



Model Number

NCB10-30GM40-N0-15M-OG

Features

- 10 mm flush
- Shielded PUR cable for oil and gas sector

Accessories

BF 30

Mounting flange, 30 mm

Technical Data

General specifications

Switching function		Normally closed (NC)
Output type		NAMUR
Rated operating distance	s_n	10 mm
Installation		flush
Assured operating distance	s_a	0 ... 8.1 mm
Actual operating distance	s_r	9 ... 11 mm typ.
Reduction factor r_{AI}		0.32
Reduction factor r_{CU}		0.32
Reduction factor r_{304}		0.72
Output type		3-wire

Nominal ratings

Nominal voltage	U_o	8 V
Switching frequency	f	0 ... 650 Hz
Hysteresis	H	1 ... 10 typ. 5 %
Reverse polarity protection		reverse polarity protected
Short-circuit protection		yes
Suitable for 2:1 technology		yes, Reverse polarity protection diode not required
Current consumption		
Measuring plate not detected		≥ 3 mA
Measuring plate detected		≤ 1 mA
Switching state indicator		LED, yellow

Functional safety related parameters

MTTF _d	1870 a
Mission Time (T_M)	20 a
Diagnostic Coverage (DC)	0 %

Ambient conditions

Ambient temperature	-25 ... 80 °C (-13 ... 176 °F)
Storage temperature	-40 ... 80 °C (-40 ... 176 °F)

Mechanical specifications

Connection type	cable PUR (halogen-free), 15 m, screened, Oil resistant, Flame-retardant as per IEC 60332-1
Core cross-section	2x 0.5 mm ²
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	PBT
Degree of protection	IP66 / IP67
Cable	
Bending radius	> 7.5 x cable diameter
Note	The shield is not connected to the sensor.

General information

Use in the hazardous area	see instruction manuals
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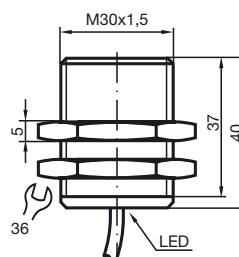
Compliance with standards and directives

Standard conformity	
NAMUR	EN 60947-5-6:2000 IEC 60947-5-6:1999
Standards	EN 60947-5-2:2007 EN 60947-5-2/A1:2012 IEC 60947-5-2:2007 IEC 60947-5-2 AMD 1:2012

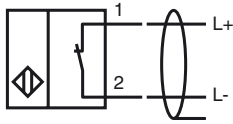
Approvals and certificates

UL approval	
Ordinary Location	E87056
Hazardous Location	E501628
Control drawing	116-0452
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for products rated ≤ 36 V

Dimensions



Electrical Connection



Data for application in connection with hazardous areas

Equipment protection level	Ga , Gb , Gc (ic) , Da , Mb	
Equipment protection level Ga		
Type of protection	intrinsic safety	
CE marking	CE 0102	
Certificates		
Appropriate type	NCB10-30GM...-N0...	
ATEX certificate	PTB 00 ATEX 2048 X	
ATEX marking	Ⓔ II 1G Ex ia IIC T6...T1 Ga	
Standards	EN 60079-0:2012+A11:2013 , EN 60079-11:2012	
IECEX certificate	IECEX PTB 11.0037X	
IECEX marking	Ex ia IIC T6 Ga	
Standards	IEC 60079-0:2004 , IEC 60079-11:2006 , IEC 60079-26:2008	
Effective internal capacitance	C_i	≤ 105 nF A cable length of 10 m is considered.
Effective internal inductance	L_i	≤ 100 μH A cable length of 10 m is considered.
Maximum permissible ambient temperature T_{amb}	Also observe the maximum permissible ambient temperature stated in the general technical data. Keep to the lower of the two values.	
for ATEX	at $U_i = 16 V$, $I_i = 25 mA$, $P_i = 34 mW$, T6 : 59 °C (138.2 °F) T5 : 71 °C (159.8 °F) T4 : 99 °C (210.2 °F) T3 : 99 °C (210.2 °F) T2 : 99 °C (210.2 °F) T1 : 99 °C (210.2 °F) at $U_i = 16 V$, $I_i = 25 mA$, $P_i = 64 mW$, T6 : 56 °C (132.8 °F) T5 : 68 °C (154.4 °F) T4 : 96 °C (204.8 °F) T3 : 96 °C (204.8 °F) T2 : 96 °C (204.8 °F) T1 : 96 °C (204.8 °F) at $U_i = 16 V$, $I_i = 52 mA$, $P_i = 169 mW$, T6 : 45 °C (113 °F) T5 : 57 °C (134.6 °F) T4 : 81 °C (177.8 °F) T3 : 81 °C (177.8 °F) T2 : 81 °C (177.8 °F) T1 : 81 °C (177.8 °F) at $U_i = 16 V$, $I_i = 76 mA$, $P_i = 242 mW$, T6 : 37 °C (98.6 °F) T5 : 49 °C (120.2 °F) T4 : 63 °C (145.4 °F) T3 : 63 °C (145.4 °F) T2 : 63 °C (145.4 °F) T1 : 63 °C (145.4 °F)	
for IECEX	at $U_i = 16 V$, $I_i = 25 mA$, $P_i = 34 mW$, T6 : 59 °C (138.2 °F) T5 : 71 °C (159.8 °F) T4 : 99 °C (210.2 °F) T3 : 99 °C (210.2 °F) T2 : 99 °C (210.2 °F) T1 : 99 °C (210.2 °F) at $U_i = 16 V$, $I_i = 25 mA$, $P_i = 64 mW$, T6 : 56 °C (132.8 °F) T5 : 68 °C (154.4 °F) T4 : 96 °C (204.8 °F) T3 : 96 °C (204.8 °F) T2 : 96 °C (204.8 °F) T1 : 96 °C (204.8 °F) at $U_i = 16 V$, $I_i = 52 mA$, $P_i = 169 mW$, T6 : 45 °C (113 °F) T5 : 57 °C (134.6 °F) T4 : 81 °C (177.8 °F) T3 : 81 °C (177.8 °F) T2 : 81 °C (177.8 °F) T1 : 81 °C (177.8 °F) at $U_i = 16 V$, $I_i = 76 mA$, $P_i = 242 mW$, T6 : 37 °C (98.6 °F) T5 : 49 °C (120.2 °F) T4 : 63 °C (145.4 °F) T3 : 63 °C (145.4 °F) T2 : 63 °C (145.4 °F) T1 : 63 °C (145.4 °F)	

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Equipment protection level Gb

Type of protection	intrinsic safety	
CE marking	CE 0102	
Certificates		
Appropriate type	NCB10-30GM...-N0...	
ATEX certificate	PTB 00 ATEX 2048 X	
ATEX marking	Ex II 1G Ex ia IIC T6...T1 Ga	
Standards	EN 60079-0:2012+A11:2013 , EN 60079-11:2012	
IECEX certificate	IECEX PTB 11.0037X	
IECEX marking	Ex ia IIC T6 Ga	
Standards	IEC 60079-0:2004 , IEC 60079-11:2006	
Effective internal capacitance	C_i	≤ 105 nF A cable length of 10 m is considered.
Effective internal inductance	L_i	≤ 100 μ H A cable length of 10 m is considered.
Maximum permissible ambient temperature T_{amb}	Also observe the maximum permissible ambient temperature stated in the general technical data. Keep to the lower of the two values. at $U_i = 16$ V , $I_i = 25$ mA , $P_i = 34$ mW , T6 : 76 °C (168.8 °F) T5 : 91 °C (195.8 °F) T4 : 100 °C (212 °F) T3 : 100 °C (212 °F) T2 : 100 °C (212 °F) T1 : 100 °C (212 °F) at $U_i = 16$ V , $I_i = 25$ mA , $P_i = 64$ mW , T6 : 73 °C (163.4 °F) T5 : 88 °C (190.4 °F) T4 : 100 °C (212 °F) T3 : 100 °C (212 °F) T2 : 100 °C (212 °F) T1 : 100 °C (212 °F) at $U_i = 16$ V , $I_i = 52$ mA , $P_i = 169$ mW , T6 : 62 °C (143.6 °F) T5 : 77 °C (170.6 °F) T4 : 81 °C (177.8 °F) T3 : 81 °C (177.8 °F) T2 : 81 °C (177.8 °F) T1 : 81 °C (177.8 °F) at $U_i = 16$ V , $I_i = 76$ mA , $P_i = 242$ mW , T6 : 54 °C (129.2 °F) T5 : 63 °C (145.4 °F) T4 : 63 °C (145.4 °F) T3 : 63 °C (145.4 °F) T2 : 63 °C (145.4 °F) T1 : 63 °C (145.4 °F)	

Equipment protection level Gc (ic)

Type of protection	intrinsic safety	
CE marking	CE	
Certificates		
ATEX certificate	PF 13 CERT 2895 X	
ATEX marking	Ex II 3G Ex ic IIC T6...T1 Gc	
Standards	EN 60079-0:2012+A11:2013 , EN 60079-11:2012	
Effective internal capacitance	C_i	≤ 105 nF A cable length of 10 m is considered.
Effective internal inductance	L_i	≤ 100 μ H A cable length of 10 m is considered.
Maximum permissible ambient temperature T_{amb}	Also observe the maximum permissible ambient temperature stated in the general technical data. Keep to the lower of the two values. at $U_i = 20$ V , $I_i = 25$ mA , $P_i = 34$ mW , T6 : 55 °C (131 °F) T5 : 55 °C (131 °F) T4 : 55 °C (131 °F) T3 : 55 °C (131 °F) T2 : 55 °C (131 °F) T1 : 55 °C (131 °F) at $U_i = 20$ V , $I_i = 25$ mA , $P_i = 64$ mW , T6 : 55 °C (131 °F) T5 : 55 °C (131 °F) T4 : 55 °C (131 °F) T3 : 55 °C (131 °F) T2 : 55 °C (131 °F) T1 : 55 °C (131 °F) at $U_i = 20$ V , $I_i = 52$ mA , $P_i = 169$ mW , T6 : 52 °C (125.6 °F) T5 : 52 °C (125.6 °F) T4 : 52 °C (125.6 °F) T3 : 52 °C (125.6 °F) T2 : 52 °C (125.6 °F) T1 : 52 °C (125.6 °F) at $U_i = 20$ V , $I_i = 76$ mA , $P_i = 242$ mW , T6 : 44 °C (111.2 °F) T5 : 44 °C (111.2 °F) T4 : 44 °C (111.2 °F) T3 : 44 °C (111.2 °F) T2 : 44 °C (111.2 °F) T1 : 44 °C (111.2 °F)	

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Equipment protection level Da

Type of protection	intrinsic safety
CE marking	CE 0102

Certificates

Appropriate type	NCB10-30GM...-N0...
ATEX certificate	PTB 00 ATEX 2048 X
ATEX marking	Ⓔ II 1D Ex ia IIIC T135°C Da
Standards	EN 60079-0:2012+A11:2013 , EN 60079-11:2012

Effective internal capacitance	C_i	$\leq 105 \text{ nF}$ A cable length of 10 m is considered.
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Effective internal inductance	L_i	$\leq 100 \text{ }\mu\text{H}$ A cable length of 10 m is considered.
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Maximum permissible ambient temperature T_{amb}	Also observe the maximum permissible ambient temperature stated in the general technical data. Keep to the lower of the two values. at $U_i = 16 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 34 \text{ mW}$: 100 °C (212 °F) at $U_i = 16 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 64 \text{ mW}$: 100 °C (212 °F) at $U_i = 16 \text{ V}$, $I_i = 52 \text{ mA}$, $P_i = 169 \text{ mW}$: 81 °C (177.8 °F) at $U_i = 16 \text{ V}$, $I_i = 76 \text{ mA}$, $P_i = 242 \text{ mW}$: 63 °C (145.4 °F)
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Equipment protection level Mb

Type of protection	intrinsic safety
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Certificates

Appropriate type	NCB10-30GM...-N0...
IECEX certificate	IECEX PTB 11.0037X
IECEX marking	Ex ia I
Standards	IEC 60079-0:2004 , IEC 60079-11:2006

Effective internal capacitance	C_i	$\leq 105 \text{ nF}$ A cable length of 10 m is considered.
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Effective internal inductance	L_i	$\leq 100 \text{ }\mu\text{H}$ A cable length of 10 m is considered.
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Maximum permissible ambient temperature T_{amb}	Also observe the maximum permissible ambient temperature stated in the general technical data. Keep to the lower of the two values. at $U_i = 16 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 34 \text{ mW}$: 100 °C (212 °F) at $U_i = 16 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 64 \text{ mW}$: 100 °C (212 °F) at $U_i = 16 \text{ V}$, $I_i = 52 \text{ mA}$, $P_i = 169 \text{ mW}$: 81 °C (177.8 °F) at $U_i = 16 \text{ V}$, $I_i = 76 \text{ mA}$, $P_i = 242 \text{ mW}$: 63 °C (145.4 °F)
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