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APPROVED

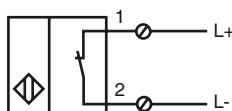
Model Number

NCB40-FP-N0-P4

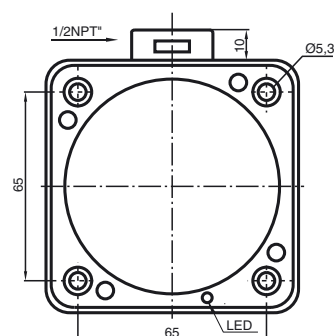
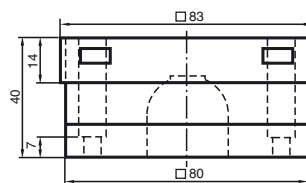
Features

- Comfort series
- 40 mm embeddable

Connection



Dimensions



Technical Data

General specifications

Switching element function	NAMUR, NC
Rated operating distance	s_n 40 mm
Installation	embeddable
Output polarity	NAMUR
Assured operating distance	s_a 0 ... 32 mm
Reduction factor r_{Al}	0.35
Reduction factor r_{Cu}	0.35
Reduction factor r_{303}	0.8

Nominal ratings

Installation conditions	
F	100 mm
Nominal voltage	U_o 8.2 V (R_i approx. 1 k Ω)
Switching frequency	f 0 ... 80 Hz
Hysteresis	H 0 ... 5 typ. 3 %
Reverse polarity protected	reverse polarity protected
Short-circuit protection	yes
Current consumption	
Measuring plate not detected	\geq 3 mA
Measuring plate detected	\leq 1 mA
Indication of the switching state	LED, yellow

Ambient conditions

Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Storage temperature	-40 ... 100 °C (-40 ... 212 °F)

Mechanical specifications

Connection type	screw terminals
Core cross-section	\leq 2.5 mm ²
Housing material	PBT/metal
Sensing face	PBT
Protection degree	IP67

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
Electromagnetic compatibility	NE 21:2007
Standards	EN 60947-5-2:2007 IEC 60947-5-2:2007

Approvals and certificates

FM approval	
Control drawing	116-0165F
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	Products with a maximum operating voltage of \leq 36 V do not bear a CCC marking because they do not require approval.

ATEX 1G

Instruction

Manual electrical apparatus for hazardous areas

Device category 1G

for use in hazardous areas with gas, vapour and mist
94/9/EGDirective conformity
Standard conformityEN 60079-0:2006, EN 60079-11:2007, EN 60079-26:2007
Ignition protection "Intrinsic safety"
Use is restricted to the following stated conditions
CE 0102

CE symbol

Ex-identification

 II 1G Ex ia IIC T6

EC-Type Examination Certificate

PTB 00 ATEX 2032 X

Appropriate type

NCB40-FP-N0..

Effective internal capacitance C_i ≤ 220 nF ; a cable length of 10 m is considered.Effective internal inductance L_i ≤ 360 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 EC-Type Examination Certificate has to be observed. The special conditions must be adhered to!

Highest permissible ambient temperature

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.

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.

Maintenance

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

Special conditions

Protection from mechanical danger

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

Electrostatic charging

Non-permissible electrostatic charges should be avoided on the plastic housing parts. 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 apparatus is provided with an outer lacquered metallic screen, which must be protected from electrostatic charging.

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 60079-0:2006, EN 60079-11:2007

Ignition protection "Intrinsic safety"

Use is restricted to the following stated conditions

 0102

 II 1G Ex ia IIC T6

PTB 00 ATEX 2032 X

NCB40-FP-N0..

≤ 220 nF ; a cable length of 10 m is considered.

≤ 360 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.

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.

When used in group IIC non-permissible electrostatic charges should be avoided on the plastic housing parts. 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 apparatus is provided with an outer lacquered metallic screen, which must be protected from electrostatic charging.

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 II 1D Ex iaD 20 T 108 °C (226.4 °F)

ZELM 03 ATEX 0128 X

NCB40-FP-N0..

≤ 220 nF ; a cable length of 10 m is considered.

≤ 360 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.

To avoid sliding contact discharges, which are associated with applications involving high charges (e.g. electrostatic enamelling, film manufacture, anti-dust precautions, processes involving mechanical friction, etc.), the surface area of the plastic housing, which is exposed to this charging should be limited to approx. 15 cm² by appropriate installation measuresElectrostatic 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.

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 apparatus is provided with an outer lacquered metallic screen, which must be protected from electrostatic charging.