

dimensions	5 x 25 x 5mm to 12 x 65 x 12mm	
flush	switching distance	0.8mm 1.5mm 2mm 4mm
semi-flush	switching distance	3mm

- ✓ short response time due to high switching frequency
- ✓ LED display of the switching state
- ✓ robust metal housing
- ✓ miniature design with integrated amplifier
- ✓ connection with cable and M8-connector



**mounting flush or semi-flush  
 various switching distances**

**description**

The electronics of these inductive sensors are cast into the square-shaped metal housing and as such, they are protected from all kinds of vibrations.

In spite of the very small dimensions (5x25x5mm), sensor **IBQ50174** features a convenient plug connection. This is possible due to the fact that an M8 connector is connected via a short (150mm) line.

Sensors with article number **IB09...** (8x8mm) are available in different versions with respect to switching distance and housing length.

Sensors with article number **IB13...** (12x12mm) offer an increased switching distance of 4mm.

For realizing the maximum switching distance, the size and characteristics of the object to be detected (standard target and/or flat surface) should be taken into account.

In the case of inductive proximity switches, a correction factor is stated which evaluates the reduction of the switching distance in relation to the different materials that the object is made from. This factor depends on the type, characteristics (internal structure), size and geometry of the material that the object to be detected is made from. The stated switching distance value relates to steel St37 (factor 1 steel). In order to

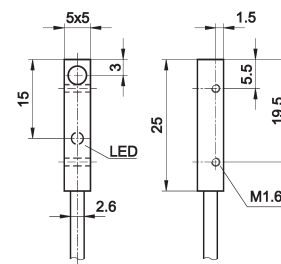
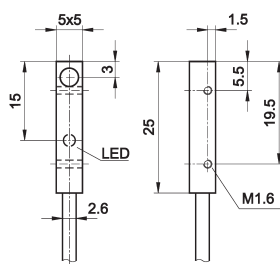
assess the approximate switching distance for materials which differ from this, the value has to be multiplied by the appropriate correction factor. In order to ensure that the device runs reliably, it is essential that the installation conditions on this data sheet are adhered to.

Examples for the areas of application in which these inductive proximity switches are used include among others: mechanical engineering/plant construction, automotive industry, warehouse and materials handling equipment, packaging industry, printing and paper industries, chemical and process engineering.

**application examples**

- ▶ inspection of die-cut metal parts of various sizes through various switching distances
- ▶ integration, even in machine parts with very limited available space
- ▶ detection of metallic objects in aggressive media through Teflon protective wall
- ▶ detection of objects through the walls of non-metallic containers and tubes

article-no.	IBQ50104	IBQ50174
switching distance	0.8mm	0.8mm
mounting	flush	flush
connection	2m PUR cable	M8 cable connector

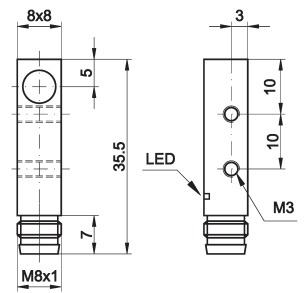
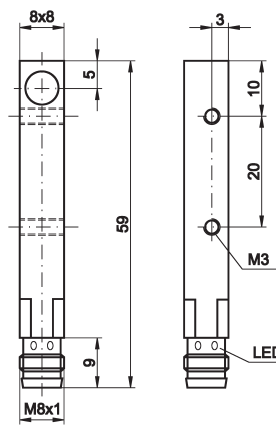
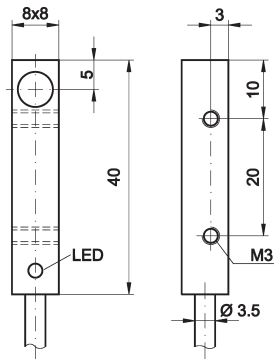


M8-connector with 150mm PUR-line

## TECHNICAL DATA

switching distance (Sn)	0.8mm	0.8mm
mounting	flush	flush
output signal	pnp, no	pnp, no
operating voltage	10 ... 30V DC	10 ... 30V DC
current consumption (w/o load)	≤ 13mA	≤ 10mA
output current (max. load)	200mA	200mA
voltage drop (max. load)	2.0V DC	2.0V DC
hysteresis	< 5%	< 10%
switching frequency	3kHz	5kHz
display (signal)	yellow LED	yellow LED
short-circuit protection	+	+
reverse polarity protection	+	+
dimensions	5x25x5mm	5x25x5mm
housing material	nickel-plated brass	chrome-plated brass
material (front cap)	PA 6.6	polyester
operating temperature	-25 ... +70°C	-25 ... +70°C
degree of protection (EN 60529)	IP67	IP67
connection	2m PUR cable, 3-wire	M8-cable connector, 3-pin
connection accessories	-	e.g. <b>VK200075</b>

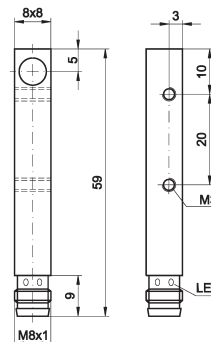
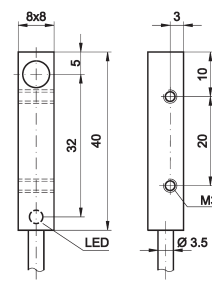
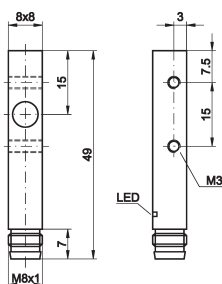
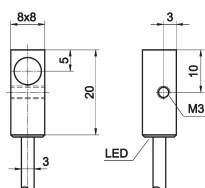
article-no.	<b>IB090100</b>	<b>IB090170</b>	<b>IB090174</b>
switching distance	<b>1.5mm</b>	<b>1.5mm</b>	<b>2.0mm</b>
mounting	<b>flush</b>	<b>flush</b>	<b>flush</b>
connection	<b>2m PVC-cable</b>	<b>M8-connector</b>	<b>M8-connector</b>



**TECHNICAL DATA**

switching distance (Sn)	1.5mm	1.5mm	2.0mm
mounting	flush	flush	flush
output signal	pnp, no	pnp, no	pnp, no
operating voltage	10 ... 30V DC	10 ... 30V DC	10 ... 30V DC
current consumption (w/o load)	≤ 13mA	≤ 13mA	≤ 12mA
output current (max. load)	200mA	200mA	200mA
voltage drop (max. load)	2.0V DC	2.4V DC	2.0V DC
hysteresis	≤ 15%	≤ 15%	3 ...20%
switching frequency	1kHz	1kHz	5kHz
display (signal)	yellow LED	yellow LED	red LED
short-circuit protection	+	+	+
reverse polarity protection	+	+	+
dimensions	8x40x8mm	8x59x8mm	8x35.5x8mm
housing material	nickel-plated brass	nickel-plated brass	nickel-plated brass
material (front cap)	PA	PA	PBT
operating temperature	-25 ... +70°C	-25 ... +70°C	-25 ... +75°C
degree of protection (EN 60529)	IP67	IP67	IP67
connection	2m PVC-cable, 3-wire	M8-connector, 3-pin	M8-connector, 3-pin
connection accessories	-	e.g. <b>VK200075</b>	e.g. <b>VK200075</b>

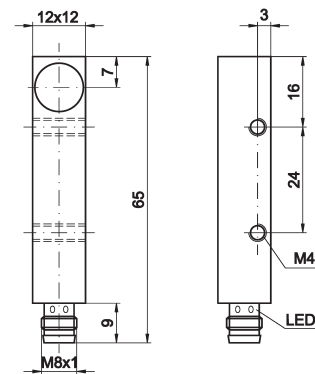
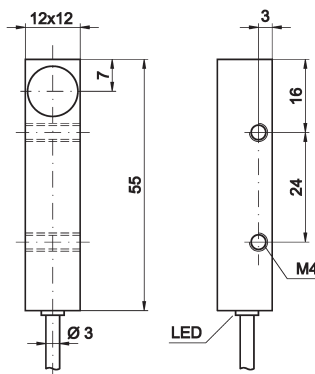
article-no.	IB090104	IB090175	IB090106	IB090176
switching distance	2.0mm	2.0mm	3.0mm	3.0mm
mounting	flush	flush	semi-flush	semi-flush
connection	2m PVC-cable	M8-connector	2m PVC-cable	M8-connector



### TECHNICAL DATA

switching distance (Sn)	2.0mm	2.0mm	3.0mm	3.0mm
mounting	flush	flush	semi-flush	semi-flush
output signal	pnp, no	pnp, no	pnp, no	pnp, no
operating voltage	10 ... 30V DC	10 ... 30V DC	10 ... 30V DC	10 ... 30V DC
current consumption (w/o load)	≤ 12mA	≤ 12mA	≤ 10mA	≤ 10mA
output current (max. load)	200mA	200mA	200mA	200mA
voltage drop (max. load)	2.0V DC	2.0V DC	2.0V DC	2.0V DC
hysteresis	3 ... 20%	3 ... 20%	< 10%	< 10%
switching frequency	5kHz	5kHz	1kHz	1kHz
display (signal)	red LED	red LED	yellow LED	yellow LED
short-circuit protection	+	+	+	+
reverse polarity protection	+	+	+	+
dimensions	8x20x8mm	8x49x8mm	8x40x8mm	8x59x8mm
housing material	nickel-plated zinc diecast	nickel-plated brass	chrome-plated zinc diecast	chrome-plated zinc diecast
material (front cap)	PBT	PBT	PBTP	PBTP
operating temperature	-25 ... +75°C	-25 ... +75°C	-25 ... +70°C	-25 ... +70°C
degree of protection (EN 60529)	IP67	IP67	IP67	IP67
connection	2m PVC-cable, 3-wire	M8-connector, 3-pin	2m PVC-cable, 3-wire	M8-connector, 3-pin
connection accessories	-	e.g. VK200075	-	e.g. VK200075

article-no.	IB130100	IB130170
switching distance	4.0mm	4.0mm
mounting	flush	flush
connection	2m PVC-cable	M8-connector

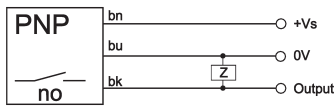


**TECHNICAL DATA**

switching distance (Sn)	4mm	4mm
mounting	flush	flush
output signal	pnp, no	pnp, no
operating voltage	10 ... 30V DC	10 ... 30V DC
current consumption (w/o load)	≤ 13mA	≤ 13mA
output current (max. load)	200mA	200mA
voltage drop (max. load)	2.4V DC	2.4V DC
hysteresis	15%	15%
switching frequency	800Hz	800Hz
display (signal)	yellow LED	yellow LED
short-circuit protection	+	+
reverse polarity protection	+	+
dimensions	12x55x12mm	12x65x12mm
housing material	nickel-plated brass	nickel-plated brass
operating temperature	-25 ... +70°C	-25 ... +70°C
degree of protection (EN 60529)	IP67	IP67
connection	2m PVC-cable, 3-wire	M8-connector, 3-pin
connection accessories	-	e.g. VK200075

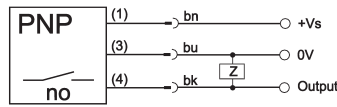
## connection

### cable device



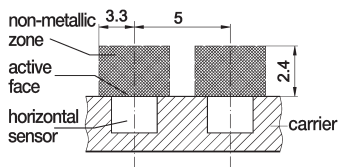
wire colors: bn = brown (1), bu = blue (3), bk = black (4)

### connector device

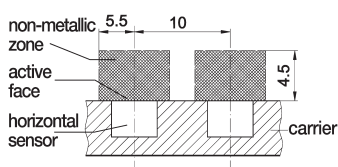


## mounting parameters

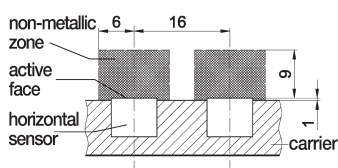
### IBQ5... flush mounting



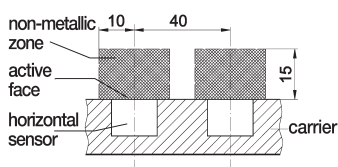
### IB09... flush mounting



### IB090106 and IB090176 semi-flush mounting



### IB13... flush mounting



## correction factors

### IBQ5...

material	factor
steel	1.0
stainless steel (V2A)	0.85
brass (Ms)	0.7
aluminum (Al)	0.6
copper (Cu)	0.6

### IB09...

material	factor
steel	1.0
stainless steel (V2A)	0.8
brass (Ms)	0.55
aluminum (Al)	0.45
copper (Cu)	0.4

### IB090106 and IB090176

material	factor
steel	1.0
stainless steel (V2A)	0.77
brass (Ms)	0.45
aluminum (Al)	0.36
copper (Cu)	0.27

### IB13...

material	factor
steel	1.0
stainless steel (V2A)	0.8
brass (Ms)	0.55
aluminum (Al)	0.5
copper (Cu)	0.45

This data sheet contains the standard versions only. Kindly request the availability of other output- and connection functions.

We will be pleased to supply the matching cable socket for your devices with connector. Please refer to the list in catalog chapter „accessories“ under „cable sockets **ipf**-SENSORFLEX®“ or search our website for „VK“.

**Warning:** Never use these devices in applications where the safety of a person depends on their functionality.