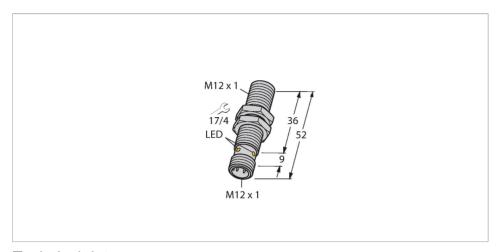


# BI4-M12-VN6X-H1141 Inductive Sensor – With Increased Switching Distance



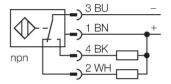
## Technical data

Type BI4-M12-VN6X-H1141  Ident. no. 1643200  Rated switching distance 4 mm  Mounting conditions Flush  Secured operating distance ≤ (0.81 × Sn) mm  Correction factors St37 = 1; Al = 0.3; stainless steel = 0.7; Ms = 0.4  Repeat accuracy ≤ 2 % of full scale  Temperature drift ≤ ± 10 %  Hysteresis 315 %  Ambient temperature -25+70 °C  Operating voltage 1030 VDC  Residual ripple ≤ 10 % U₂   DC rated operational current ≤ 200 mA  No-load current ≤ 15 mA  Residual current ≤ 0.1 mA  Isolation test voltage ≤ 0.5 kV  Short-circuit protection yes / Cyclic  Voltage drop at l₂   Wire breakage/Reverse polarity protection yes / Complete  Output function 4-wire, Complementary contact, NPN  Switching frequency 2 kHz  Design Threaded barrel, M12 × 1  Dimensions 52 mm  Housing material Metal, CuZn, Chrome-plated		
Rated switching distance 4 mm  Mounting conditions Flush  Secured operating distance ≤ (0.81 × Sn) mm  Correction factors St37 = 1; Al = 0.3; stainless steel = 0.7; Ms = 0.4  Repeat accuracy ≤ 2 % of full scale  Temperature drift ≤±10 %  Hysteresis 315 %  Ambient temperature -25+70 °C  Operating voltage 1030 VDC  Residual ripple ≤10 % U <sub>s</sub> DC rated operational current ≤200 mA  No-load current ≤15 mA  Residual current ≤0.1 mA  Isolation test voltage ≤0.5 kV  Short-circuit protection yes / Cyclic  Voltage drop at I <sub>s</sub> ≤1.8 V  Wire breakage/Reverse polarity protection yes / Complete  Output function 4-wire, Complementary contact, NPN  Switching frequency 2 kHz  Design Threaded barrel, M12 × 1  Dimensions 52 mm	Туре	BI4-M12-VN6X-H1141
Mounting conditions       Flush         Secured operating distance       ≤ (0.81 × Sn) mm         Correction factors       St37 = 1; Al = 0.3; stainless steel = 0.7; Ms = 0.4         Repeat accuracy       ≤ 2 % of full scale         Temperature drift       ≤ ± 10 %         Hysteresis       315 %         Ambient temperature       -25+70 °C         Operating voltage       1030 VDC         Residual ripple       ≤ 10 % U <sub>s</sub> DC rated operational current       ≤ 200 mA         No-load current       ≤ 15 mA         Residual current       ≤ 0.1 mA         Isolation test voltage       ≤ 0.5 kV         Short-circuit protection       yes / Cyclic         Voltage drop at I <sub>s</sub> ≤ 1.8 V         Wire breakage/Reverse polarity protection       yes / Complete         Output function       4-wire, Complementary contact, NPN         Switching frequency       2 kHz         Design       Threaded barrel, M12 × 1         Dimensions       52 mm	Ident. no.	1643200
Secured operating distance $\leq (0.81 \times \text{Sn}) \text{ mm}$ Correction factors $\text{St}37 = 1; \text{Al} = 0.3; \text{ stainless steel} = 0.7; \text{ Ms} = 0.4$ Repeat accuracy $\leq 2 \text{ % of full scale}$ Temperature drift $\leq \pm 10 \text{ %}$ Hysteresis $315 \text{ %}$ Ambient temperature $-25+70 \text{ °C}$ Operating voltage $1030 \text{ VDC}$ Residual ripple $\leq 10 \text{ % U}_{\text{ss}}$ DC rated operational current $\leq 200 \text{ mA}$ No-load current $\leq 15 \text{ mA}$ Residual current $\leq 0.1 \text{ mA}$ Isolation test voltage $\leq 0.5 \text{ kV}$ Short-circuit protection $\text{yes}/\text{Cyclic}$ Voltage drop at $I_{\text{e}} \leq 1.8 \text{ V}$ Wire breakage/Reverse polarity protection $\text{yes}/\text{Complete}$ Output function $4\text{-wire}$ , Complementary contact, NPN  Switching frequency $2 \text{ kHz}$ Design Threaded barrel, M12 × 1  Dimensions $52 \text{ mm}$	Rated switching distance	4 mm
Correction factors $St37 = 1$ ; Al = 0.3; stainless steel = 0.7; Ms = 0.4 Repeat accuracy $\leq 2$ % of full scale  Temperature drift $\leq \pm 10$ %  Hysteresis $315$ %  Ambient temperature $-25+70$ °C  Operating voltage $1030$ VDC  Residual ripple $\leq 10$ % U <sub>s</sub> DC rated operational current $\leq 200$ mA  No-load current $\leq 15$ mA  Residual current $\leq 0.1$ mA  Isolation test voltage $\leq 0.5$ kV  Short-circuit protection yes / Cyclic  Voltage drop at $I_e$ $\leq 1.8$ V  Wire breakage/Reverse polarity protection yes / Complete  Output function $4$ -wire, Complementary contact, NPN  Switching frequency $2$ kHz  Design Threaded barrel, M12 × 1  Dimensions $52$ mm	Mounting conditions	Flush
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Temperature drift ≤±10 %  Hysteresis 315 %  Ambient temperature -25+70 °C  Operating voltage 1030 VDC  Residual ripple ≤10 % U <sub>ss</sub> DC rated operational current ≤200 mA  No-load current ≤15 mA  Residual current ≤0.1 mA  Isolation test voltage ≤0.5 kV  Short-circuit protection yes / Cyclic  Voltage drop at I <sub>e</sub> ≤1.8 V  Wire breakage/Reverse polarity protection yes / Complete  Output function 4-wire, Complementary contact, NPN  Switching frequency 2 kHz  Design Threaded barrel, M12 × 1  Dimensions 52 mm	Correction factors	St37 = 1; Al = 0.3; stainless steel = 0.7; Ms = 0.4
Hysteresis  Ambient temperature  -25+70 °C  Operating voltage  1030 VDC  Residual ripple  ≤ 10 % U₂,  DC rated operational current  ≤ 200 mA  No-load current  ≤ 15 mA  Residual current  ≤ 0.1 mA  Isolation test voltage  Short-circuit protection  Voltage drop at I₀  Wire breakage/Reverse polarity protection  Output function  4-wire, Complementary contact, NPN  Switching frequency  2 kHz  Design  Threaded barrel, M12 × 1  Dimensions	Repeat accuracy	≤ 2 % of full scale
Ambient temperature  -25+70 °C  Operating voltage  1030 VDC  Residual ripple  ≤ 10 % U <sub>s</sub> DC rated operational current  ≤ 200 mA  No-load current  ≤ 15 mA  Residual current  ≤ 0.1 mA  Isolation test voltage  ≤ 0.5 kV  Short-circuit protection  Voltage drop at I <sub>e</sub> ≤ 1.8 V  Wire breakage/Reverse polarity protection  Output function  4-wire, Complementary contact, NPN  Switching frequency  2 kHz  Design  Threaded barrel, M12 × 1  Dimensions	Temperature drift	≤ ± 10 %
Operating voltage 1030 VDC  Residual ripple ≤ 10 % U <sub>s</sub> DC rated operational current ≤ 200 mA  No-load current ≤ 15 mA  Residual current ≤ 0.1 mA  Isolation test voltage ≤ 0.5 kV  Short-circuit protection yes / Cyclic  Voltage drop at I <sub>e</sub> ≤ 1.8 V  Wire breakage/Reverse polarity protection yes / Complete  Output function 4-wire, Complementary contact, NPN  Switching frequency 2 kHz  Design Threaded barrel, M12 × 1  Dimensions 52 mm	Hysteresis	315 %
Residual ripple       ≤ 10 % U <sub>ss</sub> DC rated operational current       ≤ 200 mA         No-load current       ≤ 15 mA         Residual current       ≤ 0.1 mA         Isolation test voltage       ≤ 0.5 kV         Short-circuit protection       yes / Cyclic         Voltage drop at I <sub>e</sub> ≤ 1.8 V         Wire breakage/Reverse polarity protection       yes / Complete         Output function       4-wire, Complementary contact, NPN         Switching frequency       2 kHz         Design       Threaded barrel, M12 × 1         Dimensions       52 mm	Ambient temperature	-25+70 ℃
DC rated operational current       ≤ 200 mA         No-load current       ≤ 15 mA         Residual current       ≤ 0.1 mA         Isolation test voltage       ≤ 0.5 kV         Short-circuit protection       yes / Cyclic         Voltage drop at I <sub>e</sub> ≤ 1.8 V         Wire breakage/Reverse polarity protection       yes / Complete         Output function       4-wire, Complementary contact, NPN         Switching frequency       2 kHz         Design       Threaded barrel, M12 × 1         Dimensions       52 mm	Operating voltage	1030 VDC
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Residual current       ≤ 0.1 mA         Isolation test voltage       ≤ 0.5 kV         Short-circuit protection       yes / Cyclic         Voltage drop at I₀       ≤ 1.8 V         Wire breakage/Reverse polarity protection       yes / Complete         Output function       4-wire, Complementary contact, NPN         Switching frequency       2 kHz         Design       Threaded barrel, M12 × 1         Dimensions       52 mm	DC rated operational current	≤ 200 mA
Isolation test voltage       ≤ 0.5 kV         Short-circuit protection       yes / Cyclic         Voltage drop at I <sub>e</sub> ≤ 1.8 V         Wire breakage/Reverse polarity protection       yes / Complete         Output function       4-wire, Complementary contact, NPN         Switching frequency       2 kHz         Design       Threaded barrel, M12 × 1         Dimensions       52 mm	No-load current	≤ 15 mA
Short-circuit protection  Voltage drop at I <sub>e</sub> ≤ 1.8 V  Wire breakage/Reverse polarity protection  Output function  4-wire, Complementary contact, NPN  Switching frequency  2 kHz  Design  Threaded barrel, M12 × 1  Dimensions  52 mm	Residual current	≤ 0.1 mA
Voltage drop at Ie       ≤ 1.8 V         Wire breakage/Reverse polarity protection       yes / Complete         Output function       4-wire, Complementary contact, NPN         Switching frequency       2 kHz         Design       Threaded barrel, M12 × 1         Dimensions       52 mm	Isolation test voltage	≤ 0.5 kV
Wire breakage/Reverse polarity protection yes / Complete  Output function 4-wire, Complementary contact, NPN  Switching frequency 2 kHz  Design Threaded barrel, M12 × 1  Dimensions 52 mm	Short-circuit protection	yes / Cyclic
Output function4-wire, Complementary contact, NPNSwitching frequency2 kHzDesignThreaded barrel, M12 × 1Dimensions52 mm	Voltage drop at I.	≤ 1.8 V
Switching frequency 2 kHz  Design Threaded barrel, M12 × 1  Dimensions 52 mm	Wire breakage/Reverse polarity protection	yes / Complete
Design Threaded barrel, M12 × 1  Dimensions 52 mm	Output function	4-wire, Complementary contact, NPN
Dimensions 52 mm	Switching frequency	2 kHz
	Design	Threaded barrel, M12 $\times$ 1
Housing material Metal, CuZn, Chrome-plated	Dimensions	52 mm
, , ,	Housing material	Metal, CuZn, Chrome-plated

#### **Features**

- M12 × 1 threaded barrel
- Chrome-plated brass
- Large sensing range
- DC 4-wire, 10...30 VDC
- Changeover contact, NPN output
- M12 x 1 male connector

# Wiring diagram



# Functional principle

Inductive sensors detect metal objects contactless and wear-free. For this, they use a high-frequency electromagnetic AC field that interacts with the target. Inductive sensors generate this field via an RLC circuit with a ferrite coil.

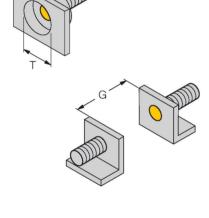


# Technical data

Active area material	Plastic, PA12-GF30
Max. tightening torque housing nut	10 Nm
Electrical connection	Connector, M12 × 1
Vibration resistance	55 Hz (1 mm)
Shock resistance	30 g (11 ms)
Protection class	IP67
MTTF	2283 years acc. to SN 29500 (Ed. 99) 40 °C
Switching state	LED, Yellow

# Mounting instructions

## Mounting instructions/Description



Distance D	24 mm
Distance W	3 x Sn
Distance T	3 x B
Distance S	1.5 x B
Distance G	6 x Sn
Diameter active area B	Ø 12 mm



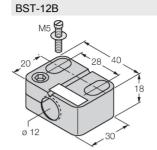
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#### Accessories



Quick-mount bracket with dead-stop; material: Chrome-plated brass. Male thread M16 × 1. Note: The switching distance of the proximity switches may change when using quick-mount brackets.



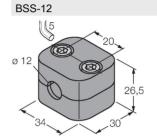
Mounting clamp for threaded barrel sensors, with dead-stop; material: PA6

MW12

#### 6945003

6945101

Mounting bracket for threaded barrel sensors; material: Stainless steel A2 1.4301 (AISI 304)



Mounting clamp for smooth and threaded barrel sensors; material: Polypropylene

## Wiring accessories

#### Dimension drawing

#### Type

#### Ident. no.

#### RKC4.4T-2/TEL

6625013

Connection cable, female M12, straight, 4-pin, cable length: 2 m, sheath material: PVC, black; cULus approval; other cable lengths and qualities available, see www.turck.com

