



INDUCTIVE SENSORS NAMUR

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ATEX CERTIFICATE

IBExU Institut für Sicherheitstechnik GmbH An-Institut der TU Bergakademie Freiberg

[1] **Mitteilung über die Anerkennung der
Qualitätssicherung Produktion**

gemäß Richtlinie 94/9/EG, Anhang IV



[2] Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung
in explosionsgefährdeten Bereichen, **Richtlinie 94/9/EG**

[3] Mitteilungsnummer: **IBExU07ATEX Q011**

[4] Produktkategorie: Namur Näherungsschalter,
Elektrische Geräte der Gerätegruppe II, Kategorie 1 G D
Zündschutzart: ia

[5] Hersteller: Pulsotronic GmbH & Co. KG

[6] Anschrift: Neue Schichtstraße 14 b
09366 Niederdorf
Deutschland

[7] Fertigungsstätte: siehe [5]

[8] IBExU Institut für Sicherheitstechnik GmbH, BENANNT STELLE Nr. 0637 nach Artikel 9 der
Richtlinie 94/9/EG des Europäischen Parlamentes und des Rates vom 23. März 1994, bestätigt
dem Hersteller, dass er an der unter [7] aufgeführten Fertigungsstätte ein
Qualitätssicherungssystem für die Herstellung, Endabnahme und Prüfung der unter [4]
genannten Produktkategorie unterhält, das dem Anhang IV dieser Richtlinie genügt.

[9] Diese Mitteilung basiert auf dem Auditbericht Nr. IB-07-3-224 vom 12.09.2007. Sie ist gültig bis
31.08.2010. Diese Mitteilung kann zurückgezogen werden, wenn der Hersteller die
Anforderungen des Anhangs IV nicht mehr erfüllt. Die Ergebnisse des Überwachungsaudits des
Qualitätssicherungssystems sind Bestandteil dieser Mitteilung.

[10] Gemäß Artikel 10 (1) der Richtlinie 94/9/EG ist hinter der CE-Kennzeichnung die Kenn-Nummer
0637 von IBExU als die benannte Stelle anzugeben, die in der Produktionsüberwachungsphase
tätig wird.

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7 - 09599 Freiberg, Deutschland
☎ +49 (0) 3731 3805.0 📠 +49 (0) 3731 23650

Zertifizierungsstelle
-Explosionsschutz-

Im Auftrag

(Dr. Lösch)



- Siegel -
(Kenn-Nr. 0637)

Freiberg, 12.09.2007

Bescheinigungen ohne
Unterschrift und ohne Siegel
haben keine Gültigkeit.
Bescheinigungen dürfen nur
unverändert weiterverbreitet
werden.



INDUCTIVE SENSORS NAMUR

DESIGNATION CODE

Example: **K J 10 - M 30 M B 45 - D P S - V1 - X0000**

1	2	3	4	5	6	7	8	9	10	11	12

1 = Working principle

A	Acoustic		
B	Acceleration sensor		
C	Capacitive		
D	Strain gauge sensor		
H	Hall-effect		
J	Inductive	JR	Inductive ring
		JF	Inductive surface
		JG	Inductive slot
		JD	Metalface
M	Magneto-resistive		
N	Inclination sensor		
R	Reed-contact		
W	Angle sensor		

2 = Switching distance / range

3 = Design

D	Ring housing
G	Cylindrical housing without thread
M	Cylindrical housing with metrical thread
Q	Square housing

4 = Housing diameter / edge length

5 = Housing material

A	Aluminium
E	Stainless steel
K	Plastic
M	Brass, nickel plated
T	PTFE

6 = Installation

B	Shielded
N	Non shielded

7 = Tube length

8 = Operating voltage

AZ	AC alternating current voltage
D	DC direct current voltage
VZ	AC/DC all voltages

9 = Type of output signal

AN	Analog	ANI	Current output
		ANU	Voltage output
N	NPN	CAN	CAN-bus interface
NA	Namur		
P	PNP		
Z	Two wire		

10 = Function

A	Changeover
I	Impulse output
Ö	N.C.
S	N.O.
U	Switchable

11 = Connection

V1	M8 screw-/snap-in
V2	M12 metal
V2/1	M12 plastic
V3	M5 metal
V4	Amphenol Tuchel
V6	Brad Harrison
V7	Valve connector type A
V8	M8 snap-in only
V9	Torson
V10	Valve connector type C
V11	AC connector 1/2" UNF
V12	M18 plastic
VE	Euchner connector
RS232	Data interface
PG	Thread joint PG
Mxx	Thread joint metrical

others as requested

12 = Additional marks

AM	Sensing face in centre
FE	Reduction 1 to steel / iron
HT	High temperature
NF	Reduction 1 to nonferrous metal
SF	Weld field immune
T	Enlarged temperature range
W	Angled sensing face / angled cable exit
X	Customized design with detailed description



INDUCTIVE SENSORS NAMUR

CIRCUIT DIAGRAMS

Circuit diagram for	Cable / clamp connection	Connector V1 ... V9
DPS DC PNP N.O.		
DPÖ DC PNP N.C.		
DPA DC PNP changeover		
DPU DC NO/NC switchable		
DNS DC NPN N.O.		
DNÖ DC NPN N.C.		
DNA DC NPN changeover		
DNU DC NO/NC switchable		
NA Namur EN 60947-5-6		
DZS DC two-wire N.O.		
DZÖ DC two-wire N.C.		
AZS/VZS AC/DC two-wire N.O.		
AZÖ/VZÖ AC/DC two-wire N.C.		
Analog		



INDUCTIVE SENSORS NAMUR

CYLINDER M8

General data

ATEX-Certificate (only brass housing)	II 1 GD EEx ia IIC T6 T 85°C	
Operating voltage U_b	nom. 8,2V DC Ri 1K	
Ripple voltage U_b	≤ 5%	
Reverse voltage protection	yes	
Load current alive	< 1,1mA	
Load current dead	> 2,2mA	
Hysteresis H	see control unit	
Repeatability R	≤ 10%	
Operating temperature T_a	-25°C ... +60°C (high temperature max. +125°C)	
Temperature drift	≤ 10%	
Protection class	IP67	
Necessity of control unit	yes	
EMV-standard	according to EN 60947-5-6	
Housing material	ATEX:	brass, nickel-plated
	High temperature:	Arnite
	Plastic:	Trogamid T
Front cap	PCP (brass housing)	



The drawings of these sensors are shown on the following page.

Selection chart brass

Article number	Designation switching distance 1mm	Max. switching frequency	Mounting	Connection	Drawing (next page)
08317320100	KJ1-M8MB30-NA	2000Hz	shielded	2m cable PVC 2 x 0,14mm ²	A
08317320165	KJ1-M8MB50-NA-V2	2000Hz	shielded	connector M12 4-pole	B
	Designation switching distance 2mm				
08317320200	KJ2-M8MN30-NA	1000Hz	non shielded	2m cable PVC 2 x 0,14mm ²	C
08317320265	KJ2-M8MN50-NA-V2	1000Hz	non shielded	connector M12 4-pole	D

Selection chart plastic

Article number	Designation switching distance 2mm	Max. switching frequency	Mounting	Connection	Drawing (next page)
08317321600	KJ2-M8KN30-NA	1000Hz	non shielded	2m cable PVC 2 x 0,14mm ²	A

Selection chart high temperature

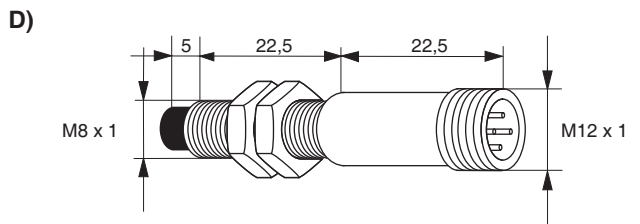
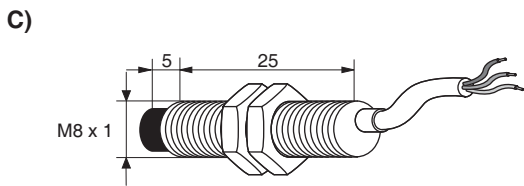
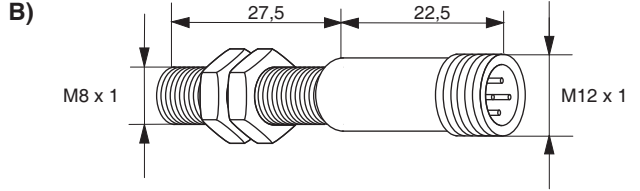
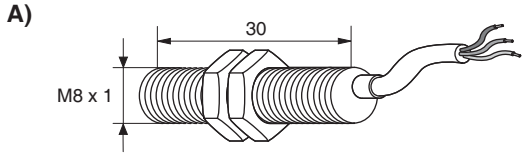
Article number	Designation switching distance 2mm	Max. switching frequency	Mounting	Connection	Drawing (next page)
08317321632	KJ2-M8KN30-NA-HT	1000Hz	non shielded	5m cable PTFE 2 x 0,25mm ²	A

Other cable lengths as requested.



CYLINDER M8

Dimensions





INDUCTIVE SENSORS NAMUR

CYLINDER M12

General data

ATEX-Certificate (only brass housing)	II 1 GD EEx ia IIC T6 T 85°C	
Operating voltage U_b	nom. 8,2V DC Ri 1K	
Ripple voltage U_b	≤ 5%	
Reverse voltage protection	yes	
Load current alive	< 1,1mA	
Load current dead	> 2,2mA	
Hysteresis H	see control unit	
Repeatability R	≤ 10%	
Operating temperature T_a	-25°C ... +60°C (high temperature max. +125°C)	
Temperature drift	≤ 10%	
Protection class	IP67	
Necessity of control unit	yes	
EMV-standard	according to EN 60947-5-6	
Housing material	ATEX:	brass, nickel-plated
	High temperature:	Arnite
	Plastic:	Trogamid T
Front cap	PCP (brass housing)	



The drawings of these sensors are shown on the following page.

Selection chart brass

Article number	Designation switching distance 2mm	Max. switching frequency	Mounting	Connection	Drawing (next page)
08317320300	KJ2-M12MB30-NA	2000Hz	shielded	2m cable PVC 2 x 0,25mm ²	A
08317320365	KJ2-M12MB55-NA-V2	2000Hz	shielded	connector M12 4-pole	B
	Designation switching distance 4mm				
08317320400	KJ4-M12MN30-NA	1000Hz	non shielded	2m cable PVC 2 x 0,25mm ²	C
08317320465	KJ4-M12MN50-NA-V2	1000Hz	non shielded	connector M12 4-pole	D

Selection chart plastic

Article number	Designation switching distance 2mm	Max. switching frequency	Mounting	Connection	Drawing (next page)
083173211000	KJ2-M12KB30-NA	2000Hz	shielded	2m cable PVC 2 x 0,25mm ²	A
	Designation switching distance 4mm				
08317321000	KJ4-M12KN30-NA	1000Hz	non shielded	2m cable PVC 2 x 0,25mm ²	A

Other cable lengths as requested.



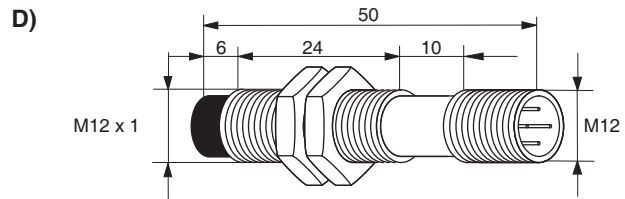
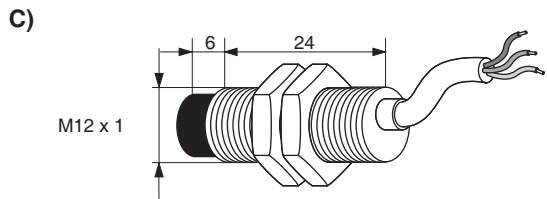
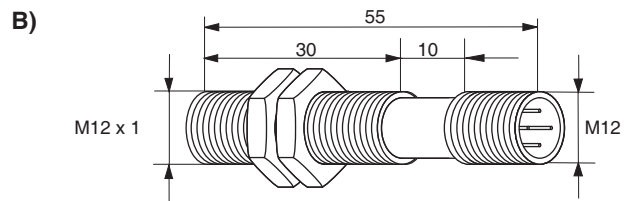
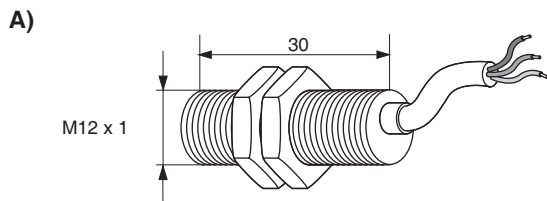
CYLINDER M12

Selection chart high temperature

Article number	Designation switching distance 4mm	Max. switching frequency	Mounting	Connection	Drawing
08317321032	KJ4-M12KN30-NA-HT	1000Hz	non shielded	5m cable PTFE 2 x 0,25mm ²	A

Other cable lengths as requested.

Dimensions





INDUCTIVE SENSORS NAMUR

CYLINDER M18

General data

ATEX-Certificate (only brass housing)	II 1 GD EEx ia IIC T6 T 85°C
Operating voltage U_b	nom. 8,2V DC Ri 1K
Ripple voltage U_b	≤ 5%
Reverse voltage protection	yes
Load current alive	< 1,1mA
Load current dead	> 2,2mA
Hysteresis H	see control unit
Repeatability R	≤ 10%
Operating temperature T_a	-25°C ... +60°C
Temperature drift	≤ 10%
Protection class	IP67
Necessity of control unit	yes
EMV-standard	according to EN 60947-5-6
Housing material	ATEX: brass, nickel-plated Plastic: Trogamid T
	PCP (brass housing)



The drawings of these sensors are shown on the following page.

Front cap

Selection chart brass

Article number	Designation switching distance 5mm	Max. switching frequency	Mounting	Connection	Drawing (next page)
08317320500	KJ5-M18MB30-NA	1000Hz	shielded	2m cable PVC 2 x 0,25mm ²	A
08317320565	KJ5-M18MB50-NA-V2	1000Hz	shielded	connector M12 4-pole	B
	Designation switching distance 8mm				
08317320600	KJ8-M18MN30-NA	500Hz	non shielded	2m cable PVC 2 x 0,25mm ²	C
08317320665	KJ8-M18MN50-NA-V2	500Hz	non shielded	connector M12 4-pole	D

Selection chart plastic

Article number	Designation switching distance 5mm	Max. switching frequency	Mounting	Connection	Drawing (next page)
08317321300	KJ5-M18KB30-NA	1000Hz	shielded	2m cable PVC 2 x 0,25mm ²	A
	Designation switching distance 8mm				
08317321200	KJ8-M18KN30-NA	500Hz	non shielded	2m cable PVC 2 x 0,25mm ²	A

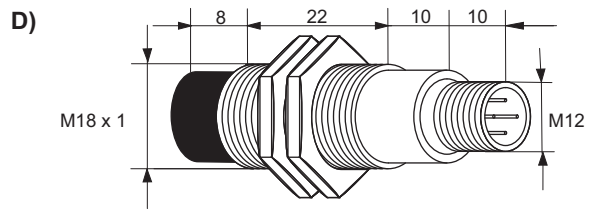
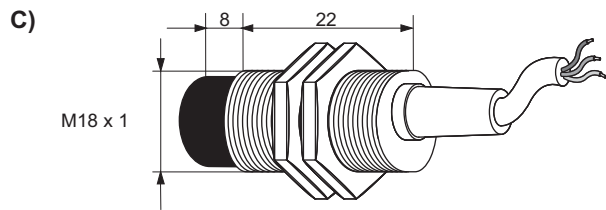
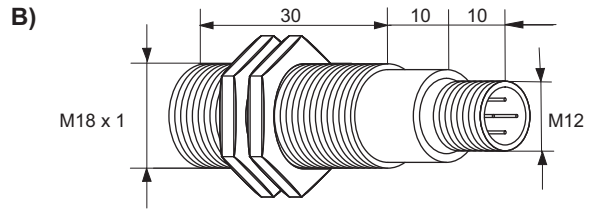
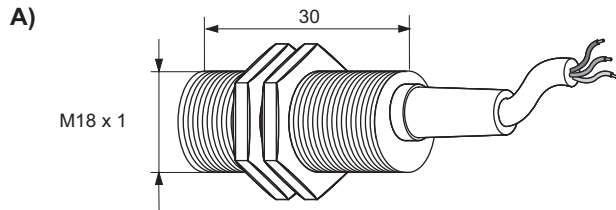
Other cable lengths as requested.



INDUCTIVE SENSORS NAMUR

CYLINDER M18

Dimensions



CYLINDER M30

General data

ATEX-Certificate (only brass housing)	II 1 GD EEx ia IIC T6 T 85°C
Operating voltage U_b	nom. 8,2V DC Ri 1K
Ripple voltage U_b	≤ 5%
Reverse voltage protection	yes
Load current alive	< 1,1mA
Load current dead	> 2,2mA
Hysteresis H	see control unit
Repeatability R	≤ 10%
Operating temperature T_a	-25°C ... +60°C
Temperature drift	≤ 10%
Protection class	IP67
Necessity of control unit	yes
EMV-standard	according to EN 60947-5-6
Housing material	ATEX: brass, nickel-plated Plastic: Trogamid T
Front cap	PCP (brass housing)



The drawings of these sensors are shown on the following page.

Selection chart brass

Article number	Designation switching distance 10mm	Max. switching frequency	Mounting	Connection	Drawing (next page)
08317320700	KJ10-M30MB40-NA	500Hz	shielded	2m cable PVC 2 x 0,25mm ²	A
08317320765	KJ10-M30MB60-NA-V2	500Hz	shielded	connector M12 4-pole	B
	Designation switching distance 15mm				
08317320800	KJ15-M30MN40-NA	300Hz	non shielded	2m cable PVC 2 x 0,25mm ²	C
08317320865	KJ15-M30MN60-NA-V2	300Hz	non shielded	connector M12 4-pole	D

Auswahltabelle Kunststoff

Article number	Designation switching distance 10mm	Max. switching frequency	Mounting	Connection	Drawing (next page)
08317321500	KJ10-M30KB40-NA	500Hz	shielded	2m cable PVC 2 x 0,25mm ²	A
	Designation switching distance 15mm				
08317321400	KJ15-M30KN40-NA	300Hz	non shielded	2m cable PVC 2 x 0,25mm ²	A

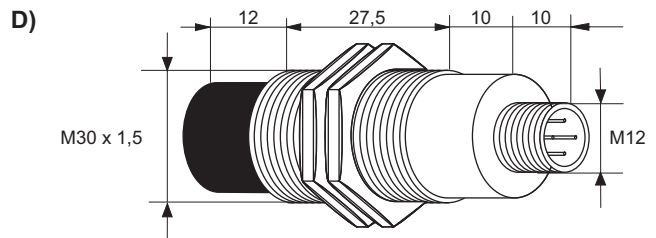
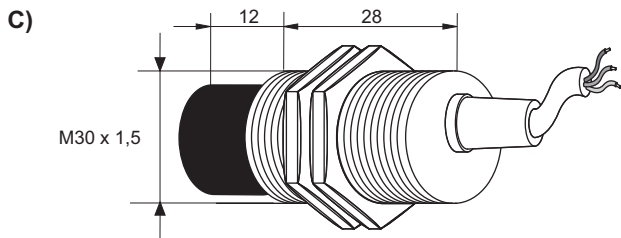
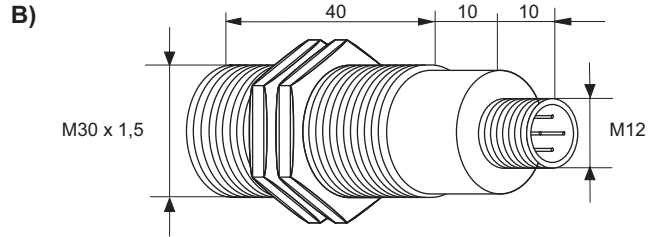
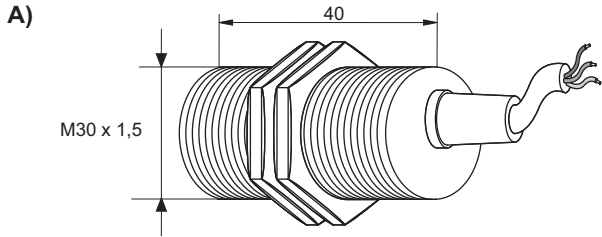
Other cable lengths as requested.



INDUCTIVE SENSORS NAMUR

CYLINDER M30

Dimensions



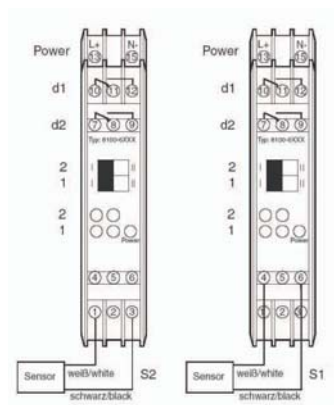
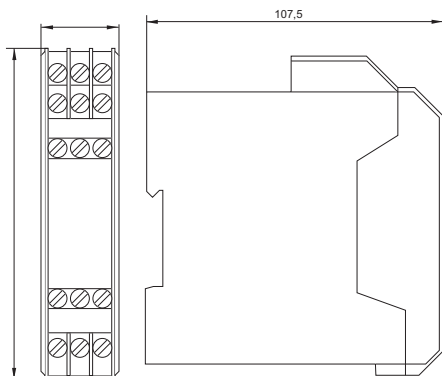


SWITCHING DEVICE EX

The disconnection amplifiers transfer switch orders from a self safed control circuit into a nonself safed active circuit. The control circuit is safe acc. to EN 60947-5-6 and acc. to EN 50014 and EN 50020 [EExia] II C laid out. The conformity is certified by TÜV Hannover / Sachsen-Anhalt. Main unit, switch amplifier, electronic evaluation and outputrelay are mounted in 22 mm wide construction cases. The devices are checked IEC acc. to EMV 801-2 to 5.

The quick connection take place on DIN-Rail 46 277. The LED displays for showing of the operating voltage (green), switch state (yellow) and wire break / short circuit (red) of the sensor cable are integrated into the front panel. NAMUR sensors or mechanical contacts can be used with the control.

DIMENSIONS AND TERMINATION



SPECIFICATIONS

Type	Switching device Ex	
Switching device 230V	08341006800	
Switching device 20 ... 30V	08341006300	
Max. open circuit voltage	11 V DC	
Max. open circuit current	typ. 15 mA	
Max. short-circuit current	26 mA	
Max. external inductivity	EEx ia: 2 mH EEx ib: 46 mH	
Max. external capacity	EEx ia: 581 mH EEx ib: 2500 mH	
Control signal	NAMUR EN 60947-5-7	
Order number	8100-6100/6200	8100-6300
Relay output	2 potential-free changers	2 potential-free changers
Contact capacity	250V AC / 5A / 100 VA 100V DC / 2A / 100W	-
Transistor output	-	2 x PNP
Output current	-	100 mA
Operating temperature	- 10 °C ... + 50	
Degree of protection housing	IP 30	P 30
Degree of protection contacts	IP 20	IP 20
Conformity certificate	Ex-93.C.2131 / TÜV 97 ATEX 1169	Ex-93.C.2075 X / TÜV 97 ATEX 1168