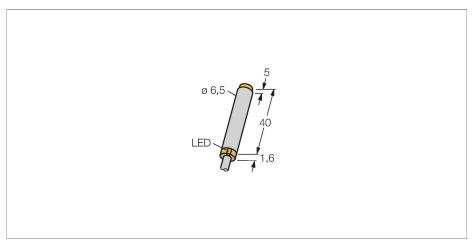
## TURCK

# NI6U-EH6.5-AN6X Inductive Sensor – With Extended Switching Distance



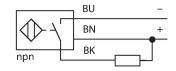
#### Technical data

ID 4631520  General data  Rated switching distance 6 mm  Mounting conditions Non-flush  Secured operating distance ≤ (0.81 × Sn) mm  Repeat accuracy ≤ 2 % of full scale  Temperature drift ≤ ±10 %  Hysteresis 315 %  Electrical data  Operating voltage U <sub>8</sub> 1030 VDC  Ripple U <sub>85</sub> ≤ 10 % U <sub>Bmax</sub> DC rated operating current I <sub>6</sub> ≤ 150 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>6</sub> ≤ 1.8 V  Wire break/reverse polarity protection yes/Complete  Output function 3-wire, NO contact, NPN  DC field stability 200 mT  AC field stability 200 mT  AC field stability 200 mTss  Insulation class □  Switching frequency 1 kHz  Mechanical data  Design Smooth barrel, 6,5 mm	Туре	NI6U-EH6.5-AN6X
Rated switching distance       6 mm         Mounting conditions       Non-flush         Secured operating distance       ≤ (0.81 × Sn) mm         Repeat accuracy       ≤ 2 % of full scale         Temperature drift       ≤ ±10 %         Hysteresis       315 %         Electrical data       Operating voltage U₀       1030 VDC         Ripple U₅       ≤ 10 % U₅max         DC rated operating current I₀       ≤ 150 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 I₀       ≤ 1.8 V         Wire break/reverse polarity protection       yes/Complete         Output function       3-wire, NO contact, NPN         DC field stability       200 mT         AC field stability       200 mT         AC field stability       200 mT         AC field stability       200 mT         Mechanical data       Smooth barrel, 6,5 mm	ID	4631520
Mounting conditions       Non-flush         Secured operating distance       ≤ (0.81 × Sn) mm         Repeat accuracy       ≤ 2 % of full scale         Temperature drift       ≤ ±10 %         Hysteresis       315 %         Electrical data       Operating voltage U <sub>8</sub> Operating voltage U <sub>8</sub> 1030 VDC         Ripple U <sub>ss</sub> ≤ 10 % U <sub>8max</sub> DC rated operating current I <sub>8</sub> ≤ 150 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>8</sub> ≤ 1.8 V         Wire break/reverse polarity protection       yes/Complete         Output function       3-wire, NO contact, NPN         DC field stability       200 mT         AC field stability       200 mT         AC field stability       200 mT ss         Insulation class       □         Switching frequency       1 kHz         Mechanical data       Smooth barrel, 6,5 mm	General data	
Secured operating distance       ≤ (0.81 × Sn) mm         Repeat accuracy       ≤ 2 % of full scale         Temperature drift       ≤ ±10 %         Hysteresis       315 %         Electrical data       0perating voltage U <sub>8</sub> Operating voltage U <sub>8</sub> 1030 VDC         Ripple U <sub>8</sub> ≤ 10 % U <sub>8max</sub> DC rated operating current I <sub>8</sub> ≤ 150 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>8</sub> ≤ 1.8 V         Wire break/reverse polarity protection       yes/Complete         Output function       3-wire, NO contact, NPN         DC field stability       200 mT         AC field stability       200 mT         AC field stability       200 mT         Insulation class       □         Switching frequency       1 kHz         Mechanical data       Design	Rated switching distance	6 mm
Repeat accuracy       ≤ 2 % of full scale         Temperature drift       ≤ ±10 %         Hysteresis       315 %         Electrical data       0perating voltage Us       1030 VDC         Ripple Uss       ≤ 10 % Usmax         DC rated operating current $I_e$ ≤ 150 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 $I_e$ ≤ 1.8 V         Wire break/reverse polarity protection       yes/Complete         Output function       3-wire, NO contact, NPN         DC field stability       200 mT         AC field stability       200 mTss         Insulation class $\Box$ Switching frequency       1 kHz         Mechanical data       Design         Smooth barrel, 6,5 mm	Mounting conditions	Non-flush
Temperature drift ≤ ±10 %  Hysteresis 315 %  Electrical data  Operating voltage U <sub>s</sub> 1030 VDC  Ripple U <sub>ss</sub> ≤ 10 % U <sub>Bmax</sub> DC rated operating current I <sub>e</sub> ≤ 150 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 break/reverse polarity protection yes/Complete  Output function 3-wire, NO contact, NPN  DC field stability 200 mT  AC field stability 200 mT  AC field stability 1 kHz  Mechanical data  Design Smooth barrel, 6,5 mm	Secured operating distance	≤ (0.81 × Sn) mm
Hysteresis  315 %  Electrical data  Operating voltage U <sub>B</sub> 1030 VDC  Ripple U <sub>ss</sub> ≤ 10 % U <sub>Bmax</sub> DC rated operating current I <sub>B</sub> No-load current  ≤ 15 mA  Residual current  ≤ 0.1 mA  Isolation test voltage  0.5 kV  Short-circuit protection  Voltage drop at I <sub>B</sub> Wire break/reverse polarity protection  DC field stability  AC field stability  Switching frequency  1 kHz  Mechanical data  Design  1030 VDC  1	Repeat accuracy	≤ 2 % of full scale
Electrical data  Operating voltage U <sub>B</sub> Ripple U <sub>ss</sub> S 10 % U <sub>Bmax</sub> DC rated operating current I <sub>B</sub> No-load current  S 15 mA  Residual current  S 0.1 mA  Isolation test voltage  O.5 kV  Short-circuit protection  Voltage drop at I <sub>B</sub> Wire break/reverse polarity protection  Output function  DC field stability  AC field stability  Switching frequency  1 kHz  Mechanical data  Design  DC 10 % U <sub>Bmax</sub> 1030 VDC  10	Temperature drift	≤ ±10 %
Operating voltage U <sub>B</sub> 1030 VDC         Ripple U <sub>ss</sub> ≤ 10 % U <sub>Bmax</sub> DC rated operating current I <sub>e</sub> ≤ 150 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 break/reverse polarity protection       yes/Complete         Output function       3-wire, NO contact, NPN         DC field stability       200 mT         AC field stability       200 mTss         Insulation class       □         Switching frequency       1 kHz         Mechanical data       Design         Smooth barrel, 6,5 mm	Hysteresis	315 %
Ripple U <sub>ss</sub> ≤ 10 % U <sub>Bmax</sub> DC rated operating current I <sub>e</sub> ≤ 150 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 break/reverse polarity protection yes/Complete   Output function 3-wire, NO contact, NPN   DC field stability 200 mT   AC field stability 200 mTss   Insulation class □   Switching frequency 1 kHz   Mechanical data Design   Smooth barrel, 6,5 mm	Electrical data	
DC rated operating current I₀ ≤ 150 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 I₀ ≤ 1.8 V   Wire break/reverse polarity protection yes/Complete   Output function 3-wire, NO contact, NPN   DC field stability 200 mT   AC field stability 200 mTss   Insulation class □   Switching frequency 1 kHz   Mechanical data Design   Smooth barrel, 6,5 mm	Operating voltage U <sub>B</sub>	1030 VDC
No-load current ≤ 15 mA   Residual current ≤ 0.1 mA   Isolation test voltage 0.5 kV   Short-circuit protection yes/Cyclic   Voltage drop at I₀ ≤ 1.8 V   Wire break/reverse polarity protection yes/Complete   Output function 3-wire, NO contact, NPN   DC field stability 200 mT   AC field stability 200 mTss   Insulation class □   Switching frequency 1 kHz   Mechanical data Smooth barrel, 6,5 mm	Ripple U <sub>ss</sub>	≤ 10 % U <sub>Bmax</sub>
Residual current ≤ 0.1 mA   Isolation test voltage 0.5 kV   Short-circuit protection yes/Cyclic   Voltage drop at I₀ ≤ 1.8 V   Wire break/reverse polarity protection yes/Complete   Output function 3-wire, NO contact, NPN   DC field stability 200 mT   AC field stability 200 mTss   Insulation class □   Switching frequency 1 kHz   Mechanical data Smooth barrel, 6,5 mm	DC rated operating current I <sub>e</sub>	≤ 150 mA
Isolation test voltage       0.5 kV         Short-circuit protection       yes/Cyclic         Voltage drop at I₀       ≤ 1.8 V         Wire break/reverse polarity protection       yes/Complete         Output function       3-wire, NO contact, NPN         DC field stability       200 mT         AC field stability       200 mTss         Insulation class       □         Switching frequency       1 kHz         Mechanical data       Design         Smooth barrel, 6,5 mm	No-load current	≤ 15 mA
Short-circuit protection       yes/Cyclic         Voltage drop at I₀       ≤ 1.8 V         Wire break/reverse polarity protection       yes/Complete         Output function       3-wire, NO contact, NPN         DC field stability       200 mT         AC field stability       200 mTss         Insulation class       □         Switching frequency       1 kHz         Mechanical data       Design         Smooth barrel, 6,5 mm	Residual current	≤ 0.1 mA
Voltage drop at I₀       ≤ 1.8 V         Wire break/reverse polarity protection       yes/Complete         Output function       3-wire, NO contact, NPN         DC field stability       200 mT         AC field stability       200 mT₅s         Insulation class       □         Switching frequency       1 kHz         Mechanical data       Design         Smooth barrel, 6,5 mm	Isolation test voltage	0.5 kV
Wire break/reverse polarity protection  Output function  3-wire, NO contact, NPN  DC field stability  200 mT  AC field stability  Insulation class  Switching frequency  1 kHz  Mechanical data  Design  Smooth barrel, 6,5 mm	Short-circuit protection	yes/Cyclic
Output function 3-wire, NO contact, NPN  DC field stability 200 mT  AC field stability 200 mT <sub>ss</sub> Insulation class □  Switching frequency 1 kHz  Mechanical data  Design Smooth barrel, 6,5 mm	Voltage drop at I <sub>e</sub>	≤ 1.8 V
DC field stability  AC field stability  200 mT  200 mT <sub>ss</sub> Insulation class  Switching frequency  1 kHz  Mechanical data  Design  Smooth barrel, 6,5 mm	Wire break/reverse polarity protection	yes/Complete
AC field stability  200 mT <sub>ss</sub> Insulation class  Switching frequency  1 kHz  Mechanical data  Design  Smooth barrel, 6,5 mm	Output function	3-wire, NO contact, NPN
Insulation class  Switching frequency  1 kHz  Mechanical data  Design  Smooth barrel, 6,5 mm	DC field stability	200 mT
Switching frequency 1 kHz  Mechanical data  Design Smooth barrel, 6,5 mm	AC field stability	200 mT <sub>ss</sub>
Mechanical data  Design Smooth barrel, 6,5 mm	Insulation class	
Design Smooth barrel, 6,5 mm	Switching frequency	1 kHz
	Mechanical data	
	Design	Smooth barrel, 6,5 mm
Dimensions 41.6 mm	Dimensions	41.6 mm

#### **Features**

- ■Smooth barrel, Ø 6.5 mm
- Stainless steel, 1.4427 SO
- Factor 1 for all metals
- ■Protection class IP68
- Resistant to magnetic fields
- Large switching distance
- High switching frequency
- ■Integrated protection against predamping
- Little metal-free spaces
- ■DC 3-wire, 10...30 VDC
- ■NO contact, NPN output
- Cable connection

#### Wiring diagram



### Functional principle

Inductive sensors are designed for wear-free and contactless detection of metal objects. uprox+ sensors have significant advantages due to their patented multi-coil system. They excel thanks to their optimum switching distances, maximum flexibility and operational reliability as well as efficient standardization.



#### Technical data

Housing material	Stainless steel, 1.4427 SO
Active area material	Plastic, PA12-GF20
End cap	Plastic, EPTR
Electrical connection	Cable
Cable quality	Ø 4 mm, LifYY-11Y, PUR, 2 m
Core cross-section	3 x 0.25 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	IP68
MTTF	874 years acc. to SN 29500 (Ed. 99) 40 °C

## Mounting instructions

