0102

Model Number

NJ5-11-N-G

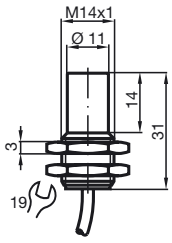
Features

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

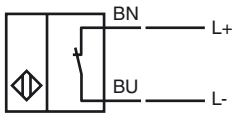
Technical Data

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		
$MTTF_d$		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
Category		2G; 3G; 1D; 3D
Compliance with standards and directives		
Standard conformity		
NAMUR		EN 60947-5-6:2000 IEC 60947-5-6:1999
Standards		EN 60947-5-2:2007 IEC 60947-5-2:2007
Approvals and certificates		
UL approval		cULus Listed, General Purpose
CCC approval		CCC approval / marking not required for products rated ≤36 V

Dimensions



Electrical Connection



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Equipment protection level Gb		
CE marking		CE 0102
ATEX marking		Ex II 2G Ex ia IIC T6…T1 Gb The Ex-related marking can also be printed on the enclosed label.
Standards		EN 60079-0:2012+A11:2013 EN 60079-11:2012 Ignition protection "Intrinsic safety" Use is restricted to the following stated conditions
Appropriate type		NJ 5-11-N...
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}		Details of the correlation between the type of circuit connected, the maximum permissible ambient temperature, the temperature class, and the effective internal reactance values can be found on the EC-type examination certificate.
Equipment protection level Gc (ic)		
Certificate		PF 13 CERT 2895 X
CE marking		CE
ATEX marking		Ex II 3G Ex ic IIC T6…T1 Gc The Ex-significant identification is on the enclosed adhesive label
Standards		EN 60079-0:2012+A11:2013 EN 60079-11:2012 Ignition protection category "ic" Use is restricted to the following stated conditions
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.
Special conditions		
for Pi=34 mW, Ii=25 mA, T6		55 °C (131 °F)
for Pi=34 mW, Ii=25 mA, T5		55 °C (131 °F)
for Pi=34 mW, Ii=25 mA, T4-T1		55 °C (131 °F)
for Pi=64 mW, Ii=25 mA, T6		55 °C (131 °F)
for Pi=64 mW, Ii=25 mA, T5		55 °C (131 °F)
for Pi=64 mW, Ii=25 mA, T4-T1		55 °C (131 °F)
for Pi=169 mW, Ii=52 mA, T6		32 °C (89.6 °F)
for Pi=169 mW, Ii=52 mA, T5		32 °C (89.6 °F)
for Pi=169 mW, Ii=52 mA, T4-T1		32 °C (89.6 °F)
for Pi=242 mW, Ii=76 mA, T6		16 °C (60.8 °F)
for Pi=242 mW, Ii=76 mA, T5		16 °C (60.8 °F)
for Pi=242 mW, Ii=76 mA, T4-T1		16 °C (60.8 °F)
Equipment protection level Gc (nL)		
Standard conformity		EN 60079-15:2005 Ignition protection category "n" Use is restricted to the following stated conditions
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.
General		The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual. The data stated in the data sheet are restricted by this operating instruction! The special conditions must be observed! The ATEX Directive applies only to the use of apparatus under atmospheric conditions. If you use the device outside atmospheric conditions, consider that the permissible safety parameters should be reduced.
Special conditions		
for Pi=34 mW, Ii=25 mA, T6		55 °C (131 °F)
for Pi=34 mW, Ii=25 mA, T5		55 °C (131 °F)
for Pi=34 mW, Ii=25 mA, T4-T1		55 °C (131 °F)
for Pi=64 mW, Ii=25 mA, T6		55 °C (131 °F)
for Pi=64 mW, Ii=25 mA, T5		55 °C (131 °F)
for Pi=64 mW, Ii=25 mA, T4-T1		55 °C (131 °F)
for Pi=169 mW, Ii=52 mA, T6		32 °C (89.6 °F)
for Pi=169 mW, Ii=52 mA, T5		32 °C (89.6 °F)
for Pi=169 mW, Ii=52 mA, T4-T1		32 °C (89.6 °F)
for Pi=242 mW, Ii=76 mA, T6		16 °C (60.8 °F)
for Pi=242 mW, Ii=76 mA, T5		16 °C (60.8 °F)
for Pi=242 mW, Ii=76 mA, T4-T1		16 °C (60.8 °F)
Equipment protection level Da		
CE marking		CE 0102
ATEX marking		Ex II 1D Ex ia IIIC T135°C Da The Ex-related marking can also be printed on the enclosed label.
Standards		EN 60079-0:2012+A11:2013 EN 60079-11:2012 Ignition protection "Intrinsic safety" Use is restricted to the following stated conditions
Appropriate type		NJ 5-11-N...
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}		Details of the correlation between the type of circuit connected, the maximum permissible ambient temperature, the surface temperature, and the effective internal reactance values can be found on the EC-type-examination certificate. **The maximum permissible ambient temperature of the data sheet must be noted, in addition, the lower of the two values must be maintained.**
Equipment protection level Dc (tD)		

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General	The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual. The maximum surface temperature has been determined in accordance with method A without a dust layer on the equipment. The data stated in the data sheet are restricted by this operating instruction! The special conditions must be adhered to!
Special conditions	
Minimum series resistance R_V	A minimum series resistance RV is to be provided between the power supply voltage and the proximity switch in accordance with the following list. This can also be assured by using a switch amplifier.
Maximum permissible ambient temperature T_{Umax}	Values can be obtained from the following list, depending on the max. operating voltage Ub max and the minimum series resistance Rv.
at U_{Bmax}=9 V, R_V=562 Ω	57 °C (134.6 °F)
using an amplifier in accordance with EN 60947-5-6	57 °C (134.6 °F)

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