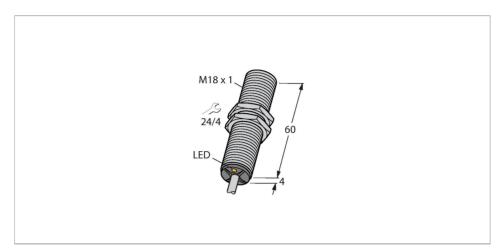


# BI8-G18-RDZ30X2 Inductive Sensor – With Increased Switching Distance



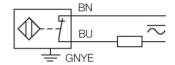
#### Technical data

ID	Туре	BI8-G18-RDZ30X2
Rated switching distance       8 mm         Mounting conditions       Flush         Secured operating distance       ≤ (0.81 × Sn) mm         Correction factors       St37 = 1; Al = 0.3; stainless steel = 0.7; legal = 0.4         Repeat accuracy       ≤ 2 % of full scale         Hysteresis       315 %         Electrical data       Operating voltage Us       20250 VAC         Operating voltage Us       10300 VDC         AC rated operational current       ≤ 400 mA         DC rated operating current Is       ≤ 300 mA         Frequency       ≥ 50≤ 60 Hz         Residual current       ≤ 1.7 mA         Isolation test voltage       1.5 kV         Surge current       ≤ 3 A (≤ 20 ms max. 5 Hz)         Short-circuit protection       yes/Latching         Voltage drop at Is       ≤ 6 V         Wire break/reverse polarity protection       yes/Complete         Output function       2-wire, NC contact, 2-wire	ID	4209391
Mounting conditions       Flush         Secured operating distance       ≤ $(0.81 \times Sn)$ mm         Correction factors       St37 = 1; Al = 0.3; stainless steel = 0.7; l = 0.4         Repeat accuracy       ≤ 2 % of full scale         Hysteresis       315 %         Electrical data       Operating voltage U <sub>B</sub> Operating voltage U <sub>B</sub> 20250 VAC         Operating voltage U <sub>B</sub> 10300 VDC         AC rated operational current       ≤ 400 mA         DC rated operating current I <sub>B</sub> ≤ 300 mA         Frequency       ≥ 50≤ 60 Hz         Residual current       ≤ 1.7 mA         Isolation test voltage       1.5 kV         Surge current       ≤ 3 A (≤ 20 ms max. 5 Hz)         Short-circuit protection       yes/Latching         Voltage drop at I <sub>B</sub> ≤ 6 V         Wire break/reverse polarity protection       yes/Complete         Output function       2-wire, NC contact, 2-wire	General data	
Secured operating distance $\leq (0.81 \times Sn) \text{ mm}$ Correction factors $St37 = 1$ ; Al = 0.3; stainless steel = 0.7; leq.4  Repeat accuracy $\leq 2 \%$ of full scale  Hysteresis $315 \%$ Electrical data  Operating voltage $U_B$ $20250 \text{ VAC}$ Operating voltage $U_B$ $10300 \text{ VDC}$ AC rated operational current $\leq 400 \text{ mA}$ DC rated operating current $I_B$ $\leq 300 \text{ mA}$ Frequency $\geq 50\leq 60 \text{ Hz}$ Residual current $\leq 1.7 \text{ mA}$ Isolation test voltage $1.5 \text{ kV}$ Surge current $\leq 3 \text{ A} (\leq 20 \text{ ms max. } 5 \text{ Hz})$ Short-circuit protection yes/Latching  Voltage drop at $I_B$ $\leq 6 \text{ V}$ Wire break/reverse polarity protection $2-\text{wire}$ , NC contact, $2-\text{wire}$	Rated switching distance	8 mm
Correction factors	Mounting conditions	Flush
$= 0.4$ Repeat accuracy $\leq 2 \%$ of full scale  Hysteresis $315 \%$ Electrical data  Operating voltage $U_B$ $20250 \text{ VAC}$ Operating voltage $U_B$ $10300 \text{ VDC}$ AC rated operational current $\leq 400 \text{ mA}$ DC rated operating current $I_B$ $\leq 300 \text{ mA}$ Frequency $\geq 50\leq 60 \text{ Hz}$ Residual current $\leq 1.7 \text{ mA}$ Isolation test voltage $1.5 \text{ kV}$ Surge current $\leq 3 \text{ A} (\leq 20 \text{ ms max. 5 Hz})$ Short-circuit protection yes/Latching  Voltage drop at $I_B$ $\leq 6 \text{ V}$ Wire break/reverse polarity protection $(1.5 \text{ kV})$ Output function $(1.5 \text{ kV})$ Surge, $(1.5 \text{ kV})$ Surge current $(1.5 \text{ kV})$ Short-circuit protection $(1.5 \text{ kV})$ Short-circuit protection $(1.5 \text{ kV})$ Short-circuit protection $(1.5 \text{ kV})$ Voltage drop at $(1.5 \text{ kV})$ Surge current $(1.5 \text{ kV})$ Short-circuit protection $(1.5 \text{ kV})$	Secured operating distance	≤ (0.81 × Sn) mm
Hysteresis 315 %  Electrical data  Operating voltage U <sub>B</sub> 20250 VAC  Operating voltage U <sub>B</sub> 10300 VDC  AC rated operational current ≤ 400 mA  DC rated operating current I <sub>B</sub> ≤ 300 mA  Frequency ≥ 50≤ 60 Hz  Residual current ≤ 1.7 mA  Isolation test voltage 1.5 kV  Surge current ≤ 3 A (≤ 20 ms max. 5 Hz)  Short-circuit protection yes/Latching  Voltage drop at I <sub>B</sub> ≤ 6 V  Wire break/reverse polarity protection yes/Complete  Output function 2-wire, NC contact, 2-wire	Correction factors	St37 = 1; AI = 0.3; stainless steel = 0.7; Ms = 0.4
Electrical data  Operating voltage $U_B$ 20250 VAC  Operating voltage $U_B$ 10300 VDC  AC rated operational current $\leq 400 \text{ mA}$ DC rated operating current $I_B$ Frequency $\geq 50 \leq 60 \text{ Hz}$ Residual current $\leq 1.7 \text{ mA}$ Isolation test voltage  1.5 kV  Surge current $\leq 3 \text{ A} (\leq 20 \text{ ms max. 5 Hz})$ Short-circuit protection  Voltage drop at $I_B$ Voltage drop at $I_B$ Wire break/reverse polarity protection  2-wire, NC contact, 2-wire	Repeat accuracy	≤ 2 % of full scale
Operating voltage $U_B$ 20250 VAC         Operating voltage $U_B$ 10300 VDC         AC rated operational current       ≤ 400 mA         DC rated operating current $I_B$ ≤ 300 mA         Frequency       ≥ 50≤ 60 Hz         Residual current       ≤ 1.7 mA         Isolation test voltage       1.5 kV         Surge current       ≤ 3 A (≤ 20 ms max. 5 Hz)         Short-circuit protection       yes/Latching         Voltage drop at $I_B$ ≤ 6 V         Wire break/reverse polarity protection       yes/Complete         Output function       2-wire, NC contact, 2-wire	Hysteresis	315 %
$\begin{array}{llllllllllllllllllllllllllllllllllll$	Electrical data	
AC rated operational current $\leq 400 \text{ mA}$ DC rated operating current I <sub>o</sub> $\leq 300 \text{ mA}$ Frequency $\geq 50 \leq 60 \text{ Hz}$ Residual current $\leq 1.7 \text{ mA}$ Isolation test voltage $\leq 1.5 \text{ kV}$ Surge current $\leq 3 \text{ A} (\leq 20 \text{ ms max. 5 Hz})$ Short-circuit protection $\leq 6 \text{ V}$ Wire break/reverse polarity protection $\leq 6 \text{ V}$ Wire tunction $\leq 6 \text{ V}$ Output function $\leq 6 \text{ V}$	Operating voltage U <sub>B</sub>	20250 VAC
DC rated operating current $I_e$ $\leq 300 \text{ mA}$ Frequency $\geq 50 \leq 60 \text{ Hz}$ Residual current $\leq 1.7 \text{ mA}$ Isolation test voltage $1.5 \text{ kV}$ Surge current $\leq 3 \text{ A} (\leq 20 \text{ ms max. 5 Hz})$ Short-circuit protection       yes/Latching         Voltage drop at $I_e$ $\leq 6 \text{ V}$ Wire break/reverse polarity protection       yes/Complete         Output function       2-wire, NC contact, 2-wire	Operating voltage U <sub>B</sub>	10300 VDC
Frequency $\geq 50 \leq 60 \text{ Hz}$ Residual current $\leq 1.7 \text{ mA}$ Isolation test voltage $1.5 \text{ kV}$ Surge current $\leq 3 \text{ A} (\leq 20 \text{ ms max. } 5 \text{ Hz})$ Short-circuit protection yes/Latching  Voltage drop at I <sub>e</sub> $\leq 6 \text{ V}$ Wire break/reverse polarity protection yes/Complete  Output function $2\text{-wire}$ , NC contact, $2\text{-wire}$	AC rated operational current	≤ 400 mA
Residual current       ≤ 1.7 mA         Isolation test voltage       1.5 kV         Surge current       ≤ 3 A (≤ 20 ms max. 5 Hz)         Short-circuit protection       yes/Latching         Voltage drop at I₀       ≤ 6 V         Wire break/reverse polarity protection       yes/Complete         Output function       2-wire, NC contact, 2-wire	DC rated operating current I <sub>e</sub>	≤ 300 mA
Isolation test voltage $1.5 \text{ kV}$ Surge current $\leq 3 \text{ A} (\leq 20 \text{ ms max. } 5 \text{ Hz})$ Short-circuit protection       yes/Latching         Voltage drop at $I_e$ $\leq 6 \text{ V}$ Wire break/reverse polarity protection       yes/Complete         Output function       2-wire, NC contact, 2-wire	Frequency	≥ 50≤ 60 Hz
Surge current $\leq 3 \text{ A } (\leq 20 \text{ ms max. 5 Hz})$ Short-circuit protection       yes/Latching         Voltage drop at I $_{\circ}$ $\leq 6 \text{ V}$ Wire break/reverse polarity protection       yes/Complete         Output function       2-wire, NC contact, 2-wire	Residual current	≤ 1.7 mA
Short-circuit protection yes/Latching  Voltage drop at I₀ ≤ 6 V  Wire break/reverse polarity protection yes/Complete  Output function 2-wire, NC contact, 2-wire	Isolation test voltage	1.5 kV
Voltage drop at I <sub>e</sub> ≤ 6 V  Wire break/reverse polarity protection yes/Complete  Output function 2-wire, NC contact, 2-wire	Surge current	≤ 3 A (≤ 20 ms max. 5 Hz)
Wire break/reverse polarity protection yes/Complete  Output function 2-wire, NC contact, 2-wire	Short-circuit protection	yes/Latching
Output function 2-wire, NC contact, 2-wire	Voltage drop at I <sub>e</sub>	≤ 6 V
<u> </u>	Wire break/reverse polarity protection	yes/Complete
Smallest operating current ≥ 3 mA	Output function	2-wire, NC contact, 2-wire
	Smallest operating current	≥ 3 mA

#### **Features**

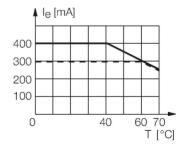
- ■Threaded barrel, M18 x 1
- Chrome-plated brass
- ■Large sensing range
- ■AC 2-wire, 20...250 VAC
- ■DC 2-wire, 10...300 VDC
- ■NC contact
- Cable connection

### 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.



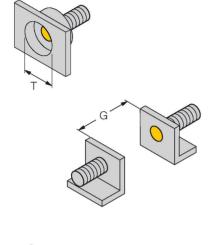


## Technical data

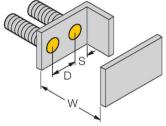
Switching frequency	0.02 kHz
Mechanical data	
Design	Threaded barrel, M18 x 1
Dimensions	64 mm
Housing material	Metal, CuZn, Chrome-plated
Active area material	Plastic, PA12-GF30
End cap	Plastic, EPTR
Max. tightening torque of housing nut	25 Nm
Electrical connection	Cable
Cable quality	Ø 5.2 mm, LifYY, PVC, 2 m
Core cross-section	3 x 0.5 mm <sup>2</sup>
Environmental conditions	
Ambient temperature	-25+70 °C
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
Power-on indication	LED, Green
Switching state	LED, Red

# Mounting instructions

#### Mounting instructions/Description

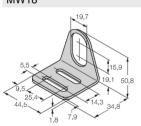


Distance D	2 x B
Distance W	3 x Sn
Distance T	3 x B
Distance S	1.5 x B
Distance G	6 x Sn
Diameter active area B	Ø 18 mm



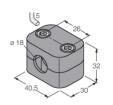
### Accessories

MW18



6945004

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

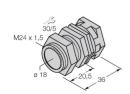


BSS-18

6901320

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

QM-18 6945102



Quick-mount bracket with dead-stop; material: Chrome-plated brass. Male thread M24 × 1.5. Note: The switching distance of the proximity switches may change when using quick-mount brackets.