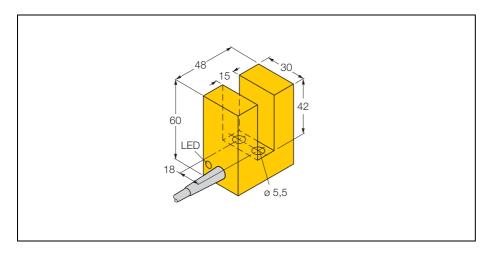
# Inductive sensor slot-type SI15-K30-Y1X





Ident-No.     1007601       Slot width     15mm       Repeatability     ≤ 2 %       Temperature drift     ≤ ± 10 %       Hysteresis     1 10 %       Ambient temperature     -25+70°C       Output function     2-wire, NAMUR       Switching frequency     ≤ 0.5kHz       voltage     Nom. 8.2 VDC       Non-actuated current consumption     ≥ 2.1 mA       Actuated current consumption     ≤ 1.2 mA       Approval acc. to     KEMA 02 ATEX 1090X Issue no.4       Internal inductance (L <sub>i</sub> ) / capacitance (C <sub>i</sub> )     150 nF / 150 µH       Device designation     ©II 2 G Ex ia IIC T6/II 1 D Ex ia D 20 T95 °C (max. U <sub>i</sub> = 20 V, I <sub>i</sub> = 60 mA, P <sub>i</sub> = 200 mW)       Warning     slot sensor, K30       Housing     slot sensor, K30       Dimensions     48x 60x 30mm       Housing material     Plastic, PBT-GF30-V0       Material active face     Plastic, PBT-GF30-V0       Electrical connection     cables       Cable quality     Ø 5.2, blue, LiYY, PVC, 2 m       Cable cross section:     2 x 0.5mm²       Vibration resistance     55 Hz (1 mm)       Shock resistance     30g (11 ms)       Protection class     LED yellow	Туре	SI15-K30-Y1X	
Repeatability $\leq 2\%$ Temperature drift $\leq \pm 10\%$ Hysteresis $1 10\%$ Ambient temperature $-25+70^{\circ}\text{C}$ Output function $2\text{-wire}$ , NAMUR Switching frequency $\leq 0.5\text{kHz}$ Nom. 8.2 VDC Non-actuated current consumption $\geq 2.1 \text{ mA}$ Actuated current consumption $\leq 1.2 \text{ mA}$ Approval acc. to $\leq 1.2 \text{ mA}$ Approval acc. to $\leq 1.2 \text{ mA}$ Approval acc. to $\leq 1.2 \text{ mA}$ Internal inductance $\leq 1.2 \text{ mA}$ Device designation $\leq 1.2 \text{ mA}$ But $\leq 1.2 \text{ mA}$ The simple $\leq 1.2 \text{ mB}$ Th	ldent-No.	1007601	
Temperature drift  Hysteresis  Ambient temperature  -25+ $70^{\circ}$ C  Output function  Switching frequency voltage  Nom. 8.2 VDC  Non-actuated current consumption  Actuated current consumption  Actuated current consumption  Approval acc. to  Internal inductance (L <sub>i</sub> ) / capacitance (C <sub>i</sub> )  Device designation  KEMA 02 ATEX 1090X Issue no.4  150 nF / 150 $\mu$ H $\square$ II 2 G Ex ia IIC T6/II 1 D Ex ia D 20 T95 °C  (max. $\square$ U <sub>i</sub> = 20 V, $\square$ i = 60 mA, $\square$ i = 200 mW)  Warning  Housing  Also t sensor, K30  Abstract charging  Housing avoid static charging  Housing material  Plastic, PBT-GF30-V0  Material active face  Electrical connection  Cable quality $\square$ 5.2, blue, LiYY, PVC, 2 m  Cable cross section:  Vibration resistance  Shock resistance  Protection class	Slot width	15mm	
Hysteresis Ambient temperature  -25+70°C  Output function Switching frequency voltage Nom. 8.2 VDC  Non-actuated current consumption Actuated current consumption  Approval acc. to Internal inductance (L <sub>i</sub> ) / capacitance (C <sub>i</sub> )  Device designation  Warning  Housing Housing Dimensions Housing material Housing material Housing active face Electrical connection Cable quality Cable cross section: Vibration resistance Protection class  1 10 % -25+70°C  2-wire, NAMUR  2-wire, N	Repeatability	≤ 2 %	
Ambient temperature  -25+70°C  Output function  Switching frequency voltage  Nom. 8.2 VDC  Non-actuated current consumption  Actuated current consumption  Approval acc. to  Internal inductance (L <sub>i</sub> ) / capacitance (C <sub>i</sub> )  Device designation  Warning  Housing  Dimensions  Housing material  Housing material  Material active face Electrical connection  Cable quality  Cable cross section:  Vibration resistance  Protection class  Protection class  2-wire, NAMUR  309 X1 mA  84 20 XEX  150 nF / 150 µH	Temperature drift	≤ ± 10 %	
Output function       2-wire, NAMUR         Switching frequency       ≤ 0.5kHz         Nom. 8.2 VDC         Non-actuated current consumption       ≥ 2.1 mA         Actuated current consumption       ≤ 1.2 mA         Approval acc. to       KEMA 02 ATEX 1090X Issue no.4         Internal inductance (L <sub>i</sub> ) / capacitance (C <sub>i</sub> )       150 nF / 150 μH         Device designation       ②Il 2 G Ex ia IIC T6/II 1 D Ex ia D 20 T95 °C (max. U <sub>i</sub> = 20 V, I <sub>i</sub> = 60 mA, P <sub>i</sub> = 200 mW)         Warning       slot sensor, K30         Housing       slot sensor, K30         Housing material       Plastic, PBT-GF30-V0         Material active face       Plastic, PBT-GF30-V0         Electrical connection       cables         Cable quality       Ø 5.2, blue, LiYY, PVC, 2 m         Cable cross section:       2 x 0.5mm²         Vibration resistance       55 Hz (1 mm)         Shock resistance       30g (11 ms)         Protection class       IP67	Hysteresis	1 10 %	
Switching frequency voltage Nom. 8.2 VDC  Non-actuated current consumption $\geq 2.1 \text{ mA}$ Actuated current consumption $\leq 1.2 \text{ mA}$ Approval acc. to KEMA 02 ATEX 1090X Issue no.4  Internal inductance (L <sub>i</sub> ) / capacitance (C <sub>i</sub> ) 150 nF / 150 $\mu$ H  Device designation $\otimes$ Ill 2 G Ex ia IIC T6/II 1 D Ex ia D 20 T95 °C (max. U <sub>i</sub> = 20 V, I <sub>i</sub> = 60 mA, P <sub>i</sub> = 200 mW)  Warning avoid static charging  Housing Slot sensor, K30  Housing Housing Material Plastic, PBT-GF30-V0  Material active face Plastic, PBT-GF30-V0  Electrical connection cables  Cable quality Ø 5.2, blue, LiYY, PVC, 2 m  Cable cross section: $2 \times 0.5 \text{mm}^2$ Vibration resistance $55 \text{ Hz} (1 \text{ mm})$ Shock resistance Protection class	Ambient temperature	-25+ 70°C	
voltage Non-actuated current consumption $\geq 2.1 \text{ mA}$ Actuated current consumption $\leq 1.2 \text{ mA}$ Approval acc. to KEMA 02 ATEX 1090X Issue no.4 Internal inductance (L <sub>i</sub> ) / capacitance (C <sub>i</sub> ) 150 nF / 150 µH  Device designation $\bigotimes$ Il 2 G Ex ia IIC T6/II 1 D Ex ia D 20 T95 °C (max. U <sub>i</sub> = 20 V, I <sub>i</sub> = 60 mA, P <sub>i</sub> = 200 mW) avoid static charging  Housing slot sensor, K30  Housing material Plastic, PBT-GF30-V0 Material active face Plastic, PBT-GF30-V0 Electrical connection cables Cable quality Ø 5.2, blue, LiYY, PVC, 2 m Cable cross section: $2 \times 0.5 \text{mm}^2$ Vibration resistance Shock resistance Protection class	Output function	2-wire, NAMUR	
Non-actuated current consumption $\geq 2.1  \text{mA}$ Actuated current consumption $\leq 1.2  \text{mA}$ Approval acc. to   KEMA 02 ATEX 1090X Issue no.4   Internal inductance (L <sub>i</sub> ) / capacitance (C <sub>i</sub> )   150 nF / 150 µH   Device designation   $\bigcirc$ II 2 G Ex ia IIC T6/II 1 D Ex ia D 20 T95 °C (max. U <sub>i</sub> = 20 V, I <sub>i</sub> = 60 mA, P <sub>i</sub> = 200 mW)   Warning   avoid static charging   Housing   Slot sensor, K30   48x 60x 30mm   Housing material   Plastic, PBT-GF30-V0   Material active face   Plastic, PBT-GF30-V0   Electrical connection   cables   Cable quality   $\bigcirc$ 5.2, blue, LiYY, PVC, 2 m   Cable cross section: $2 \times 0.5  \text{mm}^2$   Vibration resistance   55 Hz (1 mm)   Shock resistance   30g (11 ms)   Protection class   IP67	Switching frequency	≤ 0.5kHz	
Actuated current consumption $\leq 1.2 \text{ mA}$ Approval acc. to   KEMA 02 ATEX 1090X Issue no.4   Internal inductance (L <sub>i</sub> ) / capacitance (C <sub>i</sub> )   150 nF / 150 µH   Device designation   $\textcircled{E}$   12 G Ex ia IIC T6/II 1 D Ex ia D 20 T95 °C (max. U <sub>i</sub> = 20 V, I <sub>i</sub> = 60 mA, P <sub>i</sub> = 200 mW)   Warning   avoid static charging    Housing   Slot sensor, K30   Housing material   Plastic, PBT-GF30-V0   Material active face   Plastic, PBT-GF30-V0   Electrical connection   Cables   Cable quality   $\textcircled{Ø}$ 5.2, blue, LiYY, PVC, 2 m   Cable cross section: $2 \times 0.5 \text{mm}^2$   Vibration resistance   30g (11 ms)   Protection class   IP67	voltage	Nom. 8.2 VDC	
Approval acc. toKEMA 02 ATEX 1090X Issue no.4Internal inductance ( $L_i$ ) / capacitance ( $C_i$ )150 nF / 150 μHDevice designation $\textcircled{II}$ 2 G Ex ia IIC T6/II 1 D Ex ia D 20 T95 °C (max. $U_i = 20 \text{ V}, I_i = 60 \text{ mA}, P_i = 200 \text{ mW}$ )Warningavoid static chargingHousingslot sensor, K30Dimensions48x 60x 30mmHousing materialPlastic, PBT-GF30-V0Material active facePlastic, PBT-GF30-V0Electrical connectioncablesCable quality $\textcircled{Ø}$ 5.2, blue, LiYY, PVC, 2 mCable cross section: $2 \times 0.5 \text{mm}^2$ Vibration resistance55 Hz (1 mm)Shock resistance30g (11 ms)Protection classIP67	Non-actuated current consumption	≥ 2.1 mA	
Internal inductance ( $L_i$ ) / capacitance ( $C_i$ )  Device designation $\textcircled{E}$ II 2 G Ex ia IIC T6/II 1 D Ex ia D 20 T95 °C (max. $U_i = 20 \text{ V}, l_i = 60 \text{ mA}, P_i = 200 \text{ mW})$ Warning  avoid static charging  Housing  Slot sensor, K30 $48 \times 60 \times 30 \text{ mm}$ Housing material  Plastic, PBT-GF30-V0  Material active face  Electrical connection  Cable quality $\textcircled{O}$ 5.2, blue, LiYY, PVC, 2 m  Cable cross section: $2 \times 0.5 \text{ mm}^2$ Vibration resistance  Flotection class  Protection class	Actuated current consumption	≤ 1.2 mA	
Device designation $\textcircled{E}$ II 2 G Ex ia IIC T6/II 1 D Ex ia D 20 T95 °C (max. $U_i = 20 \text{ V}, I_i = 60 \text{ mA}, P_i = 200 \text{ mW})$ Warning avoid static charging  Housing Slot sensor, K30  Dimensions 48x 60x 30mm  Housing material Plastic, PBT-GF30-V0  Material active face Plastic, PBT-GF30-V0  Electrical connection cables  Cable quality Ø 5.2, blue, LiYY, PVC, 2 m  Cable cross section: $2 \times 0.5 \text{mm}^2$ Vibration resistance $30g (11 \text{ ms})$ Protection class	Approval acc. to	KEMA 02 ATEX 1090X Issue no.4	
$(\max X, U_i = 20 \text{ V}, I_i = 60 \text{ mA}, P_i = 200 \text{ mW})$ $\text{Warning}$ $\text{Plousing}$ $\text{Dimensions}$ $\text{Housing material}$ $\text{Housing material}$ $\text{Plastic, PBT-GF30-V0}$ $\text{Material active face}$ $\text{Electrical connection}$ $\text{Cable quality}$ $\text{Cable cross section:}$ $\text{Vibration resistance}$ $\text{Shock resistance}$ $\text{Protection class}$ $\text{Protection class}$ $\text{Slot sensor, K30}$ $\text{Plastic, PBT-GF30-V0}$ $\text{cables}$ $\text{Cable plane LiYY, PVC, 2 m}$ $\text{2 x 0.5mm}^2$ $\text{3 y 0.5mm}^2$ $\text{3 y 0.5mm}^2$ $\text{3 y 0.5mm}^2$	Internal inductance (L <sub>i</sub> ) / capacitance (C <sub>i</sub> )	150 nF / 150 μH	
Warning avoid static charging  Housing slot sensor, K30  Dimensions 48x 60x 30mm  Housing material Plastic, PBT-GF30-V0  Material active face Plastic, PBT-GF30-V0  Electrical connection cables  Cable quality Ø 5.2, blue, LiYY, PVC, 2 m  Cable cross section: 2 x 0.5mm²  Vibration resistance 55 Hz (1 mm)  Shock resistance 30g (11 ms)  Protection class	Device designation		
Housing  Dimensions  Housing material  Housing material  Housing material  Plastic, PBT-GF30-V0  Plastic, PBT-GF30-V0  Plastic, PBT-GF30-V0  Cables  Electrical connection  Cables  Cable quality  Ø 5.2, blue, LiYY, PVC, 2 m  Cable cross section:  2 x 0.5mm²  Vibration resistance  55 Hz (1 mm)  Shock resistance  Protection class		$(max. U_i = 20 V, I_i = 60 mA, P_i = 200 mW)$	
Dimensions  48x 60x 30mm  Housing material  Plastic, PBT-GF30-V0  Material active face  Plastic, PBT-GF30-V0  Plastic, PBT-GF30-V0  cables  Cables  Cable quality  Ø 5.2, blue, LiYY, PVC, 2 m  Cable cross section:  2 x 0.5mm <sup>2</sup> Vibration resistance  55 Hz (1 mm)  Shock resistance  Protection class	Warning	avoid static charging	
Housing material Plastic, PBT-GF30-V0 Material active face Plastic, PBT-GF30-V0 Electrical connection cables Cable quality Ø 5.2, blue, LiYY, PVC, 2 m Cable cross section: 2 x 0.5mm² Vibration resistance 55 Hz (1 mm) Shock resistance 30g (11 ms) Protection class	Housing	slot sensor, K30	
Material active face Plastic, PBT-GF30-V0 Electrical connection cables Cable quality Ø 5.2, blue, LiYY, PVC, 2 m Cable cross section: 2 x 0.5mm² Vibration resistance 55 Hz (1 mm) Shock resistance 30g (11 ms) Protection class	Dimensions	48x 60x 30mm	
Electrical connection  Cables  Cable quality  Ø 5.2, blue, LiYY, PVC, 2 m  Cable cross section:  2 x 0.5mm <sup>2</sup> Vibration resistance  55 Hz (1 mm)  Shock resistance  30g (11 ms)  Protection class	Housing material	Plastic, PBT-GF30-V0	
Cable quality Ø 5.2, blue, LiYY, PVC, 2 m  Cable cross section: 2 x 0.5mm <sup>2</sup> Vibration resistance 55 Hz (1 mm)  Shock resistance 30g (11 ms)  Protection class IP67	Material active face	Plastic, PBT-GF30-V0	
Cable cross section:       2 x 0.5mm²         Vibration resistance       55 Hz (1 mm)         Shock resistance       30g (11 ms)         Protection class       IP67	Electrical connection	cables	
Vibration resistance 55 Hz (1 mm) Shock resistance 30g (11 ms) Protection class IP67	Cable quality	Ø 5.2, blue, LiYY, PVC, 2 m	
Shock resistance 30g (11 ms) Protection class IP67	Cable cross section:	2 x 0.5mm <sup>2</sup>	
Protection class IP67	Vibration resistance	55 Hz (1 mm)	
	Shock resistance	30g (11 ms)	
Switching state LED yellow	Protection class	IP67	
	Switching state	LED yellow	

- ATEX category II 2 G, Ex zone 1
- ATEX category II 1 D, Ex zone 20
- SIL2 as per IEC 61508
- slot sensor, 30mm high
- Plastic, PBT-GF30-V0
- 2-wire DC, nom. 8.2 VDC
- Output acc. to DIN EN 60947-5-6 (NAMUR)
- Cable connection

# Wiring diagram



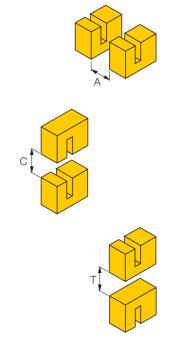
# **Functional principle**

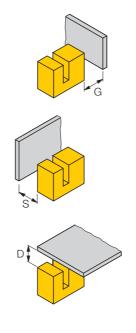
Inductive sensors detect metal objects contactless and wear-free. For this purpose they use a high-frequency electromagnetic AC field that interacts with the target. The sensors hosting a ferrite core coil generate the AC field through an LC resonant circuit.

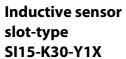


# Inductive sensor slot-type SI15-K30-Y1X

Mounting instructions	minimum distances	
Distance D	5 mm	
Distance T	10 mm	
Distance S	5 mm	
Distance G	5 mm	
Distance A	30 mm	
Distance C	30 mm	









# Accessories

Type code	Ident-No.	Short text	Dimension drawing
IM1-22EX-R	7541231	Isolating switching amplifier, 2-port; 2 transistor out-	
		puts; input for NAMUR signals; selectable ON/OFF	
		mode for wire-break and short-circuit monitoring;	104
		adjustable signal flow (NO/ NCmode); removable ter-	
		minal blocks; 18 mm width; universal voltage supply	
		unit	110

# Inductive sensor slot-type SI15-K30-Y1X



### **Operating manual**

#### Intended use

This device fulfills the directive 94/9/EC and is suited for use in explosion hazardous areas acc. to EN60079-0:2006, 11:2007 and EN61241-0:2006, 11:2006 Further it is suited for use in safety-related systems, including SIL2 as per IEC 61508. In order to ensure correct operation to the intended purpose it is required to observe the national regulations and directives.

#### For use in explosion hazardous areas conform to classification

II 2 G and II 1 D (Group II, Category 2 G, electrical equipment for gaseous atmospheres and category 1 D, electrical equipment for dust atmospheres).

#### Marking (see device or technical data sheet)

ⓐ II 2 G and Ex ia IIC T6 as per EN60079-11 and ⓐ I 1 D Ex iaD 20 T95℃ as per EN60079-11 and EN61241-0 and -11

#### Local admissible ambient temperature

-25...+70 °C

#### Installation / Commissioning

These devices may only be installed, connected and operated by trained and qualified staff. Qualified staff must have knowledge of protection classes, directives and regulations concerning electrical equipment designed for use in explosion hazardous areas. Please verify that the classification and the marking on the device comply with the actual application conditions.

This device is only suited for connection to approved Exi circuits compliant to EN60079-11 and EN61241-11. Please observe the maximum admissible electrical values. After connection to other circuits the sensor may no longer be used in EExi installations. When interconnected to (associated) electrical equipment, it is required to perform the "Proof of intrinsic safety" (EN60079-14). When employed in safety systems to IEC 51408 it is required to assess the failure probability (PFD) of the complete circuitry.

### Installation and mounting instructions

Avoid static charging of cables and plastic devices. Please only clean the device with a damp cloth. Do not install the device in a dust flow and avoid build-up of dust deposits on the device. If the devices and the cable could be subject to mechanical damage, they must be protected accordingly. They must also be shielded against strong electro-magnetic fields. The pin configuration and the electrical specifications can be taken from the device marking or the technical data sheet.

### service / maintenance

Repairs are not possible. The approval expires if the device is repaired or modified by a person other than the manufacturer. The most important data from the approval are listed.