

Factor 1

DESINA

**Diagnostic**

pressure rated

high pressure rated

**STEELFACE**



**NAMUR**

magnetic field *immune*

weld *immune*

temperature rated

extended switching distance

**PROXINOX®**

Ring Sensors



# Inductive – Special Properties

Inductive sensors with special mechanical and/or electrical properties.

- Use under extremely harsh conditions
- Resistant to coolants and lubricants
- Use in welding systems, magnetic field immune
- Use in hydraulic systems, high pressure rated to 500 bar
- For use in the food and chemicals industries, stainless steel housing
- Use in error monitoring, self-diagnostic
- Use at high ambient temperatures up to +120 °C

**1.5.2** Factor 1 sensors with no reduction factor

**1.5.4** Weld- and magnetic field immune sensors for welding environments

**1.5.12** Magnetic field immune sensors, desensitized to magnetic fields

**1.5.14** Desina diagnostic sensors for machine tools, dynamic function diagnostics

**1.5.20** Steelface, sensors for extreme applications

**1.5.22** Pressure rated sensors up to max. 500 bar

**1.5.32** High-pressure rated sensors High-End and ATEX conformal

**1.5.40** NAMUR sensors for standard applications in Ex zones (ATEX conformal)

**1.5.42** Temperature rated sensors up to max. +120 °C

**1.5.44** PROXINOX® stainless steel sensors for the food industry

**1.5.50** Ring sensors

**1.5.52** Sensors with large housings and extended switching distance

**1.5**

Factor 1  
Weld immune  
Magnetic field immune  
Diagnostic  
Steelface  
Pressure rated  
Pressure rated Ex  
Namur Ex  
Temperature rated  
PROXINOX®  
Ring Sensors  
Extended switching distance

## Factor 1 Sensors

detect objects such as steel, aluminum or brass at the same switching distance (no reduction factor).

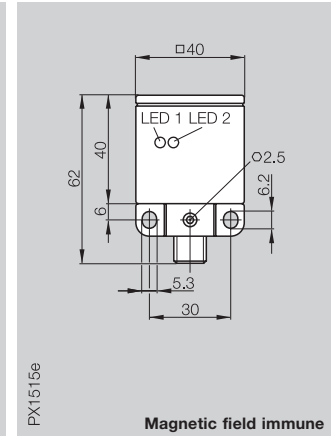
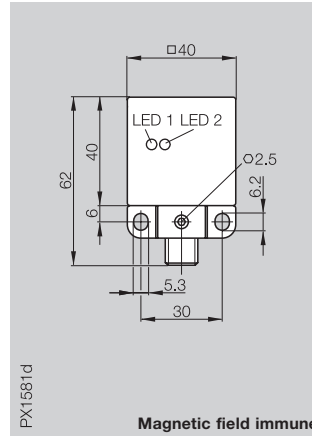
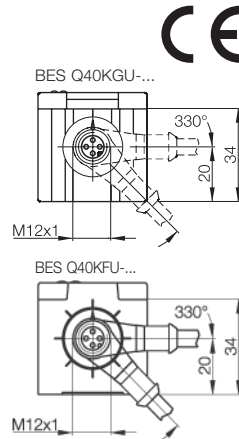
This property offers advantages in applications where the material of the target object can vary.

In addition, all Factor 1 sensors are **magnetic field immune**.

Their function is not impaired by strong electromagnetic fields (such as from induction hardening or welding equipment).

The switching response of Factor 1 sensors is unaffected by weld currents of up to 25 kA (at a distance from energetic conductors of approx. 5 cm).

Housing size	40×40×62 mm Unicomact	40×40×62 mm Unicomact
Mounting (see notes starting p. 1.0.11)	flush	flush
Rated operating distance s <sub>n</sub>	15 mm	20 mm
Assured operating distance s <sub>a</sub>	0...12.2 mm	0...16.2 mm



PNP	NO ① complementary ③	BES Q40KFU-PSC15A-S04G BES Q40KFU-PAC15A-S04G	BES Q40KFU-PSC20A-S04G BES Q40KFU-PAC20A-S04G
Supply voltage U <sub>B</sub>	10...30 V DC	10...30 V DC	10...30 V DC
Voltage drop U <sub>d</sub> at I <sub>o</sub>	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V
Rated insulation voltage U <sub>i</sub>	250 V AC	250 V AC	250 V AC
Rated operational current I <sub>o</sub>	200 mA	200 mA	200 mA
No-load supply current I <sub>0</sub> max.	≤ 20 mA	≤ 20 mA	≤ 20 mA
Polarity reversal protected	yes	yes	yes
Short circuit protected	yes	yes	yes
Repeat accuracy R	≤ 5 %	≤ 5 %	≤ 5 %
Ambient temperature range T <sub>a</sub>	-25...+70 °C	-25...+70 °C	-25...+70 °C
Switching frequency f	400 Hz	400 Hz	400 Hz
Utilization category	DC 13	DC 13	DC 13
Function/Supply voltage indicator	yes/yes	yes/yes	yes/yes
Degree of protection per IEC 60529	IP 67	IP 67	IP 67
Insulation class	□	□	□
Housing material	PBT	PBT	PBT
Material of sensing face	PBT	PBT	PBT
Connection	Connector	Connector	Connector
Approval	cULus	cULus	cULus
Recommended connector	BKS-_ 19/BKS-_ 20	BKS-_ 19/BKS-_ 20	BKS-_ 19/BKS-_ 20

① Wiring diagrams see page 1.0.6

## Mounting socket BES Q40-HW-2

Material: Metal.  
Can be used in place of original mounting socket.  
Please note mounting options!

## Mounting bracket BES Q40-HW-1

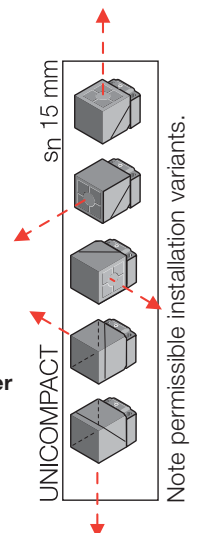
Material: Metal for flexible installation.

## Weld protection BES Q40-SH-1

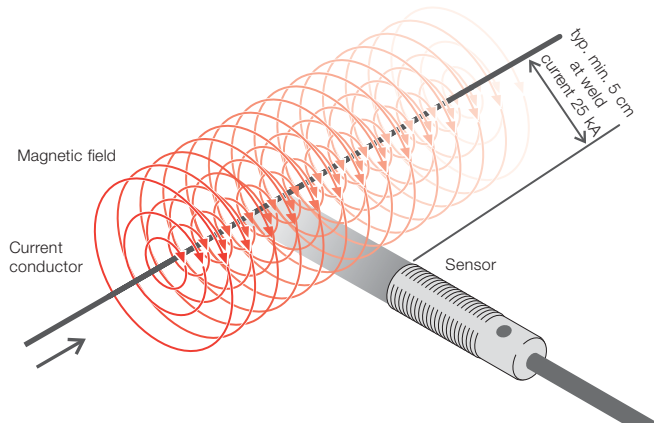
Material: Metal.  
For applications directly in the weld area.  
Only for BES Q40KFU-...A-...!

## Protective cover BES Q40-SH-2

Material: PA 6 as step protection.







## Weld immune Factor 1 Sensors

... the all-rounder for harsh industrial applications.

## Magnetic field immune

Insensitive to magnetic fields which can be created with electrical currents of up to 25 kA (at a distance from energetic conductors of approx. 5 cm).

## Weld splatter resistant

Resistant to metal splatter and combustion remains caused by welding.

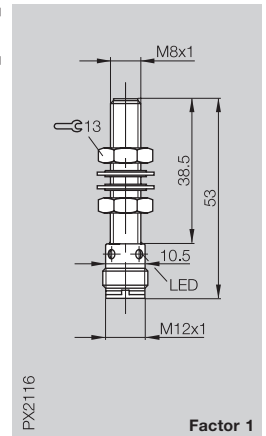
## Factor 1

Identical switching distance for steel, stainless, aluminum or brass.

## Note about part number

BES ...-W Teflon-coated active surface and housing to protect against weld splatter.

Housing size	<b>M8x1</b>
Mounting (see notes starting p. 1.0.11)	flush
Rated operating distance s <sub>n</sub>	<b>1.5 mm</b>
Assured operating distance s <sub>a</sub>	0...1.2 mm



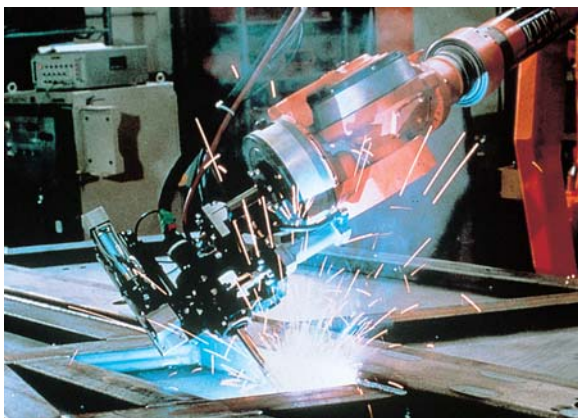
PNP	NO	①	BES M08EG1-PSC15A-S04G-W
Supply voltage U <sub>B</sub>			10...30 V DC
Voltage drop U <sub>d</sub> at I <sub>e</sub>			≤ 2.5 V
Rated insulation voltage U <sub>i</sub>			250 V AC
Rated operational current I <sub>e</sub>			150 mA
No-load supply current I <sub>0</sub> max.			≤ 15 mA
Polarity reversal protected			yes
Short circuit protected			yes
Repeat accuracy R			≤ 5 %
Ambient temperature range T <sub>a</sub>			-25...+70 °C
Switching frequency f			2000 Hz
Utilization category			DC 13
Function indicator			yes
Degree of protection per IEC 60529			IP 67
Insulation class			□
Housing material			Stainless steel, PTFE coated
Material of sensing face			PBT and PTFE
Connection			Connector
Approval			
Recommended connector			BKS-_ 19/BKS-_ 20

① Wiring diagrams see page 1.0.6

Switching distance ■ ■ see page 1.0.10

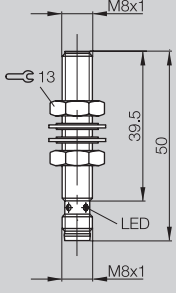
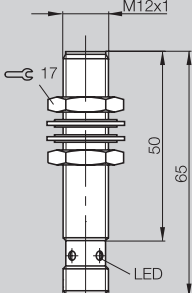
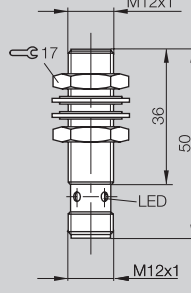
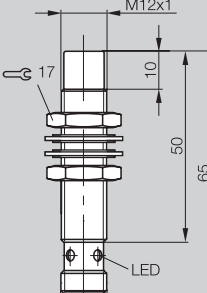
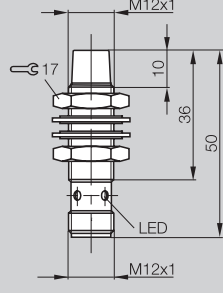
On request:

For applications in direct weld area we recommend the connectors with irradiated cable as an accessory.



magnetic field **immune**  
+ weld splatter **resistant**  
= weld **immune**

+ **Factor 1**

M8x1 flush 1.5 mm 0...1.2 mm	M12x1 flush 3 mm 0...2.4 mm	M12x1 flush 3 mm 0...2.4 mm	M12x1 non-flush 8 mm 0...6.5 mm	M12x1 non-flush 8 mm 0...6.5 mm
 PX2115 Factor 1	 PX1420 Switching distance ■ ■ Factor 1	 PX1757 Switching distance ■ ■ Factor 1	 PX1860 Switching distance ■ ■ Factor 1	 PX1861 Switching distance ■ ■ Factor 1
BES M08EG-PSC15A-S49G-W	BES M12ML-PSC30A-S04G-W	BES M12MF1-PSC30A-S04G-W	BES M12ML-PSC80E-S04G-W	BES M12MD1-PSC80E-S04G-W
10...30 V DC ≤ 2.5 V 250 V AC 150 mA ≤ 15 mA yes yes	10...30 V DC ≤ 2.5 V 250 V AC 200 mA ≤ 15 mA yes yes	10...30 V DC ≤ 2.5 V 250 V AC 200 mA ≤ 15 mA yes yes	10...30 V DC ≤ 2.5 V 250 V AC 200 mA ≤ 15 mA yes yes	10...30 V DC ≤ 2.5 V 250 V AC 200 mA ≤ 15 mA yes yes
≤ 5 % -25...+70 °C 2000 Hz DC 13 yes	≤ 5 % -25...+70 °C 2000 Hz DC 13 yes	≤ 5 % -25...+70 °C 2000 Hz DC 13 yes	≤ 5 % -25...+70 °C 2000 Hz DC 13 yes	≤ 5 % -25...+70 °C 2000 Hz DC 13 yes
IP 67 □ Stainless steel, PTFE coated LCP and PTFE Connector	IP 67 □ Brass, PTFE coated LCP and PTFE Connector	IP 67 □ Brass, PTFE coated LCP and PTFE Connector	IP 67 □ Brass, PTFE coated LCP and PTFE Connector	IP 67 □ Brass, PTFE coated LCP and PTFE Connector
cULus BKS- _ 48/BKS- _ 49	cULus BKS- _ 19/BKS- _ 20	cULus BKS- _ 19/BKS- _ 20	cULus BKS- _ 19/BKS- _ 20	cULus BKS- _ 19/BKS- _ 20

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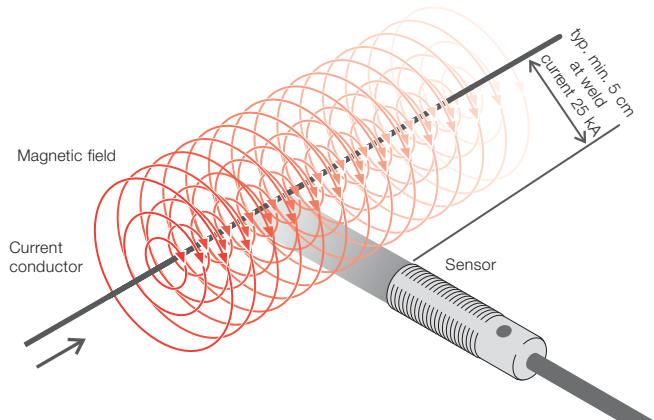
Factor 1  
Weld  
immune  
Magnetic  
field immune  
Diagnostic  
Steelface  
Pressure  
rated  
Pressure  
rated Ex  
Nemur Ex  
Temperature  
rated  
PROXINOX®  
Ring  
Sensors  
Extended  
switching  
distance

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Connectors,  
Holders ...  
Page 5.2 ...







## Weld immune Factor 1 Sensors

... the all-rounder for harsh industrial applications.

## Magnetic field immune

Insensitive to magnetic fields which can be created with electrical currents of up to 25 kA (at a distance from energetic conductors of approx. 5 cm).

## Weld splatter resistant

Resistant to metal splatter and combustion remains caused by welding.

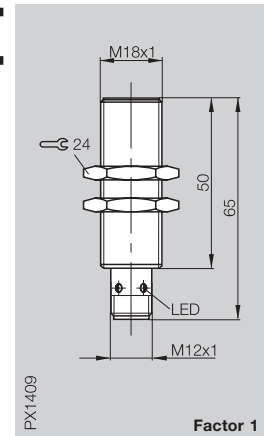
## Factor 1

Identical switching distance for steel, stainless, aluminum or brass.

## Note about part number

BES ...-W Teflon coated active surface and housing to protect against weld splatter.

Housing size	M18x1
Mounting (see notes starting p. 1.0.11)	flush
Rated operating distance s <sub>n</sub>	5 mm
Assured operating distance s <sub>a</sub>	0...4.1 mm



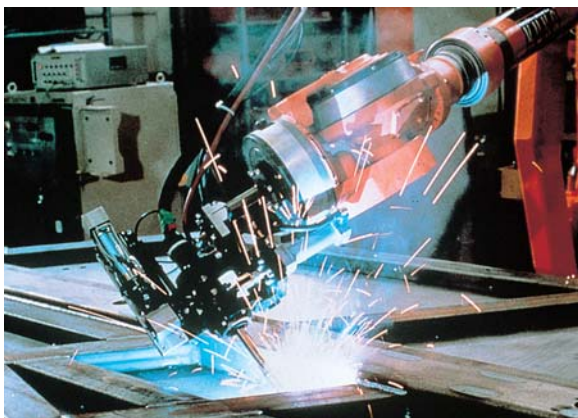
PNP	NO	①	BES M18ML-PSC50A-S04G-W
Supply voltage U <sub>B</sub>			10...30 V DC
Voltage drop U <sub>d</sub> at I <sub>e</sub>			≤ 2.5 V
Rated insulation voltage U <sub>i</sub>			250 V AC
Rated operational current I <sub>e</sub>			200 mA
No-load supply current I <sub>0</sub> max.			≤ 15 mA
Polarity reversal protected			yes
Short circuit protected			yes
Repeat accuracy R			≤ 5 %
Ambient temperature range T <sub>a</sub>			-25...+70 °C
Switching frequency f			2500 Hz
Utilization category			DC 13
Function indicator			yes
Degree of protection per IEC 60529			IP 67
Insulation class			□
Housing material			Brass, PTFE coated
Material of sensing face			LCP and PTFE
Connection			Connector
Approval			
Recommended connector			BKS-_ 19/BKS-_ 20

① Wiring diagrams see page 1.0.6

Switching distance ■ ■ see page 1.0.10

On request:

For applications in direct weld area we recommend the connectors with irradiated cable as an accessory.



magnetic field **immune**  
+ weld splatter **resistant**  
= weld **immune**

+ **Factor 1**

	<b>M18×1</b> flush <b>5 mm</b> 0...4.1 mm	<b>M18×1</b> non-flush <b>12 mm</b> 0...9.7 mm	<b>M18×1</b> non-flush <b>12 mm</b> 0...9.7 mm	<b>M30×1.5</b> flush <b>10 mm</b> 0...8.1 mm	<b>M30×1.5</b> non-flush <b>20 mm</b> 0...16.2 mm
PX1755	PX1320	PX1666	PX1336	PX1337	
<b>Factor 1</b>	<b>Switching distance ■ ■ ■ Factor 1</b>	<b>Switching distance ■ ■ ■ Factor 1</b>	<b>Factor 1</b>	<b>Switching distance ■ ■ ■ Factor 1</b>	
<b>BES M18MF1-PSC50A-S04G-W</b>	<b>BES M18ML-PSC12E-S04G-W</b>	<b>BES M18MD-PSC12E-S04G-W</b>	<b>BES M30ML-PSC10A-S04G-W</b>	<b>BES M30ML-PSC20E-S04G-W</b>	
10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC	
≤ 2.5 V	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V	
250 V AC	250 V AC	250 V AC	250 V AC	250 V AC	
200 mA	200 mA	200 mA	200 mA	200 mA	
≤ 15 mA	≤ 15 mA	≤ 15 mA	≤ 17 mA	≤ 17 mA	
yes	yes	yes	yes	yes	
yes	yes	yes	yes	yes	
≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %	
-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C	
2500 Hz	2500 Hz	2500 Hz	600 Hz	1000 Hz	
DC 13	DC 13	DC 13	DC 13	DC 13	
yes	yes	yes	yes	yes	
IP 67	IP 67	IP 67	IP 67	IP 67	
□	□	□	□	□	
Brass, PTFE coated LCP and PTFE Connector	Brass, PTFE coated LCP and PTFE Connector	Brass, PTFE coated LCP and PTFE Connector	Brass, PTFE coated LCP and PTFE Connector	Brass, PTFE coated LCP and PTFE Connector	
cULus	cULus	cULus	cULus	cULus	
BKS- 19/BKS- 20	BKS- 19/BKS- 20	BKS- 19/BKS- 20	BKS- 19/BKS- 20	BKS- 19/BKS- 20	

**1.5**

**Factor 1**  
**Weld**  
**immune**  
**Magnetic**  
**field immune**  
Diagnostic  
Steelface  
Pressure  
rated  
Pressure  
rated Ex  
Nemur Ex  
Temperature  
rated  
PROXINOX®  
Ring  
Sensors  
Extended  
switching  
distance

**5**

Connectors,  
Holders ...  
Page 5.2 ...



## Inductive Sensors

DC 3-wire  
M12, M18  
s<sub>n</sub> 3 mm, 5 mm, 8 mm

Housing size	
Mounting (see notes starting p. 1.0.11)	
Rated operating distance s <sub>n</sub>	
Assured operating distance s <sub>a</sub>	

**M12x1**

flush

**3 mm**

0...2.2 mm

**M12x1**

non-flush

**8 mm**

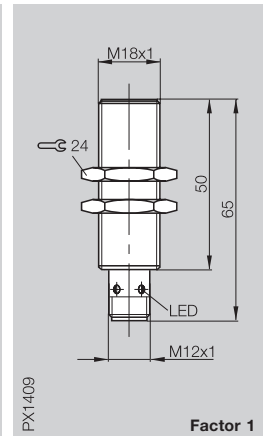
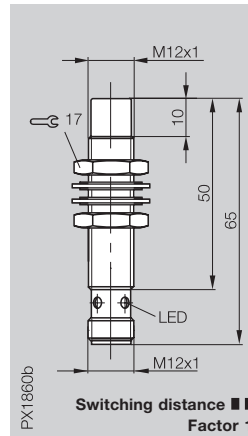
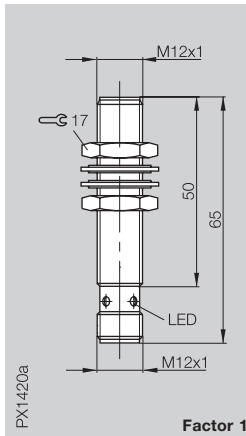
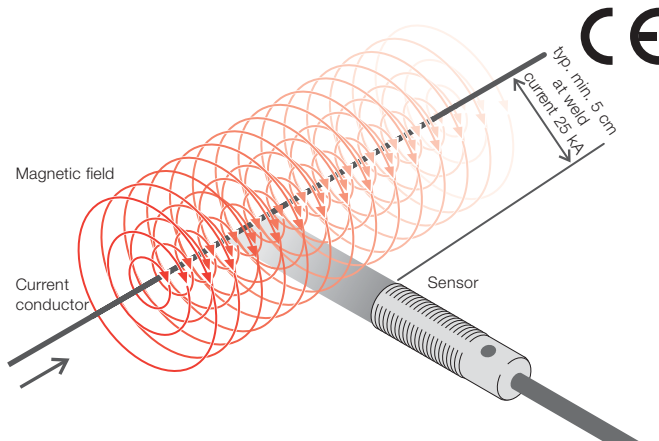
0...6.3 mm

**M18x1**

flush

**5 mm**

0...3.9 mm



### Weld immune Factor 1 Sensors

... the all-rounder for harsh industrial applications.

### Magnetic field immune

Insensitive to magnetic fields which can be created with electrical currents of up to 25 kA (at a distance from energetic conductors of approx. 5 cm).

### Weld splatter resistant

Resistant to metal splatter and combustion remains caused by welding.

### Factor 1

Identical switching distance for steel, stainless, aluminum or brass.

### Note about part number

BES ...-W01

Ceramic coating.  
Rugged ceramic coating, thick for the most extreme welding environments.

PNP	NO ① complementary ③	BES M12ML-PSC30A-S04G-W01	BES M12ML-PSC80E-S04G-W01	BES M18ML-PSC50A-S04G-W01
Supply voltage U <sub>B</sub>	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC
Voltage drop U <sub>d</sub> at I <sub>0</sub>	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V
Rated insulation voltage U <sub>i</sub>	250 V AC	250 V AC	250 V AC	250 V AC
Rated operational current I <sub>0</sub>	200 mA	200 mA	200 mA	200 mA
No-load supply current I <sub>0</sub> max.	≤ 15 mA	≤ 15 mA	≤ 15 mA	≤ 15 mA
Polarity reversal protected	yes	yes	yes	yes
Short circuit protected	yes	yes	yes	yes
Repeat accuracy R	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
Ambient temperature range T <sub>a</sub>	-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C
Switching frequency f	2000 Hz	2000 Hz	2000 Hz	2500 Hz
Utilization category	DC 13	DC 13	DC 13	DC 13
Function/Supply voltage indicator	yes/no	yes/no	yes/no	yes/no
Degree of protection per IEC 60529	IP 67	IP 67	IP 67	IP 67
Insulation class	□	□	□	□
Housing material	Brass, PTFE coated	Brass, PTFE coated	Brass, PTFE coated	Brass, PTFE coated
Material of sensing face	Ceramic coating	Ceramic coating	Ceramic coating	Ceramic coating
Connection	Connector	Connector	Connector	Connector
Approval	cULus	cULus	cULus	cULus
Recommended connector	BKS- 19/BKS- 20	BKS- 19/BKS- 20	BKS- 19/BKS- 20	BKS- 19/BKS- 20

① Wiring diagrams see page 1.0.6

Switching distance ■ ■ see page 1.0.10

On request:

For applications in direct weld area we recommend the connectors with irradiated cable as an accessory.



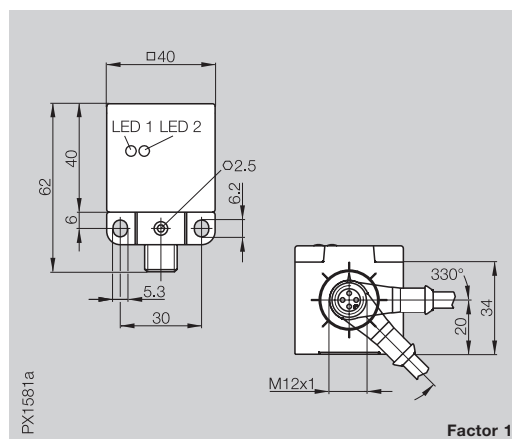
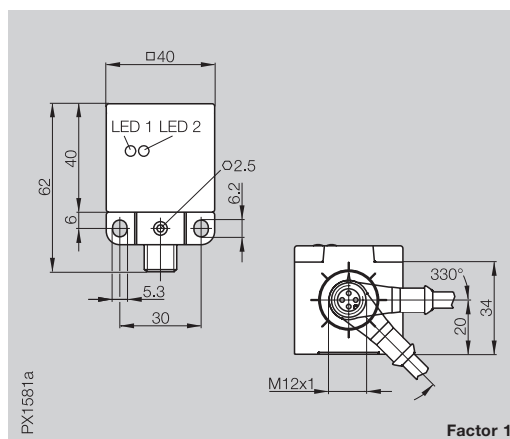
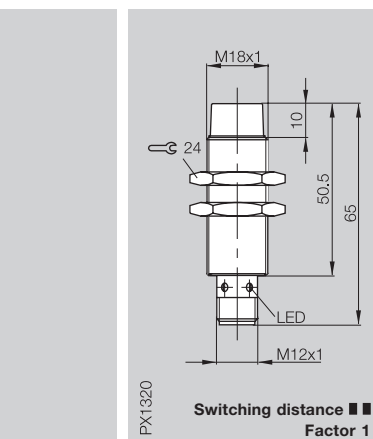
magnetic field **immune**  
+ weld splatter **resistant**  
= weld **immune**

+ **Factor 1**

+ ceramic **coated**



<b>M18x1</b> non-flush <b>12 mm</b> 0...9.5 mm	<b>40x40x62 mm</b> Unicomact flush <b>15 mm</b> 0...11.9 mm	<b>40x40x62 mm</b> Unicomact non-flush <b>35 mm</b> 0...28.1 mm
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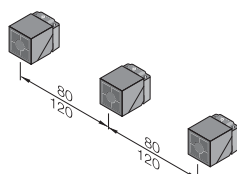
BES M18ML-PSC12E-S04G-W01	BES Q40KFU-PSC15A-S04G-W01 BES Q40KFU-PAC15A-S04G-W01	BES Q40KFU-PSC35E-S04G-W01 BES Q40KFU-PAC35E-S04G-W01
10...30 V DC ≤ 2.5 V 250 V AC 200 mA ≤ 15 mA yes yes	10...30 V DC ≤ 2.5 V 250 V AC 200 mA ≤ 20 mA yes yes	10...30 V DC ≤ 2.5 V 250 V AC 200 mA ≤ 20 mA yes yes
≤ 5 % -25...+70 °C 2500 Hz DC 13 yes/no	≤ 5 % -25...+70 °C 400 Hz DC 13 yes/yes	≤ 5 % -10...+70 °C 250 Hz DC 13 yes/yes
IP 67 Brass, PTFE coated Ceramic coating Connector	IP 67 PBT (part coated) Ceramic coating Connector	IP 67 PBT (part coated) Ceramic coating Connector
cULus BKS- 19/BKS- 20	cULus BKS- 19/BKS- 20	cULus BKS- 19/BKS- 20

### Permissible mounting options Unicomact

Rated operating distance s <sub>n</sub>	Attached using	permissible							
15 mm	Original mounting socket (plastic)	yes	yes	yes	yes	yes	yes	yes	yes
	Mounting socket BES Q40-HW-2 (metal)	yes	yes	yes	yes	yes	yes	yes	yes
35 mm	Original mounting socket (plastic)	no	no	no	yes	no	yes	yes	yes
	Mounting socket BES Q40-HW-2 (metal)	no	no	no	yes	no	yes	no	no

### Row mounting

flush 80 mm  
non-flush 120 mm



**Mounting bracket BES Q40-HW-1**  
Material: Metal

**Mounting socket BES Q40-HW-2**  
Material: Metal.  
Can be used in place of original mounting socket.  
Please note mounting options!

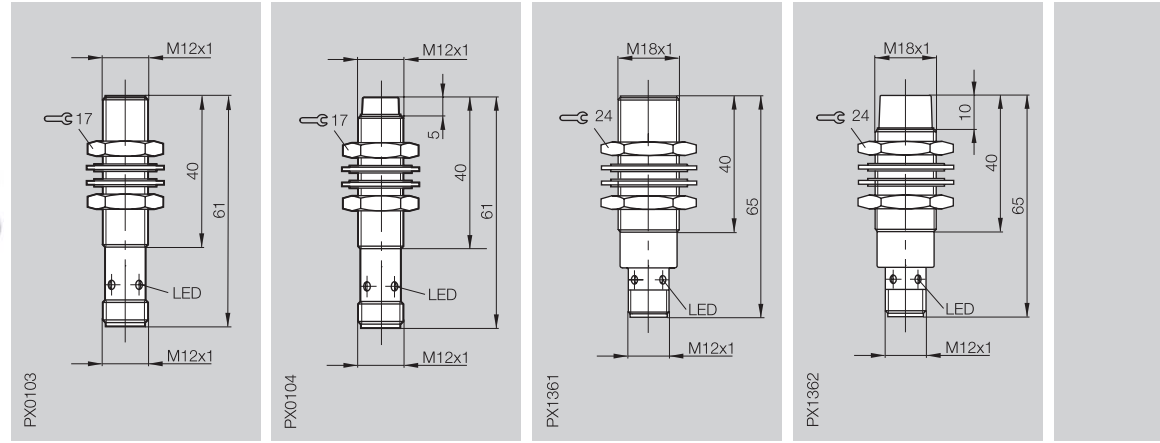
Please order accessories separately!

## Inductive Sensors

DC 3-wire  
M12, M18  
s<sub>n</sub> 2 mm, 4 mm, 5 mm, 8 mm

Housing size
Mounting (see notes starting p. 1.0.11)
Rated operating distance s <sub>n</sub>
Assured operating distance s <sub>a</sub>

M12x1	M12x1	M18x1	M18x1
flush	non-flush	flush	non-flush
2 mm	4 mm	5 mm	8 mm
0...1.6 mm	0...3.2 mm	0...4.1 mm	0...6.5 mm



PNP	NO	①	BES 516-325-S4-W	BES 516-356-S4-W	BES 516-326-S4-W	BES 516-360-S4-W
Supply voltage U <sub>B</sub>			10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC
Voltage drop U <sub>d</sub> at I <sub>e</sub>			≤ 2.5 V	≤ 2.5 V	≤ 1.5 V	≤ 2.5 V
Rated insulation voltage U <sub>i</sub>			250 V AC	250 V AC	250 V AC	75 V DC
Rated operational current I <sub>e</sub>			200 mA	200 mA	200 mA	200 mA
No-load supply current I <sub>0</sub> max.			≤ 20 mA	≤ 20 mA	≤ 10 mA	≤ 20 mA
Polarity reversal protected			yes	yes	yes	yes
Short circuit protected			yes	yes	yes	yes
Repeat accuracy R			≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
Ambient temperature range T <sub>a</sub>			-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C
Switching frequency f			1000 Hz	1000 Hz	500 Hz	200 Hz
Utilization category			DC 13	DC 13	DC 13	DC 13
Function/Supply voltage indicator			yes/no	yes/no	yes/no	yes/no
Degree of protection per IEC 60529			IP 67	IP 67	IP 67	IP 67
Insulation class			□	□	□	
Housing material			Brass, PTFE coated	Brass, PTFE coated	Brass, PTFE coated	Brass, PTFE coated
Material of sensing face			LCP	PTFE	PTFE	PTFE
Connection			Connector	Connector	Connector	Connector
No. of wires × cross-section						
Approval			cULus	cULus	cULus	cULus
Recommended connector			BKS-_ 19/BKS-_ 20	BKS-_ 19/BKS-_ 20	BKS-_ 19/BKS-_ 20	BKS-_ 19/BKS-_ 20

① Wiring diagrams see page 1.0.6

On request:  
For applications directly in the welding area  
we recommend the connectors with  
irradiated cable as an accessory.

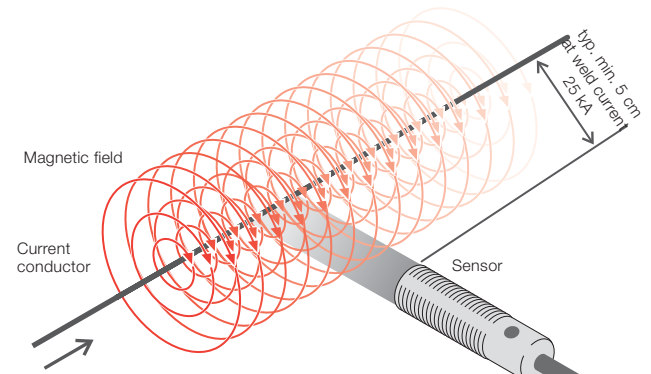
### Magnetic field immune

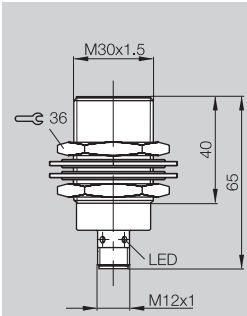
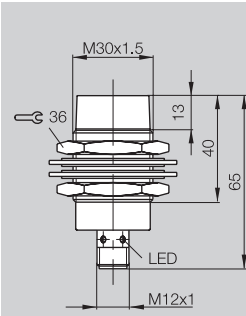
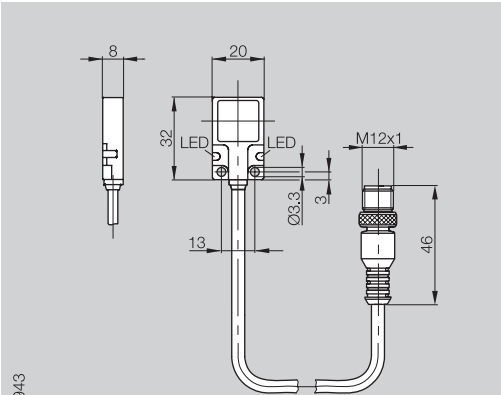
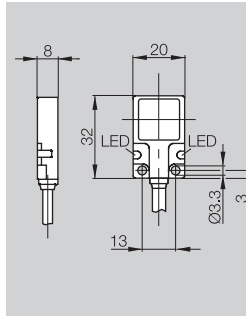

Insensitive to magnetic fields  
which can be created with  
electrical currents of up  
to 25 kA (at a distance from  
energetic conductors of  
approx. 5 cm).

### Weld splatter resistant

Resistant to metal splatter  
and combustion remains  
caused by welding.

magnetic field **immune**  
+ weld splatter **resistant**  
= weld **immune**



	M30x1.5 flush 10 mm 0...8.1 mm	M30x1.5 non-flush 15 mm 0...12.2 mm	20x32x8 mm R01 flush 5 mm 0...4.1 mm	20x32x8 mm R01 flush 5 mm 0...4.1 mm
				
	PX1363	PX1364	PX1943	PX1854a
	BES 516-327-S4-W	BES 516-362-S4-W	BES R01ZC-PSC50B-BX00.2-GS04-W01	BES R01ZC-PSC50B-BX05-W01
	10...30 V DC ≤ 1.5 V 250 V AC 200 mA ≤ 8 mA yes yes	10...30 V DC ≤ 1.5 V 75 V DC 200 mA ≤ 8 mA yes yes	10...30 V DC ≤ 2.5 V 75 V DC 200 mA ≤ 15 mA yes yes	10...30 V DC ≤ 2.5 V 75 V DC 200 mA ≤ 15 mA yes yes
	≤ 5 % -25...+70 °C 100 Hz DC 13 yes/no	≤ 5 % -25...+70 °C 100 Hz DC 13 yes/no	≤ 5 % -25...+70 °C 100 Hz DC 13 yes/yes	≤ 5 % -25...+70 °C 100 Hz DC 13 yes/yes
	IP 67 	IP 67	IP 67	IP 67
	Brass, PTFE coated PTFE Connector	Brass, PTFE coated PTFE Connector	GD-Zn  Ceramic coating 0.2 m weld splatter resistant cable with connector, PUR irradiated	GD-Zn  Ceramic coating 5 m weld splatter resistant cable, PUR irradiated 3x0.25 mm <sup>2</sup> cULus
	cULus BKS-_ 19/BKS-_ 20	cULus BKS-_ 19/BKS-_ 20	cULus BKS-_ 19	

### Part numbering

BES ...-W Teflon-coated active surface and housing to protect against weld splatter.

### BES ...-W01

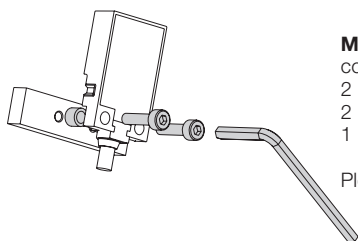
Ceramic coating. Rugged ceramic coating, thick for the most extreme welding environments.

### Main applications

Position monitoring on welding equipment and robots.

### Special features of BES-R01ZC...W01

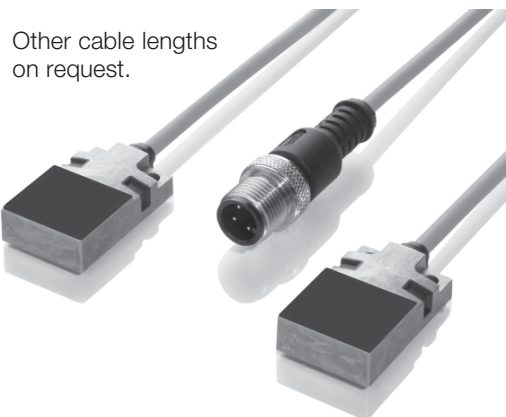
- Low profile in detection direction
- LED for function and power indication
- Cable weld splatter resistant and irradiated
- Sensing face with ceramic coating



### Mounting set BES R01-FK-1

consisting of:  
2 cheese-head screws DIN 912 M3x12  
2 spacers Ø5xØ3.3x3.7  
1 angled screwdriver DIN 911, 2.5 mm

Please order separately!



Other cable lengths on request.

# 1.5

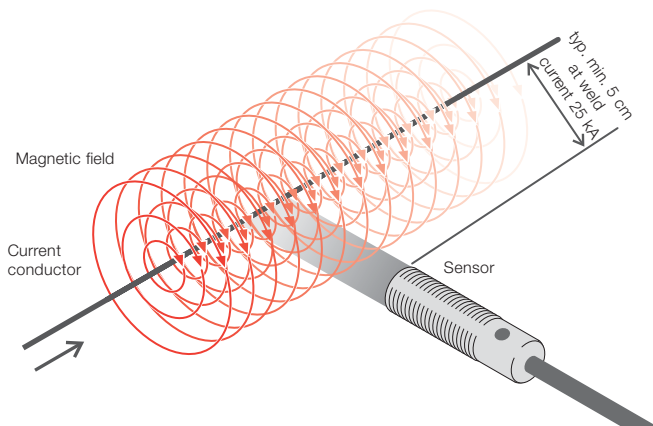
Factor 1  
**Weld  
immune**  
**Magnetic  
field immune**  
Diagnostic  
Steelface  
Pressure  
rated  
Pressure  
rated Ex  
Namur Ex  
Temperature  
rated  
PROXINOX®  
Ring  
Sensors  
Extended  
switching  
distance

# 5

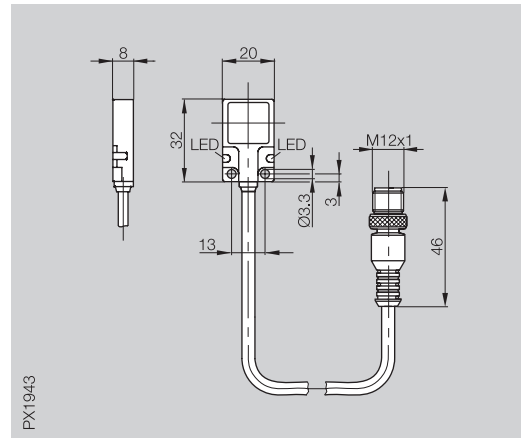
Connectors,  
Holders ...  
Page 5.2 ...

## Inductive Sensors

DC 3-wire  
Block style housings  
 $s_n$  5 mm



Housing size	20×32×8 mm R01
Mounting (see notes starting p. 1.0.11)	flush
Rated operating distance $s_n$	5 mm
Assured operating distance $s_a$	0...4.1 mm



### Magnetic field immune

Insensitive to magnetic fields which can be created with electrical currents of up to 25 kA (at a distance from energetic conductors of approx. 5 cm).

### Special features of BES-R01ZC...

- Low profile in detection direction
- LED for function and power indication
- Cable weld splatter resistant and irradiated

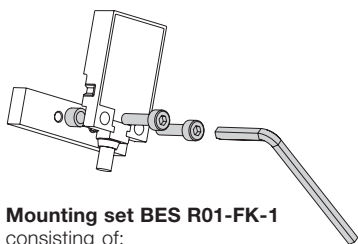
PNP	NO	①	BES R01ZC-PSC50B-BX00.2-GS04-V
Supply voltage $U_B$			10...30 V DC
Voltage drop $U_d$ at $I_o$			≤ 2.5 V
Rated insulation voltage $U_i$			75 V DC
Rated operational current $I_o$			200 mA
No-load supply current $I_o$ max.			≤ 15 mA
Polarity reversal protected			yes
Short circuit protected			yes
Repeat accuracy R			≤ 5 %
Ambient temperature range $T_a$			-25...+70 °C
Switching frequency f			100 Hz
Utilization category			DC 13
Function/Supply voltage indicator			yes/yes
Degree of protection per IEC 60529			IP 67
Housing material			GD-Zn
Material of sensing face			PA 12
Connection			0.2 m weld splatter resistant cable with connector, PUR irradiated
max. conductor cross-section			
Approval			cULus
Recommended connector			BKS_ 19
possible mounting options			

① Wiring diagrams see page 1.0.6

Other cable lengths on request.



Connector orientation



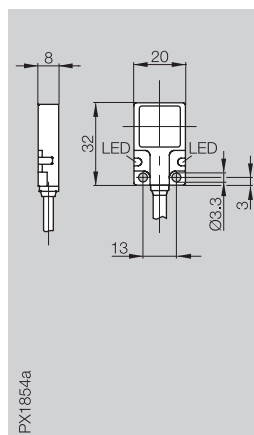
### Mounting set BES R01-FK-1

consisting of:  
2 cheese-head screws DIN 912 M3×12  
2 spacers Ø5×Ø3.3×3.7  
1 angled screwdriver DIN 911, 2.5 mm

Please order separately!

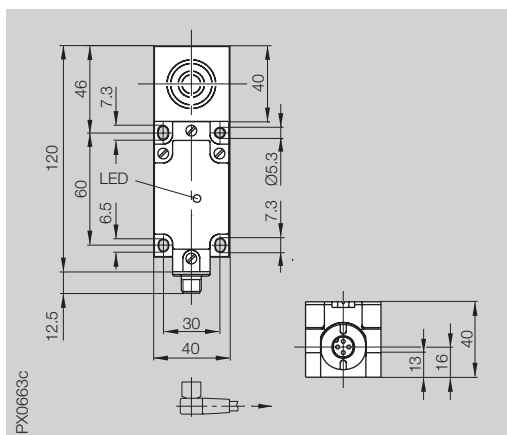


<b>20×32×8 mm R01</b>
flush
<b>5 mm</b>
0...4.1 mm



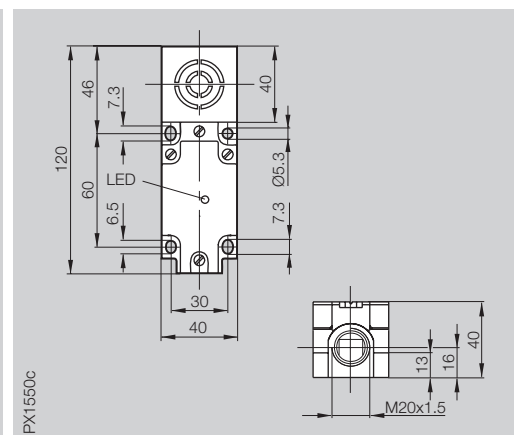
PX1854a

<b>40×40×120 mm Unisensor</b>
flush
<b>15 mm</b>
0...12.2 mm



PX0663c

<b>40×40×120 mm Unisensor</b>
flush
<b>15 mm</b>
0...12.2 mm



PX1550c

### BES R01ZC-PSC50B-BX03-V

10...30 V DC
≤ 2.5 V
75 V DC
200 mA
≤ 15 mA
yes
yes
≤ 5 %
-25...+70 °C
100 Hz
DC 13
yes/yes
IP 67
GD-Zn
PA 12
3 m weld splatter resistant cable, PUR irradiated
3×0.25 mm²
cULus

### BES 517-385-M3-CW-S-S4

10...30 V DC
≤ 2.5 V
75 V DC
200 mA
≤ 12 mA
yes
yes
≤ 5 %
-25...+70 °C
15 Hz
DC 13
yes/no
IP 67
PBT
PBT
Connector
cULus
BKS- _ 19/BKS- _ 20
Fig. 1 to 5

### BES 517-385-M3-CW-S

10...30 V DC
≤ 2.5 V
75 V DC
200 mA
≤ 12 mA
yes
yes
≤ 5 %
-25...+70 °C
15 Hz
DC 13
yes/no
IP 67
PBT
PBT
Screw terminals up to 2.5 mm²
cULus
Fig. 1 to 5



### Mounting options

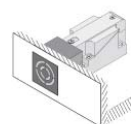


Fig. 1

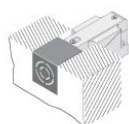


Fig. 2

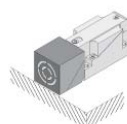


Fig. 3

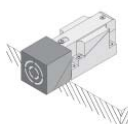


Fig. 4

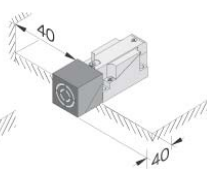
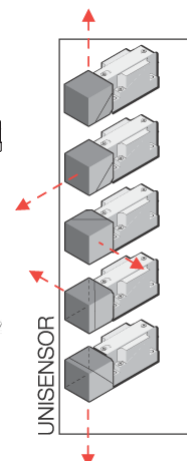
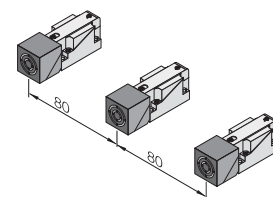


Fig. 5

### Row mounting



Note permissible installation variants.