



Model Number

NJ2-11-N-G-15M

Features

- Comfort series
- 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
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 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, 15 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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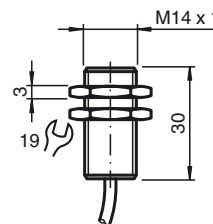
Compliance with standards and directives

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

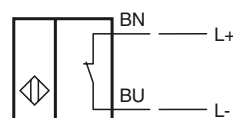
Approvals and certificates

EAC conformity	TR CU 012/2011
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		Ga , Gb , Gc (ic) , Da , Mb
Equipment protection level Ga		
Type of protection		intrinsic safety
CE marking		 0102
Certificates		
Appropriate type		NJ2-11-N-G...
ATEX certificate		PTB 00 ATEX 2048 X
ATEX marking		 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	$\leq 30 \text{ nF}$ 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}		Also observe the maximum permissible ambient temperature stated in the general technical data. Keep to the lower of the two values.
for ATEX		at $U_i = 16 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 34 \text{ mW}$, $T_6 : 59 \text{ }^\circ\text{C} (138.2 \text{ }^\circ\text{F})$ $T_5 : 71 \text{ }^\circ\text{C} (159.8 \text{ }^\circ\text{F})$ $T_4 : 99 \text{ }^\circ\text{C} (210.2 \text{ }^\circ\text{F})$ $T_3 : 99 \text{ }^\circ\text{C} (210.2 \text{ }^\circ\text{F})$ $T_2 : 99 \text{ }^\circ\text{C} (210.2 \text{ }^\circ\text{F})$ $T_1 : 99 \text{ }^\circ\text{C} (210.2 \text{ }^\circ\text{F})$ at $U_i = 16 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 64 \text{ mW}$, $T_6 : 56 \text{ }^\circ\text{C} (132.8 \text{ }^\circ\text{F})$ $T_5 : 68 \text{ }^\circ\text{C} (154.4 \text{ }^\circ\text{F})$ $T_4 : 96 \text{ }^\circ\text{C} (204.8 \text{ }^\circ\text{F})$ $T_3 : 96 \text{ }^\circ\text{C} (204.8 \text{ }^\circ\text{F})$ $T_2 : 96 \text{ }^\circ\text{C} (204.8 \text{ }^\circ\text{F})$ $T_1 : 96 \text{ }^\circ\text{C} (204.8 \text{ }^\circ\text{F})$ at $U_i = 16 \text{ V}$, $I_i = 52 \text{ mA}$, $P_i = 169 \text{ mW}$, $T_6 : 45 \text{ }^\circ\text{C} (113 \text{ }^\circ\text{F})$ $T_5 : 57 \text{ }^\circ\text{C} (134.6 \text{ }^\circ\text{F})$ $T_4 : 81 \text{ }^\circ\text{C} (177.8 \text{ }^\circ\text{F})$ $T_3 : 81 \text{ }^\circ\text{C} (177.8 \text{ }^\circ\text{F})$ $T_2 : 81 \text{ }^\circ\text{C} (177.8 \text{ }^\circ\text{F})$ $T_1 : 81 \text{ }^\circ\text{C} (177.8 \text{ }^\circ\text{F})$ at $U_i = 16 \text{ V}$, $I_i = 76 \text{ mA}$, $P_i = 242 \text{ mW}$, $T_6 : 37 \text{ }^\circ\text{C} (98.6 \text{ }^\circ\text{F})$ $T_5 : 49 \text{ }^\circ\text{C} (120.2 \text{ }^\circ\text{F})$ $T_4 : 63 \text{ }^\circ\text{C} (145.4 \text{ }^\circ\text{F})$ $T_3 : 63 \text{ }^\circ\text{C} (145.4 \text{ }^\circ\text{F})$ $T_2 : 63 \text{ }^\circ\text{C} (145.4 \text{ }^\circ\text{F})$ $T_1 : 63 \text{ }^\circ\text{C} (145.4 \text{ }^\circ\text{F})$
for IECEx		at $U_i = 16 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 34 \text{ mW}$, $T_6 : 76 \text{ }^\circ\text{C} (168.8 \text{ }^\circ\text{F})$ $T_5 : 91 \text{ }^\circ\text{C} (195.8 \text{ }^\circ\text{F})$ $T_4 : 100 \text{ }^\circ\text{C} (212 \text{ }^\circ\text{F})$ $T_3 : 100 \text{ }^\circ\text{C} (212 \text{ }^\circ\text{F})$ $T_2 : 100 \text{ }^\circ\text{C} (212 \text{ }^\circ\text{F})$ $T_1 : 100 \text{ }^\circ\text{C} (212 \text{ }^\circ\text{F})$ at $U_i = 16 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 64 \text{ mW}$, $T_6 : 73 \text{ }^\circ\text{C} (163.4 \text{ }^\circ\text{F})$ $T_5 : 88 \text{ }^\circ\text{C} (190.4 \text{ }^\circ\text{F})$ $T_4 : 100 \text{ }^\circ\text{C} (212 \text{ }^\circ\text{F})$ $T_3 : 100 \text{ }^\circ\text{C} (212 \text{ }^\circ\text{F})$ $T_2 : 100 \text{ }^\circ\text{C} (212 \text{ }^\circ\text{F})$ $T_1 : 100 \text{ }^\circ\text{C} (212 \text{ }^\circ\text{F})$ at $U_i = 16 \text{ V}$, $I_i = 52 \text{ mA}$, $P_i = 169 \text{ mW}$, $T_6 : 62 \text{ }^\circ\text{C} (143.6 \text{ }^\circ\text{F})$ $T_5 : 77 \text{ }^\circ\text{C} (170.6 \text{ }^\circ\text{F})$ $T_4 : 81 \text{ }^\circ\text{C} (177.8 \text{ }^\circ\text{F})$ $T_3 : 81 \text{ }^\circ\text{C} (177.8 \text{ }^\circ\text{F})$ $T_2 : 81 \text{ }^\circ\text{C} (177.8 \text{ }^\circ\text{F})$ $T_1 : 81 \text{ }^\circ\text{C} (177.8 \text{ }^\circ\text{F})$ at $U_i = 16 \text{ V}$, $I_i = 76 \text{ mA}$, $P_i = 242 \text{ mW}$, $T_6 : 54 \text{ }^\circ\text{C} (129.2 \text{ }^\circ\text{F})$ $T_5 : 63 \text{ }^\circ\text{C} (145.4 \text{ }^\circ\text{F})$ $T_4 : 63 \text{ }^\circ\text{C} (145.4 \text{ }^\circ\text{F})$ $T_3 : 63 \text{ }^\circ\text{C} (145.4 \text{ }^\circ\text{F})$ $T_2 : 63 \text{ }^\circ\text{C} (145.4 \text{ }^\circ\text{F})$ $T_1 : 63 \text{ }^\circ\text{C} (145.4 \text{ }^\circ\text{F})$

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	$\leq 30 \text{ nF}$; 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}	Also observe the maximum permissible ambient temperature stated in the general technical data. Keep to the lower of the two values. at $U_i = 16 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 34 \text{ mW}$, 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 $U_i = 16 \text{ V}$, $I_i = 25 \text{ mA}$, $P_i = 64 \text{ mW}$, 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 $U_i = 16 \text{ V}$, $I_i = 52 \text{ mA}$, $P_i = 169 \text{ mW}$, 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 $U_i = 16 \text{ V}$, $I_i = 76 \text{ mA}$, $P_i = 242 \text{ mW}$, 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 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	$\leq 30 \text{ nF}$ A cable length of 10 m is considered.
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Effective internal inductance L_i	$\leq 50 \text{ }\mu\text{H}$ A cable length of 10 m is considered.
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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 : 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 $U_i = 20 \text{ V}$, $I_i = 76 \text{ mA}$, $P_i = 242 \text{ mW}$, 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)
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Equipment protection level Da

Type of protection		intrinsic safety
CE marking		 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 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 : 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 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 : 81 °C (177.8 °F) at U _i = 16 V , I _i = 76 mA , P _i = 242 mW : 63 °C (145.4 °F)