



Model Number

NJ5-11-N-G-5M

Features

- **Comfort series**
- **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 V
Switching frequency	f	0 ... 3000 Hz
Hysteresis	H	typ. %
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)
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Mechanical specifications

Connection type	cable PVC, 5 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

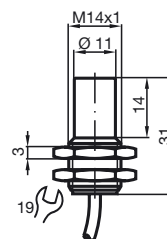
Compliance with standards and directives

Standard conformity	
NAMUR	EN 60947-5-6:2000 IEC 60947-5-6:1999
Standards	EN 60947-5-2:2007 IEC 60947-5-2:2007

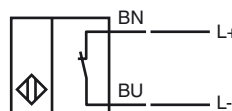
Approvals and certificates

UL approval	cULus Listed, General Purpose
CCC approval	CCC approval / marking not required for products rated ≤ 36 V

Dimensions



Electrical Connection



Equipment protection level Gb

CE marking	CE 0102	
ATEX marking	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 μ H ; 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	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 μ H ; A cable length of 10 m is considered.	

Special conditions

for $P_i=34$ mW, $I_i=25$ mA, T6	55 °C (131 °F)
for $P_i=34$ mW, $I_i=25$ mA, T5	55 °C (131 °F)
for $P_i=34$ mW, $I_i=25$ mA, T4-T1	55 °C (131 °F)
for $P_i=64$ mW, $I_i=25$ mA, T6	55 °C (131 °F)
for $P_i=64$ mW, $I_i=25$ mA, T5	55 °C (131 °F)
for $P_i=64$ mW, $I_i=25$ mA, T4-T1	55 °C (131 °F)
for $P_i=169$ mW, $I_i=52$ mA, T6	32 °C (89.6 °F)
for $P_i=169$ mW, $I_i=52$ mA, T5	32 °C (89.6 °F)
for $P_i=169$ mW, $I_i=52$ mA, T4-T1	32 °C (89.6 °F)
for $P_i=242$ mW, $I_i=76$ mA, T6	16 °C (60.8 °F)
for $P_i=242$ mW, $I_i=76$ mA, T5	16 °C (60.8 °F)
for $P_i=242$ mW, $I_i=76$ 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 μ H ; 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 $P_i=34$ mW, $I_i=25$ mA, T6	55 °C (131 °F)
for $P_i=34$ mW, $I_i=25$ mA, T5	55 °C (131 °F)
for $P_i=34$ mW, $I_i=25$ mA, T4-T1	55 °C (131 °F)
for $P_i=64$ mW, $I_i=25$ mA, T6	55 °C (131 °F)
for $P_i=64$ mW, $I_i=25$ mA, T5	55 °C (131 °F)
for $P_i=64$ mW, $I_i=25$ mA, T4-T1	55 °C (131 °F)
for $P_i=169$ mW, $I_i=52$ mA, T6	32 °C (89.6 °F)
for $P_i=169$ mW, $I_i=52$ mA, T5	32 °C (89.6 °F)
for $P_i=169$ mW, $I_i=52$ mA, T4-T1	32 °C (89.6 °F)
for $P_i=242$ mW, $I_i=76$ mA, T6	16 °C (60.8 °F)
for $P_i=242$ mW, $I_i=76$ mA, T5	16 °C (60.8 °F)
for $P_i=242$ mW, $I_i=76$ mA, T4-T1	16 °C (60.8 °F)

Equipment protection level Da

CE marking	CE 0102	
ATEX marking	II 1D Ex ia IIC 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 μ H ; 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)

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 R_V 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 U_{bmax} and the minimum series resistance R_V .

at $U_{Bmax}=9\text{ V}$, $R_V=562\ \Omega$

57 °C (134.6 °F)

using an amplifier in accordance with EN 60947- 57 °C (134.6 °F)
5-6

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