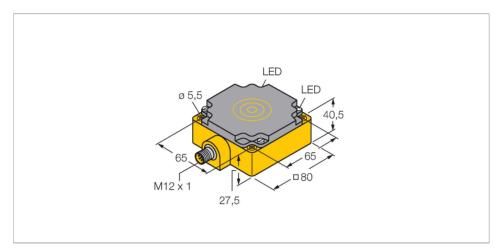


# NI50-CP80-VP4X2-H1141 Inductive Sensor – With Increased Switching Distance



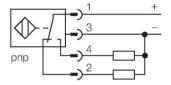
### Technical data

ID	Туре	NI50-CP80-VP4X2-H1141
Rated switching distance       50 mm         Mounting conditions       Non-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 %         Electrical data         Operating voltage U <sub>B</sub> 1065 VDC         Ripple U <sub>ss</sub> ≤ 10 % U <sub>max</sub> DC rated operating current I <sub>B</sub> ≤ 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>B</sub> ≤ 1.8 V         Wire break/reverse polarity protection       yes/Complete         Output function       4-wire, Complementary contact, PNP	ID	1569604
Mounting conditions       Non-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 %         Electrical data       Operating voltage Us         Operating voltage Us       1065 VDC         Ripple Uss       ≤ 10 % Usnex         DC rated operating current Is       ≤ 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 Is       ≤ 1.8 V         Wire break/reverse polarity protection       yes/Complete         Output function       4-wire, Complementary contact, PNP	General data	
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 %         Electrical data         Operating voltage U <sub>8</sub> 1065 VDC         Ripple U <sub>20</sub> ≤ 10 % U <sub>8max</sub> DC rated operating current I <sub>0</sub> ≤ 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>0</sub> ≤ 1.8 V         Wire break/reverse polarity protection       yes/Complete         Output function       4-wire, Complementary contact, PNP	Rated switching distance	50 mm
Correction factors $ \begin{array}{ll} St37 = 1; \ Al = 0.3; \ stainless \ steel = 0.7; \ Ms \\ = 0.4 \\ \hline \\ Repeat \ accuracy & \leq 2 \ \% \ of \ full \ scale \\ \hline \\ Temperature \ drift & \leq \pm 10 \ \% \\ \hline \\ Hysteresis & 315 \ \% \\ \hline \\ Electrical \ data & \\ \hline \\ Operating \ voltage \ U_{\scriptscriptstyle B} & 1065 \ VDC \\ \hline \\ Ripple \ U_{\scriptscriptstyle es} & \leq 10 \ \% \ U_{\scriptscriptstyle Breax} \\ \hline \\ DC \ rated \ operating \ current \ I_{\scriptscriptstyle e} & \leq 200 \ mA \\ \hline \\ No-load \ current & \leq 15 \ mA \\ \hline \\ Residual \ current & \leq 0.1 \ mA \\ \hline \\ Isolation \ test \ voltage & 0.5 \ kV \\ \hline \\ Short-circuit \ protection & yes/Cyclic \\ \hline \\ Voltage \ drop \ at \ I_{\scriptscriptstyle e} & \leq 1.8 \ V \\ \hline \\ Wire \ break/reverse \ polarity \ protection & 4-wire, \ Complementary \ contact, \ PNP \\ \hline \end{array} $	Mounting conditions	Non-flush
$= 0.4$ Repeat accuracy $\leq 2 \%$ of full scale  Temperature drift $\leq \pm 10 \%$ Hysteresis $315 \%$ Electrical data  Operating voltage $U_B$ $1065 \text{ VDC}$ Ripple $U_{SS}$ $\leq 10 \% U_{Brmax}$ DC rated operating current $I_B$ $\leq 200 \text{ mA}$ No-load current $\leq 15 \text{ mA}$ Residual current $\leq 0.1 \text{ mA}$ Isolation test voltage $0.5 \text{ kV}$ Short-circuit protection $0.5 \text{ kV}$ Short-circuit protection $0.5 \text{ kV}$ Wire break/reverse polarity protection $0.5 \text{ kV}$ Wire break/reverse polarity protection $0.5 \text{ kV}$ Output function $0.5 \text{ kV}$	Secured operating distance	≤ (0.81 × Sn) mm
Temperature drift $≤ ±10 \%$ Hysteresis $315 \%$ Electrical data  Operating voltage $U_B$ $1065 \text{ VDC}$ Ripple $U_{SS}$ $≤ 10 \% U_{Bmax}$ DC rated operating current $I_B$ $≤ 200 \text{ mA}$ No-load current $≤ 15 \text{ mA}$ Residual current $≤ 0.1 \text{ mA}$ Isolation test voltage $0.5 \text{ kV}$ Short-circuit protection $yes/Cyclic$ Voltage drop at $I_B$ $≤ 1.8 \text{ V}$ Wire break/reverse polarity protection $yes/Complete$ Output function $4-wire$ , Complementary contact, PNP	Correction factors	
Hysteresis       315 %         Electrical data       1065 VDC         Ripple U $_{os}$ ≤ 10 % U $_{Bmax}$ DC rated operating current I $_{o}$ ≤ 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 $_{o}$ ≤ 1.8 V         Wire break/reverse polarity protection       yes/Complete         Output function       4-wire, Complementary contact, PNP	Repeat accuracy	≤ 2 % of full scale
Electrical data         Operating voltage $U_B$ $1065 \text{ VDC}$ Ripple $U_{ss}$ $\leq 10 \% U_{Bmax}$ DC rated operating current $I_s$ $\leq 200 \text{ mA}$ No-load current $\leq 15 \text{ mA}$ Residual current $\leq 0.1 \text{ mA}$ Isolation test voltage $0.5 \text{ kV}$ Short-circuit protection       yes/Cyclic         Voltage drop at $I_s$ $\leq 1.8 \text{ V}$ Wire break/reverse polarity protection       yes/Complete         Output function       4-wire, Complementary contact, PNP	Temperature drift	≤ ±10 %
$\begin{array}{lll} & & & & & & & & \\ & & & & & & \\ & & & & & \\ & & & & \\ & & & & \\ & & & \\ & & & \\ & & & \\$	Hysteresis	315 %
Ripple Uss       ≤ 10 % Usmax         DC rated operating current Ie       ≤ 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 Ie       ≤ 1.8 V         Wire break/reverse polarity protection       yes/Complete         Output function       4-wire, Complementary contact, PNP	Electrical data	
DC rated operating current I <sub>e</sub> ≤ 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 break/reverse polarity protection yes/Complete  Output function 4-wire, Complementary contact, PNP	Operating voltage U <sub>B</sub>	1065 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       4-wire, Complementary contact, PNP	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       4-wire, Complementary contact, PNP	DC rated operating current I <sub>e</sub>	≤ 200 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     4-wire, Complementary contact, PNP	No-load current	≤ 15 mA
Short-circuit protection  Voltage drop at I₀ ≤ 1.8 V  Wire break/reverse polarity protection  Output function  yes/Cyclic  ≤ 1.8 V  yes/Complete  4-wire, Complementary contact, PNP	Residual current	≤ 0.1 mA
Voltage drop at I₀ ≤ 1.8 V  Wire break/reverse polarity protection yes/Complete  Output function 4-wire, Complementary contact, PNP	Isolation test voltage	0.5 kV
Wire break/reverse polarity protection yes/Complete  Output function 4-wire, Complementary contact, PNP	Short-circuit protection	yes/Cyclic
Output function 4-wire, Complementary contact, PNP	Voltage drop at I <sub>e</sub>	≤ 1.8 V
	Wire break/reverse polarity protection	yes/Complete
Switching frequency 0.1 kHz	Output function	4-wire, Complementary contact, PNP
	Switching frequency	0.1 kHz

#### **Features**

- Rectangular, height 41 mm
- Plastic, PBT-GF30-V0
- Large sensing range
- ■DC 4-wire, 10...65 VDC
- Changeover contact, PNP 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.

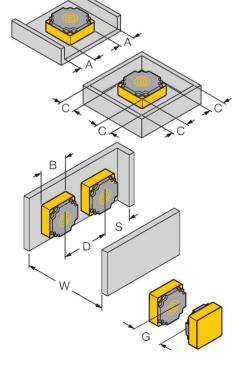


# Technical data

Mechanical data	
Design	Rectangular, CP80
Dimensions	80 x 80 x 41 mm
Housing material	Plastic, PBT-GF30-V0
Active area material	PBT-GF30-V0
Electrical connection	Connector, M12 × 1
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, Yellow

# Mounting instructions

### Mounting instructions/Description



Distance D	3 x B
Distance W	3 x Sn
Distance S	1.5 x B
Distance G	6 x Sn
Distance A	1 x B
Distance C	1 x B
Width active area B	80 mm