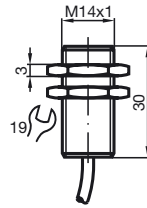


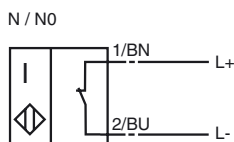
Comfort series
 2 mm embeddable
 Usable up to SIL2 acc. to
 IEC 61508



CE 0102

General specifications	
Switching element function	NAMUR NC
Rated operating distance s_n	2 mm
Installation	embeddable
Assured operating distance s_a	0 ... 1.62 mm
Reduction factor r_{Al}	0.4
Reduction factor r_{Cu}	0.3
Reduction factor r_{V2A}	0.85
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
Standard conformity	
EMC in accordance with	IEC / EN 60947-5-2:2004
Standards	DIN EN 60947-5-6 (NAMUR)
Ambient conditions	
Ambient temperature	-25 ... 100 °C (248 ... 373 K)
Mechanical specifications	
Connection type	2 m, PVC cable
Core cross-section	0.34 mm ²
Housing material	Stainless steel
Sensing face	PVDF
Protection degree	IP68
General information	
Use in the hazardous area	see instruction manuals
Category	1G; 2G; 1D

Connection type:



ATEX 1G

Instruction

Device category 1G

Directive conformity

Standard conformity

CE symbol

Ex-identification

EC-Type Examination Certificate

Appropriate type

Effective internal capacitance C_i

Effective internal inductance L_i

Cable length

Explosion group IIA

Explosion group IIB

Explosion group IIC

General

Highest permissible ambient temperature

Installation, Commissioning

Maintenance

Special conditions

Protection from mechanical danger

Electrostatic charging

Manual electrical apparatus for hazardous areas

for use in hazardous areas with gas, vapour and mist

94/9/EG

EN 50014:1997; EN 50020:1994; EN 50284:1999

Ignition protection "Intrinsic safety"

Use is restricted to the following stated conditions

CE 0102

Ex II 1G EEx ia IIC T6

PTB 00 ATEX 2048 X

NJ 2-11-N-G...

≤ 30 nF ; a cable length of 10 m is considered.

≤ 50 μ H ; a cable length of 10 m is considered.

Dangerous electrostatic charges on the fixed connection cable must be taken into account for lengths equal to and exceeding the following values:

96 cm

48 cm

7 cm

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

The EU prototype test certificate must be observed. The special conditions must be adhered to!

Directive 94/9EG and hence also EU prototype test 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.

The temperature ranges, according to temperature class, are given in the EU prototype test certificate. Note: Use the temperature table for category 1 !!! The 20 % reduction in accordance with EN 1127-1:1997 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" and have electrical isolation between the power supply and signal circuits.

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.

Electrostatic charges on the metal housing components must be avoided. Dangerous electrostatic charges on the metal housing components can be avoided by incorporating these components in the equipotential bonding.

ATEX 2G

Instruction

Device category 2G

Directive conformity

Standard conformity

CE symbol

Ex-identification

EC-Type Examination Certificate

Appropriate type

Effective internal capacitance C_i

Effective internal inductance L_i

General

Highest permissible ambient temperature

Installation, Commissioning

Maintenance

Special conditions

Protection from mechanical danger

Electrostatic charging

Manual electrical apparatus for hazardous areas

for use in hazardous areas with gas, vapour and mist
94/9/EG

EN 50014:1997, EN 50020:1994

Ignition protection "Intrinsic safety"

Use is restricted to the following stated conditions

CE 0102

Ex II 1G EEx ia IIC T6

PTB 00 ATEX 2048 X

NJ 2-11-N-G...

≤ 30 nF ; a cable length of 10 m is considered.

≤ 50 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 EU prototype test certificate must be observed. The special conditions must be adhered to!

Directive 94/9/EG and hence also EU prototype test 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.

The temperature ranges, according to temperature class, are given in the EU prototype test 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.

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.

ATEX 1D

Instruction

Device category 1D

Directive conformity

Standard conformity

CE symbol

Ex-identification

EC-Type Examination Certificate

Appropriate type

Effective internal capacitance C_i

Effective internal inductance L_i

General

Maximum housing surface temperature

Installation, Commissioning

Maintenance

Special conditions

Electrostatic charging

Manual electrical apparatus for hazardous areas

for use in hazardous areas with combustible dust

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

CE 0102

Ex II 1D Ex iaD 20 T 108 °C (381 K)

The Ex-relevant identification may also be printed on the accompanying adhesive label.

ZELM 03 ATEX 0128 X

NJ 2-11-N-G...

≤ 30 nF ; a cable length of 10 m is considered.

≤ 50 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 EU prototype test certificate must 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.

If the Ex-relevant identification is exclusively printed on the included adhesive label, this must be applied in the direct vicinity of the sensor! The surface to which the label is to be applied must be clean and free from grease! The applied adhesive label must be durable adlegible to protect it against the possibility of chemical corrosion!

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

The connection cables are to be laid in accordance with EN 50281-1-2 and must not normally be subjected to chaffing during use.

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.

ATEX 3G (nL)

Instruction

Device category 3G (nL)

Directive conformity

Standard conformity

CE symbol

Ex-identification

Effective internal capacitance C_i

Effective internal inductance L_i

General

Installation, Commissioning

Maintenance

[Fett]Special conditions

Maximum permissible ambient temperature T_{Umax} at $U_i = 20 V$

for $P_i=34 mW$, $I_i=25 mA$, T6

for $P_i=34 mW$, $I_i=25 mA$, T5

for $P_i=34 mW$, $I_i=25 mA$, T4-T1

for $P_i=64 mW$, $I_i=25 mA$, T6

for $P_i=64 mW$, $I_i=25 mA$, T5

for $P_i=64 mW$, $I_i=25 mA$, T4-T1

for $P_i=169 mW$, $I_i=52 mA$, T6

for $P_i=169 mW$, $I_i=52 mA$, T5

for $P_i=169 mW$, $I_i=52 mA$, T4-T1

for $P_i=242 mW$, $I_i=76 mA$, T6

for $P_i=242 mW$, $I_i=76 mA$, T5

for $P_i=242 mW$, $I_i=76 mA$, T4-T1

Protection from mechanical danger

Electrostatic charging

Connection parts

Manual electrical apparatus for hazardous areas

for use in hazardous areas with gas, vapour and mist

94/9/EG

EN 50021:2000 Ignition protection category "n"

Use is restricted to the following stated conditions

CE 0102

Ex II 3G EEx nL IIC T6 X

The Ex-relevant identification may also be printed on the accompanying adhesive label.

$\leq 30 nF$; a cable length of 10 m is considered.

$\leq 50 \mu H$; 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 data stated in the data sheet are restricted by this operating instruction!

The special conditions must be observed!

Directive 94/9/EG is generally applicable only to the use of electrical apparatus operating at atmospheric conditions.

If the equipment is not used under atmospheric conditions, a reduction of the permissible minimum ignition energies may have to be taken into consideration.

Laws and/or regulations and standards governing the use or intended usage goal must be observed. The sensor must only be operated with an energy-limited circuit, which satisfies the requirements of IEC 60079-15. The explosion group depends on the connected and energy-limited supply circuit.

If the Ex-relevant identification is printed exclusively on the adhesive label provided, this label must be affixed in the immediate vicinity of the sensor! The background surface to which the adhesive label is to be applied must be clean and free from grease! The applied label must be durable and remain legible, with due consideration of the possibility of chemical corrosion!

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

70 °C (343 K)

85 °C (358 K)

100 °C (373 K)

70 °C (343 K)

85 °C (358 K)

100 °C (373 K)

62 °C (335 K)

77 °C (350 K)

81 °C (354 K)

54 °C (327 K)

63 °C (336 K)

63 °C (336 K)

The sensor must not be mechanically damaged.

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

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.

The connection parts are to be installed, such that a minimum protection class of IP20 is achieved, in accordance with IEC 60529.