0102

Model Number

NJ5-11-N-G

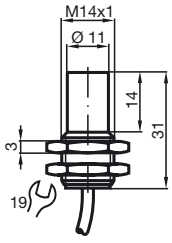
Features

- **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_{Al}		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 kΩ)
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



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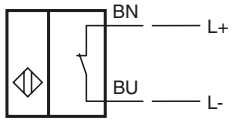
Electrical Connection



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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 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 , 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) at U_i = 16 V , I_i = 25 mA , P_i = 64 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) at U_i = 16 V , I_i = 52 mA , P_i = 169 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) at U_i = 16 V , I_i = 76 mA , P_i = 242 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)

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Equipment protection level Gc (ic)		
Type of protection		intrinsic safety
CE marking		CE
Certificates		
ATEX certificate		PF 13 CERT 2895 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	≤ 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 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 : 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 V , I_i = 76 mA , P_i = 242 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	≤ 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)

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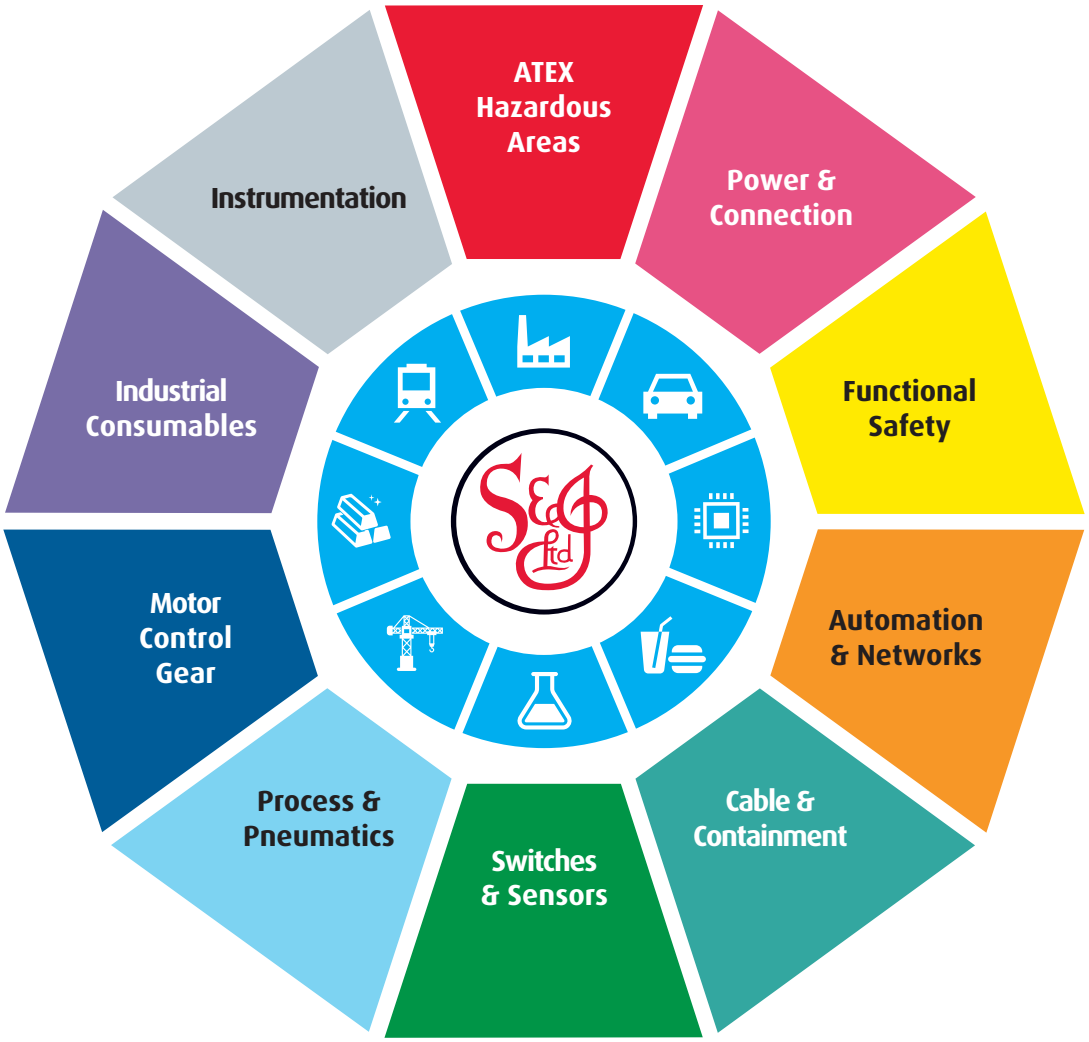

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