



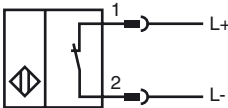
**Model Number**

NCB40-FP-N0-P1-V1

**Features**

- 40 mm flush

**Connection**



Wire colors in accordance with EN 60947-5-6

1	BN	(brown)
2	BU	(blue)

**Accessories**

**V1-G**

4-pin, M12 female field-attachable connector

**V1-W**

4-pin, M12 female field-attachable connector

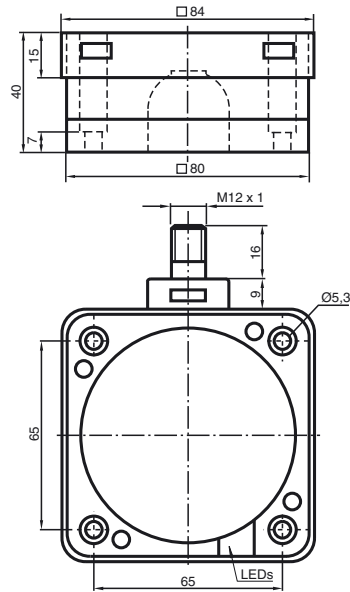
**V1-G-N-2M-PUR**

Cable socket, M12, 2-pin, NAMUR, PUR cable

**V1-W-N-2M-PUR**

Cable socket, M12, 2-pin, NAMUR, PUR cable

**Dimensions**



**Technical Data**

**General specifications**

Switching element function	NAMUR, NC
Rated operating distance	$s_n$ 40 mm
Installation	flush
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 $r_{304}$	0.8

**Nominal ratings**

Installation conditions	
F	100 mm
Nominal voltage	$U_o$ 8.2 V ( $R_i$ approx. 1 k $\Omega$ )
Switching frequency	f 0 ... 80 Hz
Hysteresis	H 0 ... 5 typ. 3 %
Reverse polarity protection	reverse polarity protected
Short-circuit protection	yes
Current consumption	
Measuring plate not detected	$\geq$ 3 mA
Measuring plate detected	$\leq$ 1 mA
Time delay before availability	$t_v$ $\leq$ 20 ms
Switching state indication	LED, yellow

**Ambient conditions**

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

**Mechanical specifications**

Connection type	Device connector M12 x 1, 4-pin
Housing material	PBT
Sensing face	PBT
Housing base	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.

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**ATEX 1G**

Instruction	<b>Manual electrical apparatus for hazardous areas</b>
Device category 1G	for use in hazardous areas with gas, vapour and mist
Directive conformity	94/9/EG
Standard conformity	EN 60079-0:2009, EN 60079-11:2007, EN 60079-26:2007
CE marking	Ignition protection "Intrinsic safety" Use is restricted to the following stated conditions  0102
Ex-identification	 II 1G Ex ia IIC T6 Ga
EC-Type Examination Certificate	PTB 00 ATEX 2032 X
Appropriate type	NCB40-FP-N0..
Effective internal capacitance $C_i$	$\leq 220$ nF ; a cable length of 10 m is considered.
Effective internal inductance $L_i$	$\leq 360$ $\mu$ 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.
<b>Specific conditions</b>	
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. 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 marking

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

**Specific 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 60079-0:2009, EN 60079-11:2007

Ignition protection "Intrinsic safety"

Use is restricted to the following stated conditions

C  $\text{C}$  0102 $\text{Ex}$  II 1G Ex ia IIC T6 Ga

PTB 00 ATEX 2032 X

NCB40-FP-N0..

 $\leq 220$  nF ; a cable length of 10 m is considered. $\leq 360$   $\mu$ 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 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. 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 marking

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

**Specific 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

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 cm<sup>2</sup> 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 cm<sup>2</sup>.

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