



# FACTORY AUTOMATION

INDUCTIVE AND CAPACITIVE

SENSORS – OVERVIEW



# Sensor tester



Sensor tester (basic version)

The basic sensor tester for 2- and 3-wire sensors as NAMUR or DC version. Switching function with optical and audible indication.



Sensor tester (advanced version)

The advanced sensor tester for 2-, 3- and 4-wire sensors in NAMUR, DC or AC version. The switching function is indicated with LEDs.

## *In our catalogue Sensors 1 you will find:*

- *Position indicators*
- *Analogue sensors*
- *Sensors with direct connection to the AS-Interface*
- *Special sensors with the following features:*
  - *high pressure resistant up to 350 bar*
  - *temperature resistant up to 250°C*
  - *reduction factor 1*
  - *sensors for safety related applications*
  - *weld field immune*
  - *increased consistency up to IP 69k*

# Notes

# Capacitive sensors cylindrical and rectangular



Series:

... 12GM, ... 18GM, ... 30GM

Mounting:



... F46, ... FP, VariKont

## Electrical Version

	Sensing range	Part Reference	Figure	Foot-note
<b>DC 3-Wire</b> E2 = pnp Normally Open E3 = pnp Normally Closed (on demand)  10 V DC ... 60 V DC CJ ...  10 V DC ... 30 V DC CB ... and CC ...	4	CJ4-12GM-E2	1	1) 2)
	8	CJ8-18GM-E2	2	1) 2)
	8	CJ8-18GM-E2-V1	-	1) 2)
	10	CJ10-30GM-E2	3	1) 4)
	10	CJ10-30GM-E2-V1	4	1) 4)
<b>DC 4-Wire</b> A2 = pnp, antivalent Normally Open and Normally Closed  10 V DC ... 60 V DC	10	CJ10-30GM-A2	3	1) 4)
	10	CJ10-30GM-A2-V1	4	1) 4)
<b>AC 2-/3-Wire</b> WS = Normally Open (2-wire) WÖ = Normally Closed (2-wire) W3 = Normally Open or Normally Closed (3-wire) 20-250 V AC	10	CJ10-30GM-WS	6	1) 4)
	10	CJ10-30GM-WÖ	5	1) 4)
<b>NAMUR/EN 60947-5-6 nominal voltage 8 V DC</b>	1	CJ1-12GK-N	-	
	2	CJ2-18GK-N	-	
	4	CJ4-12GK-N	-	
	6	CJ6-18GK-N	-	
	10	CJ10-30GM-N-Z10	7	1) 3)

	Sensing range	Part Reference	Figure	Foot-note
	2	CBN2-F46-E2	4	
	2	CCN2-F46A-E2	5	
	5	CBN5-F46-E2	4	
	5	CCN5-F46A-E2	5	
	15	CJ15+U1+A2	3	1) 2)
	40	CJ40-FP-A2-P1	2	
	15	CJ15+U1+W	1	1)
	40	CJ40-FP-W-P1	2	1)
	2	CBN2-F46-N1	4	
	5	CBN5-F46-N1	4	
	5	CCN5-F46A-N1	5	
	10	CBN10-F46-N1	4	
	10	CCN10-F46A-N1	5	





... 6,5, ... 8GM

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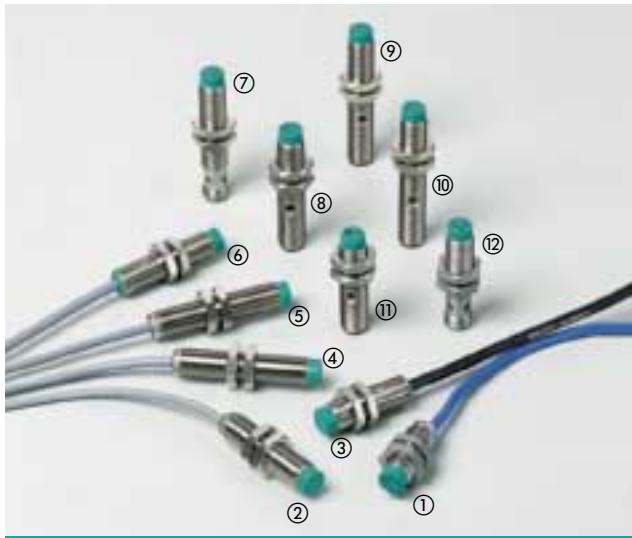
... 12GM

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Sensing range	Part Reference	Figure	Foot-note
2	NJ2-8GM40-E2-V3	5	1)
2	NJ2-8GM40-E2-V1	4	1)
2	NJ2-8GM40-E2	1	1)
2	NJ2-6,5-40-E2-V3	-	1)
2	NJ2-6,5-40-E2	-	1)
2	NBB2-8GM50-E2	2	2)
2	NBB2-8GM40-E2-V1	3	2)
2	NBB2-8GM25-E2-V3	-	2)
2	NBB2-8GM30-E2	-	2)
3	NBN3-8GM25-E2-V3	-	1)
3	NBN3-8GM30-E2	-	1)
6	NEN6-8GM45-E2-V1	4	1)
2	NBN2-8GM60-A2	1	1)
2	NBN2-8GM50-A2-V1	4	1)

Sensing range	Part Reference	Figure	Foot-note
2	NBB2-12GM40-Z0	10	
2	NBB2-12GM40-Z3-V1	4	
2	NJ2-12GM40-E2-V1	4	
2	NJ2-12GM40-E2	11	
4	NBB4-12GM50-E2-V1	3	
4	NBB4-12GM50-E2	9	
2	NBB2-12GM50-E2-V1	3	
2	NBB2-12GM50-E2	9	
4	NBB4-12GM30-E2-V1	-	
4	NBB4-12GM30-E2	-	
6	NEB6-12GM50-E2-V1	8	
6	NEB6-12GM50-E2	2	
2	NBB2-12GM60-A2	2	
2	NBB2-12GM60-A2-V1	5	
2	NJ2-12GM50-WS	11	
2	NJ2-12GM50-WS-V13	4	
2	NJ2-12GM50-WÖ	11	
2	NJ2-12GM50-WÖ-V13	4	
2	NJ2-12GM-N	1	2)
2	NJ2-12GM-N-V1	7	2)
2	NCB2-12GM35-N0	1	
2	NCB2-12GM35-N0-V1	7	

Footnotes: 1) not embeddable 2) embeddable



... 12GM

not embeddable



... 18GM

embeddable

Sensing range	Part Reference	Figure	Foot-note
4	NBN4-12GM40-Z0	3	
4	NBN4-12GM40-Z3-V1	11	
4	NJ4-12GM40-E2-V1	11	
4	NJ4-12GM40-E2	3	
4	NBN4-12GM50-E2-V1	12	
4	NBN4-12GM50-E2	5	
8	NBN8-12GM30-E2-V1		
8	NBN8-12GM30-E2		
10	NEN10-12GM50-E2-V1	12	
4	NBN4-12GM60-A2	5	
4	NBN4-12GM60-A2-V1	10	
4	NJ4-12GM50-WS	2	
4	NJ4-12GM50-WS-V13	8	
4	NJ4-12GM50-WÖ	4	
4	NJ4-12GM50-WÖ-V13	8	
4	NJ4-12GM-N	1	2)
4	NJ4-12GM-N-V1	11	2)
4	NCN4-12GM35-N0	1	
4	NCN4-12GM35-N0-V1	12	

Sensing range	Part Reference	Figure	Foot-note
5	NBB5-18GM40-Z0	3	
5	NBB5-18GM40-Z3-V1	8	
5	NJ5-18GM50-E2	10	
5	NJ5-18GM50-E2-V1	6	
5	NJ5-18GM20-E2-V1	7	
5	NBB5-18GM50-E2	2	
5	NBB5-18GM50-E2-V1	8	
8	NBB8-18GM50-E2	2	
8	NBB8-18GM50-E2-V1	8	
8	NBB8-18GM30-E2-V1	-	
8	NBB8-18GM30-E2	-	
12	NEB12-18GM50-E2	10	
12	NEB12-18GM50-E2-V1	5	
5	NJ5-18GM50-A2	10	
5	NJ5-18GM50-A2-V1	6	
5	NBB5-18GM60-A2	3	
5	NBB5-18GM60-A2-V1	6	
8	NBB8-18GM60-A2	3	
8	NBB8-18GM60-A2-V1	6	
5	NBB5-18GM60-WS	3	
5	NBB5-18GM60-WÖ	3	
5	NJ5-18GM-N	-	2)
5	NJ5-18GM-N-V1	-	2)
5	NCB5-18GM40-N0	1	
5	NCB5-18GM40-N0-V1	4	



... 18GM

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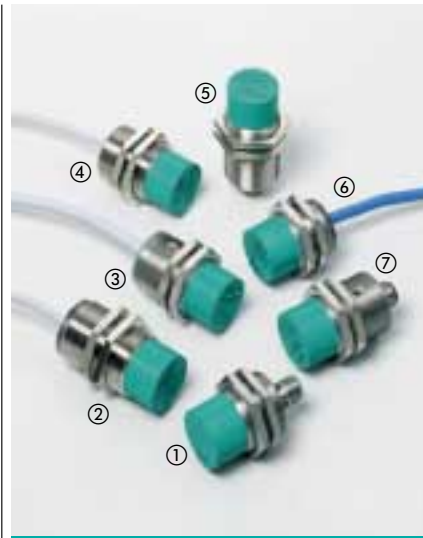
Sensing range	Part Reference	Figure	Foot-note
8	NBN8-18GM40-Z0	3	
8	NBN8-18GM40-Z3-V1	-	
8	NJ8-18GM50-E2	2	
8	NJ8-18GM50-E2-V1	6	
8	NBN8-18GM50-E2	1	
8	NBN8-18GM50-E2-V1	6	
12	NBN12-18GM50-E2	1	
12	NBN12-18GM50-E2-V1	6	
20	NEN20-18GM50-E2-V1	6	
8	NJ8-18GM50-A2	2	
8	NJ8-18GM50-A2-V1	-	
8	NBN8-18GM60-A2	1	
8	NBN8-18GM60-A2-V1	6	
8	NBN8-18GM60-WS	3	
8	NBN8-18GM60-WÖ	3	
8	NJ8-18GM-N	5	2)
8	NJ8-18GM-N-V1	-	2)
8	NCN8-18GM40-N0	4	
8	NCN8-18GM40-N0-V1	7	



... 30GM

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Sensing range	Part Reference	Figure	Foot-note
10	NBB10-30GM40-Z0	10	
10	NBB10-30GM40-Z3-V1	4	
10	NJ10-30GM50-E2	8	
10	NJ10-30GM50-E2-V1	4	
10	NBB10-30GM50-E2	11	
10	NBB10-30GM50-E2-V1	3	
15	NBB15-30GM50-E2	10	
15	NBB15-30GM50-E2-V1	3	
15	NBB15-30GM30-E2	-	
15	NBB15-30GM30-E2-V1	-	
22	NEB22-30GM60-E2	9	
22	NEB22-30GM60-E2-V1	4	
10	NJ10-30GM50-A2	8	
10	NJ10-30GM50-A2-V1	4	
10	NJ10-30GKK-A2	5	
10	NBB10-30GM60-A2	9	
10	NBB10-30GM60-A2-V1	4	
10	NBB10-30GKK-WS	6	
10	NBB10-30GM60-WS	9	
10	NBB10-30GKK-WÖ	6	
10	NBB10-30GM60-WÖ	9	
10	NJ10-30GM-N	1	2)
10	NJ10-30GM-N-V1	7	2)
10	NCB10-30GM40-N0	1	
10	NCB10-30GM40-N0-V1	7	

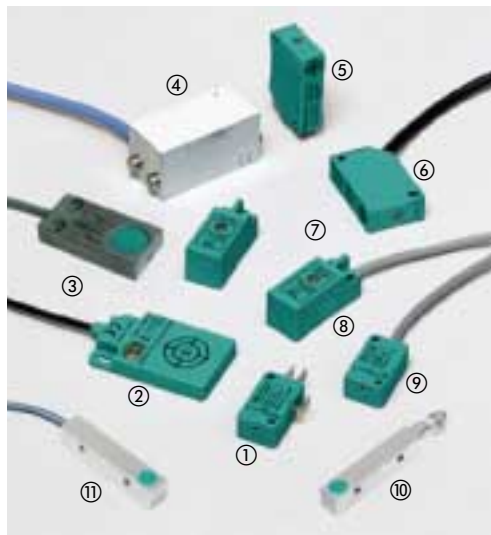


... 30GM

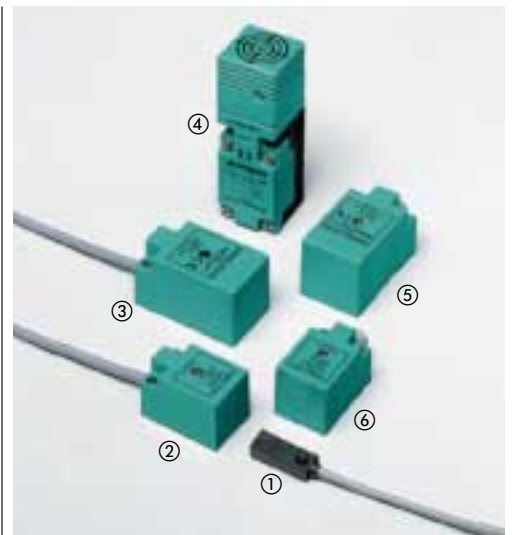
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Sensing range	Part Reference	Figure	Foot-note
15	NBN15-30GM40-Z0	2	
15	NBN15-30GM40-Z3-V1	5	
15	NJ15-30GM50-E2	3	
15	NJ15-30GM50-E2-V1	7	
15	NBN15-30GM50-E2	4	
15	NBN15-30GM50-E2-V1	5	
25	NBN25-30GM50-E2	4	
25	NBN25-30GM50-E2-V1	5	
40	NEN40-30GM60-E2-V1	5	
15	NJ15-30GM50-A2	3	
15	NJ15-30GM50-A2-V1	7	
15	NBN15-30GM60-A2	2	
15	NBN15-30GM60-A2-V1	5	
15	NBN15-30GM60-WS	2	
15	NBN15-30GM60-WÖ	2	
15	NJ15-30GM-N	6	2)
15	NCN15-30GM40-N0	6	
15	NCN15-30GM40-N0-V1	1	

# Inductive sensors rectangular and flat housing



... F, ... F1, ... F9, ... F17, ... F41, ... V3



... F10, ... F11, ... F29, VariKont M

Series:

Mounting:

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## Electrical Version

### DC 2-Wire

Z/Z0 = Normally Open  
Z1 = Normally Closed  
Z2 = Normally Open or Normally Closed  
10 V DC ... 30 V DC

Sensing range	Part Reference	Figure	Foot-note
3	NBB3-V3-Z4	9	

### DC 3-Wire

E2 = Normally Open  
E3 = Normally Closed (on demand)  
10 V DC ... 60 V DC  
NJ .../NCB .../NCN ...  
  
10 V DC ... 30 V DC  
NBB .../NBN ...

Sensing range	Part Reference	Figure	Foot-note
6	NJ6-F-E2	-	
2	NJ2-F1-E2	6	
2	NJ2-F1-E2-V3	5	
10	NCB10-F17-E2	2	
5	NBB5-F33-E2	-	
1.5	NBB1,5-F41-E2	11	
1.5	NBB1,5-F41-E2-V3	10	
1.5	NBB1,5-F41A-E2	-	2)
1.5	NBB1,5-F41A-E2-V3	-	2)
2	NBB2-V3-E2	9	
2	NBB2-V3-E2-V5	1	
5	NBB5-F9-E2	8	
5	NBB5-F9-E2-V3	7	
5	NBB5-F33M-E2	3	

### DC 4-Draht

A2 = pnp, antivalent  
Normally Closed and  
Normally Open

Sensing range	Part Reference	Figure	Foot-note
6	NJ6-F-A2	-	

### AC 2-/3-Draht

U = AC/DC  
WS = Normally Open (2-wire)  
WO = Normally Closed (2-wire)  
W3 = Normally Open or Normally Closed (3-wire)  
20-250 VAC

Sensing range	Part Reference	Figure	Foot-note

### NAMUR/EN 60947-5-6 nominal voltage 8 V DC

Sensing range	Part Reference	Figure	Foot-note
2	NCB2-F1-N0	6	3)
2	NJ2-V3-N	9	3)
2	NJ2-V3-N-V5	5	3)
6	NJ6-F-N	-	3)
7	FJ7-N	4	3)

## Electrical Version

### DC 2-Wire

Sensing range	Part Reference	Figure	Foot-note
15	NCN15-M1K-Z2	4	

### DC 3-Wire

Sensing range	Part Reference	Figure	Foot-note
15	NCN15-M1K-E5	4	
4	NBN4-F29-E2	1	
10	NBN10-F10-E2	2	
10	NBN10-F10-E2-V1	6	
15	NBN15-F11-E2	3	
15	NBN15-F11-E2-V1	5	

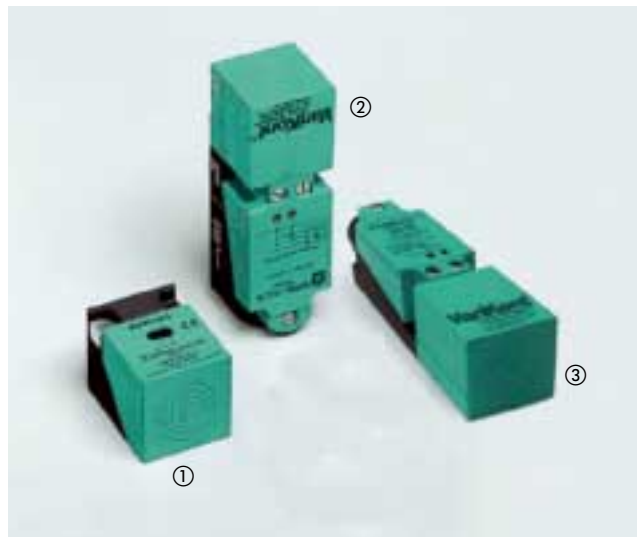
### DC 4-Draht

Sensing range	Part Reference	Figure	Foot-note
15	NJ15-M1K-A2	4	

Sensing range	Part Reference	Figure	Foot-note

### DC 2-Wire

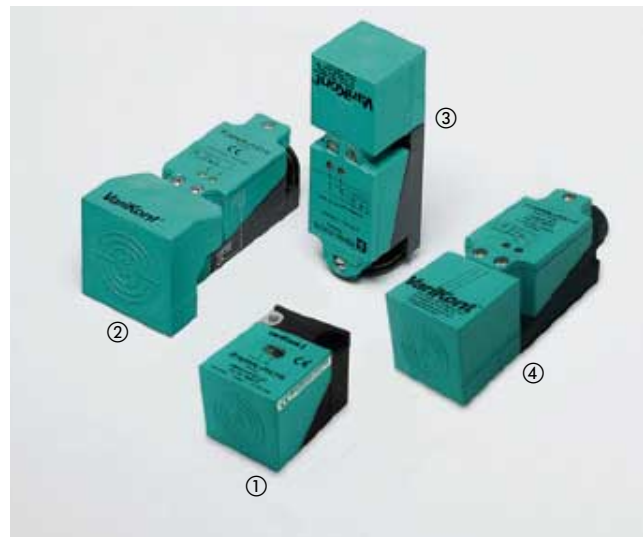
Sensing range	Part Reference	Figure	Foot-note
15	NCN15-M1K-N0	4	



... VariKont, VariKont L

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Sensing range	Part Reference	Figure	Foot-note
15	NCB15+U1-Z2	2	
15	NJ15+U1+E2	2	
15	NJ15+U10+E2	3	
20	NJ20+U1+E2	2	
20	NJ20+U10+E2	3	
20	NBB20-L2-E2-V1	1	
15	NJ15+U1+A2	2	
15	NJ15+U10+A2	3	
20	NJ20+U1+A2	2	
20	NJ20+U10+A2	3	
20	NBB20-L2-A2-V1	1	
15	NCB15+U1+U	2	
15	NJ15+U1+W	2	
15	NJ15+U1+W4	2	
15	NCB15+U1+N0	2	



... VariKont, VariKont L

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Sensing range	Part Reference	Figure	Foot-note
20	NCN20+U1-Z2	3	
20	NCN30+U1-Z2	3	
20	NCN40+U1-Z2	2	
30	NJ30+U1+E2	3	
30	NJ30+U10+E2	4	
40	NJ40+U1+E2	2	
40	NCN40+U1+E2	3	
40	NJ40+U10+E2	2	
30	NBN30-L2-E2-V1	1	
40	NBN40-L2-E2-V1	1	
30	NJ30+U1+A2	3	
40	NJ40+U1+A2	2	
30	NBN30-L2-A2-V1	1	
40	NBN40-L2-A2-V1	1	
20	NCN20+U1+U	3	
40	NCN40+U1+U	2	
20	NJ20+U1+W	3	
20	NJ20+U1+W4	3	
20	NCN20+U1+N0	3	
30	NCN30+U1+N0	3	
40	NCN40+U1+N0	2	



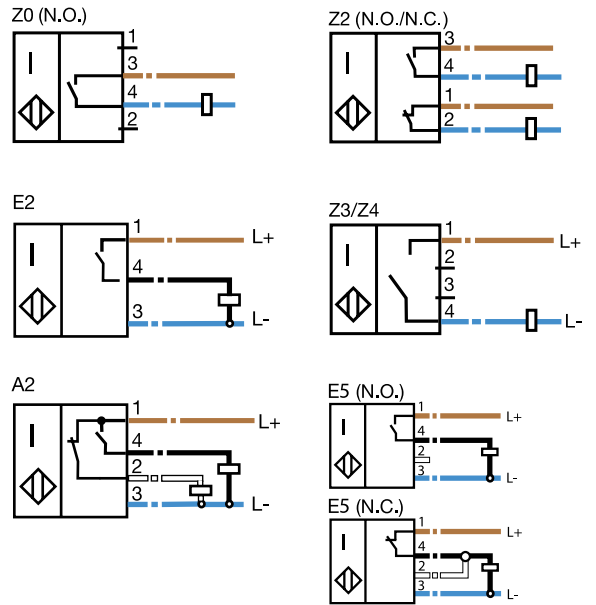
... FP, ... F23

Sensing range	Part Reference	Figure	Foot-note
50	NJ50-FP-Z-P1	2	1)
50	NJ50-FP-E2-P1	2	1)
100	NCN100-F23-E2-V1	-	1)
40	NCB40-FP-A2-P1	2	2)
50	NCN50-FP-A2-P1	2	1)
50	NCB50-FP-A2-P1	1	2)
40	NJ40-FP-A2-B1-P1	1	2)
50	NJ50-FP-A2-P1	2	1)
40	NJ40-FP-W-B1-P1	1	2)
50	NJ50-FP-W-P1	2	1)
40	NCB40-FP-N0-P1	1	2)
50	NJ50-FP-N-P1	2	1)
50	NCN50-FP-N0-P1	2	1)

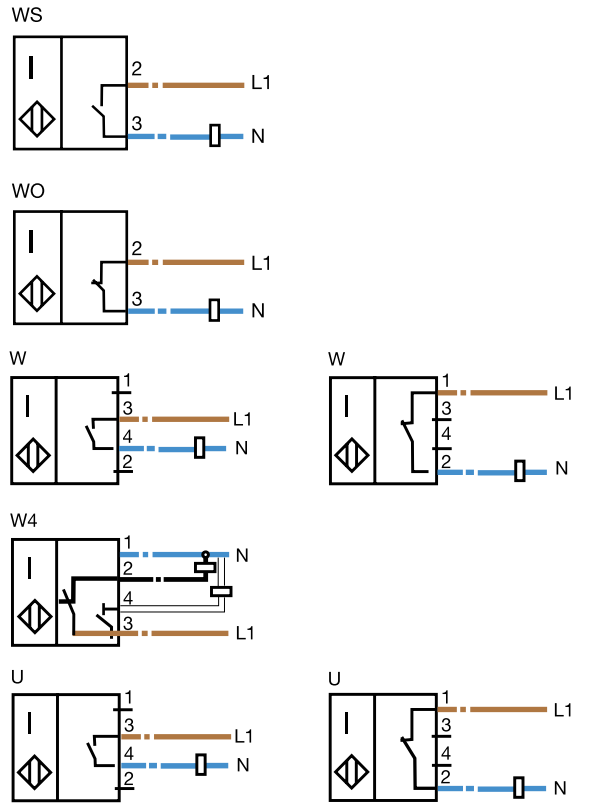
Foot-notes: 1) not embeddable 2) embeddable

# electrical output

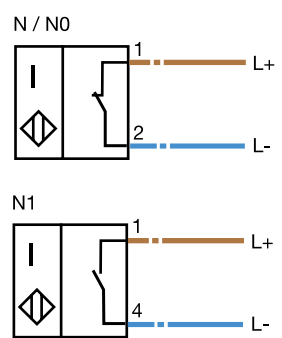
## 2, 3, 4-wire



## AC/DC, AC



## NAMUR



# Inductive slot sensors and ring type



Series:

SJ/SC 2 ... 30



RJ/RC 10 ... 43

## Electrical version

Electrical version	Entry depth	Part Reference	Figure
<b>DC</b>	5 ... 7	SB2-Z0	4
<b>DC 3-Wire</b> E2 = Normally Closed E3 = Normally Open (on demand) 10 V DC ... 60 V DC SJ .../RJ ...	5 ... 7	SBB3,5-E2	1
	13 ... 16	SJ10-E2	5
	17 ... 19	SJ15-E2	6
<b>DC 4-Wire</b> A2 = pnp, antivalent Normally Closed and Normally Open	17 ... 20	SJ15-A2	6
	27 ... 31	SJ30-A2	7
<b>AC 2-/3-Wire</b> WS = Normally Open (2-wire) WÖ = Normally Closed (2-wire) W3 = Normally Open or Normally Closed (3-wire) 20-250 VAC	18 ... 20	SJ15-WS	6
	27 ... 31	SJ30-WS	7
<b>NAMUR/EN 60947-5-6 nominal voltage 8 V DC</b>	5 ... 7	SC2-N0	4
	5 ... 7	SC3,5-N0	1
	4 ... 6	SJ5-N	2 1)
	13 ... 16	SJ10-N	5 1)
	16 ... 19	SJ15-N	6 1)
	27 ... 30	SJ30-N	7 1)

Inner diameter	Part Reference	Figure
21	RJ21-E2	2
43	RJ43-E2	4
10	RC10-14-N0	1 1)
15	RC15-14-N0	3 1)
21	RJ21-N	2 1)
43	RJ43-N	4 1)

# Mounting accessories



Mounting clamps

Part Reference

Part Reference	Figure
BF 4	6
BF 5	1
BF 6,5	2
BF 8	7
BF 12	3
BF 18	5
BF 30	4
BF 40	8
BF12-F	9
BF18-F	10
BF30-F	11

**Adjustable Brackets for Cylindrical Sensors:**

The bracket (BF) for mounting cylindrical sensors directly on plane surfaces, can be adjusted with two screws.

Types BF...-F with fixed stop. In the event of a fault the sensor can be replaced without adjustment.



Mounting brackets

Part Reference

Part Reference	Figure
MH 04-2681	1
MH 04-2057	2
MH 04-3742	3
MH 02-L	4
OMH04	5

**MH 04-2681**

Mounting bracket for use with VariKont (... + U1 + ...) series. It is used to provide 360° turning range of the sensor and can be mounted on a C section rail acc. to EN 50024, allowing easy adjustment of the switching point within a range of max. 20 mm.

**MH 04-2057**

Mounting bracket for use with VariKont (... + U1+- ...) series, allowing easy adjustment of the switching point along the x-axis within a range of max. 30 mm.

**MH 04-3742**

Mounting bracket for use with VariKont M (... - M1K - ...) series, allowing easy adjustment of the switching point along the x-axis within a range of max. 12 mm.

**MH 02-L**

Mounting bracket for use with VariKont L (... - L2 - ...) series. It can be mounted on a C section rail acc. to EN 50024, allowing easy adjustment of the switching point within a range of max. 60 mm.

**OMH-04**

Mounting bracket for fastening M18 sensors to a 12 mm round steel. Adjustment via lock nuts and 360° turning range in two planes.



Cable protectors

Part Reference

Part Reference	Figure
SM 8	1
SM 12	2
SM 14	3
SM 18	4
SM 30	5

**SM...**

These cable protectors are available for 8 mm, 12 mm, 14 mm, 18 mm and 30 mm cylindrical sensors.

# Cable connectors

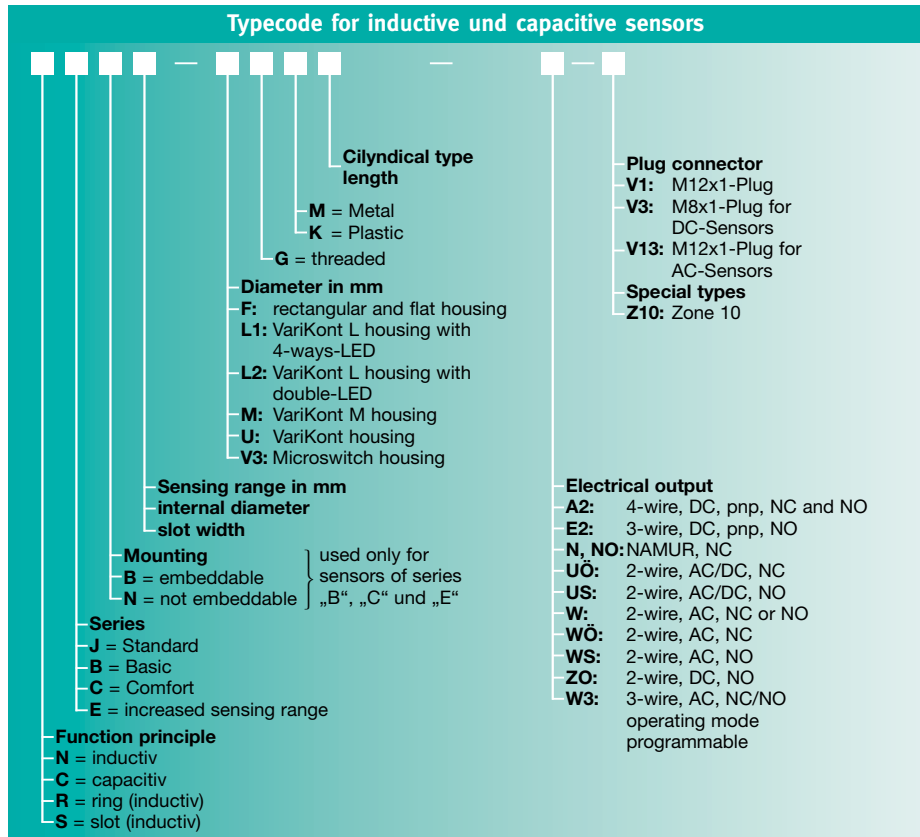
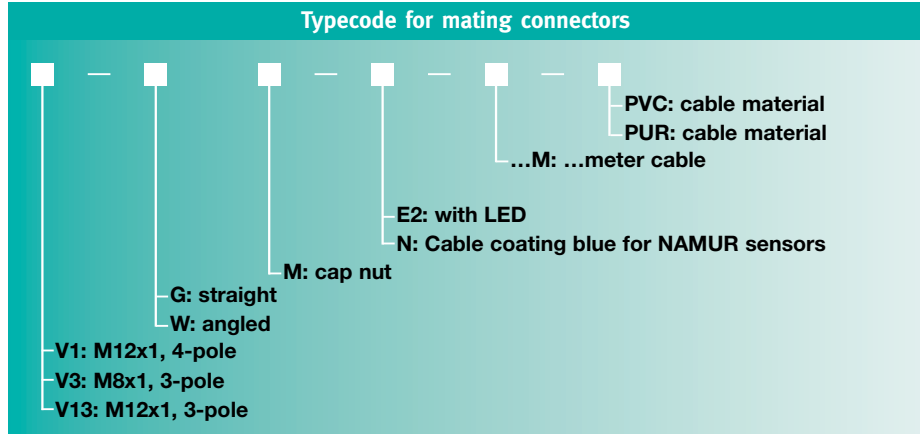
# Typecode Mating connectors



All mating connectors are also available with 10 m and 20 m cable lengths. Irradiated or shielded cable on demand.

Mating connectors		Part reference	Figure
		V1-G	1
		V1-W	2
		V1-G-Q2	3
		V1-G-2M-PVC (...-PUR)	4
		V1-G-5M-PVC (...-PUR)	4
		V1-G-N-5M-PUR	-
		V1-W-2M-PVC (...-PUR)	5
		V1-W-5M-PVC (...-PUR)	5
		V1-W-E2-2M-PUR	6
		V1-W-E2-5M-PUR	6
	as plug:	V1S-...	-
	as ext. lead:	...-V1-G (-V1-W)	-
		V3-GM	7
		V3-WM	8
		V3-GM-2M-PUR	9
		V3-GM-5M-PUR	9
		V3-WM-E2-2M-PUR	10
		V3-WM-E2-5M-PUR	10
	as plug:	V3S-...	-
	as ext. lead:	...-V3-G (-V3-W)	-

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## SIGNALS FOR THE WORLD OF AUTOMATION

### Worldwide Headquarters

Pepperl+Fuchs GmbH · Königsberger Allee 87  
68307 Mannheim · Germany  
Tel. +49-621-776-0 · Fax +49-621-776-1000  
<http://www.pepperl-fuchs.com>

### Asia Pacific Headquarters

Pepperl+Fuchs Pte Ltd. · P+F Building  
18 Ayer Rajah Crescent · Singapore 139942  
Tel. +65-67799091 · Fax +65-68731637  
e-mail: [sales@sg.pepperl-fuchs.com](mailto:sales@sg.pepperl-fuchs.com)

### USA Headquarters

Pepperl+Fuchs Inc. · 1600 Enterprise Parkway  
Twinsburg, Ohio 44087 · Cleveland-USA  
Tel. +1-330-4253555 · Fax +1-330-4254607  
e-mail: [sales@us.pepperl-fuchs.com](mailto:sales@us.pepperl-fuchs.com)

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