



## Model Number

NCB15-30GM40-N0-V1

## Features

- 15 mm quasi flush
- Usable up to SIL 2 acc. to IEC 61508

## Accessories

### BF 30

Mounting flange, 30 mm

### V1-G-N-2M-PUR

Female cordset, M12, 2-pin, NAMUR, PUR cable

### V1-W-N-2M-PUR

Female cordset, M12, 2-pin, NAMUR, PUR cable

## Technical Data

### General specifications

Switching function		Normally closed (NC)
Output type		NAMUR
Rated operating distance	$s_n$	15 mm
Installation		quasi flush
Assured operating distance	$s_a$	0 ... 12.15 mm
Actual operating distance	$s_r$	13.5 ... 16.5 mm typ.
Reduction factor $r_{AI}$		0.33
Reduction factor $r_{Cu}$		0.29
Reduction factor $r_{304}$		0.76
Output type		2-wire

### Nominal ratings

Nominal voltage	$U_o$	8 V
Switching frequency	f	0 ... 450 Hz
Hysteresis	H	1 ... 15 typ. 5 %
Reverse polarity protection		reverse polarity protected
Short-circuit protection		yes
Current consumption		
Measuring plate not detected		$\geq 2.2$ mA
Measuring plate detected		$\leq 1$ mA
Switching state indicator		Multihole-LED, yellow

### Functional safety related parameters

MTTF <sub>d</sub>	3068 a
Mission Time (T <sub>M</sub> )	20 a
Diagnostic Coverage (DC)	0 %

### Ambient conditions

Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Storage temperature	-40 ... 100 °C (-40 ... 212 °F)

### Mechanical specifications

Connection type	Connector plug M12 x 1, 4-pin
Core cross-section	-
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	PBT
Degree of protection	IP67

### General information

Use in the hazardous area	see instruction manuals
Category	1G; 2G; 3G; 1D; 3D

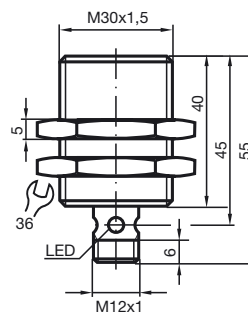
### Compliance with standards and directives

Standard conformity	
NAMUR	EN 60947-5-6:2000 IEC 60947-5-6:1999
Electromagnetic compatibility	NE 21:2007
Standards	EN 60947-5-2:2007 EN 60947-5-2/A1:2012 IEC 60947-5-2:2007 IEC 60947-5-2 AMD 1:2012

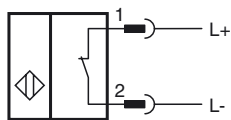
### Approvals and certificates

EAC conformity	TR CU 012/2011
FM approval	
Control drawing	116-0165
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 $\leq 36$ V

## Dimensions



**Electrical Connection**

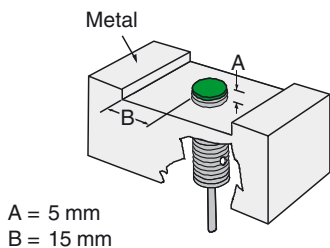


Wire colors in accordance with EN 60947-5-6

- 1 | BN (brown)
- 2 | BU (blue)

**Installation Hint**

**Installation conditions**



**Equipment protection level Ga**

CE marking	CE 0102	
ATEX marking	Ex II 1G Ex ia IIC T6...T1 Ga The Ex-related marking can also be printed on the enclosed label.	
Standards	EN 60079-0:2012+A11:2013 EN 60079-11:2012 Ignition protection "Intrinsic safety" Use is restricted to the following stated conditions	
Appropriate type	NCB15-30GM...-N0...	
Effective internal capacitance	$C_i$	$\leq 120 \text{ nF}$ ; a cable length of 10 m is considered.
Effective internal inductance	$L_i$	$\leq 150 \text{ }\mu\text{H}$ ; a cable length of 10 m is considered.
Ambient temperature	Details of the correlation between the type of circuit connected, the maximum permissible ambient temperature, the temperature class, and the effective internal reactance values can be found on the EC-type examination certificate. <b>Note:</b> Use the temperature table for category 1 !!! The 20 % reduction in accordance with EN 1127-1 has already been applied to the temperature table for category 1.	

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**Equipment protection level Gb**

CE marking	CE 0102	
ATEX marking	⊕ II 1G Ex ia IIC T6...T1 Ga The Ex-significant identification is on the enclosed adhesive label	
Standards	EN 60079-0:2012+A11:2013 EN 60079-11:2012 Ignition protection "Intrinsic safety" Use is restricted to the following stated conditions	
Appropriate type	NCB15-30GM...-N0...	
Effective internal capacitance $C_i$	≤ 120 nF ; a cable length of 10 m is considered.	
Effective internal inductance $L_i$	≤ 150 μH ; a cable length of 10 m is considered.	
Maximum permissible ambient temperature $T_{amb}$	Details of the correlation between the type of circuit connected, the maximum permissible ambient temperature, the temperature class, and the effective internal reactance values can be found on the EC-type examination certificate.	

**Equipment protection level Gc (ic)**

Certificate	PF 13 CERT 2895 X	
CE marking	CE	
ATEX marking	⊕ II 3G Ex ic IIC T6...T1 Gc The Ex-significant identification is on the enclosed adhesive label	
Standards	EN 60079-0:2012+A11:2013 EN 60079-11:2012 Ignition protection category "ic" Use is restricted to the following stated conditions	
Effective internal capacitance $C_i$	≤ 120 nF ; a cable length of 10 m is considered.	
Effective internal inductance $L_i$	≤ 150 μH ; A cable length of 10 m is considered.	

**Special conditions**

for $P_i=34$ mW, $I_i=25$ mA, T6	55 °C (131 °F)
for $P_i=34$ mW, $I_i=25$ mA, T5	55 °C (131 °F)
for $P_i=34$ mW, $I_i=25$ mA, T4-T1	55 °C (131 °F)
for $P_i=64$ mW, $I_i=25$ mA, T6	55 °C (131 °F)
for $P_i=64$ mW, $I_i=25$ mA, T5	55 °C (131 °F)
for $P_i=64$ mW, $I_i=25$ mA, T4-T1	55 °C (131 °F)
for $P_i=169$ mW, $I_i=52$ mA, T6	41 °C (105.8 °F)
for $P_i=169$ mW, $I_i=52$ mA, T5	41 °C (105.8 °F)
for $P_i=169$ mW, $I_i=52$ mA, T4-T1	41 °C (105.8 °F)
for $P_i=242$ mW, $I_i=76$ mA, T6	29 °C (84.2 °F)
for $P_i=242$ mW, $I_i=76$ mA, T5	29 °C (84.2 °F)
for $P_i=242$ mW, $I_i=76$ mA, T4-T1	29 °C (84.2 °F)

**Equipment protection level Gc (nL)**

Standard conformity	EN 60079-15:2005 Ignition protection category "n" Use is restricted to the following stated conditions	
Effective internal capacitance $C_i$	≤ 120 nF ; a cable length of 10 m is considered.	
Effective internal inductance $L_i$	≤ 150 μH ; A cable length of 10 m is considered.	

**General**

The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual. The data stated in the data sheet are restricted by this operating instruction!  
The special conditions must be observed!  
The ATEX Directive applies only to the use of apparatus under atmospheric conditions.  
If you use the device outside atmospheric conditions, consider that the permissible safety parameters should be reduced.

**Special conditions**

for $P_i=34$ mW, $I_i=25$ mA, T6	55 °C (131 °F)
for $P_i=34$ mW, $I_i=25$ mA, T5	55 °C (131 °F)
for $P_i=34$ mW, $I_i=25$ mA, T4-T1	55 °C (131 °F)
for $P_i=64$ mW, $I_i=25$ mA, T6	55 °C (131 °F)
for $P_i=64$ mW, $I_i=25$ mA, T5	55 °C (131 °F)
for $P_i=64$ mW, $I_i=25$ mA, T4-T1	55 °C (131 °F)
for $P_i=169$ mW, $I_i=52$ mA, T6	41 °C (105.8 °F)
for $P_i=169$ mW, $I_i=52$ mA, T5	41 °C (105.8 °F)
for $P_i=169$ mW, $I_i=52$ mA, T4-T1	41 °C (105.8 °F)
for $P_i=242$ mW, $I_i=76$ mA, T6	29 °C (84.2 °F)
for $P_i=242$ mW, $I_i=76$ mA, T5	29 °C (84.2 °F)
for $P_i=242$ mW, $I_i=76$ mA, T4-T1	29 °C (84.2 °F)

**Equipment protection level Da**

CE marking	CE 0102	
ATEX marking	⊕ II 1D Ex ia IIIC T135°C Da The Ex-related marking can also be printed on the enclosed label.	
Standards	EN 60079-0:2012+A11:2013 EN 60079-11:2012 Ignition protection "Intrinsic safety" Use is restricted to the following stated conditions	
Appropriate type	NCB15-30GM...-N0...	
Effective internal capacitance $C_i$	≤ 120 nF A cable length of 10 m is considered.	
Effective internal inductance $L_i$	≤ 150 μH A cable length of 10 m is considered.	
Maximum permissible ambient temperature $T_{amb}$	Details of the correlation between the type of circuit connected, the maximum permissible ambient temperature, the surface temperature, and the effective internal reactance values can be found on the EC-type-examination certificate. <b>The maximum permissible ambient temperature of the data sheet must be noted, in addition, the lower of the two values must be maintained.</b>	

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**Equipment protection level Dc**

CE marking

CE 0102

ATEX marking

Ex II 3D IP67 T 111 °C (231.8 °F) X  
The Ex-significant identification is on the enclosed adhesive label

Standards

EN 50281-1-1  
Protection via housing  
Use is restricted to the following stated conditions

**Special conditions**

Maximum heating (Temperature rise)

Values can be obtained from the following list, depending on the max. operating voltage  $U_{b \max}$  and the minimum series resistance  $R_v$ .

at  $U_{B_{\max}}=9 \text{ V}$ ,  $R_v=562 \Omega$ 

11 K

using an amplifier in accordance with EN 60947-  
5-6

11 K

**Equipment protection level Dc (tc)**

CE marking

CE

ATEX marking

Ex II 3D Ex tc IIIC T80°C Dc  
The Ex-related marking can also be printed on the enclosed label.

Standards

EN 60079-0:2012+A11:2013, EN 60079-31:2014  
Protection by enclosure "tc" Some of the information in this instruction manual is more specific than the information provided in the datasheet.

General

The corresponding datasheets, declarations of conformity, EC-type examination certificates, certifications, and control drawings, where applicable (see datasheets), form an integral part of this document. These documents can be found at [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com). The maximum surface temperature of the device was determined without a layer of dust on the apparatus. Some of the information in this instruction manual is more specific than the information provided in the datasheet.

**Special conditions**Maximum permissible ambient temperature  $T_{U_{\max}}$ 

Values can be obtained from the following list, depending on the max. operating voltage  $U_b$  max and the minimum series resistance  $R_v$ .

at  $U_{B_{\max}}=9 \text{ V}$ ,  $R_v=562 \Omega$ 

58 °C (136.4 °F)

using an amplifier in accordance with EN 60947-  
5-6

58 °C (136.4 °F)

**Equipment protection level Dc (tD)**

General

The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual. The maximum surface temperature has been determined in accordance with method A without a dust layer on the equipment.  
The data stated in the data sheet are restricted by this operating instruction!  
The special conditions must be adhered to!

**Special conditions**Minimum series resistance  $R_v$ 

A minimum series resistance  $R_v$  is to be provided between the power supply voltage and the proximity switch in accordance with the following list. This can also be assured by using a switch amplifier.

Maximum permissible ambient temperature  $T_{U_{\max}}$ 

Values can be obtained from the following list, depending on the max. operating voltage  $U_b$  max and the minimum series resistance  $R_v$ .

at  $U_{B_{\max}}=9 \text{ V}$ ,  $R_v=562 \Omega$ 

58 °C (136.4 °F)

using an amplifier in accordance with EN 60947-  
5-6

58 °C (136.4 °F)



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