



## Model Number

NBN30-U1K-N0

## Features

- Sensor head bidirectional and rotatable
- 30 mm non-flush

## Accessories

### MHW 01

Modular mounting bracket

### MH 04-2057B

Mounting aid for VariKont and +U1+

## Technical Data

### General specifications

Switching element function		NAMUR, NC
Rated operating distance	$s_n$	30 mm
Installation		non-flush
Output polarity		NAMUR
Assured operating distance	$s_a$	0 ... 24.3 mm
Reduction factor $r_{Al}$		0.45
Reduction factor $r_{Cu}$		0.42
Reduction factor $r_{304}$		0.79

### Nominal ratings

Nominal voltage	$U_o$	8 V
Switching frequency	$f$	0 ... 150 Hz
Hysteresis	$H$	1 ... 15 typ. 5 %
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
Switching state indicator		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	$\leq 2.5 \text{ mm}^2$
Housing material	PA
Sensing face	PA
Degree of protection	IP66 / IP68 / IP69K
Mass	225 g
Note	Tightening torque: 1.8 Nm (housing) Tightening torque: 1.0 Nm (Screw terminal)

### General information

Use in the hazardous area	see instruction manuals
Category	1G; 2G; 3G

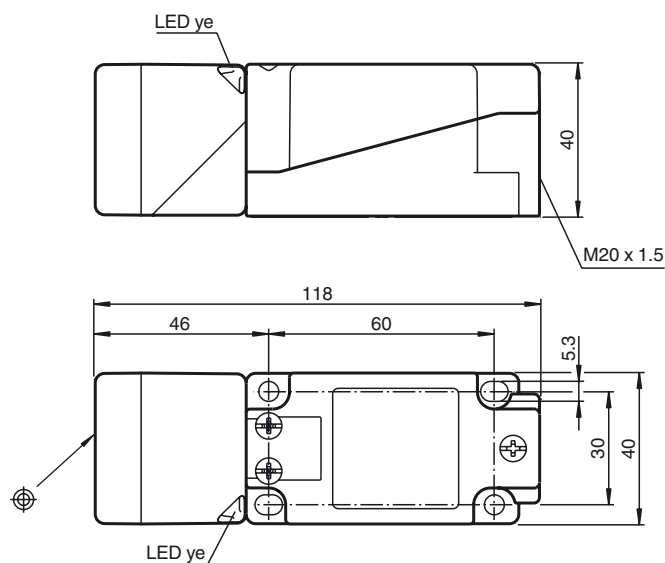
### Compliance with standards and directives

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

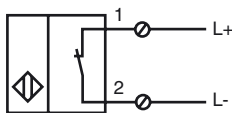
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for products rated $\leq 36$ V

## 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

 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

NBN30-U.K-N0...

 $\leq 105 \text{ nF}$  ; a cable length of 10 m is considered. $\leq 300 \text{ }\mu\text{H}$  ; 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!

Directive 94/9/EG and hence also EC-Type Examination Certificates apply in general only to the use of electrical apparatus under atmospheric conditions.

The use in ambient temperatures of  $> 60 \text{ }^\circ\text{C}$  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 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  $-20 \text{ }^\circ\text{C}$  the sensor should be protected from knocks by the provision of an additional housing.

Additional requirements for gas group IIC. Information on electrostatic hazards can be found in the technical specification IEC/TS 60079-32-1. 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

CE 0102

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

NBN30-U.K-N0...

$\leq 105 \text{ nF}$  ; a cable length of 10 m is considered.

$\leq 300 \text{ }\mu\text{H}$  ; 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!

Directive 94/9/EG and hence also EC-Type Examination Certificates apply in general only to the use of electrical apparatus under atmospheric conditions.

The use in ambient temperatures of  $> 60 \text{ }^\circ\text{C}$  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 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  $-20 \text{ }^\circ\text{C}$  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 3G (ic)**

Instruction

**Device category 3G (ic)**

Certificate of Compliance

CE marking

ATEX marking

Directive conformity

Standards

Effective internal capacitance  $C_i$ Effective internal inductance  $L_i$ 

General

Installation, commissioning

Maintenance

**Special conditions**for  $P_i=34$  mW,  $I_i=25$  mA, T6for  $P_i=34$  mW,  $I_i=25$  mA, T5for  $P_i=34$  mW,  $I_i=25$  mA, T4-T1for  $P_i=64$  mW,  $I_i=25$  mA, T6for  $P_i=64$  mW,  $I_i=25$  mA, T5for  $P_i=64$  mW,  $I_i=25$  mA, T4-T1for  $P_i=169$  mW,  $I_i=52$  mA, T6for  $P_i=169$  mW,  $I_i=52$  mA, T5for  $P_i=169$  mW,  $I_i=52$  mA, T4-T1for  $P_i=242$  mW,  $I_i=76$  mA, T6for  $P_i=242$  mW,  $I_i=76$  mA, T5for  $P_i=242$  mW,  $I_i=76$  mA, T4-T1

Electrostatic charge

Connection parts

**Manual electrical apparatus for hazardous areas**

for use in hazardous areas with gas, vapour and mist

PF 13 CERT 2895 X

CE

II 3G Ex ic IIC T6...T1 Gc

94/9/EG

EN 60079-0:2012, EN 60079-11:2012 Ignition protection category "ic"

Use is restricted to the following stated conditions

 $\leq 105$  nF ; a cable length of 10 m is considered. $\leq 300$   $\mu$ 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!

Laws and/or regulations and standards governing the use or intended usage goal must be observed. The sensor must only be operated with energy-limited circuits, which satisfy the requirements of IEC 60079-11. The explosion group complies with the connected, supplying, power limiting circuit.

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

Repairs to these apparatus are not possible.

73 °C (163.4 °F)

88 °C (190.4 °F)

100 °C (212 °F)

66 °C (150.8 °F)

81 °C (177.8 °F)

100 °C (212 °F)

45 °C (113 °F)

60 °C (140 °F)

89 °C (192.2 °F)

30 °C (86 °F)

45 °C (113 °F)

74 °C (165.2 °F)

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.

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