



Model Number

NJ2-11-N-G

Features

- 2 mm 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	2 mm
Installation		flush
Assured operating distance	s_a	0 ... 1.62 mm
Actual operating distance	s_r	1.8 ... 2.2 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	0.5 ... 3.5 typ. 2 %
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		5887 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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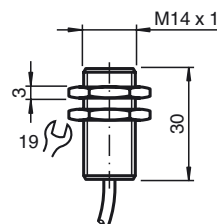
Compliance with standards and directives

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

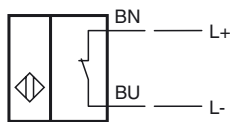
Approvals and certificates

EAC conformity		TR CU 012/2011
FM approval		
Control drawing		116-0165
UL approval		
Ordinary Location		E87056
Hazardous Location		E501628
Control drawing		116-0452
CCC approval		CCC approval / marking not required for products rated ≤ 36 V

Dimensions



Electrical Connection



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Data for application in connection with hazardous areas

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

Equipment protection level Ga

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

Certificates

Appropriate type NJ2-11-N-G...
 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 ≤ 30 nF
 A cable length of 10 m is considered.
 Effective internal inductance L_i ≤ 50 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.

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)

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Equipment protection level Gb

Type of protection	intrinsic safety	
CE marking	CE 0102	
Certificates		
Appropriate type	NJ 2-11-N-G...	
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	≤ 30 nF A cable length of 10 m is considered.
Effective internal inductance	L_i	≤ 50 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 , 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	CE	
Certificates		
ATEX certificate	PF13CERT2895 X	
ATEX marking	Ex II 3G Ex ic IIC T6...T1 Gc	
Standards	EN 60079-0:2012+A11:2013 , EN 60079-11:2012	
Effective internal capacitance	C_i	≤ 30 nF A cable length of 10 m is considered.
Effective internal inductance	L_i	≤ 50 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 $U_i = 20$ 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)	

Equipment protection level Da

Type of protection	intrinsic safety	
CE marking	CE 0102	
Certificates		
Appropriate type	NJ 2-11-N-G...	
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	≤ 30 nF A cable length of 10 m is considered.
Effective internal inductance	L_i	≤ 50 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 Mb

Type of protection	intrinsic safety	
Certificates		
Appropriate type	NJ 2-11-N-G...	
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	≤ 30 nF A cable length of 10 m is considered.
Effective internal inductance	L_i	≤ 50 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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