



Model Number

NJ20+U1+N

Features

- 20 mm non-flush

Accessories

MHW 01

Modular mounting bracket

MH 04-2681F

Mounting aid for VariKont, +U1+ and +U9*

MH 04-2057B

Mounting aid for VariKont and +U1+

Technical Data

General specifications

Switching element function		NAMUR, NC
Rated operating distance	s_n	20 mm
Installation		non-flush
Output polarity		NAMUR
Assured operating distance	s_a	0 ... 16.2 mm
Reduction factor r_{AI}		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 k Ω)
Switching frequency	f	0 ... 150 Hz
Current consumption		
Measuring plate not detected		≥ 3 mA
Measuring plate detected		≤ 1 mA

Functional safety related parameters

MTTF _d	9190 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	screw terminals
Core cross-section	up to 2.5 mm ²
Housing material	PBT
Sensing face	PBT
Degree of protection	IP68

General information

Use in the hazardous area	see instruction manuals
Category	1G; 2G; 1D

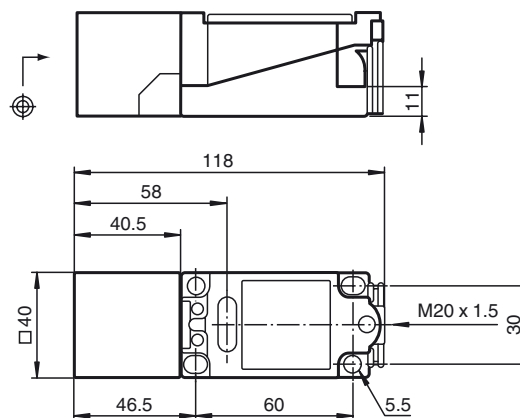
Compliance with standards and directives

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

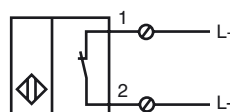
Approvals and certificates

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



ATEX 1G

Instruction

Device category 1G

EC-Type Examination Certificate

CE marking

ATEX marking

Directive conformity

Standards

Appropriate type

Effective internal capacitance C_i Effective internal inductance L_i

General

Ambient temperature

Installation, commissioning

Maintenance

Special conditions

Protection from mechanical danger

Electrostatic charge

Manual electrical apparatus for hazardous areas

for use in hazardous areas with gas, vapour and mist

PTB 00 ATEX 2032 X

CE 0102

Ex II 1G Ex ia IIC T6...T1 Ga

94/9/EG

EN 60079-0:2012, EN 60079-11:2012, EN 60079-26:2007

Ignition protection "Intrinsic safety"

Use is restricted to the following stated conditions

NJ20+U..+N..

≤ 150 nF ; a cable length of 10 m is considered.

≤ 130 μH ; a cable length of 10 m is considered.

The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual.

The EC-Type Examination Certificate has to be observed. The special conditions must be adhered to!

The temperature ranges, according to temperature class, are given in the EC-Type Examination Certificate. Note: Use the temperature table for category 1 !!! The 20 % reduction in accordance with EN 1127-1:2007 has already been accounted for in the temperature table for category 1.

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.

No changes can be made to apparatus, which are operated in hazardous areas. Repairs to these apparatus are not possible.

When used in the temperature range below -20 °C the sensor should be protected from knocks by the provision of an additional housing.

When used in group IIC non-permissible electrostatic charges should be avoided on the plastic housing parts. Information on electrostatic hazards can be found in the technical specification IEC/TS 60079-32-1. Additional requirements for gas group IIC. Avoid electrostatic charges that can cause electrostatic discharge when installing or operating the device.

ATEX 2G

Instruction

Device category 2G

EC-Type Examination Certificate

CE marking

ATEX marking

Directive conformity

Standards

Appropriate type

Effective internal capacitance C_i Effective internal inductance L_i

General

Ambient temperature

Installation, commissioning

Maintenance

Special conditions

Protection from mechanical danger

Electrostatic charge

Manual electrical apparatus for hazardous areas

for use in hazardous areas with gas, vapour and mist

PTB 00 ATEX 2032 X

CE0102

Ex II 1G Ex ia IIC T6...T1 Ga

94/9/EG

EN 60079-0:2012, EN 60079-11:2012

Ignition protection "Intrinsic safety"

Use is restricted to the following stated conditions

NJ20+U..+N..

 ≤ 150 nF ; a cable length of 10 m is considered. ≤ 130 μ H ; a cable length of 10 m is considered.

The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual. The EC-Type Examination Certificate has to be observed. The special conditions must be adhered to!

The temperature ranges, according to temperature class, are given in the EC-Type Examination Certificate.

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.

No changes can be made to apparatus, which are operated in hazardous areas. Repairs to these apparatus are not possible.

When used in the temperature range below -20 °C the sensor should be protected from knocks by the provision of an additional housing.

Additional requirements for gas group IIC. Avoid electrostatic charges that can cause electrostatic discharge when installing or operating the device. Information on electrostatic hazards can be found in the technical specification IEC/TS 60079-32-1.

ATEX 1D

Instruction

Device category 1D

EC-Type Examination Certificate

CE marking

ATEX marking

Directive conformity

Standards

Appropriate type

Effective internal capacitance C_i Effective internal inductance L_i

General

Maximum housing surface temperature

Installation, commissioning

Maintenance

Special conditions

Electrostatic charge

Manual electrical apparatus for hazardous areas

for use in hazardous areas with combustible dust

ZELM 03 ATEX 0128 X

CE 0102

II 1D Ex iaD 20 T 108 °C (226.4 °F)

94/9/EG

IEC 61241-11:2002: draft; prEN61241-0:2002

type of protection intrinsic safety "iD"

Use is restricted to the following stated conditions

NJ20+U..+N..

≤ 150 nF ; a cable length of 10 m is considered.

≤ 130 μH ; a cable length of 10 m is considered.

The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual.

The EC-Type Examination Certificate has to be observed.

The special conditions must be adhered to!

The maximum surface temperature of the housing is given in the EC-Type Examination Certificate.

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 at least the requirements of category ia IIB or iaD. Because of the possibility of the danger of ignition, which can arise due to faults and/or transient currents in the equipotential bonding system, galvanic isolation in the power supply and signal circuits is preferable. Associated apparatus without electrical isolation must only be used if the appropriate requirements of IEC 60079-14 are met. The intrinsically safe circuit has to be protected against influences due to lightning.

When used in the isolating wall between Zone 20 and Zone 21 or Zone 21 und Zone 22 the sensor must not be exposed to any mechanical danger and must be sealed in such a way, that the protective function of the isolating wall is not impaired. The applicable directives and standards must be observed.

No changes can be made to apparatus, which are operated in hazardous areas.

Repairs to these apparatus are not possible.

Electrostatic charging due to the flow of media during operation must be excluded.

This can be achieved by limiting the surface area of the plastic housing exposed to the electrostatic charging to less than 100 cm².