



## Model Number

NCN4-12GM35-N0

## Features

- 4 mm non-flush
- Usable up to SIL 2 acc. to IEC 61508

## Accessories

### EXG-12

Quick mounting bracket with dead stop

### BF 12

Mounting flange, 12 mm

## Technical Data

### General specifications

Switching function		Normally closed (NC)
Output type		NAMUR
Rated operating distance	$s_n$	4 mm
Installation		non-flush
Assured operating distance	$s_a$	0 ... 3.24 mm
Actual operating distance	$s_r$	3.6 ... 4.4 mm typ.
Reduction factor $r_{AI}$		0.37
Reduction factor $r_{CU}$		0.36
Reduction factor $r_{304}$		0.74
Output type		2-wire

### Nominal ratings

Nominal voltage	$U_o$	8.2 V ( $R_i$ approx. 1 k $\Omega$ )
Switching frequency	$f$	0 ... 800 Hz
Hysteresis	$H$	1 ... 10 typ. 5 %
Reverse polarity protection		reverse polarity protected
Short-circuit protection		yes
Current consumption		
Measuring plate not detected		$\geq 3$ mA
Measuring plate detected		$\leq 1$ mA
Switching state indicator		all direction LED, yellow

### Functional safety related parameters

Safety Integrity Level (SIL)	SIL 2
MTTF <sub>d</sub>	2520 a
Mission Time ( $T_M$ )	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	cable PVC, 2 m
Core cross-section	0.34 mm <sup>2</sup>
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	PBT
Degree of protection	IP66 / IP67
Cable	
Cable diameter	4.6 mm $\pm$ 0.2 mm
Bending radius	> 12 x cable diameter

### General information

Scope of delivery	2 self locking nuts in scope of delivery
Use in the hazardous area	see instruction manuals

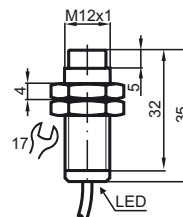
### Compliance with standards and directives

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

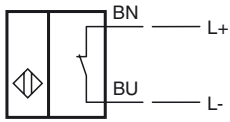
### Approvals and certificates

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



**Data for application in connection with hazardous areas**

Equipment protection level Ga , Gb , Gc (ic) , Da , Dc , Mb

**Equipment protection level Ga**

Type of protection intrinsic safety  
 CE marking **CE** 0102

**Certificates**

Appropriate type NCN4-12GM...-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...T1 Ga  
 Standards IEC 60079-0:2011 , IEC 60079-11:2011

Effective internal capacitance  $C_i$   $\leq 95$  nF  
 A cable length of 10 m is considered.  
 Effective internal inductance  $L_i$   $\leq 100$   $\mu$ 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.

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 : 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)

Release date: 2019-08-05 14:12 Date of issue: 2019-08-05 181100\_eng.xml

**Equipment protection level Gb**

Type of protection	intrinsic safety
CE marking	<b>CE</b> 0102

**Certificates**

Appropriate type	NCN4-12GM...-N0...
ATEX certificate	PTB 00 ATEX 2048 X
ATEX marking	<b>Ex</b> 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...T1 Ga
Standards	IEC 60079-0:2011 , IEC 60079-11:2011
Effective internal capacitance $C_i$	$\leq 95$ nF ; a cable length of 10 m is considered.
Effective internal inductance $L_i$	$\leq 100$ $\mu$ 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)
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**Equipment protection level Gc (ic)**

Type of protection	intrinsic safety
CE marking	<b>CE</b>

**Certificates**

ATEX certificate	PF13CERT2895 X
ATEX marking	<b>Ex</b> II 3G Ex ic IIC T6...T1 Gc
Standards	EN 60079-0:2012+A11:2013 , EN 60079-11:2012
Effective internal capacitance $C_i$	$\leq 95$ nF A cable length of 10 m is considered.
Effective internal inductance $L_i$	$\leq 100$ $\mu$ 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	
<b>Certificates</b>		
Appropriate type	NCN4-12GM...-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	
IECEX certificate	IECEX PTB 11.0037X	
IECEX marking	Ex ia IIIC T135°C Da	
Standards	IEC 60079-0:2011 , IEC 60079-11:2011	
Effective internal capacitance	$C_i$	$\leq 95$ nF A cable length of 10 m is considered.
Effective internal inductance	$L_i$	$\leq 100$ $\mu$ 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 : 100 °C (212 °F) at $U_i = 16$ V , $I_i = 25$ mA , $P_i = 64$ mW : 100 °C (212 °F) at $U_i = 16$ V , $I_i = 52$ mA , $P_i = 169$ mW : 81 °C (177.8 °F) at $U_i = 16$ V , $I_i = 76$ mA , $P_i = 242$ mW : 63 °C (145.4 °F)	

**Equipment protection level Dc**

Type of protection	Protection by enclosure "tc"	
CE marking	CE	
<b>Certificates</b>		
ATEX certificate	PF15CERT3774X	
ATEX marking	Ⓔ II 3D Ex tc IIIC T80°C Dc	
Standards	EN 60079-0:2012+A11:2013 , EN 60079-31:2014	
Possible characteristics	maximum operating voltage $U_{Bmax}$ , maximum load current $I_{Lmax}$ , minimum series resistance $R_V$ , maximum analog output current $I_{Amax}$ , maximum analog output voltage $U_{Amax}$	
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. using an amplifier in accordance with EN 60947-5-6 : 61 °C (141.8 °F) at $U_{Bmax} = 9$ V , $R_V = 562$ $\Omega$ : 61 °C (141.8 °F)	

**Equipment protection level Mb**

Type of protection	intrinsic safety	
<b>Certificates</b>		
Appropriate type	NCN4-12GM...-N0...	
IECEX certificate	IECEX PTB 11.0037X	
IECEX marking	Ex ia I Mb	
Standards	IEC 60079-0:2011 , IEC 60079-11:2011	
Effective internal capacitance	$C_i$	$\leq 95$ nF A cable length of 10 m is considered.
Effective internal inductance	$L_i$	$\leq 100$ $\mu$ 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 : 100 °C (212 °F) at $U_i = 16$ V , $I_i = 25$ mA , $P_i = 64$ mW : 100 °C (212 °F) at $U_i = 16$ V , $I_i = 52$ mA , $P_i = 169$ mW : 81 °C (177.8 °F) at $U_i = 16$ V , $I_i = 76$ mA , $P_i = 242$ mW : 63 °C (145.4 °F)	