



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 Ω)
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		≥ 3 mA
Measuring plate detected		≤ 1 mA
Switching state indicator		all direction LED, yellow

Functional safety related parameters

Safety Integrity Level (SIL)	SIL 2
MTTF _d	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 ²
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

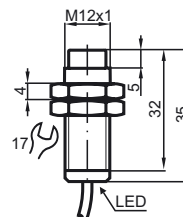
Compliance with standards and directives

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

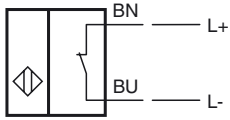
Approvals and certificates

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 ≤ 36 V

Dimensions



Electrical Connection



Data for application in connection with hazardous areas

Equipment protection level	Ga , Gb , Gc (ic) , Da , Dc , Mb
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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	Ⓔ 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	$\leq 95 \text{ nF}$ 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.
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for ATEX	<p>at $U_i = 16 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 34 \text{ mW}$, $T_6 : 59 \text{ }^\circ\text{C}$ (138.2 °F) $T_5 : 71 \text{ }^\circ\text{C}$ (159.8 °F) $T_4 : 99 \text{ }^\circ\text{C}$ (210.2 °F) $T_3 : 99 \text{ }^\circ\text{C}$ (210.2 °F) $T_2 : 99 \text{ }^\circ\text{C}$ (210.2 °F) $T_1 : 99 \text{ }^\circ\text{C}$ (210.2 °F)</p> <p>at $U_i = 16 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 64 \text{ mW}$, $T_6 : 56 \text{ }^\circ\text{C}$ (132.8 °F) $T_5 : 68 \text{ }^\circ\text{C}$ (154.4 °F) $T_4 : 96 \text{ }^\circ\text{C}$ (204.8 °F) $T_3 : 96 \text{ }^\circ\text{C}$ (204.8 °F) $T_2 : 96 \text{ }^\circ\text{C}$ (204.8 °F) $T_1 : 96 \text{ }^\circ\text{C}$ (204.8 °F)</p> <p>at $U_i = 16 \text{ V}$, $I_i = 52 \text{ mA}$, $P_i = 169 \text{ mW}$, $T_6 : 45 \text{ }^\circ\text{C}$ (113 °F) $T_5 : 57 \text{ }^\circ\text{C}$ (134.6 °F) $T_4 : 81 \text{ }^\circ\text{C}$ (177.8 °F) $T_3 : 81 \text{ }^\circ\text{C}$ (177.8 °F) $T_2 : 81 \text{ }^\circ\text{C}$ (177.8 °F) $T_1 : 81 \text{ }^\circ\text{C}$ (177.8 °F)</p> <p>at $U_i = 16 \text{ V}$, $I_i = 76 \text{ mA}$, $P_i = 242 \text{ mW}$, $T_6 : 37 \text{ }^\circ\text{C}$ (98.6 °F) $T_5 : 49 \text{ }^\circ\text{C}$ (120.2 °F) $T_4 : 63 \text{ }^\circ\text{C}$ (145.4 °F) $T_3 : 63 \text{ }^\circ\text{C}$ (145.4 °F) $T_2 : 63 \text{ }^\circ\text{C}$ (145.4 °F) $T_1 : 63 \text{ }^\circ\text{C}$ (145.4 °F)</p>
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for IECEX	<p>at $U_i = 16 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 34 \text{ mW}$, $T_6 : 76 \text{ }^\circ\text{C}$ (168.8 °F) $T_5 : 91 \text{ }^\circ\text{C}$ (195.8 °F) $T_4 : 100 \text{ }^\circ\text{C}$ (212 °F) $T_3 : 100 \text{ }^\circ\text{C}$ (212 °F) $T_2 : 100 \text{ }^\circ\text{C}$ (212 °F) $T_1 : 100 \text{ }^\circ\text{C}$ (212 °F)</p> <p>at $U_i = 16 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 64 \text{ mW}$, $T_6 : 73 \text{ }^\circ\text{C}$ (163.4 °F) $T_5 : 88 \text{ }^\circ\text{C}$ (190.4 °F) $T_4 : 100 \text{ }^\circ\text{C}$ (212 °F) $T_3 : 100 \text{ }^\circ\text{C}$ (212 °F) $T_2 : 100 \text{ }^\circ\text{C}$ (212 °F) $T_1 : 100 \text{ }^\circ\text{C}$ (212 °F)</p> <p>at $U_i = 16 \text{ V}$, $I_i = 52 \text{ mA}$, $P_i = 169 \text{ mW}$, $T_6 : 62 \text{ }^\circ\text{C}$ (143.6 °F) $T_5 : 77 \text{ }^\circ\text{C}$ (170.6 °F) $T_4 : 81 \text{ }^\circ\text{C}$ (177.8 °F) $T_3 : 81 \text{ }^\circ\text{C}$ (177.8 °F) $T_2 : 81 \text{ }^\circ\text{C}$ (177.8 °F) $T_1 : 81 \text{ }^\circ\text{C}$ (177.8 °F)</p> <p>at $U_i = 16 \text{ V}$, $I_i = 76 \text{ mA}$, $P_i = 242 \text{ mW}$, $T_6 : 54 \text{ }^\circ\text{C}$ (129.2 °F) $T_5 : 63 \text{ }^\circ\text{C}$ (145.4 °F) $T_4 : 63 \text{ }^\circ\text{C}$ (145.4 °F) $T_3 : 63 \text{ }^\circ\text{C}$ (145.4 °F) $T_2 : 63 \text{ }^\circ\text{C}$ (145.4 °F) $T_1 : 63 \text{ }^\circ\text{C}$ (145.4 °F)</p>
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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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Equipment protection level Gb

Type of protection	intrinsic safety	
CE marking	CE 0102	
Certificates		
Appropriate type	NCN4-12GM...-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...T1 Ga	
Standards	IEC 60079-0:2011 , IEC 60079-11:2011	
Effective internal capacitance	C_i	$\leq 95 \text{ nF}$; a cable length of 10 m is considered.
Effective internal inductance	L_i	$\leq 100 \text{ }\mu\text{H}$ 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 $U_i = 16 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 34 \text{ mW}$, 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 $U_i = 16 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 64 \text{ mW}$, 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 $U_i = 16 \text{ V}$, $I_i = 52 \text{ mA}$, $P_i = 169 \text{ mW}$, 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 $U_i = 16 \text{ V}$, $I_i = 76 \text{ mA}$, $P_i = 242 \text{ mW}$, 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	PF13CERT2895 X	
ATEX marking	II 3G Ex ic IIC T6...T1 Gc	
Standards	EN 60079-0:2012+A11:2013 , EN 60079-11:2012	
Effective internal capacitance	C_i	$\leq 95 \text{ nF}$ A cable length of 10 m is considered.
Effective internal inductance	L_i	$\leq 100 \text{ }\mu\text{H}$ 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 $U_i = 20 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 34 \text{ mW}$, 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 $U_i = 20 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 64 \text{ mW}$, 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 $U_i = 20 \text{ V}$, $I_i = 52 \text{ mA}$, $P_i = 169 \text{ mW}$, 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 $U_i = 20 \text{ V}$, $I_i = 76 \text{ mA}$, $P_i = 242 \text{ mW}$, 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)	

Equipment protection level Da

Type of protection	intrinsic safety	
CE marking	CE 0102	
Certificates		
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	≤ 95 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 : 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	
Certificates		
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 , $R_V = 562$ Ω : 61 °C (141.8 °F)	

Equipment protection level Mb

Type of protection	intrinsic safety	
Certificates		
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	≤ 95 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 : 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)	

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