



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)
---------------------	--	---------------------------------

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
---------------------------	--	-------------------------

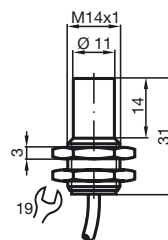
Compliance with standards and directives

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

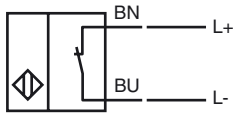
Approvals and certificates

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
----------------------------	------------------------

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	Ex 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 inductivity	C_i	$\leq 45 \text{ nF}$ A cable length of 10 m is considered.
--------------------------------	-------	---

Effective internal inductance	L_i	$\leq 50 \text{ }\mu\text{H}$ A cable length of 10 m is considered.
-------------------------------	-------	--

Maximum permissible ambient temperature T_{amb}	<p>Also observe the maximum permissible ambient temperature stated in the general technical data. Keep to the lower of the two values.</p> <p>at $U_i = 16 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 34 \text{ mW}$, T6 : 72 °C (161.6 °F) T5 : 87 °C (188.6 °F) T4 : 100 °C (212 °F) T3 : 100 °C (212 °F) T2 : 100 °C (212 °F) T1 : 100 °C (212 °F)</p> <p>at $U_i = 16 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 64 \text{ mW}$, T6 : 65 °C (149 °F) T5 : 80 °C (176 °F) T4 : 100 °C (212 °F) T3 : 100 °C (212 °F) T2 : 100 °C (212 °F) T1 : 100 °C (212 °F)</p> <p>at $U_i = 16 \text{ V}$, $I_i = 52 \text{ mA}$, $P_i = 169 \text{ mW}$, T6 : 42 °C (107.6 °F) T5 : 57 °C (134.6 °F) T4 : 82 °C (179.6 °F) T3 : 82 °C (179.6 °F) T2 : 82 °C (179.6 °F) T1 : 82 °C (179.6 °F)</p> <p>at $U_i = 16 \text{ V}$, $I_i = 76 \text{ mA}$, $P_i = 242 \text{ mW}$, T6 : 26 °C (78.8 °F) T5 : 41 °C (105.8 °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)</p>
---	---

Equipment protection level Gc (ic)

Type of protection	intrinsic safety	
CE marking	CE	
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 inductivity	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 $U_i = 20\text{ V}$, $I_i = 25\text{ mA}$, $P_i = 34\text{ mW}$, 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	II 1D Ex ia IIC T135°C Da	
Standards	EN 60079-0:2012+A11:2013 , EN 60079-11:2012	
IECEX certificate	IECEX PTB 11.0037X	
IECEX marking	Ex ia IIC T135°C Da	
Standards	IEC 60079-0:2011 , IEC 60079-11:2011	
Effective internal inductivity	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 $U_i = 16\text{ V}$, $I_i = 25\text{ mA}$, $P_i = 34\text{ mW}$: 100 °C (212 °F) at $U_i = 16\text{ V}$, $I_i = 25\text{ mA}$, $P_i = 64\text{ mW}$: 100 °C (212 °F) at $U_i = 16\text{ V}$, $I_i = 52\text{ mA}$, $P_i = 169\text{ mW}$: 82 °C (179.6 °F) at $U_i = 16\text{ V}$, $I_i = 76\text{ mA}$, $P_i = 242\text{ mW}$: 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 inductivity	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 $U_i = 16\text{ V}$, $I_i = 25\text{ mA}$, $P_i = 34\text{ mW}$: 100 °C (212 °F) at $U_i = 16\text{ V}$, $I_i = 25\text{ mA}$, $P_i = 64\text{ mW}$: 100 °C (212 °F) at $U_i = 16\text{ V}$, $I_i = 52\text{ mA}$, $P_i = 169\text{ mW}$: 82 °C (179.6 °F) at $U_i = 16\text{ V}$, $I_i = 76\text{ mA}$, $P_i = 242\text{ mW}$: 63 °C (145.4 °F)	

Release date: 2018-04-19 08:21 Date of issue: 2018-04-19 306130_eng.xml