



### Model Number

NBN40-U1K-N0-V1

### Features

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

### Accessories

#### V1-W

Female connector, M12, 4-pin, field attachable

#### V1-W-2M-PUR

Female cordset, M12, 4-pin, PUR cable

#### V1-G-2M-PUR

Female cordset, M12, 4-pin, PUR cable

#### MHW 01

Modular mounting bracket

#### V1-G

Female connector, M12, 4-pin, field attachable

## Technical Data

### General specifications

Switching function		Normally closed (NC)
Output type		NAMUR
Rated operating distance	$s_n$	40 mm
Installation		non-flush
Assured operating distance	$s_a$	0 ... 32.4 mm
Actual operating distance	$s_r$	36 ... 44 mm
Reduction factor $r_{AI}$		0.31
Reduction factor $r_{CU}$		0.3
Reduction factor $r_{304}$		0.74
Output type		2-wire

### Nominal ratings

Nominal voltage	$U_o$	8 V
Switching frequency	$f$	0 ... 150 Hz
Hysteresis	$H$	typ. 5 %
Reverse polarity protection		yes
Short-circuit protection		yes
Current consumption		
Measuring plate not detected		$\geq 2.2$ mA
Measuring plate detected		$\leq 1$ mA
Switching state indicator		LED, yellow

### Functional safety related parameters

MTTF <sub>d</sub>	1415 a
Mission Time (T <sub>M</sub> )	20 a
Diagnostic Coverage (DC)	0 %

### Ambient conditions

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

### Mechanical specifications

Connection type	Connector plug M12 x 1, 4-pin
Housing material	PA
Sensing face	PA
Degree of protection	IP68 / IP69K
Mass	225 g
Note	Tightening torque: 1.8 Nm (housing)

### General information

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

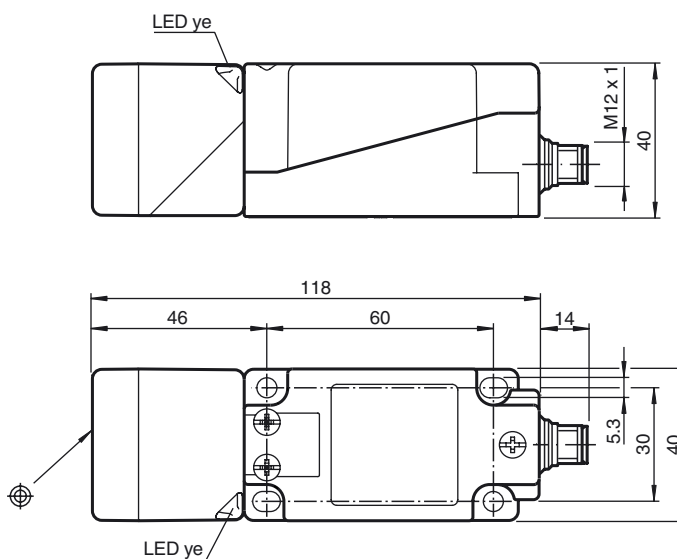
### Compliance with standards and directives

Standard conformity	
NAMUR	EN 60947-5-6:2000 IEC 60947-5-6:1999
Electromagnetic compatibility	NE 21:2007
Standards	EN 60947-5-2:2007 EN 60947-5-2/A1:2012 IEC 60947-5-2:2007 IEC 60947-5-2 AMD 1:2012

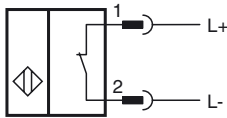
### Approvals and certificates

EAC conformity	TR CU 012/2011
UL approval	
Ordinary Location	E87056
Hazardous Location	E501628
Control drawing	116-0451
CCC approval	CCC approval / marking not required for products rated $\leq 36$ V

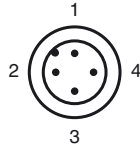
## Dimensions



Electrical Connection



Pinout



Wire colors in accordance with EN 60947-5-6

1	BN	(brown)
2	BU	(blue)

Equipment protection level Ga

CE marking	CE 0102	
ATEX marking	II 1G Ex ia IIC T6...T1 Ga The Ex-related marking can also be printed on the enclosed label.	
Standards	EN 60079-0:2012+A11:2013 EN 60079-11:2012 Ignition protection "Intrinsic safety" Use is restricted to the following stated conditions	
Appropriate type	NBN40-U.K-N0...	
Effective internal capacitance	$C_i$	$\leq 105 \text{ nF}$ ; a cable length of 10 m is considered.
Effective internal inductance	$L_i$	$\leq 300 \text{ }\mu\text{H}$ ; a cable length of 10 m is considered.
Ambient temperature	Details of the correlation between the type of circuit connected, the maximum permissible ambient temperature, the temperature class, and the effective internal reactance values can be found on the EC-type examination certificate. <b>Note:</b> Use the temperature table for category 1 !!! The 20 % reduction in accordance with EN 1127-1 has already been applied to the temperature table for category 1.	

Equipment protection level Gb

CE marking	CE 0102	
ATEX marking	II 1G Ex ia IIC T6...T1 Ga The Ex-related marking can also be printed on the enclosed label.	
Standards	EN 60079-0:2012+A11:2013, EN 60079-11:2012 Ignition protection "Intrinsic safety" Use is restricted to the following stated conditions	
Appropriate type	NBN40-U.K-N0...	
Effective internal capacitance	$C_i$	$\leq 105 \text{ nF}$ ; a cable length of 10 m is considered.
Effective internal inductance	$L_i$	$\leq 300 \text{ }\mu\text{H}$ ; a cable length of 10 m is considered.
Maximum permissible ambient temperature $T_{amb}$	Details of the correlation between the type of circuit connected, the maximum permissible ambient temperature, the temperature class, and the effective internal reactance values can be found on the EC-type examination certificate.	

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**Equipment protection level Gc (ic)**

Certificate	PF 13 CERT 2895 X
CE marking	CE
ATEX marking	⊕ II 3G Ex ic IIC T6...T1 Gc The Ex-related marking can also be printed on the enclosed label.
Standards	EN 60079-0:2012, EN 60079-11:2012 Ignition protection category "ic" Use is restricted to the following stated conditions
Effective internal capacitance	$C_i$ ≤ 105 nF ; a cable length of 10 m is considered.
Effective internal inductance	$L_i$ ≤ 300 μH ; A cable length of 10 m is considered.

**Special conditions**

for $P_i=34$ mW, $I_i=25$ mA, T6	73 °C (163.4 °F)
for $P_i=34$ mW, $I_i=25$ mA, T5	88 °C (190.4 °F)
for $P_i=34$ mW, $I_i=25$ mA, T4-T1	100 °C (212 °F)
for $P_i=64$ mW, $I_i=25$ mA, T6	66 °C (150.8 °F)
for $P_i=64$ mW, $I_i=25$ mA, T5	81 °C (177.8 °F)
for $P_i=64$ mW, $I_i=25$ mA, T4-T1	100 °C (212 °F)
for $P_i=169$ mW, $I_i=52$ mA, T6	45 °C (113 °F)
for $P_i=169$ mW, $I_i=52$ mA, T5	60 °C (140 °F)
for $P_i=169$ mW, $I_i=52$ mA, T4-T1	89 °C (192.2 °F)
for $P_i=242$ mW, $I_i=76$ mA, T6	30 °C (86 °F)
for $P_i=242$ mW, $I_i=76$ mA, T5	45 °C (113 °F)
for $P_i=242$ mW, $I_i=76$ mA, T4-T1	74 °C (165.2 °F)

**Equipment protection level Da**

ATEX marking	⊕ II 1D Ex ia IIC T135°C Da The Ex-related marking can also be printed on the enclosed label.
Standards	EN 60079-0:2012+A11:2013 EN 60079-11:2012 Ignition protection "Intrinsic safety" Use is restricted to the following stated conditions
Appropriate type	NBN40-U.K-N0...
Effective internal capacitance	$C_i$ ≤ 105 nF ; a cable length of 10 m is considered.
Effective internal inductance	$L_i$ ≤ 300 μH ; a cable length of 10 m is considered.