



Model Number

NJ5-11-N-G

Features

- 5 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 5 mm
Installation	non-flush
Assured operating distance	s_a 0 ... 4.05 mm
Reduction factor r_{AI}	0.4
Reduction factor r_{Cu}	0.3
Reduction factor r_{304}	0.85
Output type	2-wire

Nominal ratings

Nominal voltage	U_o 8.2 V (R_i approx. 1 k Ω)
Switching frequency	f 0 ... 3000 Hz
Hysteresis	H typ. 5 %
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

Functional safety related parameters

Safety Integrity Level (SIL)	SIL 2
MTTF _d	11774 a
Mission Time (T_M)	20 a
Diagnostic Coverage (DC)	0 %

Ambient conditions

Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
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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	PVDF
Degree of protection	IP68
Cable	
Bending radius	> 10 x cable diameter

General information

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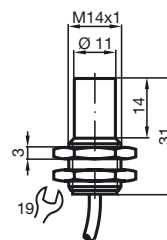
Compliance with standards and directives

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

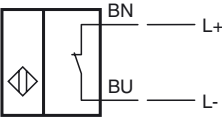
EAC conformity	TR CU 012/2011
UL approval	cULus Listed, General Purpose
CCC approval	CCC approval / marking not required for products rated ≤ 36 V

Dimensions





Electrical Connection



Data for application in connection with hazardous areas

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

Type of protection	intrinsic safety
CE marking	CE 0102

Certificates

Appropriate type	NJ 5-11-N...
ATEX certificate	PTB 00 ATEX 2048 X
ATEX marking	II 2G Ex ia IIC T6...T1 Gb
Standards	EN 60079-0:2012+A11:2013 , EN 60079-11:2012
IECEx certificate	IECEx PTB 11.0037X
IECEx marking	Ex ia IIC T6...T1 Gb
Standards	IEC 60079-0:2011 , IEC 60079-11:2011

Effective internal capacitance	C_i	$\leq 45 \text{ nF}$ A cable length of 10 m is considered.
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Effective internal inductance	L_i	$\leq 50 \mu\text{H}$ 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 $U_i = 16 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 34 \text{ mW}$, $T_6 : 72 \text{ }^\circ\text{C}$ (161.6 $^\circ\text{F}$) $T_5 : 87 \text{ }^\circ\text{C}$ (188.6 $^\circ\text{F}$) $T_4 : 100 \text{ }^\circ\text{C}$ (212 $^\circ\text{F}$) $T_3 : 100 \text{ }^\circ\text{C}$ (212 $^\circ\text{F}$) $T_2 : 100 \text{ }^\circ\text{C}$ (212 $^\circ\text{F}$) $T_1 : 100 \text{ }^\circ\text{C}$ (212 $^\circ\text{F}$) at $U_i = 16 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 64 \text{ mW}$, $T_6 : 65 \text{ }^\circ\text{C}$ (149 $^\circ\text{F}$) $T_5 : 80 \text{ }^\circ\text{C}$ (176 $^\circ\text{F}$) $T_4 : 100 \text{ }^\circ\text{C}$ (212 $^\circ\text{F}$) $T_3 : 100 \text{ }^\circ\text{C}$ (212 $^\circ\text{F}$) $T_2 : 100 \text{ }^\circ\text{C}$ (212 $^\circ\text{F}$) $T_1 : 100 \text{ }^\circ\text{C}$ (212 $^\circ\text{F}$) at $U_i = 16 \text{ V}$, $I_i = 52 \text{ mA}$, $P_i = 169 \text{ mW}$, $T_6 : 42 \text{ }^\circ\text{C}$ (107.6 $^\circ\text{F}$) $T_5 : 57 \text{ }^\circ\text{C}$ (134.6 $^\circ\text{F}$) $T_4 : 82 \text{ }^\circ\text{C}$ (179.6 $^\circ\text{F}$) $T_3 : 82 \text{ }^\circ\text{C}$ (179.6 $^\circ\text{F}$) $T_2 : 82 \text{ }^\circ\text{C}$ (179.6 $^\circ\text{F}$) $T_1 : 82 \text{ }^\circ\text{C}$ (179.6 $^\circ\text{F}$) at $U_i = 16 \text{ V}$, $I_i = 76 \text{ mA}$, $P_i = 242 \text{ mW}$, $T_6 : 26 \text{ }^\circ\text{C}$ (78.8 $^\circ\text{F}$) $T_5 : 41 \text{ }^\circ\text{C}$ (105.8 $^\circ\text{F}$) $T_4 : 63 \text{ }^\circ\text{C}$ (145.4 $^\circ\text{F}$) $T_3 : 63 \text{ }^\circ\text{C}$ (145.4 $^\circ\text{F}$) $T_2 : 63 \text{ }^\circ\text{C}$ (145.4 $^\circ\text{F}$) $T_1 : 63 \text{ }^\circ\text{C}$ (145.4 $^\circ\text{F}$)
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Equipment protection level Gc (ic)

Type of protection	intrinsic safety	
CE marking		
Certificates		
ATEX certificate	PF 13 CERT 2895 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	$\leq 45 \text{ nF}$ A cable length of 10 m is considered.
Effective internal inductance	L_i	$\leq 50 \mu\text{H}$ 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 : 32°C (89.6°F) T5 : 32°C (89.6°F) T4 : 32°C (89.6°F) T3 : 32°C (89.6°F) T2 : 32°C (89.6°F) T1 : 32°C (89.6°F) at $U_i = 20 \text{ V}$, $I_i = 76 \text{ mA}$, $P_i = 242 \text{ mW}$, T6 : 16°C (60.8°F) T5 : 16°C (60.8°F) T4 : 16°C (60.8°F) T3 : 16°C (60.8°F) T2 : 16°C (60.8°F) T1 : 16°C (60.8°F)	

Equipment protection level Da

Type of protection		intrinsic safety
CE marking		CE 0102
Certificates		
Appropriate type		NJ 5-11-N...
ATEX certificate		PTB 00 ATEX 2048 X
ATEX marking		Ex 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	≤ 45 nF A cable length of 10 m is considered.
Effective internal inductance	L _i	≤ 50 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 : 82 °C (179.6 °F) at U _i = 16 V , I _i = 76 mA , P _i = 242 mW : 63 °C (145.4 °F)

Equipment protection level Mb

Certificates		
Appropriate type	NJ 5-11-N...	
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	$\leq 45 \text{ nF}$ A cable length of 10 m is considered.
Effective internal inductance	L_i	$\leq 50 \mu\text{H}$ 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 $U_i = 16 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 34 \text{ mW}$: $100^\circ\text{C} (212^\circ\text{F})$ at $U_i = 16 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 64 \text{ mW}$: $100^\circ\text{C} (212^\circ\text{F})$ at $U_i = 16 \text{ V}$, $I_i = 52 \text{ mA}$, $P_i = 169 \text{ mW}$: $82^\circ\text{C} (179.6^\circ\text{F})$ at $U_i = 16 \text{ V}$, $I_i = 76 \text{ mA}$, $P_i = 242 \text{ mW}$: $63^\circ\text{C} (145.4^\circ\text{F})$	

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