Model Number

NJ4-12GM-N-V1

Features

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

Accessories

V1-G
Female connector, M12, 4-pin, field attachable

V1-W
Female connector, M12, 4-pin, field attachable

V1-G-N-2M-PUR
Female cordset, M12, 2-pin, NAMUR, PUR cable

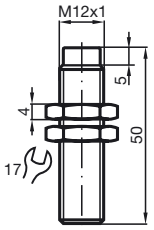
BF 12
Mounting flange, 12 mm

V1-W-N-2M-PUR
Female cordset, M12, 2-pin, NAMUR, PUR cable

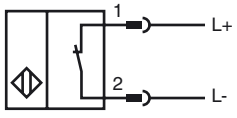
Technical Data

General specifications		
Switching function		Normally closed (NC)
Output type		NAMUR
Rated operating distance	s_n	4 mm
Installation		non-flush
Assured operating distance	s_a	0 ... 3.24 mm
Reduction factor r_{Al}		0.4
Reduction factor r_{Cu}		0.3
Reduction factor r_{304}		0.85
Nominal ratings		
Nominal voltage	U_o	8.2 V (R_i approx. 1 kΩ)
Switching frequency	f	0 ... 1500 Hz
Hysteresis	H	3 %
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		Connector M12 x 1 , 4-pin
Housing material		Stainless steel 1.4305 / AISI 303
Sensing face		PBT
Degree of protection		IP67
General information		
Scope of delivery		2 self locking nuts in scope of delivery
Use in the hazardous area		see instruction manuals
Category		1G; 2G
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		
FM approval		
Control drawing		116-0165
UL approval		cULus Listed, General Purpose
CSA approval		cCSAus Listed, General Purpose
CCC approval		CCC approval / marking not required for products rated ≤36 V

Dimensions



Electrical Connection



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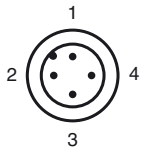
Pinout



Wire colors in accordance with EN 60947-5-6

1	|	BN	(brown)
2	|	BU	(blue)

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Equipment protection level Ga

Instruction		**Manual electrical apparatus for hazardous areas**
Device category 1G		for use in hazardous areas with gas, vapour and mist
EC-Type Examination Certificate		PTB 00 ATEX 2048 X
CE marking		CE 0102
ATEX marking		Ex II 1G Ex ia IIC T6…T1 Ga 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 4-12GM-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.
General		The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual. The EU-type examination certificate has to be observed. The special conditions must be adhered to! The ATEX directive and therefore the EU-type examination certificates apply in general only to the use of electrical apparatus under atmospheric conditions. The use in ambient temperatures of > 60 °C was tested with regard to hot surfaces by the mentioned certification authority. If the equipment is not used under atmospheric conditions, a reduction of the permissible minimum ignition energies may have to be taken into consideration.
Ambient temperature		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. **Note:** Use the temperature table for category 1 !!! The 20 % reduction in accordance with EN 1127-1 has already been applied to the temperature table for category 1.
Installation, commissioning		Laws and/or regulations and standards governing the use or intended usage goal must be observed. The intrinsic safety is only assured in connection with an appropriate related apparatus and according to the proof of intrinsic safety. The associated apparatus must satisfy the requirements of category ia. Due to the possible danger of ignition, which can arise due to faults and/or transient currents in the equipotential bonding system, galvanic isolation of the power supply and signal circuit is preferable. Associated apparatus without electrical isolation must only be used if the appropriate requirements of IEC 60079-14 are met. If the Ex-related marking is printed only on the supplied label, then this must be attached in the immediate vicinity of the sensor. The sticking surface for the label must be clean and free from grease. The attached label must be legible and indelible, including in the event of possible chemical corrosion.
Maintenance		No changes can be made to apparatus, which are operated in hazardous areas. Repairs to these apparatus are not possible.
Special conditions		The connecting parts of the sensor must be set up in such a way that degree of protection IP20, in accordance with IEC 60529, is achieved as a minimum.
Protection from mechanical danger		When using the device in a temperature range of -60 °C to -20 °C, protect the sensor against the effects of impact by installing an additional enclosure. The information regarding the minimum ambient temperature for the sensor as provided in the datasheet must also be observed.
Electrostatic charge		Electrostatic charges must be avoided on the mechanical housing components. Dangerous electrostatic charges on the mechanical housing components can be avoided by incorporating these in the equipotential bonding.

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Equipment protection level Gb

Instruction		**Manual electrical apparatus for hazardous areas**
Device category 2G		for use in hazardous areas with gas, vapour and mist
EC-Type Examination Certificate		PTB 00 ATEX 2048 X
CE marking		CE 0102
ATEX marking		Ⓔx II 1G Ex ia IIC T6…T1 Ga 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 4-12GM-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.
General		The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual. The EU-type examination certificate has to be observed. The special conditions must be adhered to! The ATEX directive and therefore the EU-type examination certificates apply in general only to the use of electrical apparatus under atmospheric conditions. The use in ambient temperatures of > 60 °C was tested with regard to hot surfaces by the mentioned certification authority. If the equipment is not used under atmospheric conditions, a reduction of the permissible minimum ignition energies may have to be taken into consideration.
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.
Installation, commissioning		Laws and/or regulations and standards governing the use or intended usage goal must be observed. The intrinsic safety is only assured in connection with an appropriate related apparatus and according to the proof of intrinsic safety. If the Ex-related marking is printed only on the supplied label, then this must be attached in the immediate vicinity of the sensor. The sticking surface for the label must be clean and free from grease. The attached label must be legible and indelible, including in the event of possible chemical corrosion.
Maintenance		No changes can be made to apparatus, which are operated in hazardous areas. Repairs to these apparatus are not possible.
Special conditions		The connecting parts of the sensor must be set up in such a way that degree of protection IP20, in accordance with IEC 60529, is achieved as a minimum.
Protection from mechanical danger		When using the device in a temperature range of -60 °C to -20 °C, protect the sensor against the effects of impact by installing an additional enclosure. The information regarding the minimum ambient temperature for the sensor as provided in the datasheet must also be observed.
Electrostatic charge		Electrostatic charges must be avoided on the mechanical housing components. Dangerous electrostatic charges on the mechanical housing components can be avoided by incorporating these in the equipotential bonding.

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Equipment protection level Da

Instruction		**Manual electrical apparatus for hazardous areas**
Device category 1D		for use in hazardous areas with combustible dust
EC-Type Examination Certificate		PTB 00 ATEX 2048 X
CE marking		CE 0102
ATEX marking		Ⓔx 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 4-12GM-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.
General		The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual. The EU-type examination certificate has to be observed. The ATEX directive and therefore the EU-type examination certificates apply in general only to the use of electrical apparatus under atmospheric conditions. The use in ambient temperatures of > 60 °C was tested with regard to hot surfaces by the mentioned certification authority. If the equipment is not used under atmospheric conditions, a reduction of the permissible minimum ignition energies may have to be taken into consideration.
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.**
Installation, commissioning		Laws and/or regulations and standards governing the use or intended usage goal must be observed. The intrinsic safety is only assured in connection with an appropriate related apparatus and according to the proof of intrinsic safety. If the Ex-related marking is printed only on the supplied label, then this must be attached in the immediate vicinity of the sensor. The sticking surface for the label must be clean and free from grease. The attached label must be legible and indelible, including in the event of possible chemical corrosion.
Maintenance		No changes can be made to apparatus, which are operated in hazardous areas. Repairs to these apparatus are not possible.
Special conditions		The connecting parts of the sensor must be set up in such a way that degree of protection IP20, in accordance with IEC 60529, is achieved as a minimum.
Protection from mechanical danger		When using the device in a temperature range of -60 °C to -20 °C, protect the sensor against the effects of impact by installing an additional enclosure. The information regarding the minimum ambient temperature for the sensor as provided in the datasheet must also be observed.
Electrostatic charge		Electrostatic charges must be avoided on the mechanical housing components. Dangerous electrostatic charges on the mechanical housing components can be avoided by incorporating these in the equipotential bonding. Do not attach the nameplate provided in areas where electrostatic charge can build up.

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