see type code

+100 °C – M12 – NAMUR

General data

Operating voltage	8.2 VDC	**Output**	NAMUR
Ambient temperature	-25…+100 °C		

Types and data – selection table

Type	Connection	Switching distance	Housing material	Dimensions	w	d
NI5-P12-Y1/S100	2 m cable	5 mm,	PA	Ø 12 x 34 mm	w014	d369
BI2-P12-Y1/S100	2 m cable	2 mm,	PA	Ø 12 x 34 mm	w014	d369
BI2-EG12-Y1X/S100 7M	7 m cable	2 mm,	V2A (1.4301)	Ø 12 x 34 mm	w014	d169
NI5-EG12-Y1X/S100 7M	7 m cable	5 mm,	V2A (1.4301)	Ø 12 x 34 mm	w014	d167
NI5-EM12WDTC-Y1X	Terminal chamber, Removable cage clamp terminals	5 mm,	V4A (1.4404)	Ø 12 x 70 mm	w025	d162
BI2-EM12WDTC-Y1X	Terminal chamber, Removable cage clamp terminals	2 mm,	V4A (1.4404)	Ø 12 x 70 mm	w025	d163

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

+100 °C – M12 – 3-wire DC

General data

Operating voltage	10…30 VDC	**Output**	⎯◺, PNP
Housing material	V4A (1.4404)		

Types and data – selection table

Type	Connection	Switching distance	Dimensions	w	d
BI4U-EM12WD-AP6X-H1141	male, M12 x 1	4 mm, ▨	Ø 12 x 52 mm	w013	d170
NI10U-EM12WD-AP6X-H1141	male, M12 x 1	10 mm, □	Ø 12 x 52 mm	w013	d196
BI4U-EM12WD-AP6X	2 m cable	4 mm, ▨	Ø 12 x 52 mm	w012	d188
NI10U-EM12WD-AP6X	2 m cable	10 mm, □	Ø 12 x 52 mm	w012	d187
BI4U-EM12WDTC-AP6X	Terminal chamber, Removable cage clamp terminals	4 mm, ▨	Ø 12 x 80 mm	w022	d185
NI10U-EM12WDTC-AP6X	Terminal chamber, Removable cage clamp terminals	10 mm, □	Ø 12 x 80 mm	w022	d182

Many different types available, also as NPN version, see type code

+100 °C – M12 – 2-wire AC/DC

General data

Connection	2 m cable	**Operating voltage**	20…250 VAC / 10…300 VDC
Output	⎯◺	**Housing material**	PA
Ambient temperature	-25…+100 °C		

Types and data – selection table

Type	Switching distance	Dimensions	w	d
BI2-S12-AZ31X/S100	2 mm, ▨	Ø 12 x 60 mm	w015	d179
NI4-S12-AZ31X/S100	4 mm, □	Ø 12 x 64 mm	w015	d179

+100 °C – S18 – NAMUR

General data

Operating voltage	8.2 VDC	**Output**	NAMUR
Ambient temperature	-25…+100 °C		

Types and data – selection table

Type	Connection	Switching distance	Housing material	Dimensions	w	d
BI5-EG18-Y1X/S100 7M	7 m cable	5 mm,	V2A (1.4301)	Ø 18 x 34 mm	w014	d205
NI10-P18-Y1/S100	2 m cable	10 mm,	PA	Ø 18 x 34 mm	w014	d370
BI5-P18-Y1/S100	2 m cable	5 mm,	PA	Ø 18 x 34 mm	w014	d370
NI10-EG18-Y1X/S100 7M	7 m cable	10 mm,	V2A (1.4301)	Ø 18 x 34 mm	w014	d206
BI5-EM18WDTC-Y1X	Terminal chamber, Removable cage clamp terminals	5 mm,	V4A (1.4404)	Ø 18 x 71 mm	w025	d207
NI10-EM18WDTC-Y1X	Terminal chamber, Removable cage clamp terminals	10 mm,	V4A (1.4404)	Ø 18 x 71 mm	w025	d208

+100 °C – M18 – 3-wire DC

General data

Operating voltage	10…30 VDC	**Output**	_⌒‾, PNP
Housing material	V4A (1.4404)		

Types and data – selection table

Type	Connection	Switching distance	Dimensions	w	d
BI8U-EM18WD-AP6X	2 m cable	8 mm,	Ø 18 x 52 mm	w012	d227
NI15U-EM18WD-AP6X	2 m cable	15 mm,	Ø 18 x 52 mm	w012	d228
BI8U-EM18WD-AP6X-H1141	male, M12 x 1	8 mm,	Ø 18 x 52 mm	w013	d202
NI15U-EM18WD-AP6X-H1141	male, M12 x 1	15 mm,	Ø 18 x 52 mm	w013	d225
BI8U-EM18WDTC-AP6X	Terminal chamber, Removable cage clamp terminals	8 mm,	Ø 18 x 81 mm	w022	d233
NI15U-EM18WDTC-AP6X	Terminal chamber, Removable cage clamp terminals	15 mm,	Ø 18 x 81 mm	w022	d230

Many different types available, also as NPN version, see type code

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+100 °C – M18 – 2-wire AC/DC

General data

Connection	2 m cable	**Operating voltage**	20…250 VAC / 10… 300 VDC
Output	⎯◝	**Housing material**	PA
Ambient temperature	-25…+100 °C	**Dimensions**	Ø 18 x 64 mm

Types and data – selection table

Type	Switching distance	w	d
BI5-S18-AZ3X/S100	5 mm, ⊏	w028	d217
NI8-S18-AZ3X/S100	8 mm, ⊏	w028	d217

+100 °C – M30 – NAMUR

General data

Operating voltage	8.2 VDC	**Output**	NAMUR
Ambient temperature	-25…+100 °C		

Types and data – selection table

Type	Connection	Switching distance	Housing material	Dimensions	w	d
BI10-P30-Y1/S100	2 m cable	10 mm, ⊏	PA	Ø 30 x 44 mm	w014	d371
NI15-P30-Y1/S100	2 m cable	15 mm, ⊏	PA	Ø 30 x 44 mm	w014	d371
BI10-EG30-Y1X/S100 7M	7 m cable	10 mm, ⊏	V2A (1.4301)	Ø 30 x 44 mm	w014	d246
NI15-EG30-Y1X/S100 7M	7 m cable	15 mm, ⊏	V2A (1.4301)	Ø 30 x 44 mm	w014	d247
BI10-EM30WDTC-Y1X	Terminal chamber, Removable cage clamp terminals	10 mm, ⊏	V4A (1.4404)	Ø 30 x 80 mm	w025	d251
NI15-EM30WDTC-Y1X	Terminal chamber, Removable cage clamp terminals	15 mm, ⊏	V4A (1.4404)	Ø 30 x 80 mm	w025	d252

+100 °C – M30 – 3-wire DC

General data

Operating voltage	10…30 VDC	**Output**	⎯◺⎯, PNP
Housing material	V4A (1.4404)	**Ambient temperature**	-40…+100 °C

Removable terminal strip and variable cable outlet

Types and data – selection table

Type	Connection	Switching distance	Dimensions	w	d
BI15U-EM30WDTC-AP6X	Terminal chamber, Removable cage clamp terminals	15 mm, ⊐	Ø 30 x 95 mm	w022	d264
NI30U-EM30WDTC-AP6X	Terminal chamber, Removable cage clamp terminals	30 mm, ⊐	Ø 30 x 95 mm	w022	d266
BI15U-EM30WD-AP6X	2 m cable	15 mm, ⊐	Ø 30 x 66 mm	w012	d260
NI30U-EM30WD-AP6X	2 m cable	30 mm, ⊐	Ø 30 x 66 mm	w012	d368
BI15U-EM30WD-AP6X-H1141	male, M12 x 1	15 mm, ⊐	Ø 30 x 62 mm	w013	d243
NI30U-EM30WD-AP6X-H1141	male, M12 x 1	30 mm, ⊐	Ø 30 x 62 mm	w013	d258

Many different types available, also as NPN version, see type code

+100 °C – M30 – 2-wire AC/DC

General data

Connection	2 m cable	**Operating voltage**	20…250 VAC / 10…300 VDC
Output	⎯◺⎯	**Housing material**	PA
Ambient temperature	-25…+100 °C	**Dimensions**	Ø 30 x 64 mm

Types and data – selection table

Type	Switching distance	w	d
BI10-S30-AZ3X/S100	10 mm, ⊐	w028	d254
NI15-S30-AZ3X/S100	15 mm, ⊐	w028	d254

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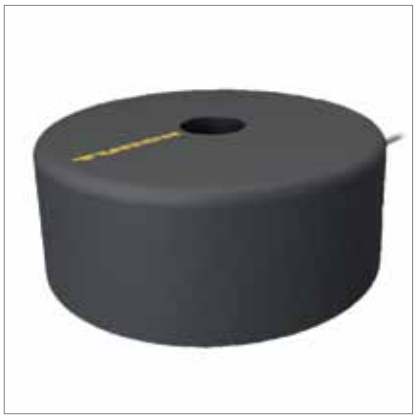
+120 °C – Ø160 mm



General data

Connection	2 m cable	**Operating voltage**	10…55 VDC
Output	⎯⎽⎯, PNP	**Switching distance**	100 mm, ⊐
Housing material	PPO	**Ambient temperature**	-25…+120 °C
Dimensions	60 x 160 mm		

Types and data – selection table

Type	w	d
NI100-Q160-AP44X/S120	w012	d372

+120 °C – M12

General data

Connection	2 m cable	**Operating voltage**	10…30 VDC
Output	⎯⎽⎯, PNP	**Housing material**	V4A (1.4571)
Ambient temperature	-25…+120 °C		

Types and data – selection table

Type	Switching distance	Dimensions	w	d
BI2-EM12D-AP6/S120	2 mm, ⊐	Ø 12 x 63 mm	w012	d364
NI4-EM12D-AP6/S120	4 mm, ⊐	Ø 12 x 67 mm	w012	d365

+120 °C – M18

General data

Connection 2 m cable **Ambient temperature** -25…+120 °C

Types and data – selection table

Type	Operating voltage	Output	Switching distance	Housing material	Dimensions	w	d
BI5-M18-AP6X/S120	10…30 VDC	, PNP	5 mm,	CuZn-Cr	Ø 18 x 87 mm	w012	d373
NI8-M18-AP6X/S120	10…30 VDC	, PNP	8 mm,	CuZn-Cr	Ø 18 x 97 mm	w012	d374
BI5-EM18D-VP6X/S120	10…30 VDC	, PNP	5 mm,	V4A (1.4571)	Ø 18 x 95 mm	w010	d375
NI7-EM18D-VP6X/S120	10…30 VDC	, PNP	7 mm,	V4A (1.4571)	Ø 18 x 103 mm	w010	d376
BI5-M18-AZ3X/S120	20…250 VAC		5 mm,	CuZn-Cr	Ø 18 x 87 mm	w015	d373
NI8-M18-AZ3X/S120	20…250 VAC		8 mm,	CuZn-Cr	Ø 18 x 97 mm	w015	d374

+120 °C – M30

General data

Connection 2 m cable **Ambient temperature** -25…+120 °C

Types and data – selection table

Type	Operating voltage	Output	Switching distance	Housing material	Dimensions	w	d
BI10-M30-AP6X/S120	10…30 VDC	, PNP	10 mm,	CuZn-Cr	Ø 30 x 87 mm	w012	d377
NI15-M30-AP6X/S120	10…30 VDC	, PNP	15 mm,	CuZn-Cr	Ø 30 x 97 mm	w012	d378
BI10-EM30D-VP6X/S120	10…30 VDC	, PNP	10 mm,	V4A (1.4571)	Ø 30 x 100 mm	w010	d379
NI15-EM30D-VP6X/S120	10…30 VDC	, PNP	15 mm,	V4A (1.4571)	Ø 30 x 110 mm	w010	d380
BI10-M30-AZ3X/S120	20…250 VAC		10 mm,	CuZn-Cr	Ø 30 x 87 mm	w015	d377
NI15-M30-AZ3X/S120	20…250 VAC		15 mm,	CuZn-Cr	Ø 30 x 97 mm	w015	d378

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+160 °C – M18

General data

Connection	2 m cable	**Operating voltage**	10…30 VDC
Output	⎍, PNP	**Housing material**	V4A (1.4571)
Ambient temperature	-25…+160 °C		

Types and data – selection table

Type	Switching distance	Dimensions	w	d
BI5-EM18-AP6/S907	5 mm, ⊏	Ø 18 x 95 mm	w012	d381
NI8-EM18-AP6/S907	8 mm, ⊏	Ø 18 x 103 mm	w012	d382

+160 °C – M30

General data

Connection	2 m cable	**Operating voltage**	10…30 VDC
Output	⎍, PNP	**Housing material**	V4A (1.4571)
Ambient temperature	-25…+160 °C		

Types and data – selection table

Type	Switching distance	Dimensions	w	d
BI10-EM30-AP6/S907	10 mm, ⊏	Ø 30 x 100 mm	w012	d383
NI15-EM30-AP6/S907	15 mm, ⊏	Ø 30 x 110 mm	w012	d384

+250 °C – Q40 – Sensor

General data

Connection	5 m male, M12 x 1	**Output**	⎯⎺⎯, PNP
Switching distance	25 mm, ⊐	**Housing material**	Al
Ambient temperature	0…+250 °C	**Dimensions**	40 x 40 x 52 mm

Amplifier EM30-AP6X2-H1141/S1102 required

Types and data – selection table

Type	w	d
NI25-CQ40/S1102 5M	w058	d385

+250 °C – Q80 – Sensor

General data

Connection	5 m male, M12 x 1	**Output**	⎯⎺⎯, PNP
Switching distance	40 mm, ⊐	**Housing material**	Al
Ambient temperature	0…+250 °C	**Dimensions**	80 x 41 x 92 mm

Amplifier EM30-AP6X2-H1141/S1102 required

Types and data – selection table

Type	w	d
NI40-CQ80/S1102 5M	w058	d386

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+250 °C – EM30 – Amplifier

General data

Connection	male, M12 x 1	**Operating voltage**	10…30 VDC
Output	_⎍⎍_, PNP	**Housing material**	V4A (1.4571)
Ambient temperature	-20…+70 °C	**Dimensions**	Ø 30 x 83 mm

Required sensors Ni25-CQ40/S1102 5M or Ni40-CQ80/S1102 5M

Types and data – selection table

Type	w	d
EM30-AP6X2-H1141/S1102	w059	d387

Wiring diagrams on page 658 Dimension drawing on page 670 Accessories on page 560

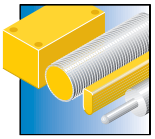
Inductive sensors for underwater applications

We provide sensors in fully pressure and seawater tight housings for subsea applications. Mounted in plastic M18 threaded barrels, they can even be applied at water depths of up to 500 m. The CP40 sensors are also made for subsea use. They are fully encapsulated in a SG40/2 housing. These types achieve large switching distances, are IP68 rated and made for (fresh) water depths of up to 50 m. They are mostly applied in locks, weirs and offshore areas.

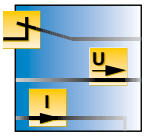
Features

- For continuous use under water
- M18 sensors for water depths of up to 500 m
- CP40 sensors in protective housing for water depths of up to 50 m
- Application compliant housing materials
- Versions with ATEX approval

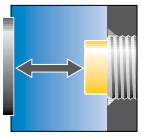
Properties



Designs
M18 x 1 threaded barrel, rectangular 40 x 40 mm, mounted in protective housing



Electrical versions
NAMUR or 3 and 4-wire DC

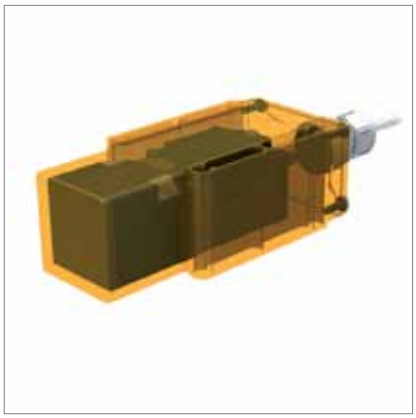


Switching distances
Threaded barrel 5 mm flush or 8 mm non-flush version, rectangular
35 mm non-flush

Materials
Longlife materials, seawater-resistant

Internet link
Scan the QR code to access our products on the internet

CP40



General data

Connection	30 m cable	**Operating voltage**	10…65 VDC
Output	, PNP	**Switching distance**	35 mm,
Housing material	Ultem	**Ambient temperature**	-25…+70 °C
Dimensions	67 x 50 x 190 mm		

Types and data – selection table

Type	w	d
NI35-CP40-VP4X2/S369-F 30M	w060	d388

M18

General data

Connection	2 m cable	**Housing material**	POM
Ambient temperature	-25…+70 °C	**Dimensions**	Ø 18 x 80 mm

Types and data – selection table

Type	Operating voltage	Output	Switching distance	w	d
NI8-P18-Y1/S139	8.2 VDC	NAMUR	8 mm,	w014	d237
BI5-P18-AP6/S139-S90	10…30 VDC	, PNP	5 mm,	w012	d237
NI8-P18-AP6/S139-S90	10…30 VDC	, PNP	8 mm,	w012	d237
BI5-P18-AZ3/S139-S90	20…250 VAC / 10…300 VDC		5 mm,	w028	d237
NI8-P18-AZ3/S139-S90	20…250 VAC / 10…300 VDC		8 mm,	w028	d237

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

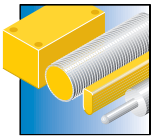
Pressure-resistant sensors

We offer pressure and high-pressure resistant sensors. The *uprox*®+ Washdown sensors resist pressures up to 20 bar, are IP68/IP69K rated and combine the unique *uprox* ® advantages, such as largest switching distance and factor 1 on all metals.
The high-pressure resistant sensors are incorporated in a stainless steel housing and are ideally suited for hydraulic systems. Special seals and additional outer seals at the front as well as an O-ring enable the application in high pressure systems of up to 500 bar.

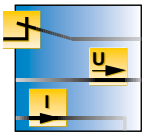
Features

- M8 and M12 versions up to 20 bar
- M18 up to 15 bar
- M30 up to 10 bar *uprox*®+ Washdown sensors with large switching distance
- Special high pressure resistant sensors up to 500 bar

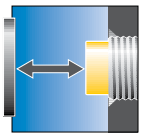
Properties



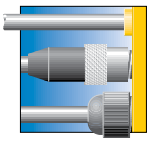
Designs
Thread sizes M8 x 1, M12 x 1, M18 x 1 or M30 x 1.5



Electrical versions
NO, NC contact or antivalent DC output functions



Switching distances
uprox®+ Washdown sensors up to 30 mm; high-pressure resistant sensors up to 2 mm



Electrical connections
Cable or male M12

Materials
Stainless steel threaded barrel, shape-stable plastics for active face

Special features
Factor 1 for all metals, temperature range -40…+100 °C

Internet link
Scan the QR code to access our products on the internet

M8

General data

Connection	male, M12 x 1	**Operating voltage**	10…30 VDC
Output	⎯◺⎯, PNP	**Switching distance**	1.5 mm, ⫤
Housing material	V4A (1.4404)	**Dimensions**	Ø 8 x 57 mm

Pressure-resistant up to 20 bar

Types and data – selection table

Type	w	d
BI1,5-EG08WD-AP6X-H1341	w013	d027

Many different types available, also as NPN version, see type code

M12

General data

Housing material	V4A (1.4404)

Pressure-resistant up to 20 bar

Types and data – selection table

Type	Connection	Operating voltage	Output	Switching distance	Dimensions	w	d
BI4U-EM12WD-AP6X-H1141	male, M12 x 1	10…30 VDC	⎯◺⎯, PNP	4 mm, ⫤	Ø 12 x 52 mm	w013	d170
NI10U-EM12WD-AP6X-H1141	male, M12 x 1	10…30 VDC	⎯◺⎯, PNP	10 mm, ⫤	Ø 12 x 52 mm	w013	d196
BI4U-EM12WD-AP6X	2 m cable	10…30 VDC	⎯◺⎯, PNP	4 mm, ⫤	Ø 12 x 52 mm	w012	d188
NI10U-EM12WD-AP6X	2 m cable	10…30 VDC	⎯◺⎯, PNP	10 mm, ⫤	Ø 12 x 52 mm	w012	d187
BI4U-EM12EWD-VP44X-H1141	male, M12 x 1	10…55 VDC	⎯◺⎯, PNP	4 mm, ⫤	Ø 12 x 62 mm	w035	d172
NI10U-EM12EWD-VP44X-H1141	male, M12 x 1	10…55 VDC	⎯◺⎯, PNP	10 mm, ⫤	Ø 12 x 62 mm	w035	d175

Many different types available, also as NPN version, see type code

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

M18

General data

Housing material V4A (1.4404)

Pressure-resistant up to 15 bar

Types and data – selection table

Type	Connection	Operating voltage	Output	Switching distance	Dimensions	w	d
BI8U-EM18WD-AP6X-H1141	male, M12 x 1	10…30 VDC	_⌐‾, PNP	8 mm,	Ø 18 x 52 mm	w013	d202
NI15U-EM18WD-AP6X-H1141	male, M12 x 1	10…30 VDC	_⌐‾, PNP	15 mm,	Ø 18 x 52 mm	w013	d225
BI8U-EM18WD-AP6X	2 m cable	10…30 VDC	_⌐‾, PNP	8 mm,	Ø 18 x 52 mm	w012	d227
NI15U-EM18WD-AP6X	2 m cable	10…30 VDC	_⌐‾, PNP	15 mm,	Ø 18 x 52 mm	w012	d228
BI8U-EM18MWD-VP44X-H1141	male, M12 x 1	10…55 VDC	⌐‾, PNP	8 mm,	Ø 18 x 61.5 mm	w035	d212
NI15U-EM18MWD-VP44X-H1141	male, M12 x 1	10…55 VDC	⌐‾, PNP	15 mm,	Ø 18 x 61.5 mm	w035	d214

Many different types available, also as NPN version, see type code

M18 – High pressure resistant

General data

Operating voltage 10…30 VDC

Switching distance 2 mm,

Dimensions Ø 18 x 58 mm

Output _⌐‾, PNP

Housing material V2A (1.4305)

Pressure resistant up to 500 bar (S212) resp. 100 bar (S220)

Types and data – selection table

Type	Connection	w	d
BID2-G180-AP6-H1141/S220	male, M12 x 1	w013	d389
BID2-G180-AP6-H1141/S212	male, M12 x 1	w013	d389
BID2-G180-AP6/S220	2 m cable	w012	d390
BID2-G180-AP6/S212	2 m cable	w012	d390

M30

General data

Housing material	V4A (1.4404)	**Ambient temperature**	-40…+100 °C

Pressure-resistant up to 10 bar

Types and data – selection table

Type	Connection	Operating voltage	Output	Switching distance	Dimensions	w	d
BI15U-EM30WD-AP6X-H1141	male, M12 x 1	10…30 VDC	, PNP	15 mm,	Ø 30 x 62 mm	w013	d243
NI30U-EM30WD-AP6X-H1141	male, M12 x 1	10…30 VDC	, PNP	30 mm,	Ø 30 x 62 mm	w013	d258
BI15U-EM30WD-AP6X	2 m cable	10…30 VDC	, PNP	15 mm,	Ø 30 x 66 mm	w012	d260
NI30U-EM30WD-AP6X	2 m cable	10…30 VDC	, PNP	30 mm,	Ø 30 x 66 mm	w012	d368
BI15U-EM30WD-VP44X-H1141	male, M12 x 1	10…55 VDC	, PNP	15 mm,	Ø 30 x 62 mm	w035	d243
NI30U-EM30WD-VP44X-H1141	male, M12 x 1	10…55 VDC	, PNP	30 mm,	Ø 30 x 62 mm	w035	d258

Many different types available, also as NPN version, see type code

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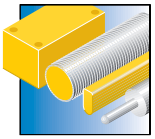
Selective sensors

TURCK's sensor series NF and FE and are particularly suited for applications in which ferritic metals have to be distinguished from non-ferritic ones. They distinguish for example between workpiece and tool or between workpieces made of different materials and perform simple coding tasks.

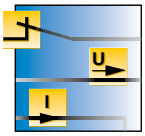
Features

- Switching outputs for the detection of different materials
- NF with output for non-ferritic metals
- FE with output for ferritic metals
- Stainless steel housing
- Large switching distance also on non-ferritic metals
- Highly immune to interference

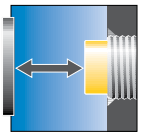
Properties



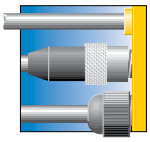
Designs
12, 18 and 30 mm threaded barrels as well as 40 x 40 mm rectangular housings



Electrical versions
3-wire DC for threaded barrels; 4-wire DC/2-wire AC for rectangular types



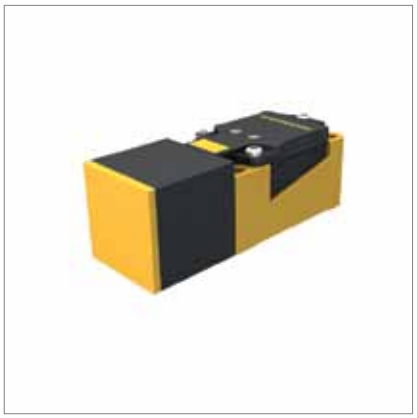
Switching distances
Distinction of ferrous metals up to 5 mm; distinction of non-ferrous metals up to 20 mm



Electrical connections
Threaded barrel with male M12, rectangular version with terminal chamber

Internet link
Scan the QR code to access our products on the internet

CP40



General data

Connection	Terminal chamber	**Operating voltage**	10…65 VDC
Output	, PNP	**Switching distance**	20 mm,
Housing material	PBT	**Dimensions**	40 x 40 x 114 mm

Variable orientation of active face in 9 directions

Types and data – selection table

Type	w	d
NI20NF-CP40-VP4X2	w023	d391

Many different types available, also as NPN version, see type code

M12

General data

Connection	male, M12 x 1	**Operating voltage**	10…30 VDC
Output	, PNP	**Housing material**	V2A (1.4301)

Types and data – selection table

Type	Switching distance	Dimensions	w	d
BI3NF-EM12HE-AP6X2-H1141	3 mm,	Ø 12 x 62 mm	w013	d173
BI2,5FE-EM12FE-AP6X-H1141	2.5 mm,	Ø 12 x 60 mm	w013	d392

Many different types available, also as NPN version, see type code

w Wiring diagrams on page 658 d Dimension drawing on page 670 Accessories on page 560

M18

General data

Connection	male, M12 x 1	**Operating voltage**	10…30 VDC
Output	_⌒‾, PNP	**Switching distance**	5 mm,
Housing material	V2A (1.4301)	**Dimensions**	Ø 18 x 72 mm

Types and data – selection table

Type	w	d
BI5NF-EM18HE-AP6X2-H1141	w013	d223

Many different types available, also as NPN version, see type code

M30

General data

Connection	male, M12 x 1	**Operating voltage**	10…30 VDC
Output	_⌒‾, PNP	**Switching distance**	10 mm,
Housing material	V2A (1.4301)	**Dimensions**	Ø 30 x 77 mm

Types and data – selection table

Type	w	d
BI10NF-EM30HE-AP6X2-H1141	w013	d393

Many different types available, also as NPN version, see type code

Wiring diagrams on page 658 Dimension drawing on page 670 Accessories on page 560