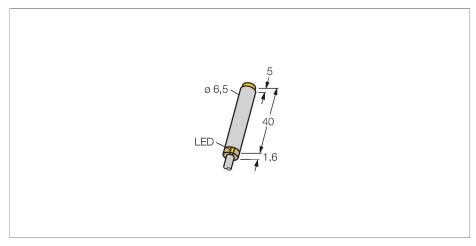
# NI6U-EH6.5-AP6X Inductive Sensor – With Extended Switching Distance



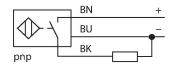
#### Technical data

ID	Туре	NI6U-EH6.5-AP6X
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 U₅         Operating voltage U₅       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, PNP         DC field stability       200 mT         AC field stability       200 mT         AC field stability       200 mT         Insulation class       □         Switching frequency       1 kHz         Mechanical data       Smooth barrel, 6,5 mm	ID	4631500
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         Operating voltage U₀       1030 VDC         Ripple U₀       ≤ 10 % U₀max         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, PNP         DC field stability       200 mT         AC field stability       200 mT         AC field stability       200 mT         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  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> ≤ 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>B</sub> ≤ 1.8 V  Wire break/reverse polarity protection yes/Complete  Output function 3-wire, NO contact, PNP  DC field stability 200 mT  AC field stability 200 mT  AC field stability 1 kHz  Mechanical data  Design Smooth barrel, 6,5 mm	Rated switching distance	6 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>ss</sub> ≤ 10 % U <sub>bmax</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, PNP   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	Mounting conditions	Non-flush
Temperature drift ≤ ±10 %  Hysteresis 315 %  Electrical data  Operating voltage U <sub>8</sub> 1030 VDC  Ripple U <sub>ss</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, PNP  DC field stability 200 mT  AC field stability 200 mT  Switching frequency 1 kHz  Mechanical data  Design Smooth barrel, 6,5 mm	Secured operating distance	≤ (0.81 × Sn) mm
Hysteresis  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> ≤ 1.8 V  Wire break/reverse polarity protection  Output function  3-wire, NO contact, PNP  DC field stability  200 mT  AC field stability  200 mT  AC field stability  Insulation class  Switching frequency  1 kHz  Mechanical data  Design  Smooth barrel, 6,5 mm	Repeat accuracy	≤ 2 % of full scale
Electrical data  Operating voltage U <sub>B</sub> 1030 VDC  Ripple U <sub>ss</sub> ≤ 10 % U <sub>Brinax</sub> DC rated operating current I <sub>s</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>s</sub> Wire break/reverse polarity protection  Output function  DC field stability  AC field stability  Switching frequency  1 kHz  Mechanical data  Design  1030 VDC  10	Temperature drift	≤ ±10 %
Operating voltage $U_B$ 1030 VDC         Ripple $U_{ss}$ ≤ 10 % $U_{Bmax}$ DC rated operating current $I_a$ ≤ 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 $I_a$ ≤ 1.8 V         Wire break/reverse polarity protection       yes/Complete         Output function       3-wire, NO contact, PNP         DC field stability       200 mT         AC field stability       200 mTss         Insulation class       Image: Switching frequency       1 kHz         Mechanical data       Smooth barrel, 6,5 mm	Hysteresis	315 %
Ripple U <sub>ss</sub> ≤ 10 % U <sub>smax</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, PNP  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	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, PNP   DC field stability 200 mT   AC field stability 200 mTss   Insulation class □   Switching frequency 1 kHz   Mechanical data 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, PNP   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, PNP   DC field stability 200 mT   AC field stability 200 mT₅ss   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, PNP         DC field stability       200 mT         AC field stability       200 mT₅s         Insulation class       □         Switching frequency       1 kHz         Mechanical data       Smooth barrel, 6,5 mm	No-load current	≤ 15 mA
Short-circuit protection  Voltage drop at I₀  Wire break/reverse polarity protection  Output function  DC field stability  AC field stability  Insulation class  Switching frequency  Design  Short-circuit protection  yes/Cyclic  yes/Cyclic  21.8 V  yes/Complete  200 mT  200 mT  200 mT  AC field stability  1 kHz  Mechanical data  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, PNP         DC field stability       200 mT         AC field stability       200 mT₅s         Insulation class       □         Switching frequency       1 kHz         Mechanical data       Smooth barrel, 6,5 mm	Isolation test voltage	0.5 kV
Wire break/reverse polarity protection yes/Complete  Output function 3-wire, NO contact, PNP  DC field stability 200 mT  AC field stability 200 mTss  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, PNP  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 mTss  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, PNP
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	
Dimensions 41.6 mm	Design	Smooth barrel, 6,5 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, PNP 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 mm²
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
Switching state	LED, Yellow

# Mounting instructions

