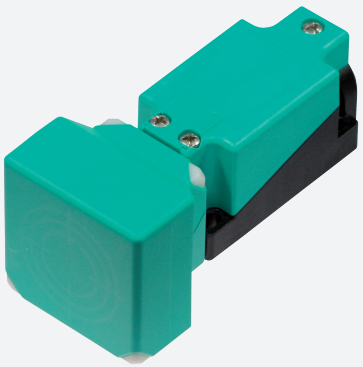
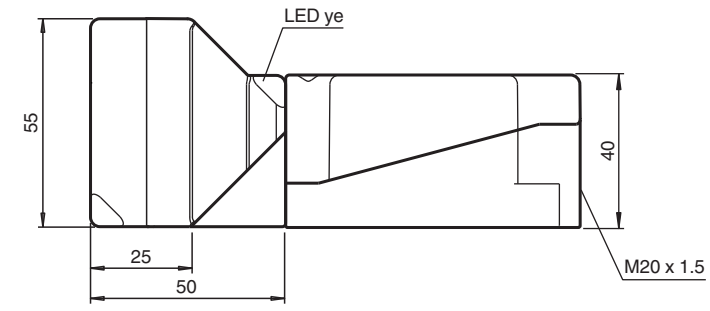


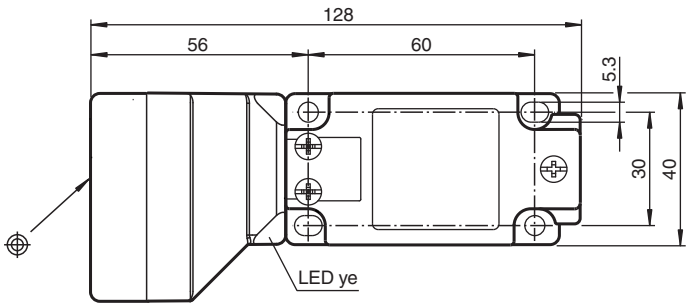
Inductive sensor

NBN40-U1LK-N0

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

Dimensions





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
Reduction factor r_{Al}		0.41
Reduction factor r_{Cu}		0.38
Reduction factor r_{304}		0.75

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Reduction factor r_{Brass}		0.46
Output type		2-wire
Nominal ratings		
Installation conditions		
A		25 mm
Nominal voltage	U_o	8.2 V
Switching frequency	f	0 ... 100 Hz
Hysteresis	H	2 ... 20 typ. 10 %
Reverse polarity protection		reverse polarity protected
Short-circuit protection		yes
Current consumption		
Measuring plate not detected		min. 2.5 mA
Measuring plate detected		≤ 1 mA
Switching state indicator		LED, yellow
Compliance with standards and directives		
Standard conformity		
NAMUR		EN 60947-5-6:2000 IEC 60947-5-6:1999
Electromagnetic compatibility		NE 21:2012
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		
UL approval		
Ordinary Location		E87056
Hazardous Location		E501628
Control drawing		116-0451
CCC approval		CCC approval / marking not required for products rated ≤36 V
Ambient conditions		
Ambient temperature		-25 ... 100 °C (-13 ... 212 °F)
Storage temperature		-40 ... 100 °C (-40 ... 212 °F)
Mechanical specifications		
Connection type		screw terminals
Information for connection		A maximum of two conductors with the same core cross section may be mounted on one terminal connection! tightening torque 1.2 Nm + 10 %
Core cross-section		up to 2.5 mm²
Minimum core cross-section		without wire end ferrule 0.5 mm² , with connector sleeves 0.34 mm²
Maximum core cross-section		without wire end ferrule 2.5 mm² , with connector sleeves 1.5 mm²
Housing material		PA
Sensing face		PA
Housing base		plastic
Degree of protection		IP67 / IP69K
Data for application in connection with hazardous areas		
Equipment protection level		Ga , Gb , Gc (ic) , Da , Mb
Equipment protection level Ga		
Type of protection		intrinsic safety
CE marking		[*PD-Z02585A*]
Certificates		
Appropriate type		NBN40-U...LK-N0...
ATEX certificate		PTB 00 ATEX 2032 X
ATEX marking		⟨Ex⟩ II 1G Ex ia IIC T6...T1 Ga
Standards		EN 60079-0:2012+A11:2013 , EN 60079-11:2012
IECEx certificate		IECEx PTB 11.0021X

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IECEx marking		Ex ia IIC T6...T1 Ga
Standards		IEC 60079-0:2011 , IEC 60079-11:2011
Effective internal capacitance	C_i	max. 165 nF A cable length of 10 m is considered.
Effective internal inductance	L_i	max. 130 µH A cable length of 10 m is considered.
Maximum permissible ambient temperature	T_{amb}	Also observe the maximum permissible ambient temperature stated in the general technical data. Keep to the lower of the two values.
for ATEX		at U_i = 16 V , I_i = 25 mA , P_i = 34 mW , T6 : 56 °C (132.8 °F) T5 : 68 °C (154.4 °F) T4 : 96 °C (204.8 °F) T3 : 96 °C (204.8 °F) T2 : 96 °C (204.8 °F) T1 : 96 °C (204.8 °F) at U_i = 16 V , I_i = 25 mA , P_i = 64 mW , T6 : 49 °C (120.2 °F) T5 : 61 °C (141.8 °F) T4 : 89 °C (192.2 °F) T3 : 89 °C (192.2 °F) T2 : 89 °C (192.2 °F) T1 : 89 °C (192.2 °F) at U_i = 16 V , I_i = 52 mA , P_i = 169 mW , T6 : 28 °C (82.4 °F) T5 : 40 °C (104 °F) T4 : 68 °C (154.4 °F) T3 : 68 °C (154.4 °F) T2 : 68 °C (154.4 °F) T1 : 68 °C (154.4 °F) at U_i = 16 V , I_i = 76 mA , P_i = 242 mW , T6 : 13 °C (55.4 °F) T5 : 25 °C (77 °F) T4 : 53 °C (127.4 °F) T3 : 53 °C (127.4 °F) T2 : 53 °C (127.4 °F) T1 : 53 °C (127.4 °F)
for IECEx		at U_i = 16 V , I_i = 25 mA , P_i = 34 mW , T6 : 73 °C (163.4 °F) T5 : 88 °C (190.4 °F) T4 : 100 °C (212 °F) T3 : 100 °C (212 °F) T2 : 100 °C (212 °F) T1 : 100 °C (212 °F) at U_i = 16 V , I_i = 25 mA , P_i = 64 mW , T6 : 66 °C (150.8 °F) T5 : 81 °C (177.8 °F) T4 : 100 °C (212 °F) T3 : 100 °C (212 °F) T2 : 100 °C (212 °F) T1 : 100 °C (212 °F) at U_i = 16 V , I_i = 52 mA , P_i = 169 mW , T6 : 45 °C (113 °F) T5 : 60 °C (140 °F) T4 : 89 °C (192.2 °F) T3 : 89 °C (192.2 °F) T2 : 89 °C (192.2 °F) T1 : 89 °C (192.2 °F) at U_i = 16 V , I_i = 76 mA , P_i = 242 mW , T6 : 30 °C (86 °F) T5 : 45 °C (113 °F) T4 : 74 °C (165.2 °F) T3 : 74 °C (165.2 °F) T2 : 74 °C (165.2 °F) T1 : 74 °C (165.2 °F)
Equipment protection level Gb		
Type of protection		intrinsic safety
CE marking		[*PD-Z02585A*]
Certificates		
Appropriate type		NBN40-U...LK-N0...
ATEX certificate		PTB 00 ATEX 2032 X
ATEX marking		⟨Ex⟩ II 1G Ex ia IIC T6…T1 Ga
Standards		EN 60079-0:2012+A11:2013 , EN 60079-11:2012
IECEx certificate		IECEx PTB 11.0021X
IECEx marking		Ex ia IIC T6...T1 Ga
Standards		IEC 60079-0:2011 , IEC 60079-11:2011

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Effective internal capacitance	C_i	max. 165 nF A cable length of 10 m is considered.
Effective internal inductance	L_i	max. 130 µH A cable length of 10 m is considered.
Maximum permissible ambient temperature	T_{amb}	Also observe the maximum permissible ambient temperature stated in the general technical data. Keep to the lower of the two values. at U_i = 16 V , I_i = 25 mA , P_i = 34 mW , T6 : 73 °C (163.4 °F) T5 : 88 °C (190.4 °F) T4 : 100 °C (212 °F) T3 : 100 °C (212 °F) T2 : 100 °C (212 °F) T1 : 100 °C (212 °F) at U_i = 16 V , I_i = 25 mA , P_i = 64 mW , T6 : 66 °C (150.8 °F) T5 : 81 °C (177.8 °F) T4 : 100 °C (212 °F) T3 : 100 °C (212 °F) T2 : 100 °C (212 °F) T1 : 100 °C (212 °F) at U_i = 16 V , I_i = 52 mA , P_i = 169 mW , T6 : 45 °C (113 °F) T5 : 60 °C (140 °F) T4 : 89 °C (192.2 °F) T3 : 89 °C (192.2 °F) T2 : 89 °C (192.2 °F) T1 : 89 °C (192.2 °F) at U_i = 16 V , I_i = 76 mA , P_i = 242 mW , T6 : 30 °C (86 °F) T5 : 45 °C (113 °F) T4 : 74 °C (165.2 °F) T3 : 74 °C (165.2 °F) T2 : 74 °C (165.2 °F) T1 : 74 °C (165.2 °F)
Equipment protection level Gc (ic)		
Type of protection		intrinsic safety
CE marking		[*PD-Z02586A*]
Certificates		
ATEX certificate		PF13CERT2895 X
ATEX marking		Ex II 3G Ex ic IIC T6…T1 Gc
Standards		EN 60079-0:2012+A11:2013 , EN 60079-11:2012
Effective internal capacitance	C_i	max. 165 nF A cable length of 10 m is considered.
Effective internal inductance	L_i	max. 130 µH A cable length of 10 m is considered.
Maximum permissible ambient temperature	T_{amb}	Also observe the maximum permissible ambient temperature stated in the general technical data. Keep to the lower of the two values. at U_i = 20 V , I_i = 25 mA , P_i = 34 mW , T6 : 66 °C (150.8 °F) T5 : 81 °C (177.8 °F) T4 : 100 °C (212 °F) T3 : 100 °C (212 °F) T2 : 100 °C (212 °F) T1 : 100 °C (212 °F) at U_i = 20 V , I_i = 25 mA , P_i = 64 mW , T6 : 66 °C (150.8 °F) T5 : 81 °C (177.8 °F) T4 : 100 °C (212 °F) T3 : 100 °C (212 °F) T2 : 100 °C (212 °F) T1 : 100 °C (212 °F) at U_i = 20 V , I_i = 52 mA , P_i = 169 mW , T6 : 45 °C (113 °F) T5 : 60 °C (140 °F) T4 : 89 °C (192.2 °F) T3 : 89 °C (192.2 °F) T2 : 89 °C (192.2 °F) T1 : 89 °C (192.2 °F) at U_i = 20 V , I_i = 76 mA , P_i = 242 mW , T6 : 30 °C (86 °F) T5 : 45 °C (113 °F) T4 : 74 °C (165.2 °F) T3 : 74 °C (165.2 °F) T2 : 74 °C (165.2 °F) T1 : 74 °C (165.2 °F)
Equipment protection level Da		

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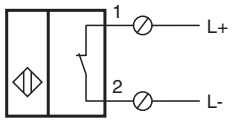
Technical Data

Type of protection		intrinsic safety
CE marking		[*PD-Z02585A*]
Certificates		
Appropriate type		NBN40-U...LK-N0...
ATEX certificate		PTB 00 ATEX 2032 X
ATEX marking		⟨Ex⟩ II 1D Ex ia IIIC T135°C Da
Standards		EN 60079-0:2012+A11:2013 , EN 60079-11:2012
IECEx certificate		IECEx PTB 11.0021X
IECEx marking		Ex ia IIIC T135°C Da
Standards		IEC 60079-0:2011 , IEC 60079-11:2011
Effective internal capacitance	C_i	max. 165 nF A cable length of 10 m is considered.
Effective internal inductance	L_i	max. 130 µH A cable length of 10 m is considered.
Maximum permissible ambient temperature	T_{amb}	Also observe the maximum permissible ambient temperature stated in the general technical data. Keep to the lower of the two values. at U_i = 16 V , I_i = 25 mA , P_i = 34 mW : 100 °C (212 °F) at U_i = 16 V , I_i = 25 mA , P_i = 64 mW : 100 °C (212 °F) at U_i = 16 V , I_i = 52 mA , P_i = 169 mW : 89 °C (192.2 °F) at U_i = 16 V , I_i = 76 mA , P_i = 242 mW : 74 °C (165.2 °F)
Equipment protection level Mb		
Type of protection		intrinsic safety
Certificates		
Appropriate type		NBN40-U...LK-N0...
IECEx certificate		IECEx PTB 11.0021X
IECEx marking		Ex ia I Mb
Standards		IEC 60079-0:2011 , IEC 60079-11:2011
Effective internal capacitance	C_i	max. 165 nF A cable length of 10 m is considered.
Effective internal inductance	L_i	max. 130 µH A cable length of 10 m is considered.
Maximum permissible ambient temperature	T_{amb}	Also observe the maximum permissible ambient temperature stated in the general technical data. Keep to the lower of the two values. at U_i = 16 V , I_i = 25 mA , P_i = 34 mW : 100 °C (212 °F) at U_i = 16 V , I_i = 25 mA , P_i = 64 mW : 100 °C (212 °F) at U_i = 16 V , I_i = 52 mA , P_i = 169 mW : 89 °C (192.2 °F) at U_i = 16 V , I_i = 76 mA , P_i = 242 mW : 74 °C (165.2 °F)
General information		
Use in the hazardous area		see instruction manuals

Connection



Accessories

	**MHW 01**	Modular mounting bracket
	**MH 04-2057B**	Mounting aid for VariKont and +U1+

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