

Cubic housings from  
from Page 560

- Variety of housing sizes for numerous applications
- Plastic or metal housing options
- Switching distances from 1.5 mm to 35 mm
- Numerous connection possibilities
- Flush, quasi-flush and non-flush mounting possibilities



Cylindrical housings  
from Page 568

- Variety of housing sizes for numerous applications
- High switching frequency of up to 5 kHz
- Robust stainless steel designs
- With switching or analogue output options
- Highly pressure-resistant sensors for up to 800 bar
- Flush, quasi-flush and non-flush mounting possibilities
- Full-metal "see-through" sensors (metal face)
- Three-fold switching distance
- K-factor 1, switching distance independent of type of metal



Because of their functional principle, inductive sensors are only suitable for detecting metal objects. But they do this extremely reliably and are also very robust and resistant (e.g. regarding environmental factors), which makes them interesting for numerous industrial applications. They are mainly used wherever the detection of uniform movements is involved – for example as proximity switches for determining the position of transported machine parts such as saddles or hydraulic cylinders, for measuring rotary speeds on vehicle crankshafts, or as pulse generators for motor ignition.

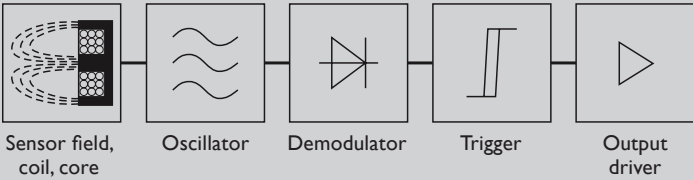
Inductive sensors are extremely precise due to their high repeatability levels. Their simple design and uncomplicated commissioning ensure minimal downtimes. Whether in robotics, in assembly and handling, in factory automation or mechanical engineering: inductive sensors from SensoPart are reliable, require no maintenance, and offer versatile use thanks to the numerous housings and sizes available.

TYPICAL SENSOPART

- Reliable detection of metallic objects
- Product variants for standard or three-fold switching distances
- Robust cylindrical or cuboid metal housing options
- Simple installation thanks to integrated metric threads
- Different designs for flush, quasi-flush and non-flush mounting
- Switching or analogue output options available
- NAMUR-compliant design on request

| Inductive Sensors – Product Overview |                                                             |                                          |      |
|--------------------------------------|-------------------------------------------------------------|------------------------------------------|------|
| Design                               | Switching distance                                          | Special features                         | Page |
| Cubic                                | 0.8 mm / 1.5 mm / 3mm / 4 mm / 8 mm / 15 mm / 20 mm / 35 mm | Miniature housing, AC/DC variants        | 560  |
| Cylindrical Ø 3 mm                   | 0.6 mm                                                      | PNP, NPN                                 | 568  |
| Cylindrical Ø 4 mm                   | 0.8 mm                                                      | PNP, NPN, NAMUR, stainless steel housing | 569  |
| Cylindrical Ø 5 mm                   | 0.8 mm                                                      | PNP, NPN, stainless steel housing        | 572  |
| Cylindrical Ø 6,5 mm                 | 1.5 mm / 2 mm / 3 mm                                        | PNP, NPN                                 | 573  |
| Cylindrical Ø 8 mm                   | 1.5 mm / 2 mm / 3 mm / 6 mm                                 | PNP, NPN                                 | 577  |
| Cylindrical Ø 12 mm                  | 2 mm / 4 mm / 6 mm / 10 mm.                                 | PNP, NPN                                 | 584  |
| Cylindrical Ø 14 mm                  | 3 mm                                                        | PNP, stainless steel housing             | 591  |
| Cylindrical Ø 18 mm                  | 5 mm / 8 mm / 10 mm / 12 mm / 20 mm                         | PNP, NPN, stainless steel housing        | 592  |
| Cylindrical Ø 30 mm                  | 10 mm / 15 mm / 20 mm / 22 mm / 40 mm                       | PNP, NPN, stainless steel housing        | 599  |
| Cylindrical Ø 12 mm / 18 mm analogue | 6 mm / 10 mm                                                | Analogue output                          | 605  |

Method of function

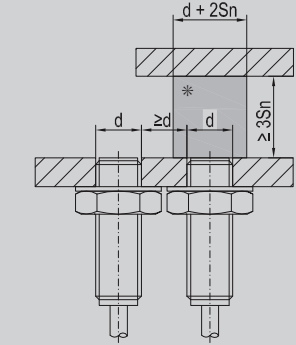


Inductive sensors exploit the interaction of metallic conductors with their alternating electromagnetic fields. Eddy currents are induced in the conductor. They draw energy from the field, reducing the oscillation amplitude. Inductive sensors evaluate this change. The area through which the high-frequency sensor field enters space is described as the active area. It roughly corresponds to the area of the pot core cap.

Applications

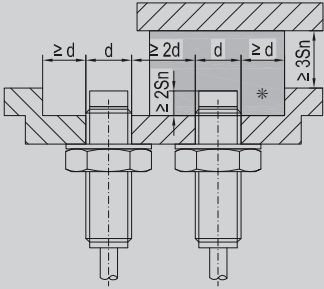
Inductive sensors are suitable for controlling and monitoring machine processes, and for providing signals in counting tasks where metals are involved. In particular, they are characterised by their immunity to vibrations, impacts, dust and dampness, and operate with extreme precision.

Flush-mountable proximity switches



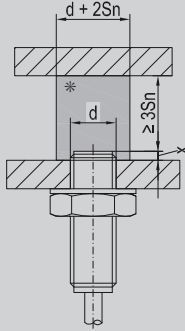
Flush-mountable proximity switches can be embedded in metal up to the active area. The distance to any metal surfaces opposite must be  $\geq 3 S_n$  and the distance between two proximity switches (mounted in series) must be  $\geq d$ .

Non-flush mountable proximity switches



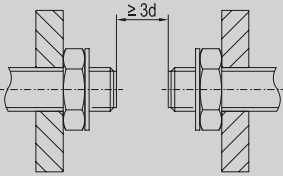
Non-flush mountable proximity switches have no metal housing near the active area. They have a free zone. For this reason they experience no pre-damping of the sensor field and can – unlike flush-mountable sensors – be used at longer switching distances. A metal-free zone, however, must always be maintained around the active area. The distance to any metal surfaces opposite must be  $\geq 3 S_n$  and the distance between two proximity switches (mounted in series) must be  $\geq 2 d$ .

Quasi-flush-mountable proximity switches



Quasi-flush-mountable proximity switches require a space behind the active area that is kept free of conductive materials. As a result, the nominal switching distance is available without restriction. Whereby the value "x" is the shortest distance between the active area and the conductive material located behind it.

Opposite mounting

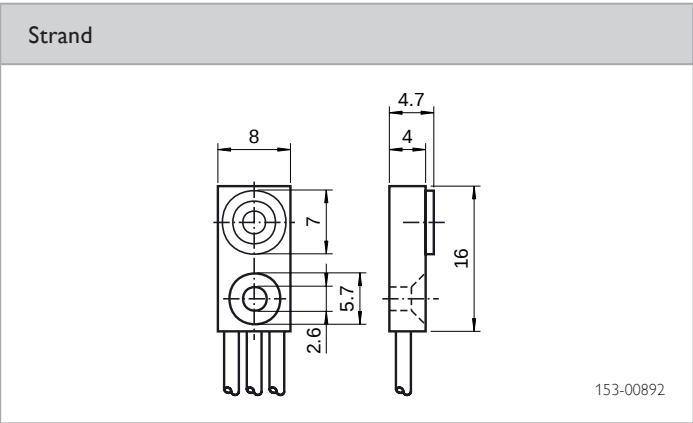
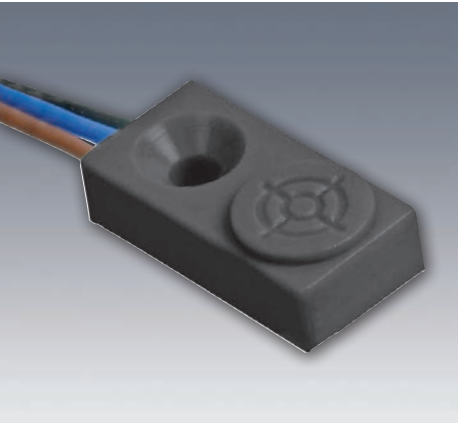


All inductive proximity sensors mounted facing one another require a minimum distance of  $\geq 3 d$  between their active areas.

| Mounting in steel or non-ferrous metals |         | Mounting in stainless steel |         |
|-----------------------------------------|---------|-----------------------------|---------|
| Housing                                 | x in mm | Housing                     | x in mm |
| ø 6.5                                   | 1       | ø 6.5                       | 0       |
| M 8                                     | 1       | M 8                         | 0       |
| 8 x 8                                   | 1       | 8 x 8                       | 0       |
| M 12                                    | 2       | M 12                        | 1       |
| M 18                                    | 4       | M 18                        | 1,5     |
| M 30                                    | 6       | M 30                        | 2       |

IT 8

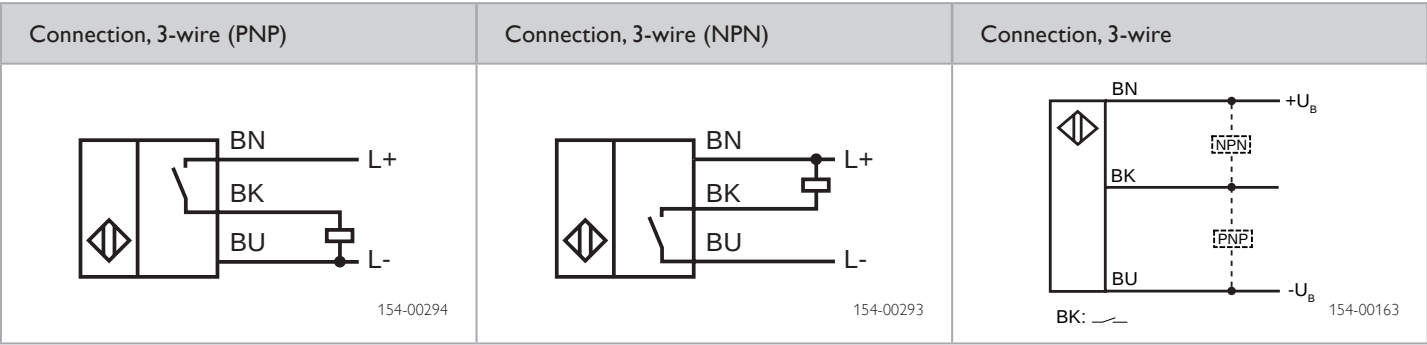
Inductive sensor in cubic housing



| Sensor data                |                |
|----------------------------|----------------|
| Switching distance         | 1.5 mm         |
| Ensured switching distance | 0 ... 1.215 mm |
| Hysteresis                 | ~ 5 %          |
| Reduction factor, AI       | 0.3            |
| Reduction factor, Cu       | 0.2            |
| Reduction factor, V2A      | 0.7            |

| Electrical data                    |                                 | Mechanical data                 |                              |
|------------------------------------|---------------------------------|---------------------------------|------------------------------|
| Operating voltage, +U <sub>B</sub> | 5 ... 30V DC                    | Dimensions                      | 16 x 4.7 x 8 mm <sup>3</sup> |
| No-load current, I <sub>0</sub>    | ≤ 15 mA                         | Enclosure rating                | IP 67 <sup>1</sup>           |
| Output current, I <sub>e</sub>     | ≤ 100 mA                        | Material, housing               | PA                           |
| Voltage drop, U <sub>D</sub>       | ≤ 1.5 V                         | Material, front surface         | PA                           |
| Residual current, I <sub>r</sub>   | ≤ 10 µA                         | Type of connection              | (See Selection Table)        |
| Protective circuits                | Short-circuit protection (Q)    | Ambient temperature: operation  | -25 ... +70 °C               |
| Switching output, Q                | PNP / NPN (see Selection Table) | Vibration and impact resistance | EN 60947-5-2                 |
| Output function                    | N.O.                            |                                 |                              |
| Switching frequency, f (ti/tp 1:1) | ≤ 1200 Hz                       |                                 |                              |

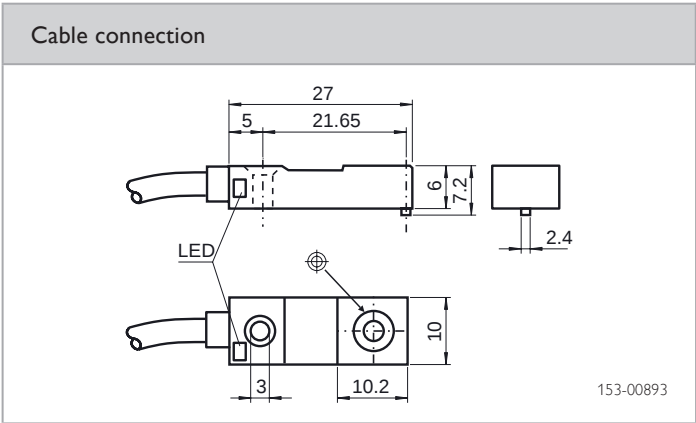
<sup>1</sup> With connected IP 67 plug



| Switching distance | Mounting | Switching output | Type of connection    | Part number     | Article number |
|--------------------|----------|------------------|-----------------------|-----------------|----------------|
| 1.5 mm             | Flush    | PNP              | Strand, 0.5 m, 3-wire | IT 8-1B5K-PS-K3 | 697-01068      |
| 1.5 mm             | Flush    | NPN              | Strand, 0.5 m, 3-wire | IT 8-1B5K-NS-K3 | 697-01069      |

IT 10

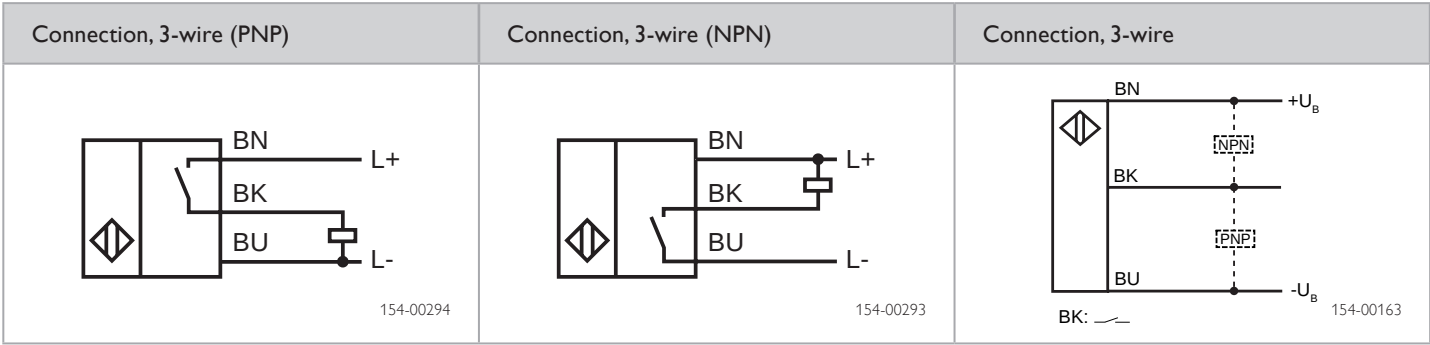
Inductive sensor in cubic housing



| Sensor data                |               | Functions             |                            |
|----------------------------|---------------|-----------------------|----------------------------|
| Switching distance         | 4 mm          | Indicator LED, yellow | Switching output indicator |
| Ensured switching distance | 0 ... 3.24 mm |                       |                            |
| Hysteresis                 | ~ 5 %         |                       |                            |
| Reduction factor, AI       | 0.4           |                       |                            |
| Reduction factor, Cu       | 0.3           |                       |                            |
| Reduction factor, V2A      | 0.7           |                       |                            |

| Electrical data                    |                                                                                         | Mechanical data                 |                               |
|------------------------------------|-----------------------------------------------------------------------------------------|---------------------------------|-------------------------------|
| Operating voltage, +U <sub>B</sub> | 10 ... 30V DC                                                                           | Dimensions                      | 27 x 7.2 x 10 mm <sup>3</sup> |
| No-load current, I <sub>0</sub>    | ≤ 10 mA                                                                                 | Enclosure rating                | IP 67 <sup>1</sup>            |
| Output current, I <sub>e</sub>     | ≤ 100 mA                                                                                | Material, housing               | PPS                           |
| Voltage drop, U <sub>D</sub>       | ≤ 3 V                                                                                   | Material, front surface         | PPS                           |
| Residual current, I <sub>r</sub>   | ≤ 0.5 mA                                                                                | Type of connection              | (See Selection Table)         |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q) <sup>2</sup> | Ambient temperature: operation  | -25 ... +70 °C                |
| Switching output, Q                | PNP / NPN (see Selection Table)                                                         | Vibration and impact resistance | EN 60947-5-2                  |
| Output function                    | N.O.                                                                                    |                                 |                               |
| Switching frequency, f (ti/tp 1:1) | ≤ 1000 Hz                                                                               |                                 |                               |

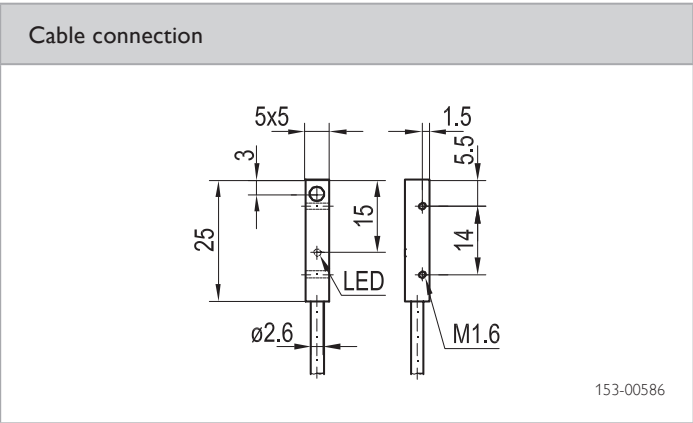
<sup>1</sup> With connected IP 67 plug    <sup>2</sup> PNP variants only



| Switching distance | Mounting  | Switching output | Type of connection | Part number    | Article number |
|--------------------|-----------|------------------|--------------------|----------------|----------------|
| 4 mm               | Non-flush | PNP              | Cable, 2 m, 3-wire | IT 10-4N-PS-K3 | 697-01070      |
| 4 mm               | Non-flush | NPN              | Cable, 2 m, 3-wire | IT 10-4N-NS-K3 | 697-01071      |

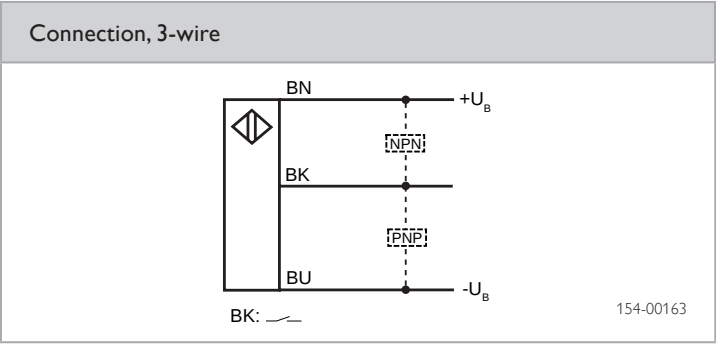
IS 455

Inductive sensor in cubic housing



| Sensor data                        |                                                                                                   | Functions                       |                            |
|------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------|----------------------------|
| Switching distance                 | 0.8 mm                                                                                            | Indicator LED, yellow           | Switching output indicator |
| Repeatability                      | 0.01 mm <sup>1</sup>                                                                              |                                 |                            |
| Hysteresis                         | ≤ 10 % <sup>2</sup>                                                                               |                                 |                            |
| Reduction factor;Al                | 0.60                                                                                              |                                 |                            |
| Reduction factor; Cu               | 0.60                                                                                              |                                 |                            |
| Reduction factor;V2A               | 0.85                                                                                              |                                 |                            |
| Reduction factor; steel FE 360     | 1.00                                                                                              |                                 |                            |
| Reduction factor; brass            | 0.70                                                                                              |                                 |                            |
|                                    |                                                                                                   |                                 |                            |
| Electrical data                    |                                                                                                   | Mechanical data                 |                            |
| Operating voltage, +U <sub>B</sub> | 10 ... 30 V DC <sup>3</sup>                                                                       | Dimensions                      | 5 x 5 x 25 mm <sup>3</sup> |
| No-load current, I <sub>0</sub>    | ≤ 10 mA                                                                                           | Mounting                        | Flush                      |
| Output current, I <sub>e</sub>     | ≤ 200 mA                                                                                          | Enclosure rating                | IP 67 <sup>4</sup>         |
| Voltage drop, U <sub>D</sub>       | ≤ 2 V at 200 mA                                                                                   | Material, housing               | Brass, chrome-plated       |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q) / induction protection | Material, front surface         | Polyester                  |
| Switching output, Q                | PNP / NPN (see Selection Table)                                                                   | Type of connection              | (See Selection Table)      |
| Output function                    | N.O.                                                                                              | Ambient temperature: operation  | -25 ... +70 °C             |
| Switching frequency, f (ti/tp 1:1) | ≤ 5000 Hz                                                                                         | Vibration and impact resistance | IEC 60947-5-2 / 7.4        |
|                                    |                                                                                                   |                                 |                            |

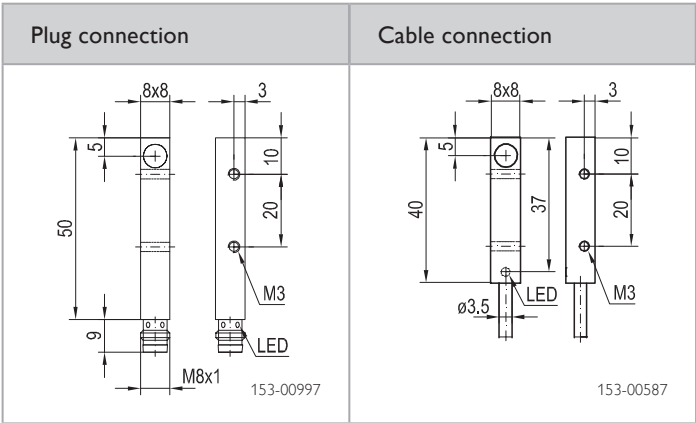
<sup>1</sup> U<sub>B</sub> = 20 ... 30V DC, T<sub>A</sub> = 23 °C ± 5 °C    <sup>2</sup> Refers to switching distance    <sup>3</sup> Max. 20 % ripple, within U<sub>B</sub>    <sup>4</sup> With connected IP 67 plug



| Switching distance | Switching output | Type of connection | Part number | Article number |
|--------------------|------------------|--------------------|-------------|----------------|
| 0.8 mm             | PNP              | Cable, 2m, 3-wire  | IS 455-02   | 996-50585      |
| 0.8 mm             | NPN              | Cable, 2m, 3-wire  | IS 455-01   | 996-50607      |

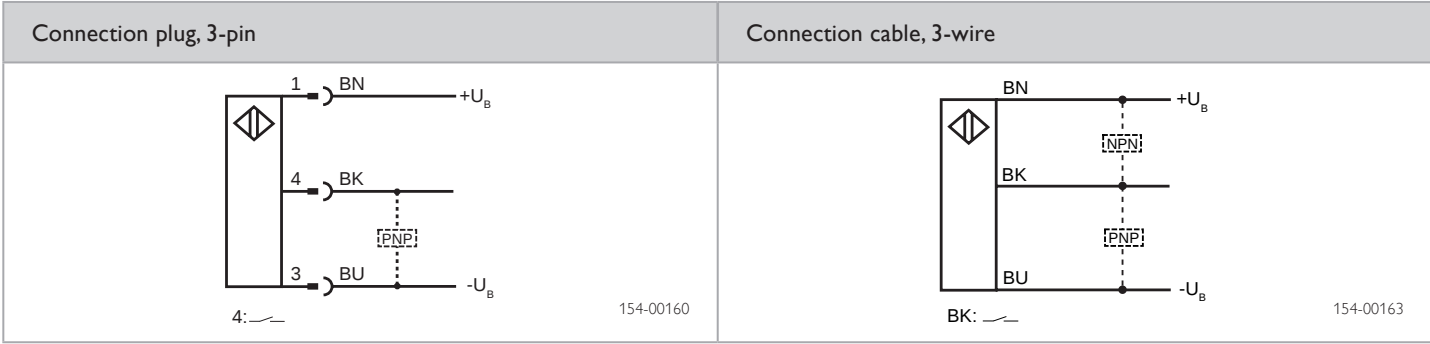
IS 588

Inductive sensor in cubic housing



| Sensor data                        |                                                                                                   | Functions                       |                            |
|------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------|----------------------------|
| Switching distance                 | 3 mm                                                                                              | Indicator LED, yellow           | Switching output indicator |
| Repeatability                      | 0.15 mm <sup>1</sup>                                                                              |                                 |                            |
| Hysteresis                         | ≤ 10 % <sup>2</sup>                                                                               |                                 |                            |
| Reduction factor;Al                | 0.36                                                                                              |                                 |                            |
| Reduction factor; Cu               | 0.27                                                                                              |                                 |                            |
| Reduction factor;V2A               | 0.77                                                                                              |                                 |                            |
| Reduction factor; steel FE 360     | 1.00                                                                                              |                                 |                            |
| Reduction factor; brass            | 0.45                                                                                              |                                 |                            |
|                                    |                                                                                                   |                                 |                            |
| Electrical data                    |                                                                                                   | Mechanical data                 |                            |
| Operating voltage, +U <sub>B</sub> | 10 ... 30V DC <sup>3</sup>                                                                        | Dimensions (plug device)        | 8 x 8 x 59 mm <sup>3</sup> |
| No-load current, I <sub>0</sub>    | ≤ 10 mA                                                                                           | Dimensions (cable device)       | 8 x 8 x 40 mm <sup>3</sup> |
| Output current, I <sub>e</sub>     | ≤ 200 mA                                                                                          | Mounting                        | Quasi-flush                |
| Voltage drop, U <sub>D</sub>       | ≤ 2 V at 200 mA                                                                                   | Enclosure rating                | IP 67 <sup>4</sup>         |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q) / induction protection | Material, housing               | Zamac, chrome-plated       |
|                                    |                                                                                                   | Material, front surface         | PBTP                       |
| Switching output, Q                | PNP                                                                                               | Type of connection              | (See Selection Table)      |
| Output function                    | N.O.                                                                                              | Ambient temperature: operation  | -25 ... 70 °C              |
| Switching frequency, f (ti/tp 1:1) | ≤ 1000 Hz                                                                                         | Vibration and impact resistance | IEC 60947-5-2 / 7.4        |
|                                    |                                                                                                   |                                 |                            |

<sup>1</sup> U<sub>B</sub> = 20 ... 30V DC, T<sub>A</sub> = 23 °C ± 5 °C    <sup>2</sup> Refers to switching distance    <sup>3</sup> Max. 20 % ripple, within U<sub>B</sub>    <sup>4</sup> With connected IP 67 plug



| Switching distance | Switching output | Type of connection | Part number | Article number |
|--------------------|------------------|--------------------|-------------|----------------|
| 3 mm               | PNP              | Plug, M8x1, 3-pin  | IS 588-02-X | 996-51280      |
| 3 mm               | PNP              | Cable, 2 m, 3-wire | IS 588-02   | 996-50589      |
| 3 mm               | NPN              | Cable, 2 m, 3-wire | IS 588-01   | 996-50650      |

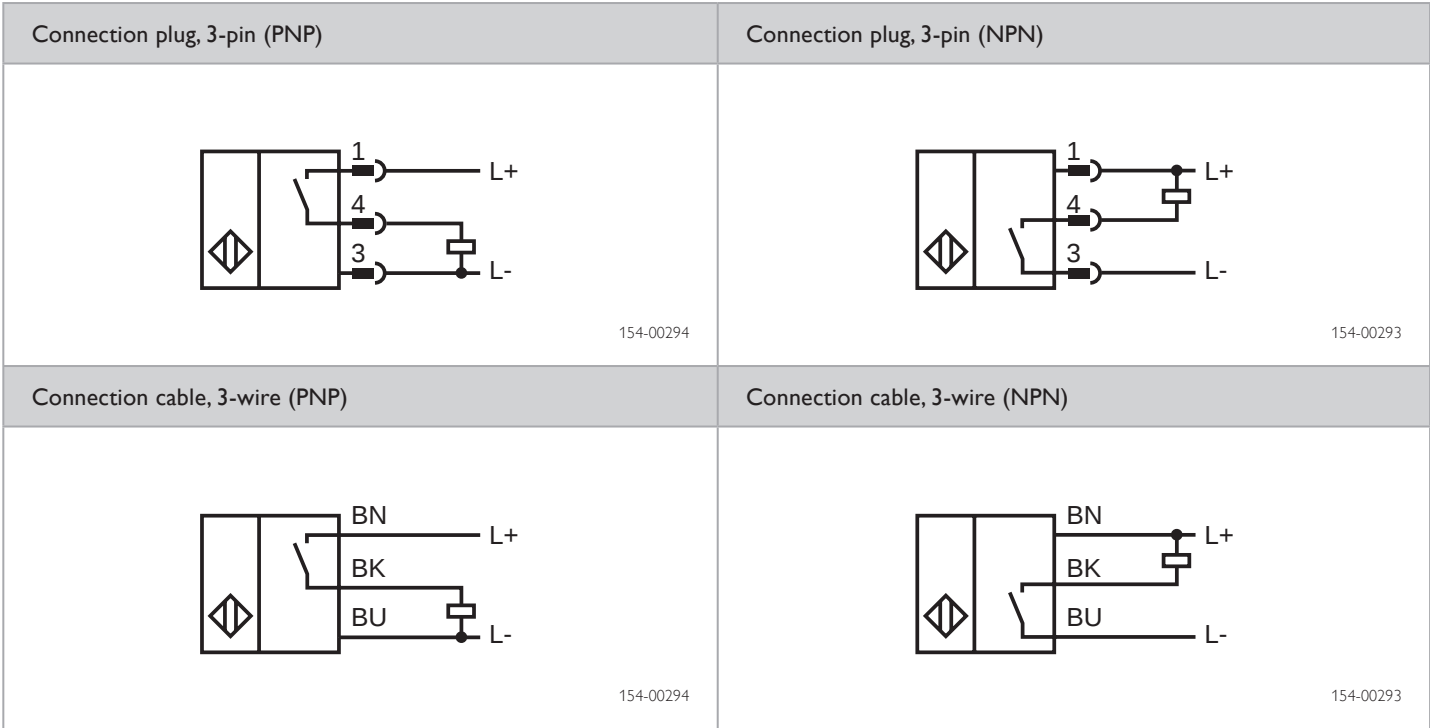
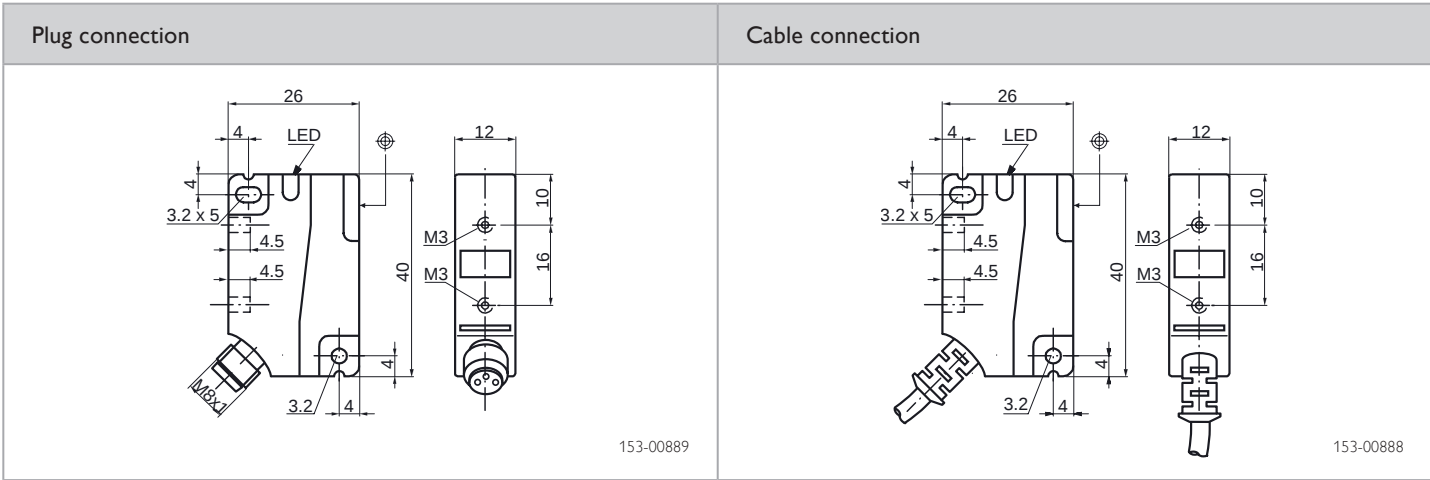
Inductive sensor in cubic housing



| Sensor data                            |                                                                            | Functions                       |                            |
|----------------------------------------|----------------------------------------------------------------------------|---------------------------------|----------------------------|
| Switching distance (Flush)             | 4 mm                                                                       | Indicator LED, yellow           | Switching output indicator |
| Ensured switching distance (Flush)     | 0 ... 3.24 mm                                                              |                                 |                            |
| Switching distance (Non-flush)         | 8 mm                                                                       |                                 |                            |
| Ensured switching distance (Non-flush) | 0 ... 6.48 mm                                                              |                                 |                            |
| Hysteresis                             | ~ 5 %                                                                      |                                 |                            |
| Reduction factor;AI                    | 0.3                                                                        |                                 |                            |
| Reduction factor;Cu                    | 0.2                                                                        |                                 |                            |
| Reduction factor;V2A                   | 0.7                                                                        |                                 |                            |
|                                        |                                                                            |                                 |                            |
| Electrical data                        |                                                                            | Mechanical data                 |                            |
| Operating voltage, +U <sub>B</sub>     | 10 ... 30V DC                                                              | Dimensions                      | 40 x 26 x 12 mm³           |
| No-load current, I <sub>0</sub>        | ≤ 15 mA                                                                    | Enclosure rating                | IP 67¹                     |
| Output current, I <sub>e</sub>         | ≤ 250 mA                                                                   | Material, housing               | PA                         |
| Voltage drop, U <sub>D</sub>           | ≤ 2.5 V                                                                    | Material, front surface         | PA                         |
| Residual current, I <sub>r</sub>       | ≤ 0.01 mA                                                                  | Type of connection              | (See Selection Table)      |
| Protective circuits                    | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q) | Ambient temperature: operation  | -25 ... +70 °C             |
| Switching output, Q                    | PNP / NPN (see Selection Table)                                            | Vibration and impact resistance | EN 60947-5-2               |
| Output function                        | N.O.                                                                       |                                 |                            |
| Switching frequency, f (ti/tp 1:1)     | ≤ 1400 Hz                                                                  |                                 |                            |
|                                        |                                                                            |                                 |                            |

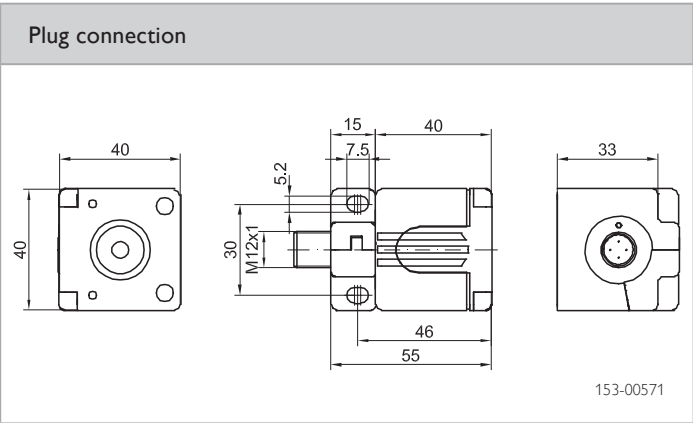
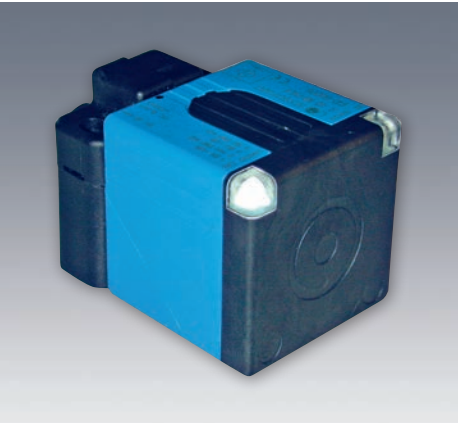
<sup>1</sup>With connected IP 67 plug

| Switching distance | Mounting  | Switching output | Type of connection | Part number    | Article number |
|--------------------|-----------|------------------|--------------------|----------------|----------------|
| 4 mm               | Flush     | PNP              | Plug, M8x1, 3-pin  | IT 12-4B-PS-M3 | 697-01063      |
| 4 mm               | Flush     | NPN              | Plug, M8x1, 3-pin  | IT 12-4B-NS-M3 | 697-01062      |
| 4 mm               | Flush     | PNP              | Cable, 2 m, 3-wire | IT 12-4B-PS-K3 | 697-01061      |
| 4 mm               | Flush     | NPN              | Cable, 2 m, 3-wire | IT 12-4B-NS-K3 | 697-01060      |
| 8 mm               | Non-flush | PNP              | Plug, M8x1, 3-pin  | IT 12-8N-PS-M3 | 697-01067      |
| 8 mm               | Non-flush | NPN              | Plug, M8x1, 3-pin  | IT 12-8N-NS-M3 | 697-01066      |
| 8 mm               | Non-flush | PNP              | Cable, 2 m, 3-wire | IT 12-8N-PS-K3 | 697-01065      |
| 8 mm               | Non-flush | NPN              | Cable, 2 m, 3-wire | IT 12-8N-NS-K3 | 697-01064      |



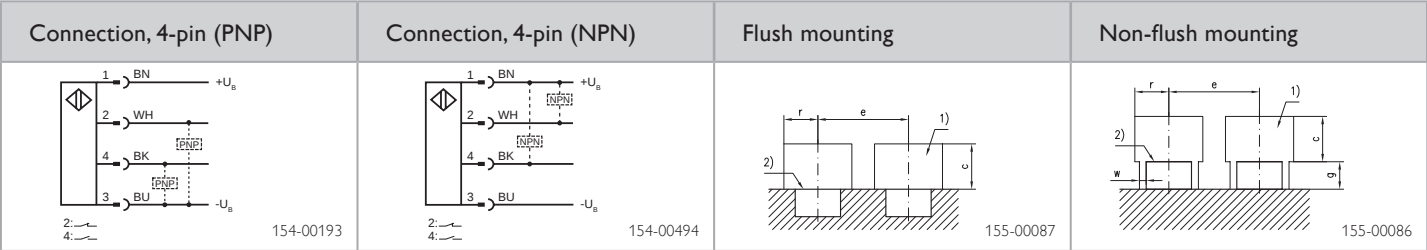
IT 40

Inductive sensor in cubic housing



| Sensor data                        |                                                                           | Functions                       |                                            |
|------------------------------------|---------------------------------------------------------------------------|---------------------------------|--------------------------------------------|
| Switching distance                 | 15 mm / 20 mm / 35 mm<br>(see Selection Table)                            | Indicator LED, green            | Operating voltage indicator                |
| Reduction factors                  | (See Selection Table)                                                     | Indicator LED, yellow           | Switching output indicator                 |
|                                    |                                                                           | Default setting                 | Max. switching distance                    |
| Electrical data                    |                                                                           | Mechanical data                 |                                            |
| Operating voltage, +U <sub>B</sub> | 15 ... 34 V DC                                                            | Dimensions                      | 40 x 55 x 40 mm <sup>3</sup>               |
| No-load current, I <sub>0</sub>    | ≤ 30 mA <sup>1</sup>                                                      | Mounting                        | Flush / non-flush<br>(see Selection Table) |
| Output current, I <sub>e</sub>     | ≤ 200 mA                                                                  | Enclosure rating                | IP 67 <sup>2</sup>                         |
| Protective circuits                | Short-circuit protection (Q) / overload protection / induction protection | Material, housing               | PBT                                        |
| Standby time                       | 100 ms                                                                    | Type of connection              | Plug, M12x1, 4-pin                         |
| Switching output, Q                | PNP / NPN, antivalent<br>(see Selection Table)                            | Ambient temperature: operation  | -25 ... +85 °C <sup>3</sup>                |
| Output function                    | N.O. / N.C. (see Selection Table)                                         | Ambient temperature: storage    | -40 ... +85 °C                             |
| Switching frequency, f (ti/tp 1:1) | (See Selection Table)                                                     | Weight                          | 130 g                                      |
| Connection, BK                     | N.O.                                                                      | Vibration and impact resistance | EN 60947-5-2                               |
| Connection, WH                     | N.C.                                                                      |                                 |                                            |

<sup>1</sup> At 24 V DC    <sup>2</sup> With connected IP 67 plug    <sup>3</sup> Except IT 40 NB-NAL4 (-25 ... +70 °C)

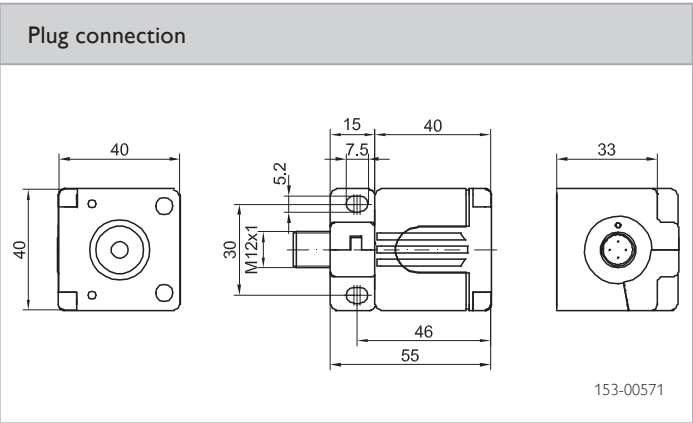


| Switching distance | Mounting               | Switching output            | Switching frequency, f (ti/tp 1:1) | Reduction factors               | Part number   | Article number |
|--------------------|------------------------|-----------------------------|------------------------------------|---------------------------------|---------------|----------------|
| 15 mm              | Flush <sup>4</sup>     | PNP, antivalent (N.O./N.C.) | 100 Hz                             | Al: 0.20 / Cu: 0.10 / V2A: 0.85 | IT 40 B-PAL4  | 810-50000      |
| 15 mm              | Flush <sup>4</sup>     | NPN, antivalent (N.O./N.C.) | 100 Hz                             | Al: 0.20 / Cu: 0.10 / V2A: 0.85 | IT 40 B-NAL4  | 810-50002      |
| 20 mm              | Flush <sup>5</sup>     | PNP, antivalent (N.O./N.C.) | 30 Hz                              | Al: 0.30 / Cu: 0.30 / V2A: 0.70 | IT 40 BD-PAL4 | 810-50001      |
| 20 mm              | Flush <sup>5</sup>     | NPN, antivalent (N.O./N.C.) | 30 Hz                              | Al: 0.30 / Cu: 0.30 / V2A: 0.70 | IT 40 BD-NAL4 | 810-50003      |
| 35 mm              | Non-flush <sup>6</sup> | PNP, antivalent (N.O./N.C.) | 30 Hz                              | Al: 0.45 / Cu: 0.40 / V2A: 0.70 | IT 40 NB-PAL4 | 810-50006      |
| 35 mm              | Non-flush <sup>6</sup> | NPN, antivalent (N.O./N.C.) | 30 Hz                              | Al: 0.45 / Cu: 0.40 / V2A: 0.70 | IT 40 NB-NAL4 | 810-50007      |

<sup>4</sup> e > 75 mm, r > 25 mm, c > 30 mm    <sup>5</sup> e > 80 mm, r > 30 mm, c > 40 mm    <sup>6</sup> e > 160 mm, r > 80 mm, g > 40 mm, w > 15 mm, c > 90 mm

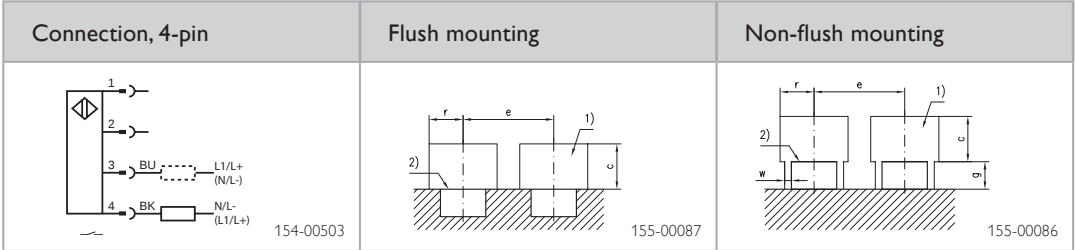
IT 40

Inductive sensor in cubic housing, AC/DC



| Sensor data                        |                                                | Functions                       |                                            |
|------------------------------------|------------------------------------------------|---------------------------------|--------------------------------------------|
| Switching distance                 | 15 mm / 20 mm / 35 mm<br>(see Selection Table) | Indicator LED, green            | Operating voltage indicator                |
| Reduction factors                  | (See Selection Table)                          | Indicator LED, yellow           | Switching output indicator                 |
|                                    |                                                | Default setting                 | Max. switching distance                    |
| Electrical data                    |                                                | Mechanical data                 |                                            |
| Operating voltage, +U <sub>B</sub> | 20 ... 320 V DC / 20 ... 265 V AC              | Dimensions                      | 40 x 55 x 40 mm <sup>3</sup>               |
| No-load current, I <sub>0</sub>    | 1.5 mA <sup>1</sup>                            | Mounting                        | Flush / non-flush<br>(see Selection Table) |
| Output current, I <sub>e</sub>     | ≤ 300 mA                                       | Enclosure rating                | IP 67 <sup>2</sup>                         |
| Protective circuits                | Induction protection                           | Material, housing               | PBT                                        |
| Standby time                       | 100 ms                                         | Type of connection              | Plug, M12x1, 4-pin                         |
| Switching output, Q                | AC / DC (see Selection Table)                  | Ambient temperature: operation  | -25 ... +85 °C <sup>3</sup>                |
| Output function                    | N.O.                                           | Ambient temperature: storage    | -40 ... +85 °C                             |
| Switching frequency, f (ti/tp 1:1) | (See Selection Table)                          | Weight                          | 130 g                                      |
|                                    |                                                | Vibration and impact resistance | EN 60947-5-2                               |

<sup>1</sup> at 24 V    <sup>2</sup> With connected IP 67 plug    <sup>3</sup> Except IT 40 NB-ACSL4 (-25 ... +70 °C)

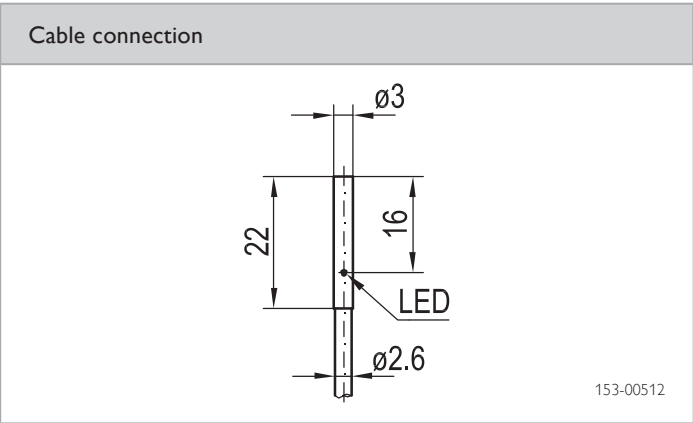


| Switching distance | Mounting               | Switching output | Switching frequency, f (ti/tp 1:1) | Reduction factors               | Part number    | Article number |
|--------------------|------------------------|------------------|------------------------------------|---------------------------------|----------------|----------------|
| 15 mm              | Flush <sup>4</sup>     | AC/DC            | 25 Hz (AC) / 50 Hz (DC)            | Al: 0.20 / Cu: 0.10 / V2A: 0.85 | IT 40 B-ACSL4  | 810-50004      |
| 20 mm              | Flush <sup>5</sup>     | AC/DC            | 25 Hz (AC) / 30 Hz (DC)            | Al: 0.20 / Cu: 0.30 / V2A: 0.70 | IT 40 BD-ACSL4 | 810-50005      |
| 35 mm              | Non-flush <sup>6</sup> | AC/DC            | 25 Hz (AC) / 30 Hz (DC)            | Al: 0.45 / Cu: 0.40 / V2A: 0.70 | IT 40 NB-ACSL4 | 810-50008      |

<sup>4</sup> e > 75 mm, r > 25 mm, c > 30 mm    <sup>5</sup> e > 80 mm, r > 30 mm, c > 40 mm    <sup>6</sup> e > 160 mm, r > 80 mm, g > 40 mm, w > 15 mm, c > 90 mm

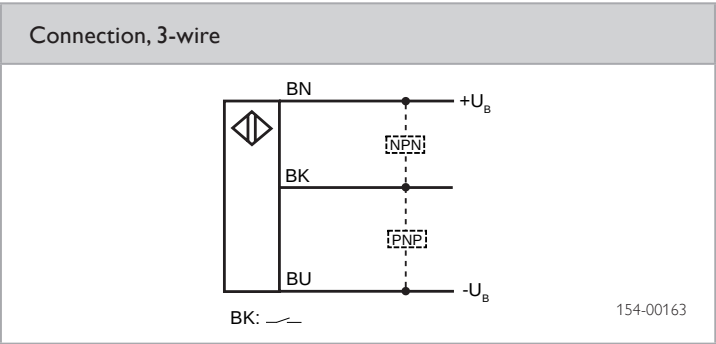
IS 33

Inductive sensor with stainless steel housing



| Sensor data                        |                                 | Functions                      |                            |
|------------------------------------|---------------------------------|--------------------------------|----------------------------|
| Switching distance                 | 0.6 mm                          | Indicator LED, yellow          | Switching output indicator |
| Reduction factor;Al                | 0.55                            |                                |                            |
| Reduction factor;Cu                | 0.50                            |                                |                            |
| Reduction factor;V2A               | 0.80                            |                                |                            |
|                                    |                                 |                                |                            |
| Electrical data                    |                                 | Mechanical data                |                            |
| Operating voltage, +U <sub>B</sub> | 10 ... 30 V DC <sup>1</sup>     | Dimensions                     | Ø 3 x 22 mm                |
| No-load current, I <sub>0</sub>    | ≤ 10 mA                         | Mounting                       | Flush                      |
| Output current, I <sub>e</sub>     | ≤ 100 mA                        | Enclosure rating               | IP 67 <sup>2</sup>         |
| Switching frequency, f (ti/tp 1:1) | ≤ 5000 Hz                       | Material, housing              | Stainless steel            |
| Switching output, Q                | PNP / NPN (see Selection Table) | Type of connection             | (See Selection Table)      |
| Output function                    | N.O.                            | Ambient temperature: operation | -25 ... 70 °C              |
|                                    |                                 |                                |                            |

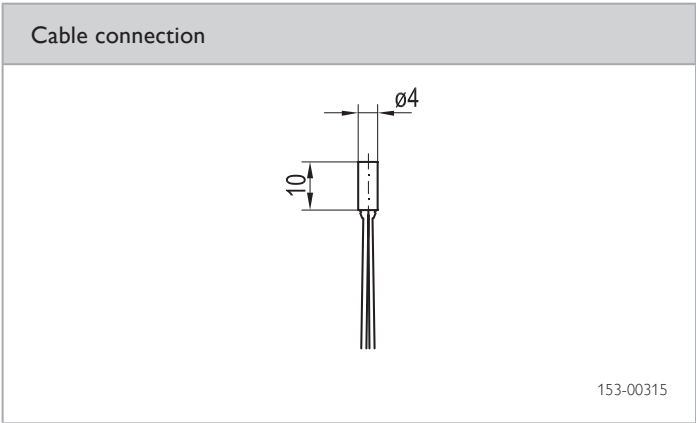
<sup>1</sup> Max. 20 % ripple, within U<sub>B</sub>    <sup>2</sup> With connected IP 67 plug



| Switching distance | Switching output | Type of connection | Part number | Article number |
|--------------------|------------------|--------------------|-------------|----------------|
| 0.6 mm             | PNP              | Cable, 3-wire      | IS 33-52    | 996-09390      |
| 0.6 mm             | NPN              | Cable, 3-wire      | IS 33-51    | 996-09391      |

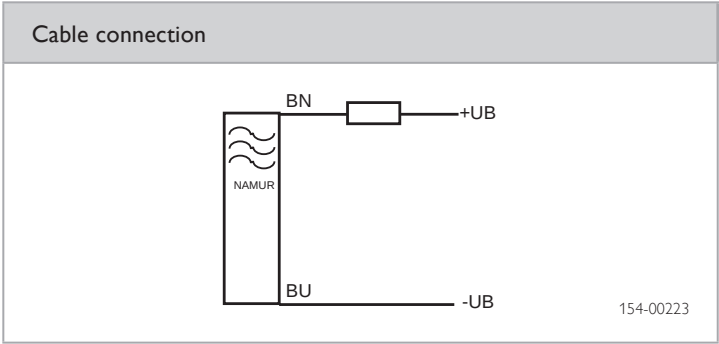
ISN 44-20

Inductive sensor; NAMUR design



| Sensor data                                               |                                                                    |                                 |                       |
|-----------------------------------------------------------|--------------------------------------------------------------------|---------------------------------|-----------------------|
| Switching distance                                        | 0.8 mm                                                             |                                 |                       |
| Repeatability                                             | 0.01 mm <sup>1</sup>                                               |                                 |                       |
| Reduction factor; AI                                      | 0.50                                                               |                                 |                       |
| Reduction factor; Cu                                      | 0.45                                                               |                                 |                       |
| Reduction factor; V2A                                     | 0.80                                                               |                                 |                       |
| Reduction factor; steel FE 360                            | 1.00                                                               |                                 |                       |
| Reduction factor; brass                                   | 0.55                                                               |                                 |                       |
|                                                           |                                                                    |                                 |                       |
| Electrical data                                           |                                                                    | Mechanical data                 |                       |
| Operating voltage, +U <sub>B</sub><br>(NAMUR* conditions) | 7.7 ... 9 V DC <sup>2</sup>                                        | Dimensions                      | Ø 4 x 10 mm           |
| Operating voltage, +U <sub>B</sub><br>(not NAMUR*)        | 5 ... 30 V DC <sup>2</sup>                                         | Mounting                        | Flush                 |
| Operating resistance, NAMUR                               | 1 kΩ                                                               | Enclosure rating                | IP 67 <sup>3</sup>    |
| Recommended operating<br>resistance                       | 1 kΩ (5 ... 10 V) / 2.2 kΩ (10 ... 20 V) /<br>4.7 kΩ (20 ... 30 V) | Material, housing               | Stainless steel, V2A  |
| Output current, I <sub>e</sub><br>(dampened / undampened) | ≤ 1 mA / ≥ 2.2 mA                                                  | Material, front surface         | PA 66                 |
| Protective circuits                                       | Short-circuit protection (Q)                                       | Type of connection              | (See Selection Table) |
| Switching frequency, f (ti/tp 1:1)                        | ≤ 10000 Hz                                                         | Ambient temperature: operation  | -25 ... 70 °C         |
|                                                           |                                                                    | Vibration and impact resistance | IEC 60947-5-2 / 7.4   |

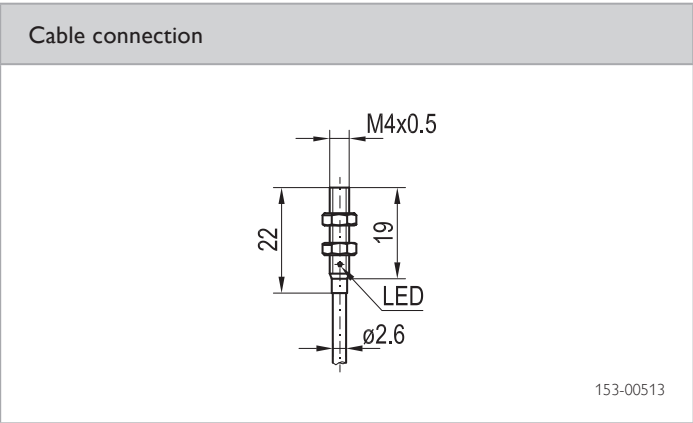
<sup>1</sup> U<sub>B</sub> = 7.7 ... 9 V DC, T<sub>A</sub> = 23 °C ± 5 °C    <sup>2</sup> Max. 20 % ripple, within U<sub>B</sub>    <sup>3</sup> With connected IP 67 plug  
\* Standardization Association for Measurement and Control in the Chemical and Pharmaceutical Industries



| Switching distance | Switching output | Type of connection | Part number | Article number |
|--------------------|------------------|--------------------|-------------|----------------|
| 0.8 mm             | NAMUR*           | Cable, 2 m, 2-wire | ISN 44-20   | 996-09444      |

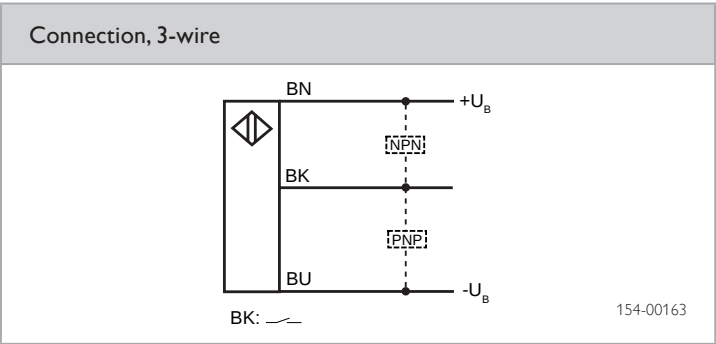
IS 34

Inductive sensor with stainless steel housing



| Sensor data                        |                                                                                                   | Functions                       |                            |
|------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------|----------------------------|
| Switching distance                 | 0.6 mm                                                                                            | Indicator LED, yellow           | Switching output indicator |
| Repeatability                      | 0.01 mm <sup>1</sup>                                                                              |                                 |                            |
| Hysteresis                         | ~ 10 % <sup>2</sup>                                                                               |                                 |                            |
| Reduction factor;Al                | 0.55                                                                                              |                                 |                            |
| Reduction factor; Cu               | 0.50                                                                                              |                                 |                            |
| Reduction factor;V2A               | 0.80                                                                                              |                                 |                            |
| Reduction factor; steel FE 360     | 1.00                                                                                              |                                 |                            |
| Reduction factor; brass            | 0.65                                                                                              |                                 |                            |
|                                    |                                                                                                   |                                 |                            |
| Electrical data                    |                                                                                                   | Mechanical data                 |                            |
| Operating voltage, +U <sub>B</sub> | 10 ... 30 V DC <sup>3</sup>                                                                       | Dimensions                      | M4 x 22 mm                 |
| No-load current, I <sub>0</sub>    | ≤ 10 mA                                                                                           | Mounting                        | Flush                      |
| Output current, I <sub>e</sub>     | ≤ 100 mA                                                                                          | Enclosure rating                | IP 67 <sup>4</sup>         |
| Voltage drop, U <sub>D</sub>       | ≤ 2.0 V at 100 mA                                                                                 | Material, housing               | Stainless steel,V2A        |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q) / induction protection | Material, front surface         | Polyester                  |
| Switching output, Q                | PNP / NPN (see Selection Table)                                                                   | Type of connection              | (See Selection Table)      |
| Output function                    | N.O.                                                                                              | Ambient temperature: operation  | -25 ... +70 °C             |
| Switching frequency, f (ti/tp 1:1) | ≤ 5000 Hz                                                                                         | Vibration and impact resistance | IEC 60947-5-2 / 7.4        |
|                                    |                                                                                                   |                                 |                            |

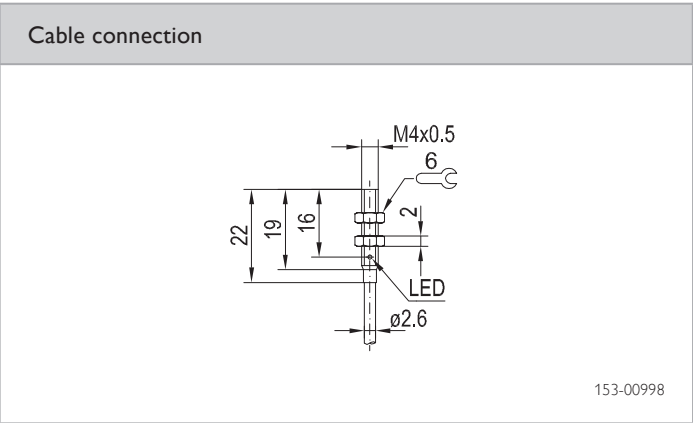
<sup>1</sup> U<sub>B</sub> = 20 ... 30V DC, T<sub>A</sub> = 23 °C ± 5 °C    <sup>2</sup> Refers to switching distance    <sup>3</sup> Max. 20 % ripple, within U<sub>B</sub>    <sup>4</sup>With connected IP 67 plug



| Switching distance | Switching output | Type of connection | Part number | Article number |
|--------------------|------------------|--------------------|-------------|----------------|
| 0.6 mm             | PNP              | Cable, 2 m, 3-wire | IS 34-52    | 996-09397      |
| 0.6 mm             | NPN              | Cable, 2 m, 3-wire | IS 34-51    | 996-09395      |
|                    |                  |                    |             |                |

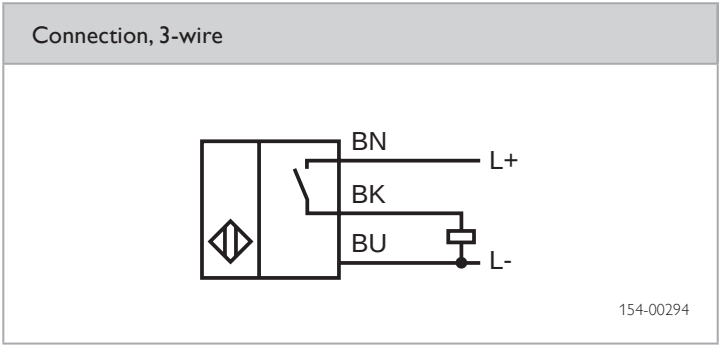
IT 4

Inductive sensor with stainless steel housing



| Sensor data                        |                                             | Functions                      |                            |
|------------------------------------|---------------------------------------------|--------------------------------|----------------------------|
| Switching distance                 | 1 mm                                        | Indicator LED, yellow          | Switching output indicator |
| Hysteresis                         | 1 ... 15 %                                  |                                |                            |
|                                    |                                             |                                |                            |
| Electrical data                    |                                             | Mechanical data                |                            |
| Operating voltage, +U <sub>B</sub> | 10 ... 30V DC                               | Dimensions                     | M4 x 22 mm                 |
| Output current, I <sub>e</sub>     | ≤ 100 mA                                    | Mounting                       | Flush                      |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> | Enclosure rating               | IP 67 <sup>1</sup>         |
| Switching frequency, f (ti/tp 1:1) | ≤ 3000 Hz                                   | Material, housing              | Stainless steel,V2A        |
| Switching output, Q                | PNP                                         | Type of connection             | (See Selection Table)      |
| Output function                    | N.O.                                        | Ambient temperature: operation | -25 ... 70 °C              |
|                                    |                                             |                                |                            |

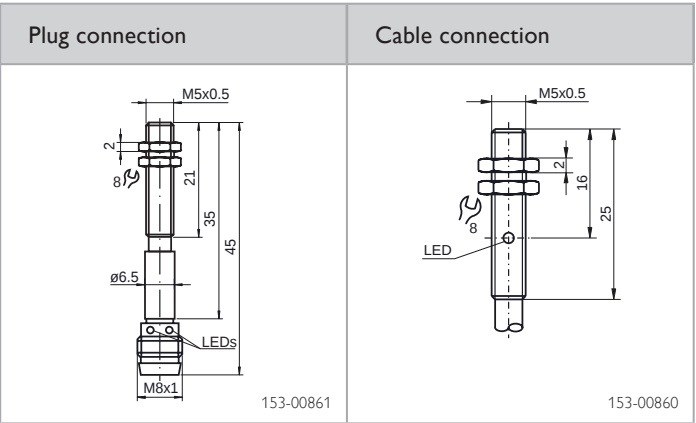
<sup>1</sup>With connected IP 67 plug



| Switching distance | Switching output | Type of connection | Part number  | Article number |
|--------------------|------------------|--------------------|--------------|----------------|
| 1 mm               | PNP              | Cable, 3-wire      | IT 4 BD-PSK3 | 996-51486      |
|                    |                  |                    |              |                |

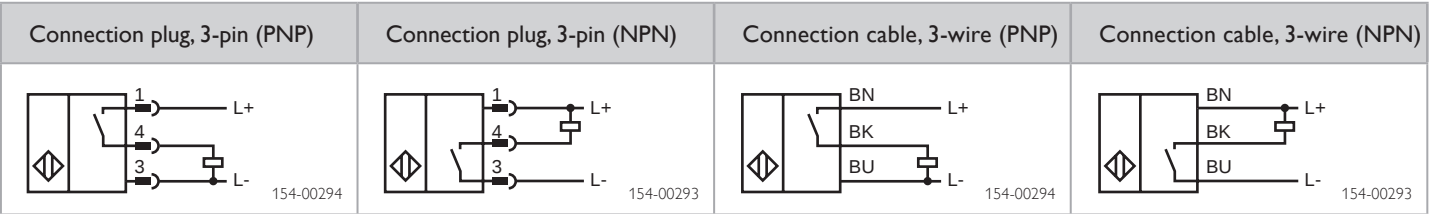
IMT 5

Inductive sensor with stainless steel housing



| Sensor data                        |                                                                            | Functions                      |                            |
|------------------------------------|----------------------------------------------------------------------------|--------------------------------|----------------------------|
| Switching distance                 | 0.8 mm                                                                     | Indicator LED, yellow          | Switching output indicator |
| Ensured switching distance         | 0 ... 0.648 mm                                                             |                                |                            |
| Reduction factor;Al                | 0.45                                                                       |                                |                            |
| Reduction factor;Cu                | 0.40                                                                       |                                |                            |
| Reduction factor;V2A               | 0.85 / 0.77 <sup>1</sup>                                                   |                                |                            |
|                                    |                                                                            |                                |                            |
| Electrical data                    |                                                                            | Mechanical data                |                            |
| Operating voltage, +U <sub>B</sub> | 10 ... 30V DC                                                              | Dimensions (plug device)       | M5 x 45 mm                 |
| No-load current, I <sub>0</sub>    | (See Selection Table)                                                      | Dimensions (cable device)      | M5 x 25 mm                 |
| Output current, I <sub>e</sub>     | (See Selection Table)                                                      | Mounting                       | Flush                      |
| Voltage drop, U <sub>D</sub>       | ≤ 3V                                                                       | Enclosure rating               | IP 67 <sup>2</sup>         |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q) | Material, housing              | Stainless steel            |
| Switching output, Q                | PNP / NPN (see Selection Table)                                            | Material, front surface        | PBT / PC <sup>1</sup>      |
| Output function                    | N.O.                                                                       | Type of connection             | (See Selection Table)      |
| Switching frequency, f (ti/tp 1:1) | ≤ 3000 Hz                                                                  | Ambient temperature: operation | -25 ... +70 °C             |
|                                    |                                                                            |                                |                            |

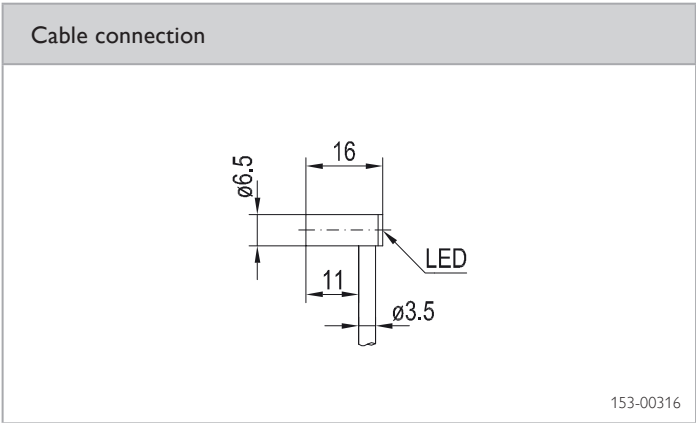
<sup>1</sup> IMT 5-0B8-PS-K3    <sup>2</sup>With connected IP 67 plug



| Switching distance | Switching output | Type of connection | No-load current, I <sub>0</sub> | Output current, I <sub>e</sub> | Part number     | Article number |
|--------------------|------------------|--------------------|---------------------------------|--------------------------------|-----------------|----------------|
| 0.8 mm             | PNP              | Plug, M8x1, 3-pin  | ≤ 15 mA                         | 0,1...100 mA                   | IMT 5-0B8-PS-M3 | 697-01007      |
| 0.8 mm             | NPN              | Plug, M8x1, 3-pin  | ≤ 12 mA                         | 0,1...100 mA                   | IMT 5-0B8-NS-M3 | 697-01006      |
| 0.8 mm             | PNP              | Cable, 2 m, 3-wire | ≤ 10 mA                         | 0 ... 200 mA                   | IMT 5-0B8-PS-K3 | 697-01005      |
| 0.8 mm             | NPN              | Cable, 2 m, 3-wire | ≤ 12 mA                         | 0 ... 100 mA                   | IMT 5-0B8-NS-K3 | 697-01004      |

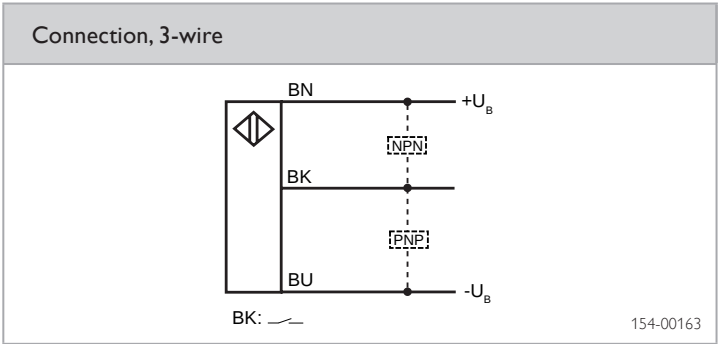
ISZ 46

Inductive sensor with stainless steel housing



| Sensor data                        |                                                                                                   | Functions                       |                            |
|------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------|----------------------------|
| Switching distance                 | 1.5 mm                                                                                            | Indicator LED, yellow           | Switching output indicator |
| Repeatability                      | 0.02 mm <sup>1</sup>                                                                              |                                 |                            |
| Hysteresis                         | ≤ 10 % <sup>2</sup>                                                                               |                                 |                            |
| Reduction factor;AI                | 0.45                                                                                              |                                 |                            |
| Reduction factor; Cu               | 0.40                                                                                              |                                 |                            |
| Reduction factor;V2A               | 0.80                                                                                              |                                 |                            |
| Reduction factor; steel FE 360     | 1.00                                                                                              |                                 |                            |
| Reduction factor; brass            | 0.50                                                                                              |                                 |                            |
|                                    |                                                                                                   |                                 |                            |
| Electrical data                    |                                                                                                   | Mechanical data                 |                            |
| Operating voltage, +U <sub>B</sub> | 10 ... 30V DC <sup>3</sup>                                                                        | Dimensions                      | Ø 6,5 x 16 mm              |
| No-load current, I <sub>0</sub>    | ≤ 10 mA                                                                                           | Mounting                        | Flush                      |
| Output current, I <sub>e</sub>     | ≤ 200 mA                                                                                          | Enclosure rating                | IP 67 <sup>4</sup>         |
| Voltage drop, U <sub>D</sub>       | ≤ 2 V at 200 mA                                                                                   | Material, housing               | Stainless steel,V2A        |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q) / induction protection | Material, front surface         | PA 66                      |
| Switching output, Q                | PNP / NPN (see Selection Table)                                                                   | Type of connection              | (See Selection Table)      |
| Output function                    | N.O.                                                                                              | Ambient temperature: operation  | -25 ... 70 °C              |
| Switching frequency, f (ti/tp 1:1) | ≤ 5000 Hz                                                                                         | Vibration and impact resistance | IEC 60947-5-2 / 7.4        |
|                                    |                                                                                                   |                                 |                            |

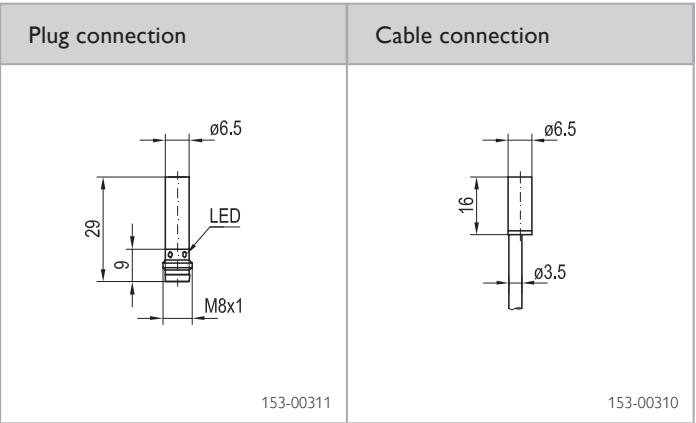
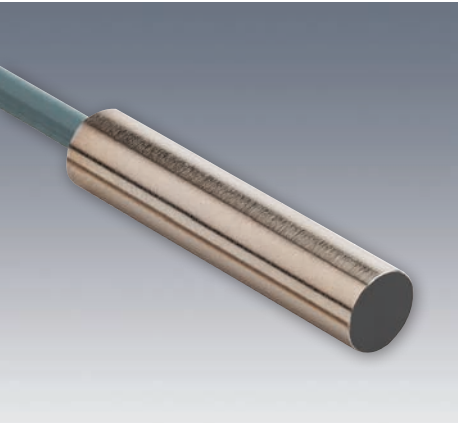
<sup>1</sup> U<sub>B</sub> = 20 ... 30V DC; T<sub>A</sub> = 23 °C ± 5 °C    <sup>2</sup> Refers to switching distance    <sup>3</sup> Max. 20 % ripple, within U<sub>B</sub>    <sup>4</sup>With connected IP 67 plug



| Switching distance | Switching output | Type of connection | Part number | Article number |
|--------------------|------------------|--------------------|-------------|----------------|
| 1.5 mm             | PNP              | Cable, 2m, 3-wire  | ISZ 46-02   | 996-09488      |
| 1.5 mm             | NPN              | Cable, 2m, 3-wire  | ISZ 46-01   | 996-09487      |

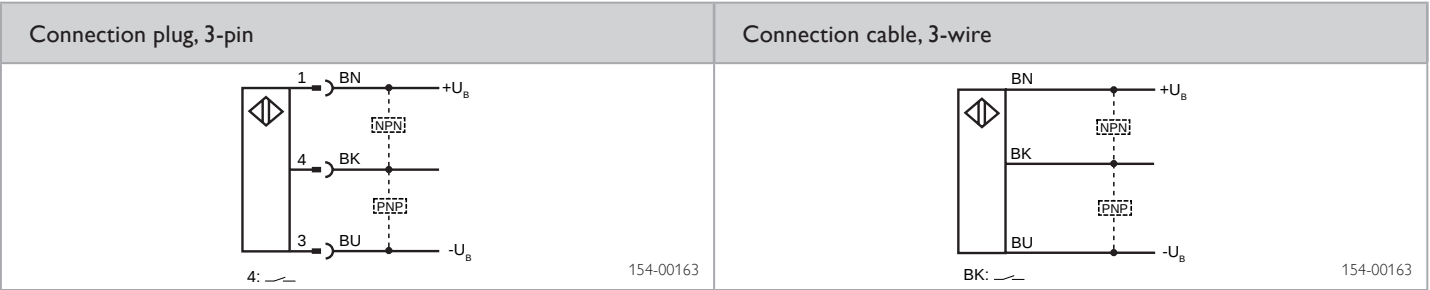
IS 46

Inductive sensor with stainless steel housing



| Sensor data                        |                                                                                                   | Functions                       |                            |
|------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------|----------------------------|
| Switching distance                 | 1.5 mm                                                                                            | Indicator LED, yellow           | Switching output indicator |
| Repeatability                      | 0.02 mm <sup>1</sup>                                                                              |                                 |                            |
| Hysteresis                         | ≤ 10 % <sup>2</sup>                                                                               |                                 |                            |
| Reduction factor; Al               | 0.45                                                                                              |                                 |                            |
| Reduction factor; Cu               | 0.40                                                                                              |                                 |                            |
| Reduction factor; V2A              | 0.80                                                                                              |                                 |                            |
| Reduction factor; steel FE 360     | 1.00                                                                                              |                                 |                            |
| Reduction factor; brass            | 0.50                                                                                              |                                 |                            |
|                                    |                                                                                                   |                                 |                            |
| Electrical data                    |                                                                                                   | Mechanical data                 |                            |
| Operating voltage, +U <sub>B</sub> | 10 ... 30 V DC <sup>3</sup>                                                                       | Dimensions (plug device)        | Ø 6.5 x 29 mm              |
| No-load current, I <sub>0</sub>    | ≤ 10 mA                                                                                           | Dimensions (cable device)       | Ø 6.5 x 16 mm              |
| Output current, I <sub>e</sub>     | ≤ 200 mA                                                                                          | Mounting                        | Flush                      |
| Voltage drop, U <sub>D</sub>       | ≤ 2 V at 200 mA                                                                                   | Enclosure rating                | IP 67 <sup>4</sup>         |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q) / induction protection | Material, housing               | Stainless steel, V2A       |
|                                    |                                                                                                   | Material, front surface         | PA 66                      |
| Switching output, Q                | PNP / NPN (see Selection Table)                                                                   | Type of connection              | (See Selection Table)      |
| Output function                    | N.O.                                                                                              | Ambient temperature: operation  | -25 ... +70 °C             |
| Switching frequency, f (ti/tp 1:1) | ≤ 5000 Hz                                                                                         | Vibration and impact resistance | IEC 60947-5-2 / 7.4        |
|                                    |                                                                                                   |                                 |                            |

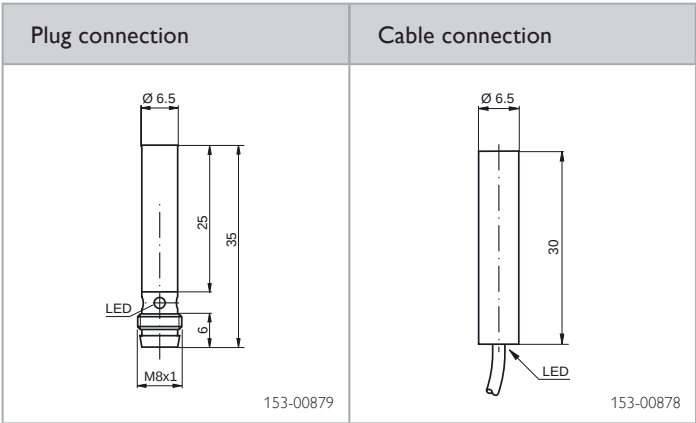
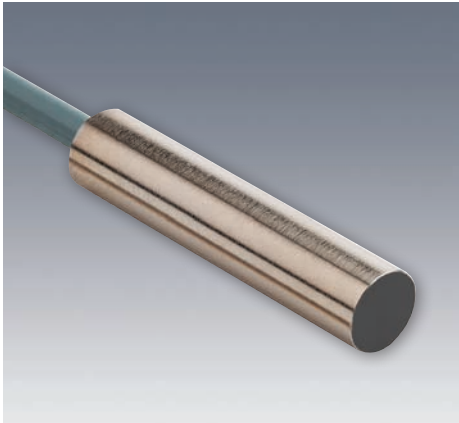
<sup>1</sup> U<sub>B</sub> = 20 ... 30V DC, T<sub>A</sub> = 23 °C ± 5 °C    <sup>2</sup> Refers to switching distance    <sup>3</sup> Max. 20 % ripple, within U<sub>B</sub>    <sup>4</sup> With connected IP 67 plug



| Switching distance | Switching output | Type of connection | Part number | Article number |
|--------------------|------------------|--------------------|-------------|----------------|
| 1.5 mm             | PNP              | Plug, M8x1, 3-pin  | IS 46-12    | 996-50590      |
| 1.5 mm             | NPN              | Plug, M8x1, 3-pin  | IS 46-11 T  | 996-50613      |
| 1.5 mm             | PNP              | Cable, 2 m, 3-wire | IS 46-02    | 996-09401      |

IDT 6

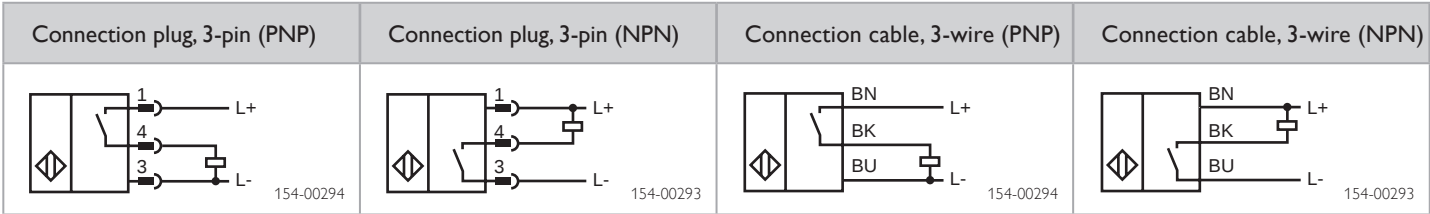
Inductive sensor



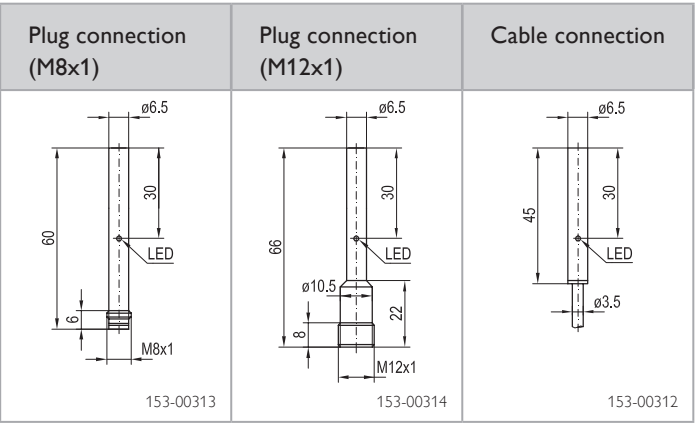
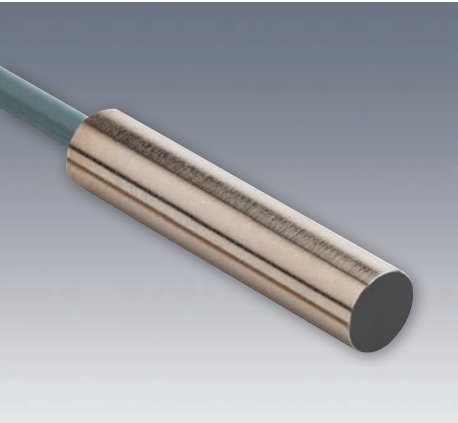
| Sensor data                        |                                                                                         | Functions                      |                            |
|------------------------------------|-----------------------------------------------------------------------------------------|--------------------------------|----------------------------|
| Switching distance                 | 2 mm                                                                                    | Indicator LED, yellow          | Switching output indicator |
| Ensured switching distance         | 0 ... 1.62 mm                                                                           |                                |                            |
| Reduction factor; Al               | 0.45                                                                                    |                                |                            |
| Reduction factor; Cu               | 0.40 / 0.35 <sup>1</sup>                                                                |                                |                            |
| Reduction factor; V2A              | 0.75 / 0.70 <sup>1</sup>                                                                |                                |                            |
|                                    |                                                                                         |                                |                            |
| Electrical data                    |                                                                                         | Mechanical data                |                            |
| Operating voltage, +U <sub>B</sub> | 10 ... 30V DC / 5 ... 30V DC <sup>1</sup>                                               | Dimensions (plug device)       | Ø 6.5 × 35 mm              |
| No-load current, I <sub>0</sub>    | ≤ 15 mA                                                                                 | Dimensions (cable device)      | Ø 6.5 × 30 mm              |
| Operating current, I <sub>L</sub>  | ≤ 100 mA                                                                                | Mounting                       | Flush                      |
| Voltage drop, U <sub>D</sub>       | ≤ 3 V / ≤ 2.5 V <sup>1</sup>                                                            | Enclosure rating               | IP 67 <sup>3</sup>         |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> <sup>2</sup> / short-circuit protection (Q) | Material, housing              | Brass, nickel-plated       |
| Switching output, Q                | PNP / NPN (see Selection Table)                                                         | Material, front surface        | LCP                        |
| Output function                    | N.O.                                                                                    | Type of connection             | (See Selection Table)      |
| Switching frequency, f (ti/tp 1:1) | ≤ 3000 Hz                                                                               | Ambient temperature: operation | -25 ... +70 °C             |
|                                    |                                                                                         |                                |                            |

<sup>1</sup> IDT 6 2B-NS-M3    <sup>2</sup> Except IDT 6 2B-NS-M3    <sup>3</sup> With connected IP 67 plug

12

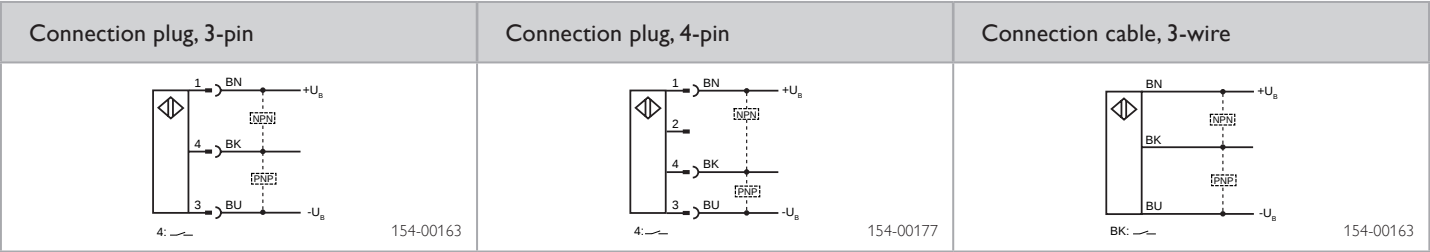


| Switching distance | Switching output | Type of connection | Part number    | Article number |
|--------------------|------------------|--------------------|----------------|----------------|
| 2 mm               | PNP              | Plug, M8x1, 3-pin  | IDT 6-2B-PS-M3 | 697-01042      |
| 2 mm               | NPN              | Plug, M8x1, 3-pin  | IDT 6-2B-NS-M3 | 697-01043      |
| 2 mm               | PNP              | Cable, 2 m, 3-wire | IDT 6-2B-PS-K3 | 697-01040      |
| 2 mm               | NPN              | Cable, 2 m, 3-wire | IDT 6-2B-NS-K3 | 697-01041      |

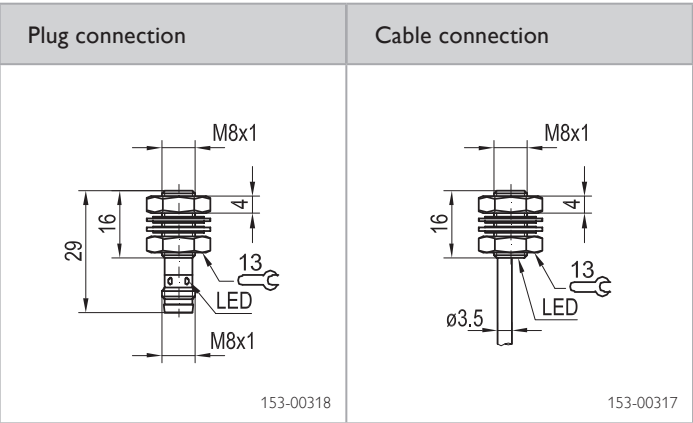


| Sensor data                        |                                                                                                   | Functions                       |                            |
|------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------|----------------------------|
| Switching distance                 | 3 mm                                                                                              | Indicator LED, yellow           | Switching output indicator |
| Repeatability                      | 0.15 mm <sup>1</sup>                                                                              |                                 |                            |
| Hysteresis                         | ≤ 10 % <sup>2</sup>                                                                               |                                 |                            |
| Reduction factor; Al               | 0.26                                                                                              |                                 |                            |
| Reduction factor; Cu               | 0.18                                                                                              |                                 |                            |
| Reduction factor; V2A              | 0.67                                                                                              |                                 |                            |
| Reduction factor; steel FE 360     | 1.00                                                                                              |                                 |                            |
| Reduction factor; brass            | 0.35                                                                                              |                                 |                            |
|                                    |                                                                                                   |                                 |                            |
| Electrical data                    |                                                                                                   | Mechanical data                 |                            |
| Operating voltage, +U <sub>B</sub> | 10 ... 30 V DC <sup>3</sup>                                                                       | Dimensions                      | (See Selection Table)      |
| No-load current, I <sub>0</sub>    | ≤ 10 mA                                                                                           | Mounting                        | Quasi-flush                |
| Output current, I <sub>e</sub>     | ≤ 200 mA                                                                                          | Enclosure rating                | IP 67 <sup>4</sup>         |
| Voltage drop, U <sub>D</sub>       | ≤ 2 V at 200 mA                                                                                   | Material, housing               | Brass, chrome-plated       |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> / Short-circuit protection (Q) / induction protection | Material, front surface         | PBTP                       |
| Switching output, Q                | PNP / NPN (see Selection Table)                                                                   | Type of connection              | (See Selection Table)      |
| Output function                    | N.O.                                                                                              | Ambient temperature: operation  | -25 ... +70 °C             |
| Switching frequency, f (ti/tp 1:1) | ≤ 1000 Hz                                                                                         | Vibration and impact resistance | IEC 60947-5-2 / 7.4        |
|                                    |                                                                                                   |                                 |                            |

<sup>1</sup> U<sub>B</sub> = 20 ... 30V DC, T<sub>A</sub> = 23 °C ± 5 °C    <sup>2</sup> Refers to switching distance    <sup>3</sup> Max. 20 % ripple, within U<sub>B</sub>    <sup>4</sup> With connected IP 67 plug

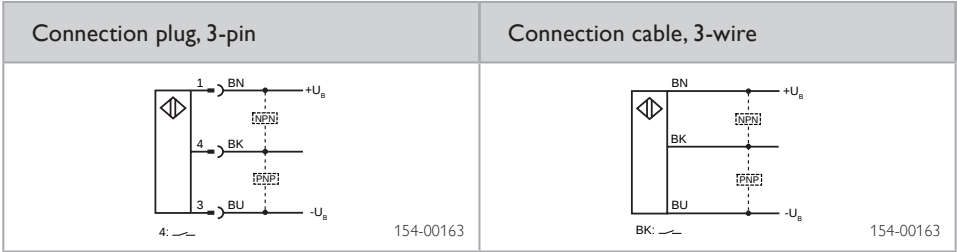


| Switching distance | Switching output | Dimensions    | Type of connection | Part number | Article number |
|--------------------|------------------|---------------|--------------------|-------------|----------------|
| 3 mm               | PNP              | Ø 6.5 x 60 mm | Plug, M8x1, 3-pin  | IS 56-12    | 996-50586      |
| 3 mm               | NPN              | Ø 6.5 x 60 mm | Plug, M8x1, 3-pin  | IS 56-11 T  | 996-50632      |
| 3 mm               | PNP              | Ø 6.5 x 66 mm | Plug, M12x1, 4-pin | IS 56-42    | 996-09963      |
| 3 mm               | NPN              | Ø 6.5 x 66 mm | Plug, M12x1, 4-pin | IS 56-41    | 996-50390      |
| 3 mm               | PNP              | Ø 6.5 x 45 mm | Cable, 2 m, 3-wire | IS 56-02    | 996-09409      |
| 3 mm               | NPN              | Ø 6.5 x 45 mm | Cable, 2 m, 3-wire | IS 56-01    | 996-09408      |

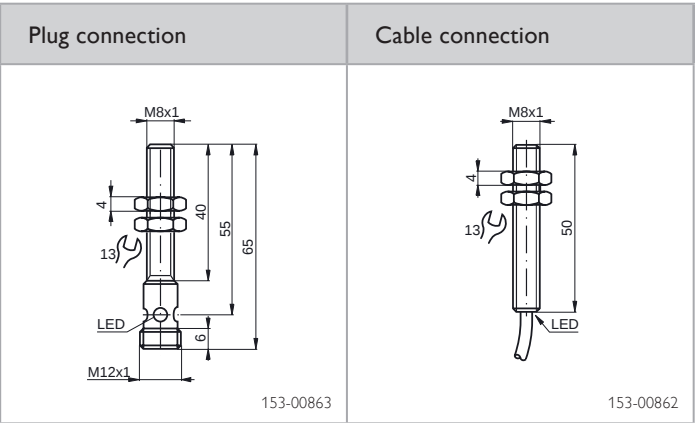


| Sensor data                        |                                                                                                   | Functions                       |                            |
|------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------|----------------------------|
| Switching distance                 | 1.5 mm                                                                                            | Indicator LED, yellow           | Switching output indicator |
| Repeatability                      | 0.02 mm <sup>1</sup>                                                                              |                                 |                            |
| Hysteresis                         | ≤ 10 % <sup>2</sup>                                                                               |                                 |                            |
| Reduction factor; Al               | 0.45                                                                                              |                                 |                            |
| Reduction factor; Cu               | 0.40                                                                                              |                                 |                            |
| Reduction factor; V2A              | 0.80                                                                                              |                                 |                            |
| Reduction factor; steel FE 360     | 1.00                                                                                              |                                 |                            |
| Reduction factor; brass            | 0.50                                                                                              |                                 |                            |
|                                    |                                                                                                   |                                 |                            |
| Electrical data                    |                                                                                                   | Mechanical data                 |                            |
| Operating voltage, +U <sub>B</sub> | 10 ... 30V DC <sup>3</sup>                                                                        | Dimensions (plug device)        | M8 x 29 mm                 |
| No-load current, I <sub>0</sub>    | ≤ 10 mA                                                                                           | Dimensions (cable device)       | M8 x 16 mm                 |
| Output current, I <sub>e</sub>     | ≤ 200 mA                                                                                          | Mounting                        | Flush                      |
| Voltage drop, U <sub>p</sub>       | ≤ 2 V at 200 mA                                                                                   | Enclosure rating                | IP 67 <sup>4</sup>         |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q) / induction protection | Material, housing               | Stainless steel, V2A       |
| Switching output, Q                | PNP / NPN (see Selection Table)                                                                   | Material, front surface         | PA 66                      |
| Output function                    | N.O.                                                                                              | Type of connection              | (See Selection Table)      |
| Switching frequency, f (ti/tp 1:1) | ≤ 5000 Hz                                                                                         | Ambient temperature: operation  | -25 ... +70 °C             |
|                                    |                                                                                                   | Vibration and impact resistance | IEC 60947-5-2 / 7.4        |

<sup>1</sup> U<sub>B</sub> = 20 ... 30V DC, T<sub>A</sub> = 23 °C ± 5 °C    <sup>2</sup> Refers to switching distance    <sup>3</sup> Max. 20 % ripple, within U<sub>B</sub>    <sup>4</sup> With connected IP 67 plug

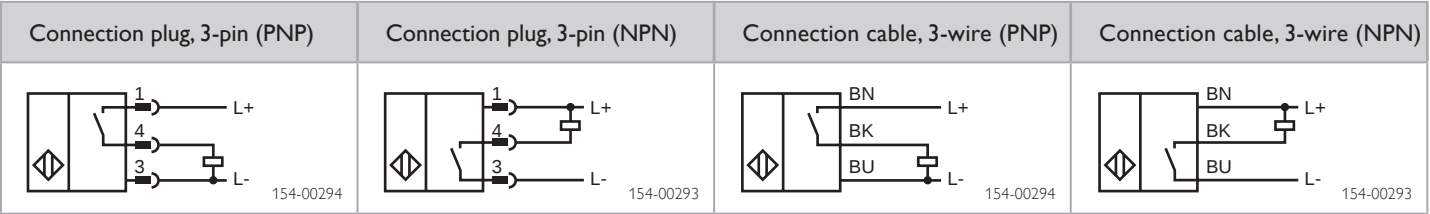


| Switching distance | Switching output | Type of connection | Part number | Article number |
|--------------------|------------------|--------------------|-------------|----------------|
| 1.5 mm             | PNP              | Plug, M8x1, 3-pin  | IS 48-12T   | 996-50624      |
| 1.5 mm             | NPN              | Plug, M8x1, 3-pin  | IS 48-11T   | 996-50623      |
| 1.5 mm             | PNP              | Cable, 2 m, 3-wire | IS 48-02    | 996-09405      |
| 1.5 mm             | NPN              | Cable, 2 m, 3-wire | IS 48-01    | 996-09404      |



| Sensor data                        |                                                                            | Functions                        |                            |
|------------------------------------|----------------------------------------------------------------------------|----------------------------------|----------------------------|
| Switching distance                 | 1.5 mm                                                                     | Indicator LED, yellow            | Switching output indicator |
| Ensured switching distance         | 0 ... 1.215 mm                                                             |                                  |                            |
| Reduction factor;Al                | 0.45                                                                       |                                  |                            |
| Reduction factor;Cu                | 0.35                                                                       |                                  |                            |
| Reduction factor;V2A               | 0.75                                                                       |                                  |                            |
|                                    |                                                                            |                                  |                            |
| Electrical data                    |                                                                            | Mechanical data                  |                            |
| Operating voltage, +U <sub>B</sub> | 10 ... 30V DC                                                              | Dimensions (plug device)         | M8 x 65 mm                 |
| No-load current, I <sub>0</sub>    | ≤ 15 mA                                                                    | Dimensions (cable device)        | M8 x 50 mm                 |
| Operating current, I <sub>I</sub>  | ≤ 100 mA                                                                   | Mounting                         | Flush                      |
| Voltage drop, U <sub>D</sub>       | ≤ 3V                                                                       | Enclosure rating                 | IP 67 <sup>1</sup>         |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q) | Material, housing (plug device)  | Brass, nickel-plated       |
|                                    |                                                                            | Material, housing (cable device) | Brass                      |
| Switching output, Q                | PNP / NPN (see Selection Table)                                            | Material, front surface          | LCP                        |
| Output function                    | N.O.                                                                       | Type of connection               | (See Selection Table)      |
| Switching frequency, f (ti/tp 1:1) | ≤ 1500 Hz                                                                  | Ambient temperature: operation   | -25 ... +70 °C             |
|                                    |                                                                            |                                  |                            |

<sup>1</sup> With connected IP 67 plug



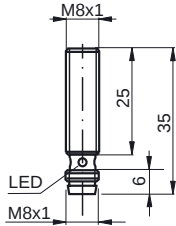
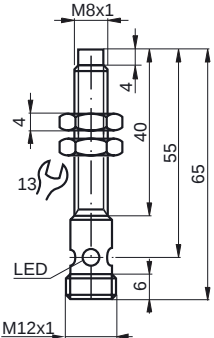
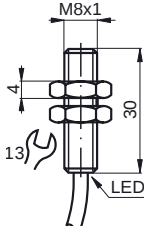
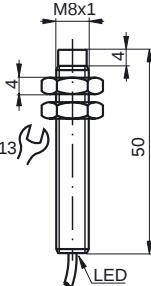
| Switching distance | Switching output | Type of connection | Part number     | Article number |
|--------------------|------------------|--------------------|-----------------|----------------|
| 1.5 mm             | PNP              | Plug, M12x1, 3-pin | IMT 8-1B5-PS-L4 | 697-01011      |
| 1.5 mm             | NPN              | Plug, M12x1, 3-pin | IMT 8-1B5-NS-L4 | 697-01010      |
| 1.5 mm             | PNP              | Cable, 2 m, 3-wire | IMT 8-1B5-PS-K3 | 697-01009      |
| 1.5 mm             | NPN              | Cable, 2 m, 3-wire | IMT 8-1B5-NS-K3 | 697-01008      |
|                    |                  |                    |                 |                |

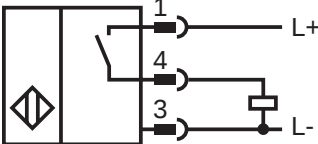
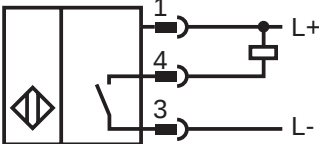
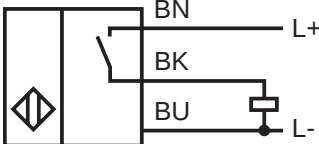
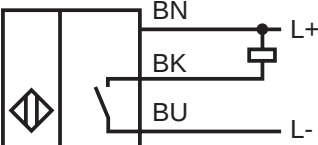


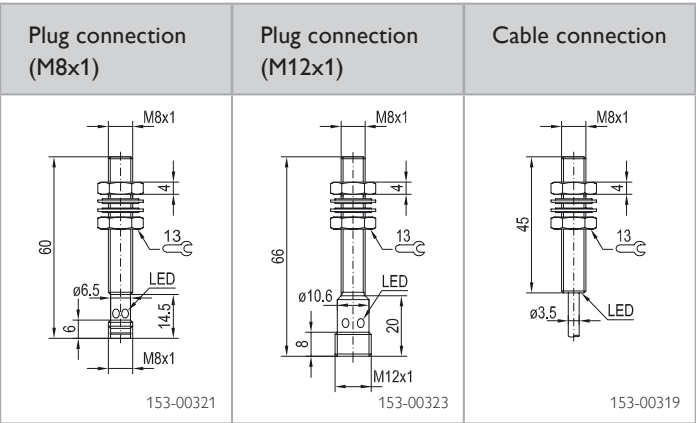
| Sensor data                        |                                                                                         | Functions                           |                                         |
|------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------|-----------------------------------------|
| Switching distance                 | 2 mm                                                                                    | Indicator LED, yellow               | Switching output indicator              |
| Ensured switching distance         | 0 ... 1.62 mm                                                                           |                                     |                                         |
| Reduction factor; AI               | 0.45                                                                                    |                                     |                                         |
| Reduction factor; Cu               | 0.35 <sup>1</sup> / 0.40 <sup>2</sup>                                                   |                                     |                                         |
| Reduction factor; V2A              | 0.75 / 0.7 <sup>3</sup>                                                                 |                                     |                                         |
|                                    |                                                                                         |                                     |                                         |
| Electrical data                    |                                                                                         | Mechanical data                     |                                         |
| Operating voltage, +U <sub>B</sub> | 10 ... 30V DC / 5 ... 30V DC <sup>3</sup>                                               | Dimensions (plug device, flush)     | M8 x 35 mm                              |
| No-load current, I <sub>0</sub>    | ≤ 15 mA                                                                                 | Dimensions (plug device, non-flush) | M8 x 65 mm                              |
| Operating current, I <sub>I</sub>  | ≤ 100 mA                                                                                | Dimensions (cable device, flush)    | M8 x 30 mm                              |
| Voltage drop, U <sub>D</sub>       | ≤ 3V / ≤ 2.5V <sup>3</sup>                                                              | Dimensions (cable device non-flush) | M8 x 50 mm                              |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> <sup>4</sup> / short-circuit protection (Q) | Mounting                            | Flush / non-flush (see Selection Table) |
| Switching output, Q                | PNP / NPN (see Selection Table)                                                         | Enclosure rating                    | IP 67 <sup>5</sup>                      |
| Output function                    | N.O.                                                                                    | Material, housing                   | Brass, nickel-plated                    |
| Switching frequency, f (ti/tp 1:1) | (See Selection Table)                                                                   | Material, front surface (flush)     | LCP                                     |
|                                    |                                                                                         | Material, front surface (non-flush) | PBT                                     |
|                                    |                                                                                         | Type of connection                  | (See Selection Table)                   |
|                                    |                                                                                         | Ambient temperature: operation      | -25 ... +70 °C                          |
|                                    |                                                                                         |                                     |                                         |

<sup>1</sup> Non-flush devices    <sup>2</sup> Flush devices, except IMT 8-2B-NS-M3 (0.35)    <sup>3</sup> IMT 8-2B-NS-M3    <sup>4</sup> Except IMT 8-2B-NS-M3    <sup>5</sup> With connected IP 67 plug

| Switching distance | Mounting  | Switching output | Switching frequency, f (ti/tp 1:1) | Type of connection | Part number    | Article number |
|--------------------|-----------|------------------|------------------------------------|--------------------|----------------|----------------|
| 2 mm               | Flush     | PNP              | ≤ 3000 Hz                          | Plug, M8x1, 3-pin  | IMT 8-2B-PS-M3 | 697-01046      |
| 2 mm               | Flush     | NPN              | ≤ 3000 Hz                          | Plug, M8x1, 3-pin  | IMT 8-2B-NS-M3 | 697-01047      |
| 2 mm               | Flush     | PNP              | ≤ 3000 Hz                          | Cable, 2 m, 3-wire | IMT 8-2B-PS-K3 | 697-01044      |
| 2 mm               | Flush     | NPN              | ≤ 3000 Hz                          | Cable, 2 m, 3-wire | IMT 8-2B-NS-K3 | 697-01045      |
| 2 mm               | Non-flush | PNP              | ≤ 1500 Hz                          | Plug, M12x1, 3-pin | IMT 8-2N-PS-L4 | 697-01015      |
| 2 mm               | Non-flush | NPN              | ≤ 1500 Hz                          | Plug, M12x1, 3-pin | IMT 8-2N-NS-L4 | 697-01014      |
| 2 mm               | Non-flush | PNP              | ≤ 1500 Hz                          | Cable, 2 m, 3-wire | IMT 8-2N-PS-K3 | 697-01013      |
| 2 mm               | Non-flush | NPN              | ≤ 1500 Hz                          | Cable, 2 m, 3-wire | IMT 8-2N-NS-K3 | 697-01012      |
|                    |           |                  |                                    |                    |                |                |

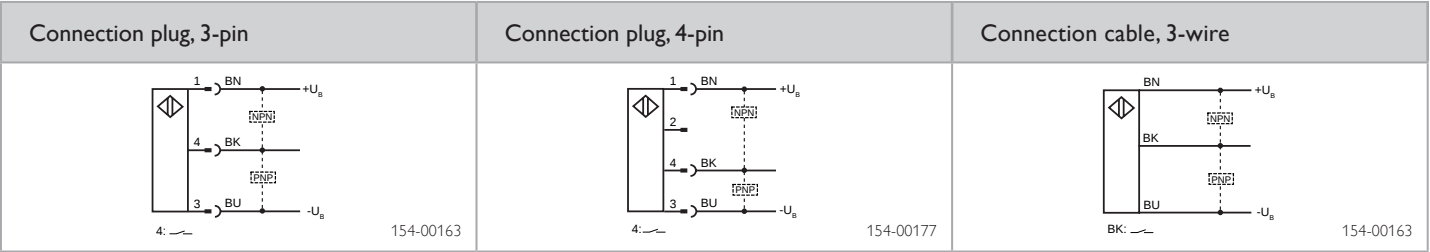
| Plug connection (flush)                                                                          | Plug connection (non-flush)                                                                       |
|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <br>153-00881 | <br>153-00865  |
| Cable connection (flush)                                                                         | Cable connection (non-flush)                                                                      |
| <br>153-00880 | <br>153-00864 |

| Connection plug, 3-pin (PNP)                                                                       | Connection plug, 3-pin (NPN)                                                                       | Connection cable, 3-wire (PNP)                                                                     |
|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| <br>154-00294 | <br>154-00293 | <br>154-00294 |
| Connection cable, 3-wire (NPN)                                                                     |                                                                                                    |                                                                                                    |
| <br>154-00293 |                                                                                                    |                                                                                                    |

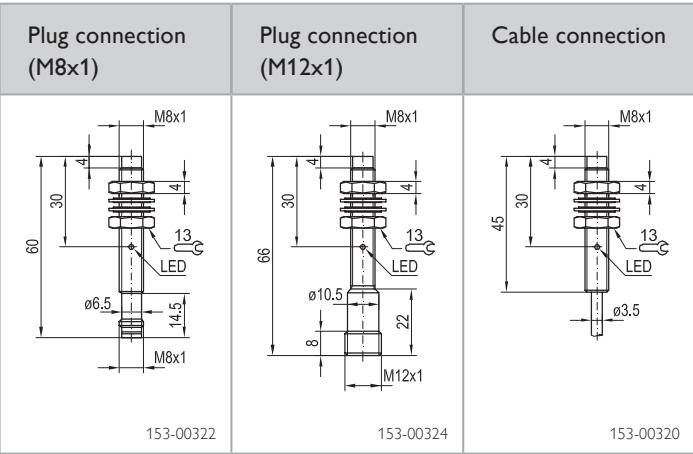


| Sensor data                        |                                                                                                   | Functions                       |                              |
|------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------|------------------------------|
| Switching distance                 | 3 mm                                                                                              | Indicator LED, yellow           | Switching output indicator   |
| Repeatability                      | 0.15 mm <sup>1</sup>                                                                              |                                 |                              |
| Hysteresis                         | ≤ 15 % <sup>2</sup>                                                                               |                                 |                              |
| Reduction factor;Al                | 0.33                                                                                              |                                 |                              |
| Reduction factor; Cu               | 0.27                                                                                              |                                 |                              |
| Reduction factor;V2A               | 0.72                                                                                              |                                 |                              |
| Reduction factor; steel FE 360     | 1.00                                                                                              |                                 |                              |
| Reduction factor; brass            | 0.41                                                                                              |                                 |                              |
|                                    |                                                                                                   |                                 |                              |
| Electrical data                    |                                                                                                   | Mechanical data                 |                              |
| Operating voltage, +U <sub>B</sub> | 10 ... 30V DC <sup>3</sup>                                                                        | Dimensions                      | (See Selection Table)        |
| No-load current, I <sub>0</sub>    | ≤ 10 mA                                                                                           | Enclosure rating                | IP 67 <sup>4</sup>           |
| Output current, I <sub>e</sub>     | ≤ 200 mA                                                                                          | Mounting                        | Flush                        |
| Voltage drop, U <sub>D</sub>       | ≤ 2 V at 200 mA                                                                                   | Material, housing               | Nickel silver; chrome-plated |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q) / induction protection | Material, front surface         | PBTP (PPS)                   |
| Switching output, Q                | PNP / NPN (see Selection Table)                                                                   | Type of connection              | (See Selection Table)        |
| Output function                    | N.O.                                                                                              | Ambient temperature: operation  | -25 ... +70 °C               |
| Switching frequency, f (ti/tp 1:1) | ≤ 1000 Hz                                                                                         | Vibration and impact resistance | IEC 60947-5-2 / 7.4          |
|                                    |                                                                                                   |                                 |                              |

<sup>1</sup> U<sub>B</sub> = 20 ... 30V DC, T<sub>A</sub> = 23 °C ± 5 °C    <sup>2</sup> Refers to switching distance    <sup>3</sup> Max. 20 % ripple, within U<sub>B</sub>    <sup>4</sup> With connected IP 67 plug

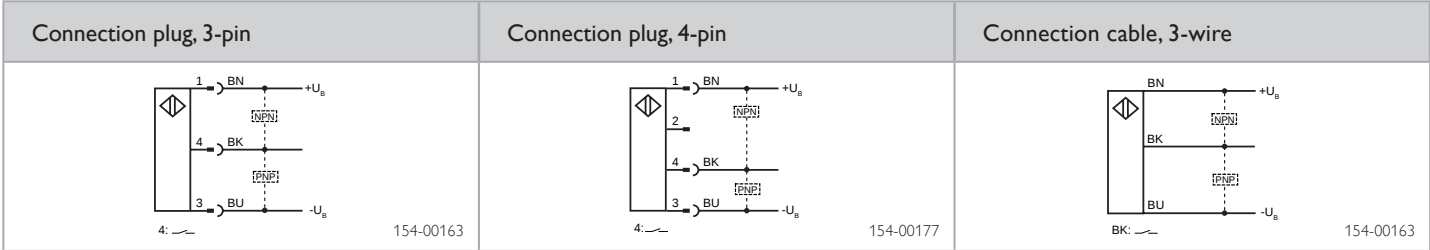


| Switching distance | Switching output | Dimensions | Type of connection | Part number | Article number |
|--------------------|------------------|------------|--------------------|-------------|----------------|
| 3 mm               | PNP              | M8 x 60 mm | Plug, M8x1, 3-pin  | IS 58-12 T  | 996-50587      |
| 3 mm               | NPN              | M8 x 60 mm | Plug, M8x1, 3-pin  | IS 58-11 T  | 996-50640      |
| 3 mm               | PNP              | M8 x 66 mm | Plug, M12x1, 4-pin | IS 58-42    | 996-09965      |
| 3 mm               | NPN              | M8 x 66 mm | Plug, M12x1, 4-pin | IS 58-41    | 996-09964      |
| 3 mm               | PNP              | M8 x 45 mm | Cable, 2 m, 3-wire | IS 58-02    | 996-09413      |
| 3 mm               | NPN              | M8 x 45 mm | Cable, 2 m, 3-wire | IS 58-01    | 996-09412      |

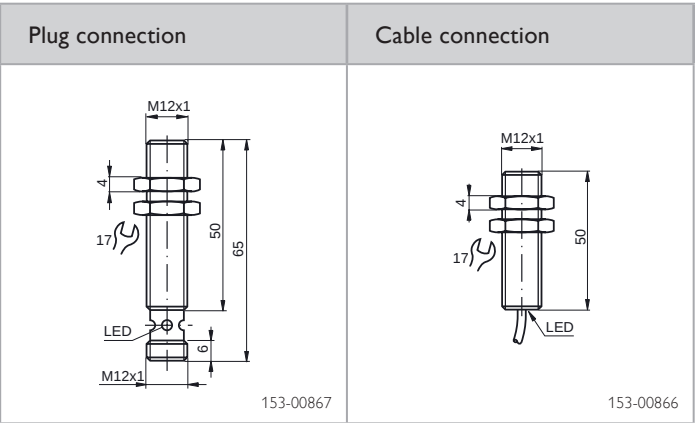


| Sensor data                        |                                                       | Functions                      |                            |
|------------------------------------|-------------------------------------------------------|--------------------------------|----------------------------|
| Switching distance                 | 6 mm                                                  | Indicator LED, yellow          | Switching output indicator |
| Repeatability                      | ≤ 0.3 mm                                              |                                |                            |
| Reduction factor; Al               | 0.47                                                  |                                |                            |
| Reduction factor; Cu               | 0.44                                                  |                                |                            |
| Reduction factor; V2A              | 0.77                                                  |                                |                            |
|                                    |                                                       |                                |                            |
| Electrical data                    |                                                       | Mechanical data                |                            |
| Operating voltage, +U <sub>B</sub> | 10 ... 30 V DC <sup>1</sup>                           | Dimensions                     | (See Selection Table)      |
| No-load current, I <sub>0</sub>    | ≤ 10 mA                                               | Enclosure rating               | IP 67 <sup>2</sup>         |
| Output current, I <sub>e</sub>     | ≤ 200 mA                                              | Mounting                       | Non-flush                  |
| Voltage drop, U <sub>D</sub>       | ≤ 2 V at 200 mA                                       | Material, housing              | Brass, chrome-plated       |
| Protective circuits                | Short-circuit protection (Q) /<br>overload protection | Material, front surface        | PBTP                       |
| Standby time                       | 50 ms                                                 | Type of connection             | (See Selection Table)      |
| Switching output, Q                | PNP / NPN (see Selection Table)                       | Ambient temperature: operation | -25 ... +70 °C             |
| Output function                    | N.O.                                                  |                                |                            |
| Switching frequency, f (ti/tp 1:1) | ≤ 500 Hz                                              |                                |                            |

<sup>1</sup> Max. 20 % ripple, within U<sub>B</sub>    <sup>2</sup> With connected IP 67 plug

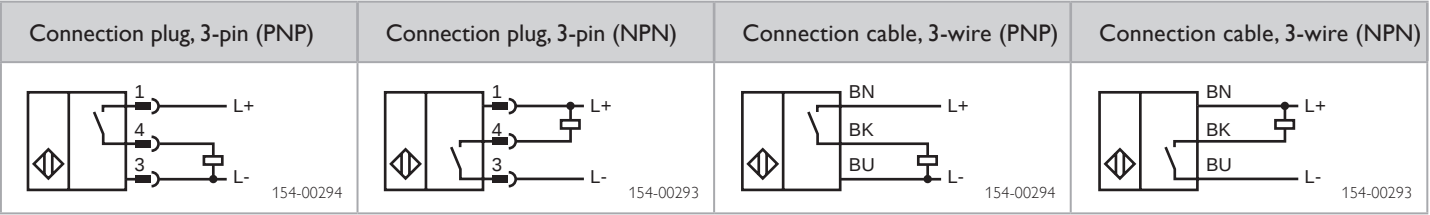


| Switching distance | Switching output | Dimensions | Type of connection | Part number | Article number |
|--------------------|------------------|------------|--------------------|-------------|----------------|
| 6 mm               | PNP              | M8 x 60 mm | Plug, M8x1, 3-pin  | IS 58-14-S  | 996-51456      |
| 6 mm               | NPN              | M8 x 60 mm | Plug, M8x1, 3-pin  | IS 58-13-S  | 996-51470      |
| 6 mm               | PNP              | M8 x 66 mm | Plug, M12x1, 4-pin | IS 58-44-S  | 996-51460      |
| 6 mm               | NPN              | M8 x 66 mm | Plug, M12x1, 4-pin | IS 58-43-S  | 996-51463      |
| 6 mm               | PNP              | M8 x 45 mm | Cable, 3-wire      | IS 58-04-S  | 996-51461      |
| 6 mm               | NPN              | M8 x 45 mm | Cable, 3-wire      | IS 58-03-S  | 996-51465      |



| Sensor data                        |                                                                            | Functions                      |                            |
|------------------------------------|----------------------------------------------------------------------------|--------------------------------|----------------------------|
| Switching distance                 | 2 mm                                                                       | Indicator LED, yellow          | Switching output indicator |
| Ensured switching distance         | 0 ... 1.62 mm                                                              |                                |                            |
| Reduction factor;Al                | 0.30                                                                       |                                |                            |
| Reduction factor;Cu                | 0.20                                                                       |                                |                            |
| Reduction factor;V2A               | 0.70                                                                       |                                |                            |
|                                    |                                                                            |                                |                            |
| Electrical data                    |                                                                            | Mechanical data                |                            |
| Operating voltage, +U <sub>B</sub> | 10 ... 30 V DC                                                             | Dimensions (plug device)       | M12 × 65 mm                |
| No-load current, I <sub>0</sub>    | ≤ 17 mA                                                                    | Dimensions (cable device)      | M12 × 50 mm                |
| Operating current, I <sub>L</sub>  | ≤ 200 mA                                                                   | Mounting                       | Flush                      |
| Voltage drop, U <sub>D</sub>       | ≤ 3 V                                                                      | Enclosure rating               | IP 67 <sup>1</sup>         |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q) | Material, housing              | Brass, nickel-plated       |
| Switching output, Q                | PNP / NPN (see Selection Table)                                            | Material, front surface        | PBT                        |
| Output function                    | N.O.                                                                       | Type of connection             | (See Selection Table)      |
| Switching frequency, f (ti/tp 1:1) | ≤ 1500 Hz                                                                  | Ambient temperature: operation | -25 ... +70 °C             |
|                                    |                                                                            |                                |                            |

<sup>1</sup>With connected IP 67 plug



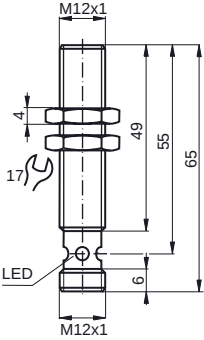
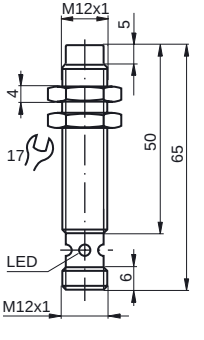
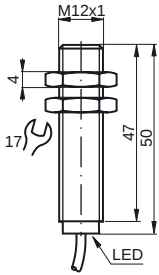
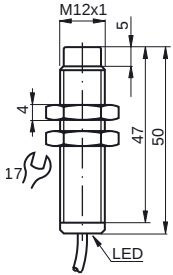
| Switching distance | Switching output | Type of connection | Part number     | Article number |
|--------------------|------------------|--------------------|-----------------|----------------|
| 2 mm               | PNP              | Plug, M12x1, 3-pin | IMT 12-2B-PS-L4 | 697-01019      |
| 2 mm               | NPN              | Plug, M12x1, 3-pin | IMT 12-2B-NS-L4 | 697-01018      |
| 2 mm               | PNP              | Cable, 2 m, 3-wire | IMT 12-2B-PS-K3 | 697-01017      |
| 2 mm               | NPN              | Cable, 2 m, 3-wire | IMT 12-2B-NS-K3 | 697-01016      |
|                    |                  |                    |                 |                |

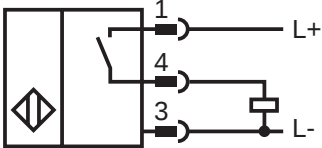
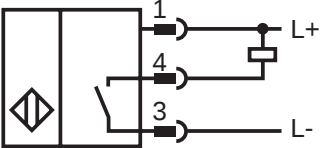
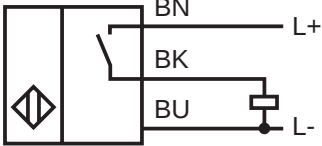
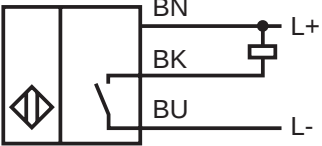


| Sensor data                        |                                                                               | Functions                      |                                            |
|------------------------------------|-------------------------------------------------------------------------------|--------------------------------|--------------------------------------------|
| Switching distance                 | 4 mm                                                                          | Indicator LED, yellow          | Switching output indicator                 |
| Ensured switching distance         | 0 ... 3.24 mm                                                                 |                                |                                            |
| Reduction factor; Al (flush)       | 0.45 <sup>1</sup> / 0.39 <sup>2</sup>                                         |                                |                                            |
| Reduction factor; Cu (flush)       | 0.35                                                                          |                                |                                            |
| Reduction factor; V2A (flush)      | 0.7 <sup>1</sup> / 0.75 <sup>2</sup>                                          |                                |                                            |
| Reduction factor; Al (non-flush)   | 0.50                                                                          |                                |                                            |
| Reduction factor; Cu (non-flush)   | 0.40                                                                          |                                |                                            |
| Reduction factor; V2A (non-flush)  | 0.80                                                                          |                                |                                            |
|                                    |                                                                               |                                |                                            |
| Electrical data                    |                                                                               | Mechanical data                |                                            |
| Operating voltage, +U <sub>B</sub> | 10 ... 30V DC                                                                 | Dimensions (plug device)       | M12 x 65 mm                                |
| No-load current, I <sub>0</sub>    | ≤ 15 mA <sup>3</sup> / ≤ 17 mA <sup>4</sup>                                   | Dimensions (cable device)      | M12 x 50 mm                                |
| Operating current, I <sub>I</sub>  | ≤ 200 mA                                                                      | Mounting                       | Flush / non-flush<br>(see Selection Table) |
| Voltage drop, U <sub>D</sub>       | ≤ 3 V                                                                         | Enclosure rating               | IP 67 <sup>5</sup>                         |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> /<br>short-circuit protection (Q) | Material, housing              | Brass, nickel-plated                       |
| Switching output, Q                | PNP / NPN (see Selection Table)                                               | Material, front surface        | PBT                                        |
| Output function                    | N.O.                                                                          | Type of connection             | (See Selection Table)                      |
| Switching frequency, f (ti/tp 1:1) | (See Selection Table)                                                         | Ambient temperature: operation | -25 ... +70 °C                             |
|                                    |                                                                               |                                |                                            |

<sup>1</sup> PNP variants    <sup>2</sup> NPN variants    <sup>3</sup> Flush devices    <sup>4</sup> Non-flush devices    <sup>5</sup> With connected IP 67 plug

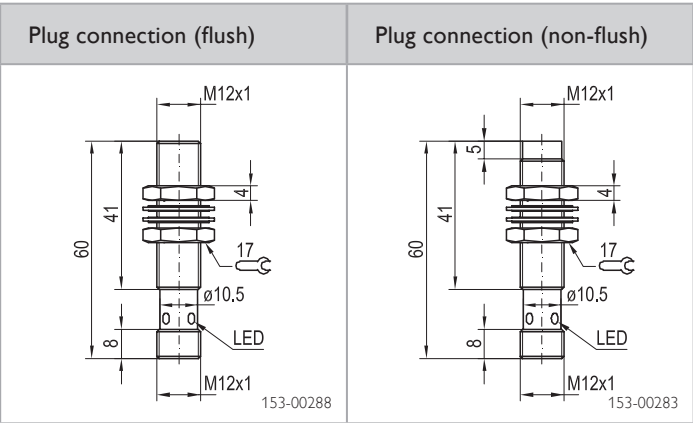
| Switching distance | Mounting  | Switching output | Switching frequency, f (ti/tp 1:1) | Type of connection | Part number     | Article number |
|--------------------|-----------|------------------|------------------------------------|--------------------|-----------------|----------------|
| 4 mm               | Flush     | PNP              | ≤ 1000 Hz                          | Plug, M12x1, 3-pin | IMT 12-4B-PS-L4 | 697-01050      |
| 4 mm               | Flush     | NPN              | ≤ 800 Hz                           | Plug, M12x1, 3-pin | IMT 12-4B-NS-L4 | 697-01051      |
| 4 mm               | Flush     | PNP              | ≤ 1000 Hz                          | Cable, 2 m, 3-wire | IMT 12-4B-PS-K3 | 697-01048      |
| 4 mm               | Flush     | NPN              | ≤ 800 Hz                           | Cable, 2 m, 3-wire | IMT 12-4B-NS-K3 | 697-01049      |
| 4 mm               | Non-flush | PNP              | ≤ 1200 Hz                          | Plug, M12x1, 3-pin | IMT 12-4N-PS-L4 | 697-01023      |
| 4 mm               | Non-flush | NPN              | ≤ 1200 Hz                          | Plug, M12x1, 3-pin | IMT 12-4N-NS-L4 | 697-01022      |
| 4 mm               | Non-flush | PNP              | ≤ 1200 Hz                          | Cable, 2 m, 3-wire | IMT 12-4N-PS-K3 | 697-01021      |
| 4 mm               | Non-flush | NPN              | ≤ 1200 Hz                          | Cable, 2 m, 3-wire | IMT 12-4N-NS-K3 | 697-01020      |

| Plug connection (flush)                                                                           | Plug connection (non-flush)                                                                       |
|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <br>153-00883  | <br>153-00869  |
| Cable connection (flush)                                                                          | Cable connection (non-flush)                                                                      |
| <br>153-00882 | <br>153-00868 |

| Connection plug, 3-pin (PNP)                                                                       | Connection plug, 3-pin (NPN)                                                                       |
|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| <br>154-00294 | <br>154-00293 |
| Connection cable, 3-wire (PNP)                                                                     | Connection cable, 3-wire (NPN)                                                                     |
| <br>154-00294 | <br>154-00293 |

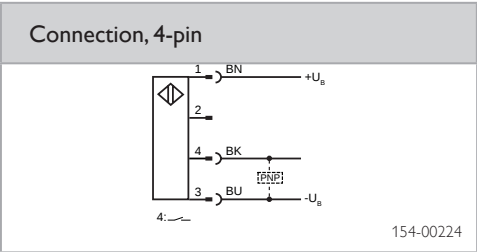
IT 12

Inductive sensor with expanded switching distance



| Sensor data                                   |                                                                                                   | Functions                       |                                            |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------------------|
| Switching distance <sup>1</sup>               | 6 mm                                                                                              | Indicator LED, yellow           | Switching output indicator                 |
| Switching distance <sup>2</sup>               | 10 mm                                                                                             |                                 |                                            |
| Repeatability <sup>1</sup>                    | 0.3 mm <sup>4</sup>                                                                               |                                 |                                            |
| Repeatability <sup>2</sup>                    | 0.5 mm <sup>4</sup>                                                                               |                                 |                                            |
| Hysteresis                                    | ≤ 15 % <sup>5</sup>                                                                               |                                 |                                            |
| Reduction factor; Al <sup>3</sup>             | 1.00 / 1.00                                                                                       |                                 |                                            |
| Reduction factor; Cu <sup>3</sup>             | 0.85 / 0.80                                                                                       |                                 |                                            |
| Reduction factor; V2A 1 mm thick <sup>3</sup> | 0.50 / no detection                                                                               |                                 |                                            |
| Reduction factor; V2A 2 mm thick <sup>3</sup> | 0.90 / 0.65                                                                                       |                                 |                                            |
| Reduction factor; steel FE 360 <sup>3</sup>   | 1.00 / 1.00                                                                                       |                                 |                                            |
| Reduction factor; brass <sup>3</sup>          | 1.30 / 1.40                                                                                       |                                 |                                            |
|                                               |                                                                                                   |                                 |                                            |
| Electrical data                               |                                                                                                   | Mechanical data                 |                                            |
| Operating voltage, +U <sub>B</sub>            | 10 ... 30 V DC <sup>6</sup>                                                                       | Dimensions                      | M12 × 60 mm                                |
| No-load current, I <sub>0</sub>               | ≤ 10 mA                                                                                           | Mounting                        | Flush / non-flush<br>(see Selection Table) |
| Operating current, I <sub>L</sub>             | ≤ 200 mA                                                                                          | Enclosure rating                | IP 69K & IP 68 <sup>7</sup>                |
| Voltage drop, U <sub>D</sub>                  | ≤ 2 V at 200 mA                                                                                   | Material, housing               | Stainless steel, V2A                       |
| Protective circuits                           | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q) / induction protection | Material, front surface         | Stainless steel, V2A                       |
| Switching output, Q                           | PNP                                                                                               | Type of connection              | (See Selection Table)                      |
| Output function                               | N.O.                                                                                              | Ambient temperature: operation  | -25 ... +70 °C                             |
| Switching frequency, f (ti/tp 1:1)            | (See Selection Table)                                                                             | Vibration and impact resistance | IEC 60947-5-2 / 7.4                        |
|                                               |                                                                                                   |                                 |                                            |

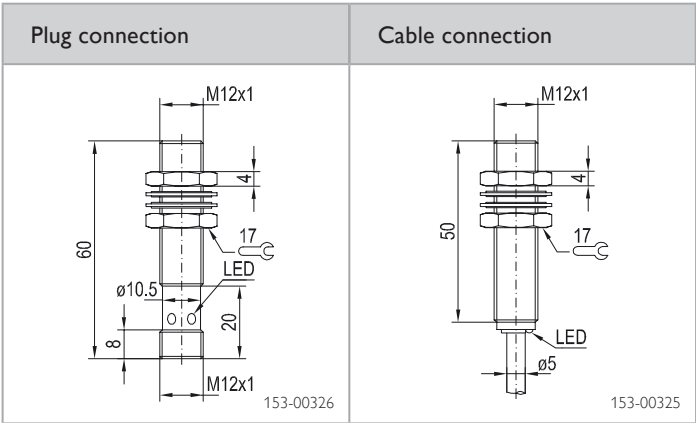
<sup>1</sup> Flush devices    <sup>2</sup> Non-flush devices    <sup>3</sup> Flush / non-flush devices    <sup>4</sup> U<sub>B</sub> = 20 ... 30V DC, T<sub>A</sub> = 23 °C ± 5 °C    <sup>5</sup> Refers to switching distance  
<sup>6</sup> Max. 20 % ripple, within U<sub>B</sub>    <sup>7</sup> With connected IP 68 / IP 69K plug



| Switching distance | Mounting  | Switching output | Switching frequency, f (ti/tp 1:1) | Type of connection | Part number    | Article number |
|--------------------|-----------|------------------|------------------------------------|--------------------|----------------|----------------|
| 6 mm               | Flush     | PNP              | ≤ 600 Hz                           | Plug, M12x1, 4-pin | IT 12 BM-PSL4  | 996-51480      |
| 10 mm              | Non-flush | PNP              | ≤ 400 Hz                           | Plug, M12x1, 4-pin | IT 12 NBM-PSL4 | 996-51481      |

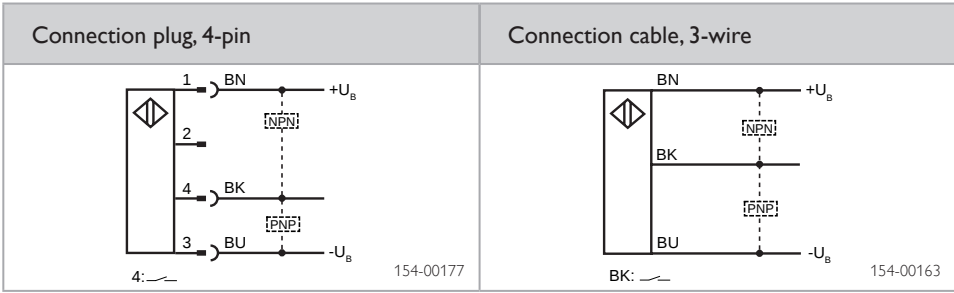
IS 512

Inductive sensor with expanded switching distance



| Sensor data                        |                                                                                                   | Functions                       |                            |
|------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------|----------------------------|
| Switching distance                 | 6 mm                                                                                              | Indicator LED, yellow           | Switching output indicator |
| Repeatability                      | 0.3 mm <sup>1</sup>                                                                               |                                 |                            |
| Hysteresis                         | ≤ 10 % <sup>2</sup>                                                                               |                                 |                            |
| Reduction factor; Al               | 0.30                                                                                              |                                 |                            |
| Reduction factor; Cu               | 0.25                                                                                              |                                 |                            |
| Reduction factor; V2A              | 0.70                                                                                              |                                 |                            |
| Reduction factor; steel FE 360     | 1.00                                                                                              |                                 |                            |
| Reduction factor; brass            | 0.40                                                                                              |                                 |                            |
|                                    |                                                                                                   |                                 |                            |
| Electrical data                    |                                                                                                   | Mechanical data                 |                            |
| Operating voltage, +U <sub>B</sub> | 10 ... 30V DC <sup>3</sup>                                                                        | Dimensions                      | (See Selection Table)      |
| No-load current, I <sub>0</sub>    | ≤ 10 mA                                                                                           | Enclosure rating                | IP 67 <sup>4</sup>         |
| Output current, I <sub>e</sub>     | ≤ 200 mA                                                                                          | Mounting                        | Quasi-flush                |
| Voltage drop, U <sub>D</sub>       | ≤ 2 V at 200 mA                                                                                   | Material, housing               | Brass, chrome-plated       |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q) / induction protection | Material, front surface         | PBTP (PPS)                 |
| Switching output, Q                | PNP / NPN (see Selection Table)                                                                   | Type of connection              | (See Selection Table)      |
| Output function                    | N.O.                                                                                              | Ambient temperature: operation  | -25 ... +70 °C             |
| Switching frequency, f (ti/tp 1:1) | ≤ 800 Hz                                                                                          | Vibration and impact resistance | IEC 60947-5-2 / 7.4        |
|                                    |                                                                                                   |                                 |                            |

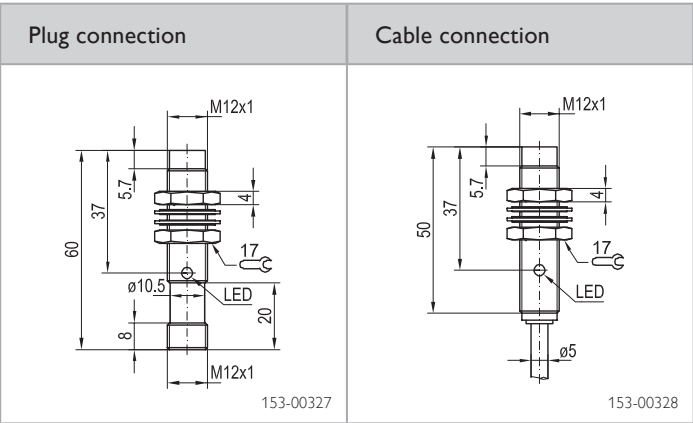
<sup>1</sup> U<sub>B</sub> = 20 ... 30V DC, T<sub>A</sub> = 23 °C ± 5 °C    <sup>2</sup> Refers to switching distance    <sup>3</sup> Max. 20 % ripple, within U<sub>B</sub>    <sup>4</sup> With connected IP 67 plug



| Switching distance | Switching output | Dimensions  | Type of connection | Part number | Article number |
|--------------------|------------------|-------------|--------------------|-------------|----------------|
| 6 mm               | PNP              | M12 x 60 mm | Plug, M12x1, 4-pin | IS 512-42   | 996-09969      |
| 6 mm               | NPN              | M12 x 60 mm | Plug, M12x1, 4-pin | IS 512-41   | 996-09968      |
| 6 mm               | PNP              | M12 x 50 mm | Cable, 2 m, 3-wire | IS 512-02   | 996-09421      |
| 6 mm               | NPN              | M12 x 50 mm | Cable, 2 m, 3-wire | IS 512-01   | 996-09420      |

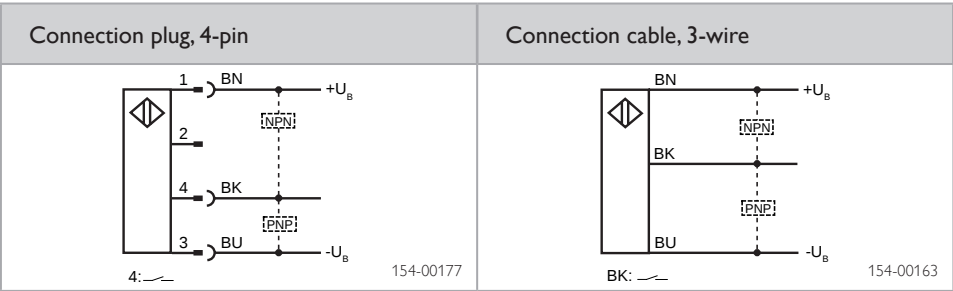
IS 512

Inductive sensor with expanded switching distance



| Sensor data                        |                                                                                                   | Functions                       |                            |
|------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------|----------------------------|
| Switching distance                 | 10 mm                                                                                             | Indicator LED, yellow           | Switching output indicator |
| Repeatability                      | ≤ 0.3 mm <sup>1</sup>                                                                             |                                 |                            |
| Hysteresis                         | ≤ 10 % <sup>2</sup>                                                                               |                                 |                            |
| Reduction factor; Al               | 0.49                                                                                              |                                 |                            |
| Reduction factor; Cu               | 0.45                                                                                              |                                 |                            |
| Reduction factor; V2A              | 0.77                                                                                              |                                 |                            |
| Reduction factor; steel FE 360     | 1.00                                                                                              |                                 |                            |
| Reduction factor; brass            | 0.56                                                                                              |                                 |                            |
|                                    |                                                                                                   |                                 |                            |
| Electrical data                    |                                                                                                   | Mechanical data                 |                            |
| Operating voltage, +U <sub>B</sub> | 10 ... 30 V DC <sup>3</sup>                                                                       | Dimensions                      | (See Selection Table)      |
| No-load current, I <sub>0</sub>    | ≤ 10 mA                                                                                           | Enclosure rating                | IP 67 <sup>4</sup>         |
| Output current, I <sub>e</sub>     | ≤ 200 mA                                                                                          | Mounting                        | Non-flush                  |
| Voltage drop, U <sub>D</sub>       | ≤ 2 V at 200 mA                                                                                   | Material, housing               | Brass, chrome-plated       |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q) / induction protection | Material, front surface         | PBTP (PPS)                 |
| Switching output, Q                | PNP / NPN (see Selection Table)                                                                   | Type of connection              | (See Selection Table)      |
| Output function                    | N.O.                                                                                              | Ambient temperature: operation  | -25 ... +70 °C             |
| Switching frequency, f (ti/tp 1:1) | ≤ 400 Hz                                                                                          | Vibration and impact resistance | IEC 60947-5-2 / 7.4        |
|                                    |                                                                                                   |                                 |                            |

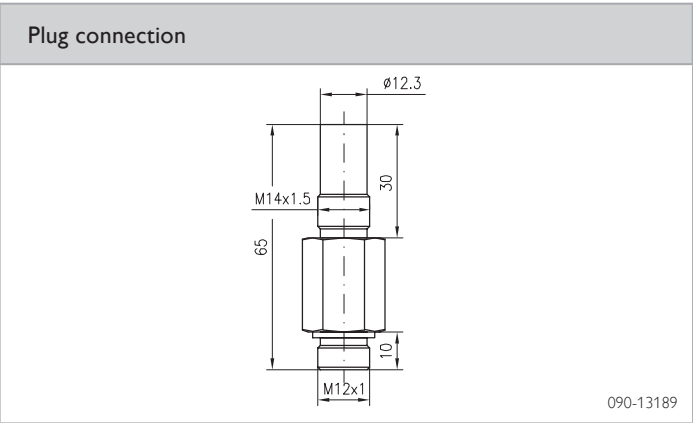
<sup>1</sup> U<sub>B</sub> = 20 ... 30V DC, T<sub>A</sub> = 23 °C ± 5 °C    <sup>2</sup> Refers to switching distance    <sup>3</sup> Max. 20 % ripple, within U<sub>B</sub>    <sup>4</sup> With connected IP 67 plug



| Switching distance | Switching output | Dimensions  | Type of connection | Part number | Article number |
|--------------------|------------------|-------------|--------------------|-------------|----------------|
| 10 mm              | PNP              | M12 × 60 mm | Plug, M12x1, 4-pin | IS 512-44-S | 996-51449      |
| 10 mm              | NPN              | M12 × 60 mm | Plug, M12x1, 4-pin | IS 512-43   | 996-09970      |
| 10 mm              | PNP              | M12 × 50 mm | Cable, 2 m, 3-wire | IS 512-04-S | 996-51458      |
| 10 mm              | NPN              | M12 × 50 mm | Cable, 2 m, 3-wire | IS 512-03-S | 996-51472      |

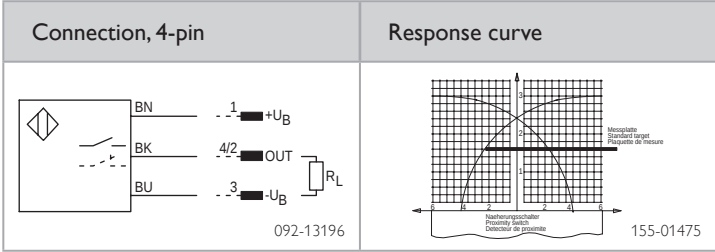
IS 514

Inductive sensor, high-pressure immunity with stainless steel housing

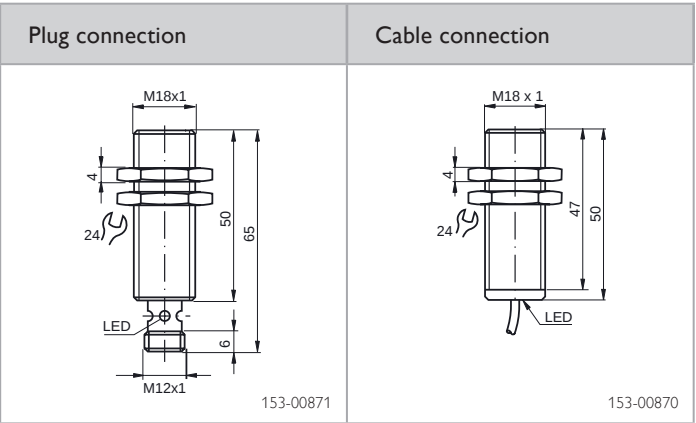


| Sensor data                        |                                                                            |                                |                                |
|------------------------------------|----------------------------------------------------------------------------|--------------------------------|--------------------------------|
| Switching distance                 | 3 mm                                                                       |                                |                                |
| Hysteresis                         | ~ 10 %                                                                     |                                |                                |
| High-pressure immunity: maximum    | 1000 bar                                                                   |                                |                                |
| High-pressure immunity: operation  | 500 bar                                                                    |                                |                                |
| Temperature drift                  | ≤ 15 %                                                                     |                                |                                |
| Reduction factor; Al               | 0.40                                                                       |                                |                                |
| Reduction factor; Cu               | 0.35                                                                       |                                |                                |
| Reduction factor; V2A              | 0.66                                                                       |                                |                                |
|                                    |                                                                            | Mechanical data                |                                |
| Electrical data                    |                                                                            | Dimensions                     | M14 × 65 mm                    |
| Operating voltage, +U <sub>B</sub> | 10 ... 30 V DC                                                             | Mounting                       | Flush                          |
| No-load current, I <sub>0</sub>    | ≤ 15 mA                                                                    | Enclosure rating               | IP 68 <sup>1</sup>             |
| Output current, I <sub>e</sub>     | ≤ 250 mA                                                                   | Material, housing              | Stainless steel, V2A           |
| Voltage drop, U <sub>D</sub>       | ≤ 2 V at 200 mA                                                            | Material, front surface        | Al <sub>2</sub> O <sub>3</sub> |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q) | Type of connection             | (See Selection Table)          |
| Standby time                       | 10 ms                                                                      | Ambient temperature: operation | -25 ... +85 °C                 |
| Switching output, Q                | PNP                                                                        | Weight (plug device)           | 125 g                          |
| Output function                    | N.O.                                                                       |                                |                                |
| Switching frequency, f (ti/tp 1:1) | ≤ 500 Hz                                                                   |                                |                                |
|                                    |                                                                            |                                |                                |

<sup>1</sup> With connected IP 68 plug

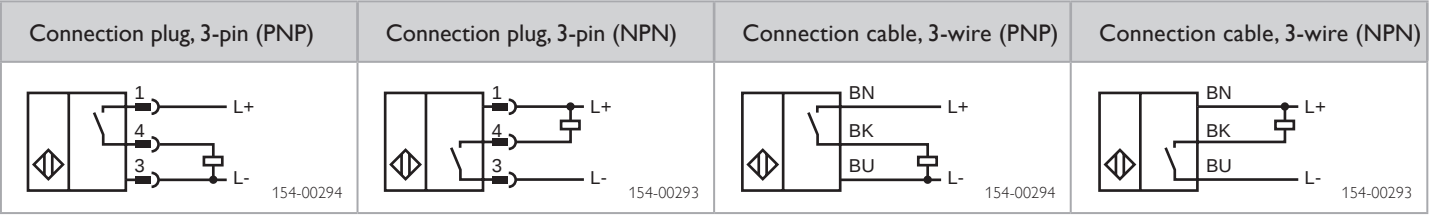


| Switching distance | Switching output | Type of connection | Part number | Article number |
|--------------------|------------------|--------------------|-------------|----------------|
| 3 mm               | PNP              | Plug, M12x1, 4-pin | IS 514-42   | 996-51193      |



| Sensor data                        |                                                                            | Functions                      |                            |
|------------------------------------|----------------------------------------------------------------------------|--------------------------------|----------------------------|
| Switching distance                 | 5 mm                                                                       | Indicator LED, yellow          | Switching output indicator |
| Ensured switching distance         | 0 ... 4.05 mm                                                              |                                |                            |
| Reduction factor;Al                | 0.30                                                                       |                                |                            |
| Reduction factor;Cu                | 0.30                                                                       |                                |                            |
| Reduction factor;V2A               | 0.70                                                                       |                                |                            |
|                                    |                                                                            |                                |                            |
| Electrical data                    |                                                                            | Mechanical data                |                            |
| Operating voltage, +U <sub>B</sub> | 10 ... 30V DC                                                              | Dimensions (plug device)       | M18 x 65 mm                |
| No-load current, I <sub>0</sub>    | ≤ 20 mA                                                                    | Dimensions (cable device)      | M18 x 50 mm                |
| Operating current, I <sub>L</sub>  | ≤ 200 mA                                                                   | Mounting                       | Flush                      |
| Voltage drop, U <sub>D</sub>       | ≤ 3V                                                                       | Enclosure rating               | IP 67 <sup>1</sup>         |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q) | Material, housing              | Brass, nickel-plated       |
| Switching output, Q                | PNP / NPN (see Selection Table)                                            | Material, front surface        | PBT                        |
| Output function                    | N.O.                                                                       | Type of connection             | (See Selection Table)      |
| Switching frequency, f (ti/tp 1:1) | ≤ 800 Hz                                                                   | Ambient temperature: operation | -25 ... +70 °C             |
|                                    |                                                                            |                                |                            |

<sup>1</sup>With connected IP 67 plug



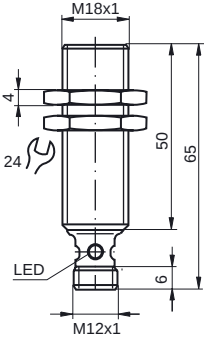
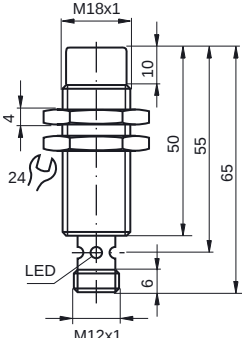
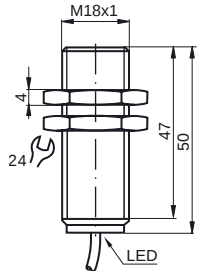
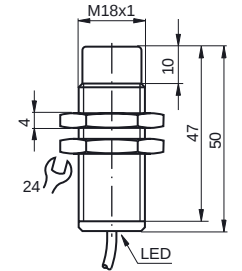
| Switching distance | Switching output | Type of connection | Part number     | Article number |
|--------------------|------------------|--------------------|-----------------|----------------|
| 5 mm               | PNP              | Plug, M12x1, 3-pin | IMT 18-5B-PS-L4 | 697-01027      |
| 5 mm               | NPN              | Plug, M12x1, 3-pin | IMT 18-5B-NS-L4 | 697-01026      |
| 5 mm               | PNP              | Cable, 2 m, 3-wire | IMT 18-5B-PS-K3 | 697-01025      |
| 5 mm               | NPN              | Cable, 2 m, 3-wire | IMT 18-5B-NS-K3 | 697-01024      |

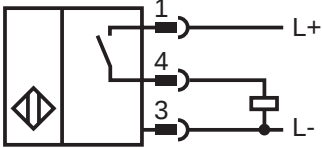
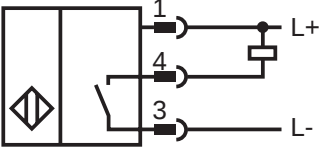
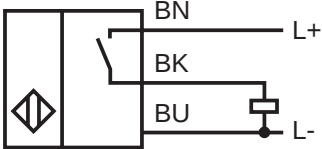
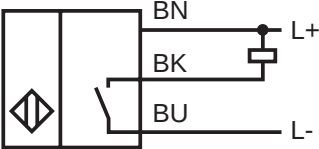


| Sensor data                        |                                                                            | Functions                      |                                            |
|------------------------------------|----------------------------------------------------------------------------|--------------------------------|--------------------------------------------|
| Switching distance                 | 8 mm                                                                       | Indicator LED, yellow          | Switching output indicator                 |
| Ensured switching distance         | 0 ... 6.48 mm                                                              |                                |                                            |
| Reduction factor;Al                | 0.45 <sup>1</sup> / 0.50 <sup>2</sup>                                      |                                |                                            |
| Reduction factor;Cu                | 0.40                                                                       |                                |                                            |
| Reduction factor;V2A               | 0.70                                                                       |                                |                                            |
|                                    |                                                                            |                                |                                            |
| Electrical data                    |                                                                            | Mechanical data                |                                            |
| Operating voltage, +U <sub>B</sub> | 10 ... 30V DC                                                              | Dimensions (plug device)       | M18 x 65 mm                                |
| No-load current, I <sub>0</sub>    | ≤ 15 mA <sup>1</sup> / ≤ 18 mA <sup>2</sup>                                | Dimensions (cable device)      | M18 x 50 mm                                |
| Operating current, I <sub>L</sub>  | ≤ 200 mA                                                                   | Mounting                       | Flush / non-flush<br>(see Selection Table) |
| Voltage drop, U <sub>D</sub>       | ≤ 3V                                                                       | Enclosure rating               | IP 67 <sup>3</sup>                         |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q) | Material, housing              | Brass, nickel-plated                       |
| Switching output, Q                | PNP / NPN (see Selection Table)                                            | Material, front surface        | PBT                                        |
| Output function                    | N.O.                                                                       | Type of connection             | (See Selection Table)                      |
| Switching frequency, f (ti/tp 1:1) | ≤ 500 Hz                                                                   | Ambient temperature: operation | -25 ... +70 °C                             |
|                                    |                                                                            |                                |                                            |

<sup>1</sup> Flush devices    <sup>2</sup> Non-flush devices    <sup>3</sup> With connected IP 67 plug

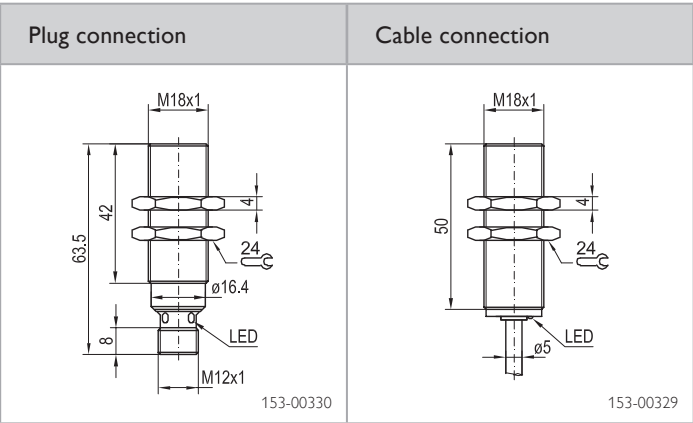
| Switching distance | Mounting  | Switching output | Type of connection | Part number     | Article number |
|--------------------|-----------|------------------|--------------------|-----------------|----------------|
| 8 mm               | Flush     | PNP              | Plug, M12x1, 3-pin | IMT 18-8B-PS-L4 | 697-01054      |
| 8 mm               | Flush     | NPN              | Plug, M12x1, 3-pin | IMT 18-8B-NS-L4 | 697-01055      |
| 8 mm               | Flush     | PNP              | Cable, 2 m, 3-wire | IMT 18-8B-PS-K3 | 697-01052      |
| 8 mm               | Flush     | NPN              | Cable, 2 m, 3-wire | IMT 18-8B-NS-K3 | 697-01053      |
| 8 mm               | Non-flush | PNP              | Plug, M12x1, 3-pin | IMT 18-8N-PS-L4 | 697-01031      |
| 8 mm               | Non-flush | NPN              | Plug, M12x1, 3-pin | IMT 18-8N-NS-L4 | 697-01030      |
| 8 mm               | Non-flush | PNP              | Cable, 2 m, 3-wire | IMT 18-8N-PS-K3 | 697-01029      |
| 8 mm               | Non-flush | NPN              | Cable, 2 m, 3-wire | IMT 18-8N-NS-K3 | 697-01028      |
|                    |           |                  |                    |                 |                |

| Plug connection (flush)                                                                          | Plug connection (non-flush)                                                                      |
|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| <br>153-00885 | <br>153-00873 |
| Cable connection (flush)                                                                         | Cable connection (non-flush)                                                                     |
| <br>153-00884 | <br>153-00872 |

| Connection plug, 3-pin (PNP)                                                                       | Connection plug, 3-pin (NPN)                                                                       |
|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| <br>154-00294 | <br>154-00293 |
| Connection cable, 3-wire (PNP)                                                                     | Connection cable, 3-wire (NPN)                                                                     |
| <br>154-00294 | <br>154-00293 |

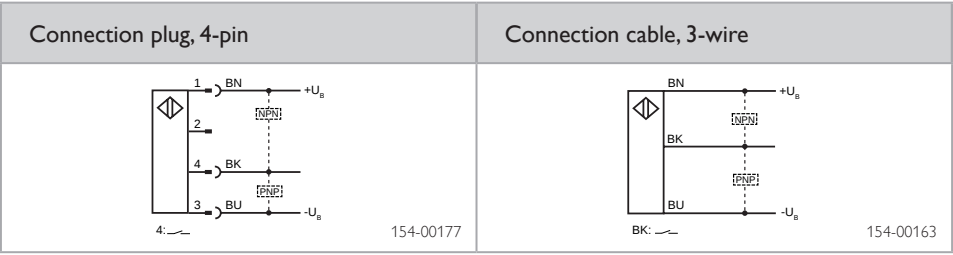
IS 518

Inductive sensor with expanded switching distance



| Sensor data                        |                                                                                                   | Functions                       |                            |
|------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------|----------------------------|
| Switching distance                 | 12 mm                                                                                             | Indicator LED, yellow           | Switching output indicator |
| Repeatability                      | 0.6 mm <sup>1</sup>                                                                               |                                 |                            |
| Hysteresis                         | ≤ 10 % <sup>2</sup>                                                                               |                                 |                            |
| Reduction factor; Al               | 0.26                                                                                              |                                 |                            |
| Reduction factor; Cu               | 0.20                                                                                              |                                 |                            |
| Reduction factor; V2A              | 0.63                                                                                              |                                 |                            |
| Reduction factor; steel FE 360     | 1.00                                                                                              |                                 |                            |
| Reduction factor; brass            | 0.33                                                                                              |                                 |                            |
| Electrical data                    |                                                                                                   | Mechanical data                 |                            |
| Operating voltage, +U <sub>B</sub> | 10 ... 30V DC <sup>3</sup>                                                                        | Dimensions                      | (See Selection Table)      |
| No-load current, I <sub>0</sub>    | ≤ 10 mA                                                                                           | Mounting                        | Quasi-flush                |
| Output current, I <sub>e</sub>     | ≤ 200 mA                                                                                          | Enclosure rating                | IP 67 <sup>4</sup>         |
| Voltage drop, U <sub>D</sub>       | ≤ 2 V at 200 mA                                                                                   | Material, housing               | Brass, chrome-plated       |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q) / induction protection | Material, front surface         | PBTP                       |
| Switching output, Q                | PNP / NPN (see Selection Table)                                                                   | Type of connection              | (See Selection Table)      |
| Output function                    | N.O.                                                                                              | Ambient temperature: operation  | -25 ... +70 °C             |
| Switching frequency, f (ti/tp 1:1) | ≤ 500 Hz                                                                                          | Vibration and impact resistance | IEC 60947-5-2 / 7.4        |

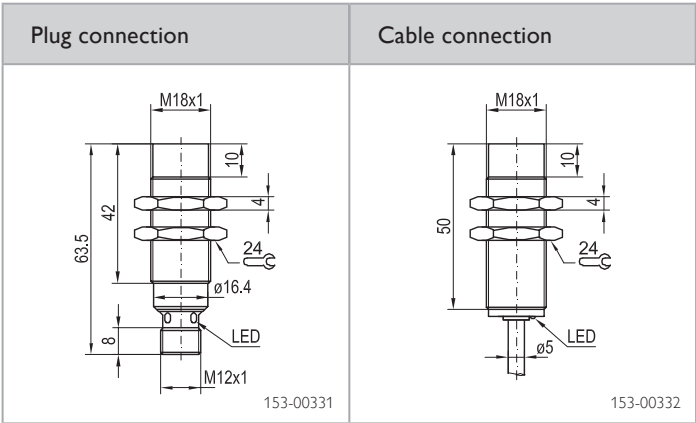
<sup>1</sup> U<sub>B</sub> = 20 ... 30V DC, T<sub>A</sub> = 23 °C ± 5 °C    <sup>2</sup> Refers to switching distance    <sup>3</sup> Max. 20 % ripple, within U<sub>B</sub>    <sup>4</sup> With connected IP 67 plug



| Switching distance | Switching output | Dimensions    | Type of connection | Part number | Article number |
|--------------------|------------------|---------------|--------------------|-------------|----------------|
| 12 mm              | PNP              | M18 x 63.5 mm | Plug, M12x1, 4-pin | IS 518-42   | 996-09973      |
| 12 mm              | NPN              | M18 x 63.5 mm | Plug, M12x1, 4-pin | IS 518-41   | 996-09972      |
| 12 mm              | PNP              | M18 x 50 mm   | Cable, 2 m, 3-wire | IS 518-02   | 996-09429      |
| 12 mm              | NPN              | M18 x 50 mm   | Cable, 2 m, 3-wire | IS 518-01   | 996-09428      |

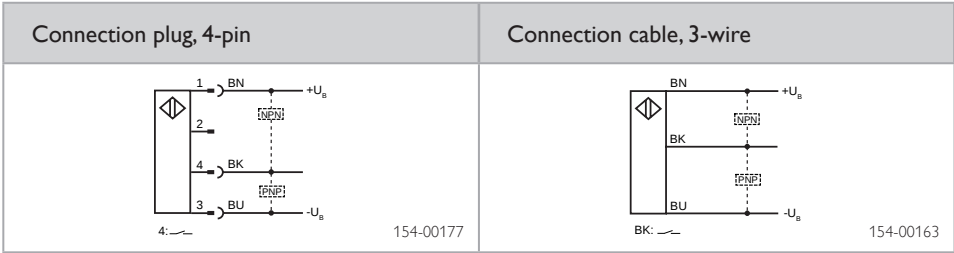
IS 518

Inductive sensor with expanded switching distance



| Sensor data                        |                                                    | Functions                      |                            |
|------------------------------------|----------------------------------------------------|--------------------------------|----------------------------|
| Switching distance                 | 20 mm                                              | Indicator LED, yellow          | Switching output indicator |
| Reduction factor; Al               | 0.40                                               |                                |                            |
| Reduction factor; Cu               | 0.35                                               |                                |                            |
| Reduction factor; V2A              | 0.66                                               |                                |                            |
| Electrical data                    |                                                    | Mechanical data                |                            |
| Operating voltage, +U <sub>B</sub> | 10 ... 30V DC <sup>1</sup>                         | Dimensions                     | (See Selection Table)      |
| No-load current, I <sub>0</sub>    | ≤ 10 mA                                            | Mounting                       | Non-flush                  |
| Output current, I <sub>e</sub>     | ≤ 200 mA                                           | Enclosure rating               | IP 67 <sup>2</sup>         |
| Voltage drop, U <sub>D</sub>       | ≤ 2 V at 200 mA                                    | Material, housing              | Brass, nickel-plated       |
| Protective circuits                | Short-circuit protection (Q) / overload protection | Type of connection             | (See Selection Table)      |
| Standby time                       | 100 ms                                             | Ambient temperature: operation | -25 ... +70 °C             |
| Switching output, Q                | PNP / NPN (see Selection Table)                    |                                |                            |
| Output function                    | N.O.                                               |                                |                            |
| Switching frequency, f (ti/tp 1:1) | ≤ 200 Hz                                           |                                |                            |

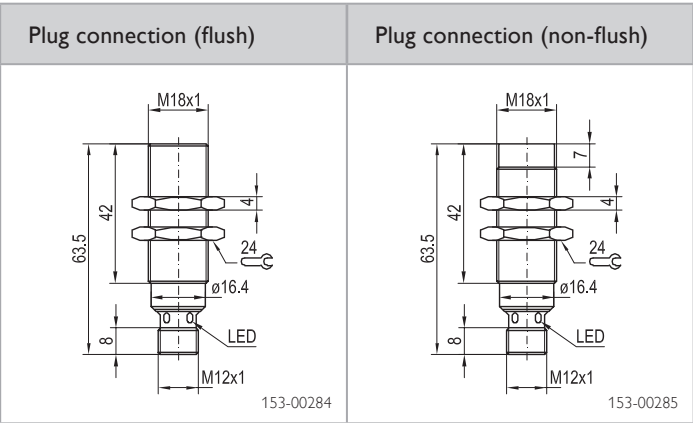
<sup>1</sup> Max. 20 % ripple, within U<sub>B</sub>    <sup>2</sup> With connected IP 67 plug



| Switching distance | Switching output | Dimensions    | Type of connection | Part number | Article number |
|--------------------|------------------|---------------|--------------------|-------------|----------------|
| 20 mm              | PNP              | M18 x 63.5 mm | Plug, M12x1, 4-pin | IS 518-44-S | 996-51453      |
| 20 mm              | NPN              | M18 x 63.5 mm | Plug, M12x1, 4-pin | IS 518-43-S | 996-50327      |
| 20 mm              | PNP              | M18 x 50 mm   | Cable, 3-wire      | IS 518-04-S | 996-51450      |

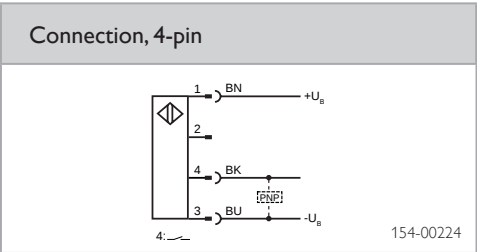
IT 18

Inductive sensor with expanded switching distance



| Sensor data                                   |                                                                                                   | Functions                       |                                            |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------------------|
| Switching distance <sup>1</sup>               | 10 mm                                                                                             | Indicator LED, yellow           | Switching output indicator                 |
| Switching distance <sup>2</sup>               | 20 mm                                                                                             |                                 |                                            |
| Repeatability <sup>1</sup>                    | 0.5 mm <sup>4</sup>                                                                               |                                 |                                            |
| Repeatability <sup>2</sup>                    | 1 mm <sup>4</sup>                                                                                 |                                 |                                            |
| Hysteresis                                    | ≤ 15 % <sup>5</sup>                                                                               |                                 |                                            |
| Reduction factor; Al <sup>3</sup>             | 1.00 / 1.00                                                                                       |                                 |                                            |
| Reduction factor; Cu <sup>3</sup>             | 0.80 / 0.90                                                                                       |                                 |                                            |
| Reduction factor; V2A 1 mm thick <sup>3</sup> | 0.50 / 0.30                                                                                       |                                 |                                            |
| Reduction factor; V2A 2 mm thick <sup>3</sup> | 0.90 / 0.60                                                                                       |                                 |                                            |
| Reduction factor; steel FE 360 <sup>3</sup>   | 1.00 / 1.00                                                                                       |                                 |                                            |
| Reduction factor; brass <sup>3</sup>          | 1.20 / 1.35                                                                                       |                                 |                                            |
|                                               |                                                                                                   |                                 |                                            |
| Electrical data                               |                                                                                                   | Mechanical data                 |                                            |
| Operating voltage, +U <sub>B</sub>            | 10 ... 30 V DC <sup>6</sup>                                                                       | Dimensions                      | M18 × 63,5 mm                              |
| No-load current, I <sub>0</sub>               | ≤ 10 mA                                                                                           | Mounting                        | Flush / non-flush<br>(see Selection Table) |
| Operating current, I <sub>L</sub>             | ≤ 200 mA                                                                                          | Enclosure rating                | IP 69K & IP 68 <sup>7</sup>                |
| Voltage drop, U <sub>D</sub>                  | ≤ 2 V at 200 mA                                                                                   | Material, housing               | Stainless steel, V2A                       |
| Protective circuits                           | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q) / induction protection | Material, front surface         | Stainless steel, V2A                       |
| Switching output, Q                           | PNP                                                                                               | Type of connection              | (See Selection Table)                      |
| Output function                               | N.O.                                                                                              | Ambient temperature: operation  | -25 ... +70 °C                             |
| Switching frequency, f (ti/tp 1:1)            | ≤ 200 Hz                                                                                          | Vibration and impact resistance | IEC 60947-5-2 / 7.4                        |
|                                               |                                                                                                   |                                 |                                            |

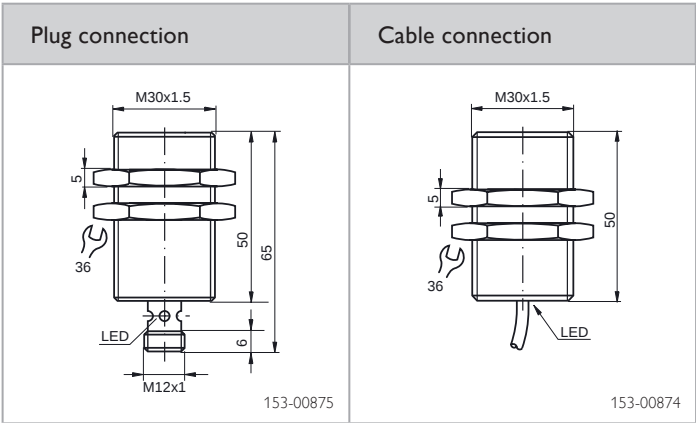
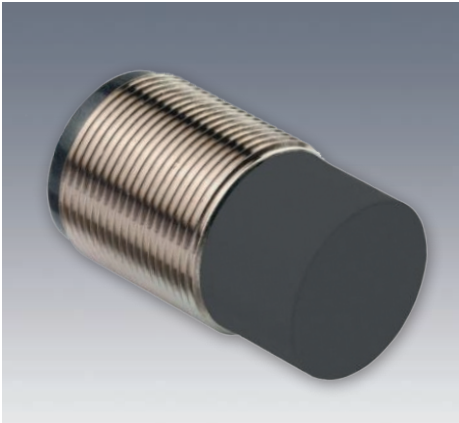
<sup>1</sup> Flush devices    <sup>2</sup> Non-flush devices    <sup>3</sup> Flush / non-flush devices    <sup>4</sup> U<sub>B</sub> = 20 ... 30V DC, T<sub>A</sub> = 23 °C ± 5 °C    <sup>5</sup> Refers to switching distance  
<sup>6</sup> Max. 20 % ripple, within U<sub>B</sub>    <sup>7</sup> With connected IP 68 / IP 69K plug



| Switching distance | Mounting  | Switching output | Type of connection | Part number    | Article number |
|--------------------|-----------|------------------|--------------------|----------------|----------------|
| 10 mm              | Flush     | PNP              | Plug, M12x1, 4-pin | IT 18 BM-PSL4  | 996-51482      |
| 20 mm              | Non-flush | PNP              | Plug, M12x1, 4-pin | IT 18 NBM-PSL4 | 996-51483      |

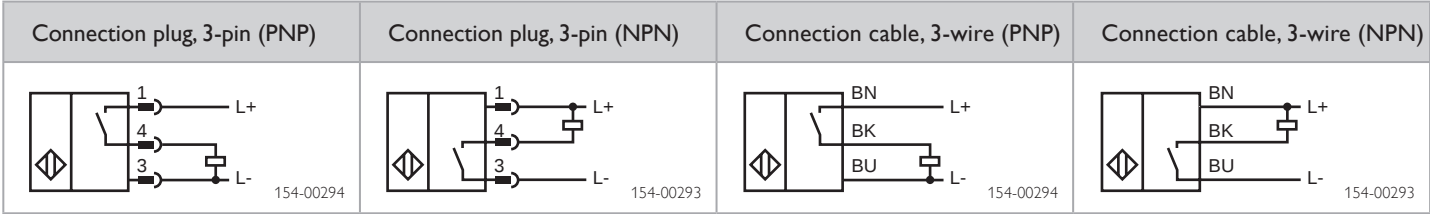
IMT 30-10

Inductive sensor

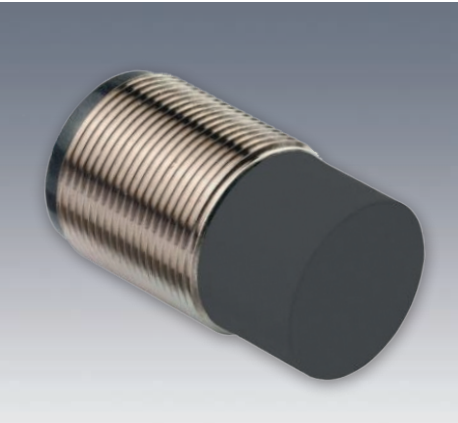


| Sensor data                        |                                                                            | Functions                      |                            |
|------------------------------------|----------------------------------------------------------------------------|--------------------------------|----------------------------|
| Switching distance                 | 10 mm                                                                      | Indicator LED, yellow          | Switching output indicator |
| Ensured switching distance         | 0 ... 8.1 mm                                                               |                                |                            |
| Reduction factor; Al               | 0.30                                                                       |                                |                            |
| Reduction factor; Cu               | 0.30                                                                       |                                |                            |
| Reduction factor; V2A              | 0.80                                                                       |                                |                            |
|                                    |                                                                            |                                |                            |
| Electrical data                    |                                                                            | Mechanical data                |                            |
| Operating voltage, +U <sub>B</sub> | 10 ... 30V DC                                                              | Dimensions (plug device)       | M30 × 65 mm                |
| No-load current, I <sub>0</sub>    | ≤ 20 mA                                                                    | Dimensions (cable device)      | M30 × 50 mm                |
| Operating current, I <sub>L</sub>  | ≤ 200 mA                                                                   | Mounting                       | Flush                      |
| Voltage drop, U <sub>D</sub>       | ≤ 3 V                                                                      | Enclosure rating               | IP 67 <sup>1</sup>         |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q) | Material, housing              | Brass, nickel-plated       |
| Switching output, Q                | PNP / NPN (see Selection Table)                                            | Material, front surface        | PBT                        |
| Output function                    | N.O.                                                                       | Type of connection             | (See Selection Table)      |
| Switching frequency, f (ti/tp 1:1) | ≤ 200 Hz                                                                   | Ambient temperature: operation | -25 ... +70 °C             |
|                                    |                                                                            |                                |                            |

<sup>1</sup> With connected IP 67 plug



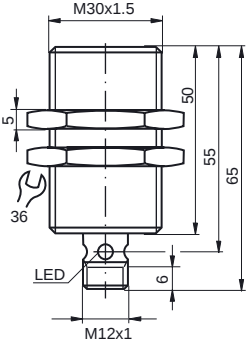
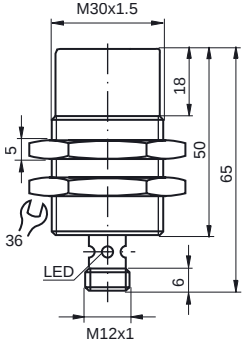
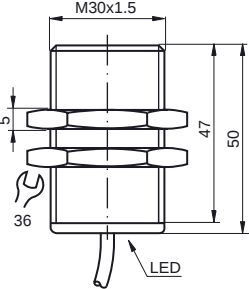
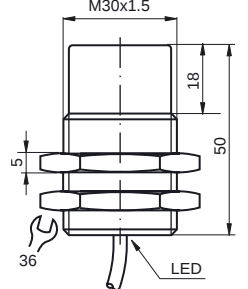
| Switching distance | Switching output | Type of connection | Part number      | Article number |
|--------------------|------------------|--------------------|------------------|----------------|
| 10 mm              | PNP              | Plug, M12x1, 3-pin | IMT 30-10B-PS-L4 | 697-01035      |
| 10 mm              | NPN              | Plug, M12x1, 3-pin | IMT 30-10B-NS-L4 | 697-01034      |
| 10 mm              | PNP              | Cable, 2 m, 3-wire | IMT 30-10B-PS-K3 | 697-01033      |
| 10 mm              | NPN              | Cable, 2 m, 3-wire | IMT 30-10B-NS-K3 | 697-01032      |

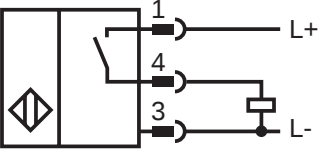
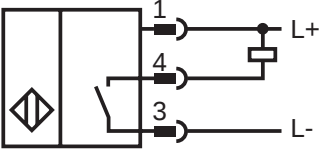
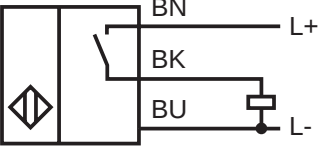
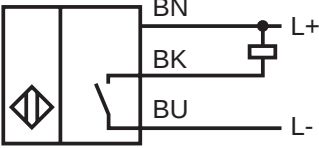


| Sensor data                        |                                                                            | Functions                      |                                            |
|------------------------------------|----------------------------------------------------------------------------|--------------------------------|--------------------------------------------|
| Switching distance                 | 15 mm                                                                      | Indicator LED, yellow          | Switching output indicator                 |
| Ensured switching distance         | 0 ... 12,15mm                                                              |                                |                                            |
| Reduction factor;Al                | 0.30 <sup>1</sup> / 0.50 <sup>2</sup>                                      |                                |                                            |
| Reduction factor;Cu                | 0.30 <sup>1</sup> / 0.40 <sup>2</sup>                                      |                                |                                            |
| Reduction factor;V2A               | 0.75 <sup>1</sup> / 0.80 <sup>2</sup>                                      |                                |                                            |
|                                    |                                                                            |                                |                                            |
| Electrical data                    |                                                                            | Mechanical data                |                                            |
| Operating voltage, +U <sub>B</sub> | 10 ... 30V DC                                                              | Dimensions (plug device)       | M30 × 65 mm                                |
| No-load current, I <sub>0</sub>    | ≤ 15 mA / ≤ 20 mA <sup>3</sup>                                             | Dimensions (cable device)      | M30 × 50 mm                                |
| Operating current, I <sub>L</sub>  | ≤ 200 mA                                                                   | Mounting                       | Flush / non-flush<br>(see Selection Table) |
| Voltage drop, U <sub>D</sub>       | ≤ 3V                                                                       | Enclosure rating               | IP 67 <sup>4</sup>                         |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q) | Material, housing              | Brass, nickel-plated                       |
| Switching output, Q                | PNP / NPN (see Selection Table)                                            | Material, front surface        | PBT                                        |
| Output function                    | N.O.                                                                       | Type of connection             | (See Selection Table)                      |
| Switching frequency, f (ti/tp 1:1) | ≤ 200 Hz                                                                   | Ambient temperature: operation | -25 ... +70 °C                             |
|                                    |                                                                            |                                |                                            |

<sup>1</sup> Flush devices    <sup>2</sup> Non-flush devices    <sup>3</sup> IMT 30-15N-PS-L4 and IMT 30-15N-NS-L4    <sup>4</sup> With connected IP 67 plug

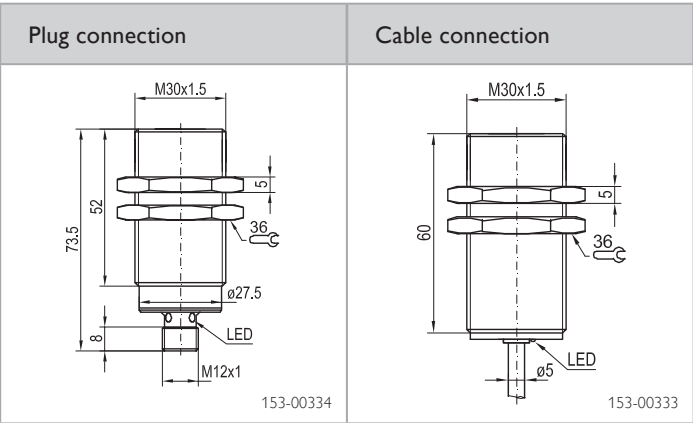
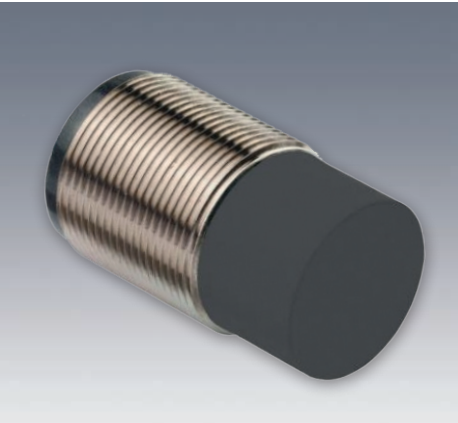
| Switching distance | Mounting  | Switching output | Type of connection | Part number      | Article number |
|--------------------|-----------|------------------|--------------------|------------------|----------------|
| 15 mm              | Flush     | PNP              | Plug, M12x1, 3-pin | IMT 30-15B-PS-L4 | 697-01058      |
| 15 mm              | Flush     | NPN              | Plug, M12x1, 3-pin | IMT 30-15B-NS-L4 | 697-01059      |
| 15 mm              | Flush     | PNP              | Cable, 2 m, 3-wire | IMT 30-15B-PS-K3 | 697-01056      |
| 15 mm              | Flush     | NPN              | Cable, 2 m, 3-wire | IMT 30-15B-NS-K3 | 697-01057      |
| 15 mm              | Non-flush | PNP              | Plug, M12x1, 3-pin | IMT 30-15N-PS-L4 | 697-01039      |
| 15 mm              | Non-flush | NPN              | Plug, M12x1, 3-pin | IMT 30-15N-NS-L4 | 697-01038      |
| 15 mm              | Non-flush | PNP              | Cable, 2 m, 3-wire | IMT 30-15N-PS-K3 | 697-01037      |
| 15 mm              | Non-flush | NPN              | Cable, 2 m, 3-wire | IMT 30-15N-NS-K3 | 697-01036      |
|                    |           |                  |                    |                  |                |

| Plug connection (flush)                                                                           | Plug connection (non-flush)                                                                       |
|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <br>153-00887  | <br>153-00877  |
| Cable connection (flush)                                                                          | Cable connection (non-flush)                                                                      |
| <br>153-00886 | <br>153-00876 |

| Connection plug, 3-pin (PNP)                                                                       | Connection plug, 3-pin (NPN)                                                                       |
|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| <br>154-00294 | <br>154-00293 |
| Connection cable, 3-wire (PNP)                                                                     | Connection cable, 3-wire (NPN)                                                                     |
| <br>154-00294 | <br>154-00293 |

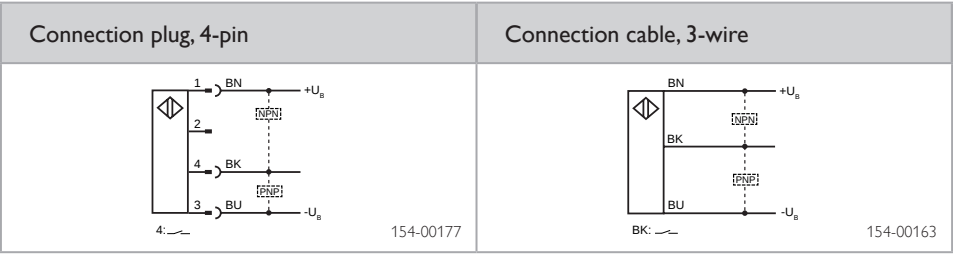
IS 530

Inductive sensor with expanded switching distance



| Sensor data                        |                                                                                                   | Functions                       |                             |
|------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------|-----------------------------|
| Switching distance                 | 22 mm                                                                                             | Indicator LED, yellow           | Operating voltage indicator |
| Repeatability                      | 1.1 mm <sup>1</sup>                                                                               |                                 |                             |
| Hysteresis                         | ≤ 10 % <sup>2</sup>                                                                               |                                 |                             |
| Reduction factor; Al               | 0.40                                                                                              |                                 |                             |
| Reduction factor; Cu               | 0.35                                                                                              |                                 |                             |
| Reduction factor; V2A              | 0.66                                                                                              |                                 |                             |
| Reduction factor; steel FE 360     | 1.00                                                                                              |                                 |                             |
| Reduction factor; brass            | 0.35                                                                                              |                                 |                             |
|                                    |                                                                                                   |                                 |                             |
| Electrical data                    |                                                                                                   | Mechanical data                 |                             |
| Operating voltage, +U <sub>B</sub> | 10 ... 30 V DC <sup>3</sup>                                                                       | Dimensions                      | (See Selection Table)       |
| No-load current, I <sub>0</sub>    | ≤ 10 mA                                                                                           | Mounting                        | Quasi-flush                 |
| Output current, I <sub>e</sub>     | ≤ 200 mA                                                                                          | Enclosure rating                | IP 67 <sup>4</sup>          |
| Voltage drop, U <sub>D</sub>       | ≤ 2 V at 200 mA                                                                                   | Material, housing               | Brass, chrome-plated        |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q) / induction protection | Material, front surface         | PBTP                        |
| Switching output, Q                | PNP / NPN (see Selection Table)                                                                   | Type of connection              | (See Selection Table)       |
| Output function                    | N.O.                                                                                              | Ambient temperature: operation  | -25 ... +70 °C              |
| Switching frequency, f (ti/tp 1:1) | ≤ 200 Hz                                                                                          | Vibration and impact resistance | IEC 60947-5-2 / 7.4         |
|                                    |                                                                                                   |                                 |                             |

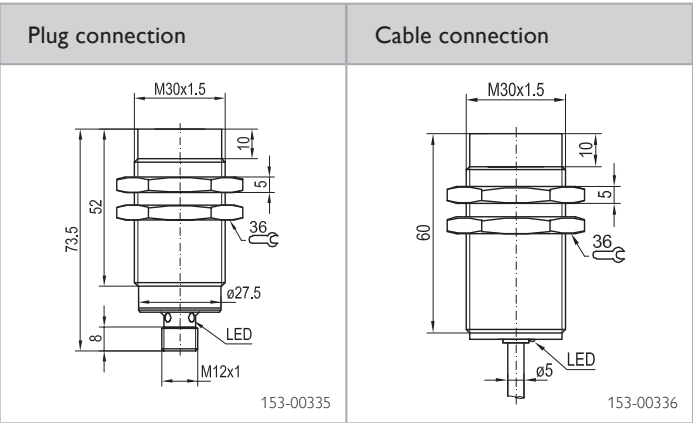
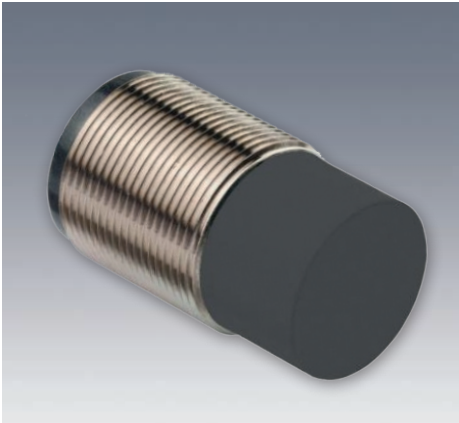
<sup>1</sup> U<sub>B</sub> = 20 ... 30V DC, T<sub>A</sub> = 23 °C ± 5 °C    <sup>2</sup> Refers to switching distance    <sup>3</sup> Max. 20 % ripple, within U<sub>B</sub>    <sup>4</sup> With connected IP 67 plug



| Switching distance | Switching output | Dimensions    | Type of connection | Part number | Article number |
|--------------------|------------------|---------------|--------------------|-------------|----------------|
| 22 mm              | PNP              | M30 x 73.5 mm | Plug, M12x1, 4-pin | IS 530-42   | 996-09905      |
| 22 mm              | NPN              | M30 x 73.5 mm | Plug, M12x1, 4-pin | IS 530-41   | 996-50673      |
| 22 mm              | PNP              | M30 x 60 mm   | Cable, 2 m, 3-wire | IS 530-02   | 996-09437      |
| 22 mm              | NPN              | M30 x 60 mm   | Cable, 2 m, 3-wire | IS 530-01   | 996-09436      |

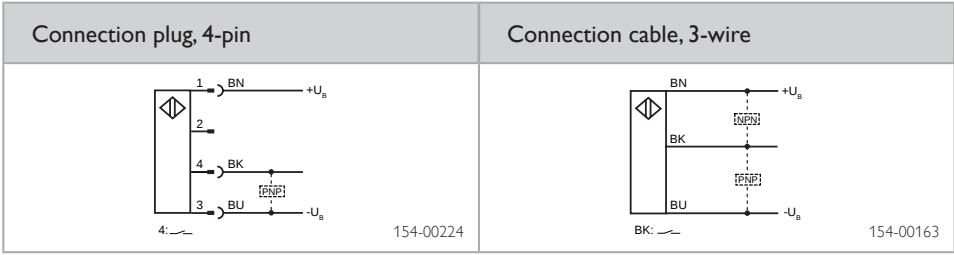
IS 530

Inductive sensor with expanded switching distance



| Sensor data                        |                                                                                                   | Functions                       |                             |
|------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------|-----------------------------|
| Switching distance                 | 40 mm                                                                                             | Indicator LED, yellow           | Operating voltage indicator |
| Repeatability                      | 2 mm <sup>1</sup>                                                                                 |                                 |                             |
| Hysteresis                         | ≤ 10 % <sup>2</sup>                                                                               |                                 |                             |
| Reduction factor; Al               | 0.42                                                                                              |                                 |                             |
| Reduction factor; Cu               | 0.37                                                                                              |                                 |                             |
| Reduction factor; V2A              | 0.78                                                                                              |                                 |                             |
| Reduction factor; steel FE 360     | 1.00                                                                                              |                                 |                             |
| Reduction factor; brass            | 0.47                                                                                              |                                 |                             |
|                                    |                                                                                                   |                                 |                             |
| Electrical data                    |                                                                                                   | Mechanical data                 |                             |
| Operating voltage, +U <sub>B</sub> | 10 ... 30 V DC <sup>3</sup>                                                                       | Dimensions                      | (See Selection Table)       |
| No-load current, I <sub>0</sub>    | ≤ 10 mA                                                                                           | Mounting                        | Non-flush                   |
| Output current, I <sub>e</sub>     | ≤ 200 mA                                                                                          | Enclosure rating                | IP 67 <sup>4</sup>          |
| Voltage drop, U <sub>D</sub>       | ≤ 2 V at 200 mA                                                                                   | Material, housing               | Brass, chrome-plated        |
| Protective circuits                | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q) / induction protection | Material, front surface         | PBTP                        |
| Switching output, Q                | PNP / NPN (see Selection Table)                                                                   | Type of connection              | (See Selection Table)       |
| Output function                    | N.O.                                                                                              | Ambient temperature: operation  | -25 ... +70 °C              |
| Switching frequency, f (ti/tp 1:1) | ≤ 100 Hz                                                                                          | Vibration and impact resistance | IEC 60947-5-2 / 7.4         |
|                                    |                                                                                                   |                                 |                             |

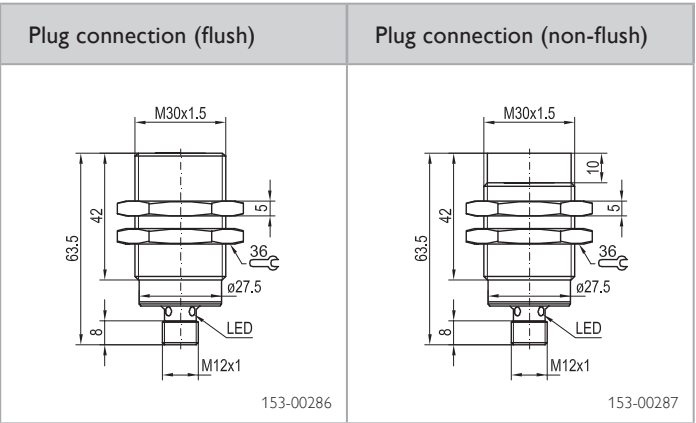
<sup>1</sup> U<sub>B</sub> = 20 ... 30V DC, T<sub>A</sub> = 23 °C ± 5 °C    <sup>2</sup> Refers to switching distance    <sup>3</sup> Max. 20 % ripple, within U<sub>B</sub>    <sup>4</sup> With connected IP 67 plug



| Switching distance | Switching output | Dimensions    | Type of connection | Part number | Article number |
|--------------------|------------------|---------------|--------------------|-------------|----------------|
| 40 mm              | PNP              | M30 x 73.5 mm | Plug, M12x1, 4-pin | IS 530-44-S | 996-51454      |
| 40 mm              | PNP              | M30 x 60 mm   | Cable, 2 m, 3-wire | IS 530-04-S | 996-51452      |
| 40 mm              | NPN              | M30 x 60 mm   | Cable, 2 m, 3-wire | IS 530-03   | 996-09438      |

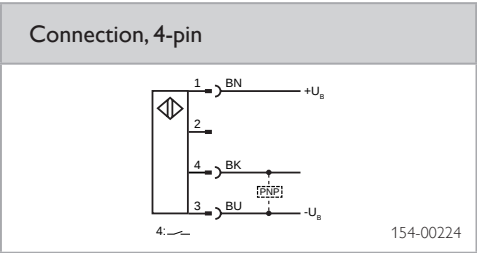
IT 30

Inductive sensor with expanded switching distance



| Sensor data                                   |                                                                                                   | Functions                       |                                            |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------------------|
| Switching distance <sup>1</sup>               | 20 mm                                                                                             | Indicator LED, yellow           | Switching output indicator                 |
| Switching distance <sup>2</sup>               | 40 mm                                                                                             |                                 |                                            |
| Repeatability <sup>1</sup>                    | 1 mm <sup>4</sup>                                                                                 |                                 |                                            |
| Repeatability <sup>2</sup>                    | 2 mm <sup>4</sup>                                                                                 |                                 |                                            |
| Hysteresis                                    | ≤ 15 % <sup>5</sup>                                                                               |                                 |                                            |
| Reduction factor; Al <sup>3</sup>             | 1.00 / 1.00                                                                                       |                                 |                                            |
| Reduction factor; Cu <sup>3</sup>             | 0.90 / 0.90                                                                                       |                                 |                                            |
| Reduction factor; V2A 1 mm thick <sup>3</sup> | 0.35 / no detection                                                                               |                                 |                                            |
| Reduction factor; V2A 2 mm thick <sup>3</sup> | 0.70 / 0.25                                                                                       |                                 |                                            |
| Reduction factor; steel FE 360 <sup>3</sup>   | 1.00 / 1.00                                                                                       |                                 |                                            |
| Reduction factor; brass <sup>3</sup>          | 1.30 / 1.20                                                                                       |                                 |                                            |
|                                               |                                                                                                   |                                 |                                            |
| Electrical data                               |                                                                                                   | Mechanical data                 |                                            |
| Operating voltage, +U <sub>B</sub>            | 10 ... 30V DC <sup>6</sup>                                                                        | Dimensions                      | M30 × 63.5 mm                              |
| No-load current, I <sub>0</sub>               | ≤ 10 mA                                                                                           | Mounting                        | Flush / non-flush<br>(see Selection Table) |
| Operating current, I <sub>L</sub>             | ≤ 200 mA                                                                                          | Enclosure rating                | IP 69K & IP 68 <sup>7</sup>                |
| Voltage drop, U <sub>D</sub>                  | ≤ 2 V at 200 mA                                                                                   | Material, housing               | Stainless steel, V2A                       |
| Protective circuits                           | Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q) / induction protection | Material, front surface         | Stainless steel, V2A                       |
| Switching output, Q                           | PNP                                                                                               | Type of connection              | (See Selection Table)                      |
| Output function                               | N.O.                                                                                              | Ambient temperature: operation  | -25 ... +70 °C                             |
| Switching frequency, f (ti/tp 1:1)            | (See Selection Table)                                                                             | Vibration and impact resistance | IEC 60947-5-2 / 7.4                        |
|                                               |                                                                                                   |                                 |                                            |

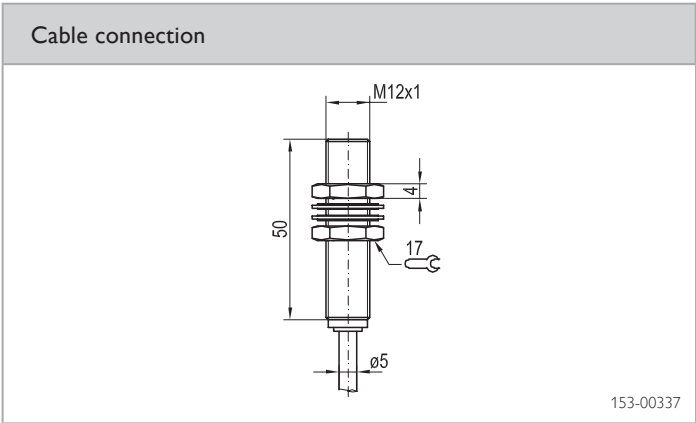
<sup>1</sup> Flush devices   <sup>2</sup> Non-flush devices   <sup>3</sup> Flush / non-flush devices   <sup>4</sup> U<sub>B</sub> = 20 ... 30V DC, T<sub>A</sub> = 23 °C ± 5 °C   <sup>5</sup> Refers to switching distance  
<sup>6</sup> Max. 20 % ripple, within U<sub>B</sub>   <sup>7</sup> With connected IP 68 / IP 69K plug



| Switching distance | Mounting  | Switching output | Switching frequency, f (ti/tp 1:1) | Type of connection | Part number    | Article number |
|--------------------|-----------|------------------|------------------------------------|--------------------|----------------|----------------|
| 20 mm              | Flush     | PNP              | ≤ 100 Hz                           | Plug, M12x1, 4-pin | IT 30 BM-PSL4  | 996-51484      |
| 40 mm              | Non-flush | PNP              | ≤ 90 Hz                            | Plug, M12x1, 4-pin | IT 30 NBM-PSL4 | 996-51485      |

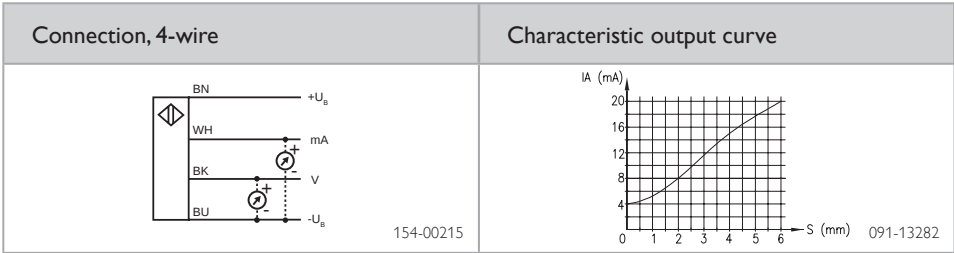
IS 512-02 AI

Inductive sensor with analogue output



| Sensor data        |            |                                |                       |
|--------------------|------------|--------------------------------|-----------------------|
| Switching distance | 0 ... 6 mm | Electrical data                | Mechanical data       |
| Repeatability      | ≤ 0.3 mm   |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            | Dimensions                     | M12 x 50 mm           |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            | Enclosure rating               | IP 67 <sup>2</sup>    |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            | Mounting                       | Quasi-flush           |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            | Material, housing              | Brass, chrome-plated  |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            | Type of connection             | (See Selection Table) |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            | Ambient temperature: operation | -10 ... +60 °C        |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |
|                    |            |                                |                       |

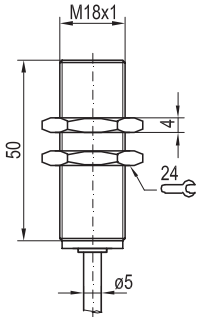
<sup>1</sup> Max. 10 % ripple, within U<sub>B</sub>   <sup>2</sup> With connected IP 67 plug



| Switching distance | Analogue output         | Type of connection | Part number  | Article number |
|--------------------|-------------------------|--------------------|--------------|----------------|
| 6 mm               | 0 ... 10V / 4 ... 20 mA | Cable, 4-wire      | IS 512-02 AI | 996-51479      |



Cable connection

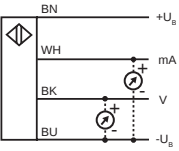


153-00338

| Sensor data                        |                                                       |
|------------------------------------|-------------------------------------------------------|
| Switching distance                 | 0 ... 10 mm                                           |
| Repeatability                      | ≤ 0.3 mm                                              |
|                                    |                                                       |
| Electrical data                    |                                                       |
| Operating voltage, +U <sub>B</sub> | 15 ... 30 V DC <sup>1</sup>                           |
| No-load current, I <sub>0</sub>    | ≤ 10 mA                                               |
| Min. load resistance               | 0 Ω                                                   |
| Max. load resistance               | 200 Ω                                                 |
| Protective circuits                | Short-circuit protection (Q) /<br>overload protection |
| Analogue output                    | 0 ... 10 V / 4 ... 20 mA                              |
| Mechanical data                    |                                                       |
| Dimensions                         | M18 x 50 mm                                           |
| Mounting                           | Quasi-flush                                           |
| Enclosure rating                   | IP 67 <sup>2</sup>                                    |
| Material, housing                  | Brass, chrome-plated                                  |
| Type of connection                 | (See Selection Table)                                 |
| Ambient temperature: operation     | -10 ... +60 °C                                        |

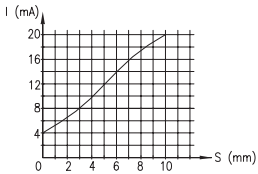
<sup>1</sup> Max. 10 % ripple, within U<sub>B</sub>    <sup>2</sup>With connected IP 67 plug

Connection, 4-wire



154-00215

Characteristic output curve



091-13294

| Switching distance | Analogue output          | Type of connection | Part number | Article number |
|--------------------|--------------------------|--------------------|-------------|----------------|
| 10 mm              | 0 ... 10 V / 4 ... 20 mA | Cable, 4-wire      | IS 518-02 A | 996-09435      |