



Model Number

NCN4-12GM35-N0-V1

Features

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

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

General information

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

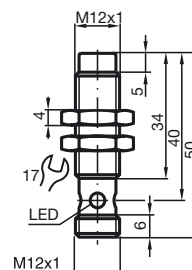
Compliance with standards and directives

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

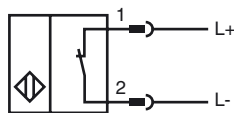
EAC conformity	TR CU 012/2011
FM approval	
Control drawing	116-0165
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for products rated ≤ 36 V

Dimensions





Electrical Connection



Wire colors in accordance with EN 60947-5-6

1		BN	(brown)
2		BU	(blue)

Data for application in connection with hazardous areas

Equipment protection level	Ga , Gb , Gc (ic) , Da , 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	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	$\leq 95 \text{ nF}$ 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

at $U_i = 16 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 34 \text{ mW}$,
 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 $U_i = 16 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 64 \text{ mW}$,
 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 $U_i = 16 \text{ V}$, $I_i = 52 \text{ mA}$, $P_i = 169 \text{ mW}$,
 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 $U_i = 16 \text{ V}$, $I_i = 76 \text{ mA}$, $P_i = 242 \text{ mW}$,
 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 $U_i = 16 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 34 \text{ mW}$,
 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 Gb

Type of protection		intrinsic safety
CE marking		 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	≤ 95 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. 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		
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 : $55 \text{ }^\circ\text{C}$ ($131 \text{ }^\circ\text{F}$) T5 : $55 \text{ }^\circ\text{C}$ ($131 \text{ }^\circ\text{F}$) T4 : $55 \text{ }^\circ\text{C}$ ($131 \text{ }^\circ\text{F}$) T3 : $55 \text{ }^\circ\text{C}$ ($131 \text{ }^\circ\text{F}$) T2 : $55 \text{ }^\circ\text{C}$ ($131 \text{ }^\circ\text{F}$) T1 : $55 \text{ }^\circ\text{C}$ ($131 \text{ }^\circ\text{F}$) at $U_i = 20 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 64 \text{ mW}$, T6 : $55 \text{ }^\circ\text{C}$ ($131 \text{ }^\circ\text{F}$) T5 : $55 \text{ }^\circ\text{C}$ ($131 \text{ }^\circ\text{F}$) T4 : $55 \text{ }^\circ\text{C}$ ($131 \text{ }^\circ\text{F}$) T3 : $55 \text{ }^\circ\text{C}$ ($131 \text{ }^\circ\text{F}$) T2 : $55 \text{ }^\circ\text{C}$ ($131 \text{ }^\circ\text{F}$) T1 : $55 \text{ }^\circ\text{C}$ ($131 \text{ }^\circ\text{F}$) at $U_i = 20 \text{ V}$, $I_i = 52 \text{ mA}$, $P_i = 169 \text{ mW}$, T6 : $52 \text{ }^\circ\text{C}$ ($125.6 \text{ }^\circ\text{F}$) T5 : $52 \text{ }^\circ\text{C}$ ($125.6 \text{ }^\circ\text{F}$) T4 : $52 \text{ }^\circ\text{C}$ ($125.6 \text{ }^\circ\text{F}$) T3 : $52 \text{ }^\circ\text{C}$ ($125.6 \text{ }^\circ\text{F}$) T2 : $52 \text{ }^\circ\text{C}$ ($125.6 \text{ }^\circ\text{F}$) T1 : $52 \text{ }^\circ\text{C}$ ($125.6 \text{ }^\circ\text{F}$) at $U_i = 20 \text{ V}$, $I_i = 76 \text{ mA}$, $P_i = 242 \text{ mW}$, T6 : $44 \text{ }^\circ\text{C}$ ($111.2 \text{ }^\circ\text{F}$) T5 : $44 \text{ }^\circ\text{C}$ ($111.2 \text{ }^\circ\text{F}$) T4 : $44 \text{ }^\circ\text{C}$ ($111.2 \text{ }^\circ\text{F}$) T3 : $44 \text{ }^\circ\text{C}$ ($111.2 \text{ }^\circ\text{F}$) T2 : $44 \text{ }^\circ\text{C}$ ($111.2 \text{ }^\circ\text{F}$) T1 : $44 \text{ }^\circ\text{C}$ ($111.2 \text{ }^\circ\text{F}$)	

Equipment protection level Da

Type of protection		intrinsic safety
CE marking		 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 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. 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 Mb

Type of protection		intrinsic safety
Certificates		
Appropriate type		NCN4-12GM...-N0...
IECEEx certificate		IECEEx PTB 11.0037X
IECEEx 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 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. 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)