

Inductive positioning system

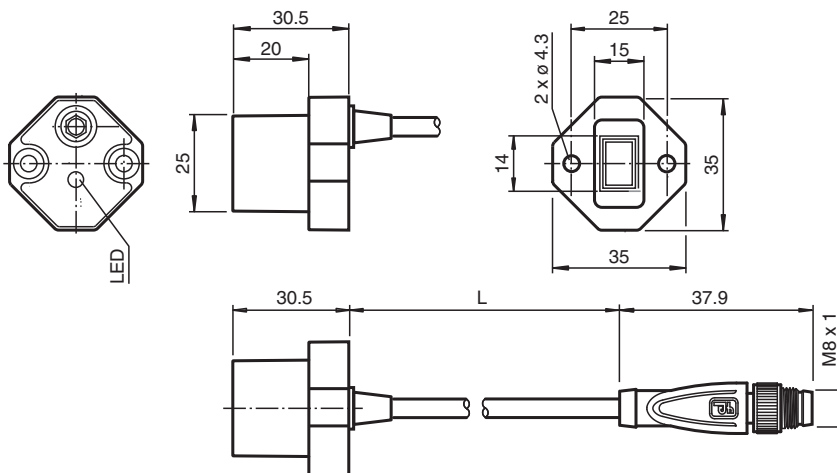
PMI14V-F112-U-IO-2M-V31

- Parameterization and diagnosis via IO-Link
- Analog output 0 ... 10 V
- Measuring range 0 ... 14 mm



IO-Link

Dimensions



Technical Data

General specifications

| | |
|----------------------------|-----------------------|
| Switching element function | Analog voltage output |
| Installation | flush |
| Object distance | max. 2.5 mm |
| Measurement range | 0 ... 14 mm |

Nominal ratings

| | | |
|-----------------------------|-------|----------------------------|
| Operating voltage | U_B | 18 ... 30 V DC |
| Reverse polarity protection | | reverse polarity protected |
| Linearity error | | ± 0.3 mm |
| Repeat accuracy | R | ± 0.05 mm |
| Resolution | | 33 μ m |
| Temperature drift | | ± 0.5 mm |
| No-load supply current | I_0 | ≤ 20 mA |
| Operating voltage indicator | | LED green |

Functional safety related parameters

| | |
|--------------------------------|-------|
| MTTF _d | 490 a |
| Mission Time (T _M) | 20 a |
| Diagnostic Coverage (DC) | 0 % |

Interface

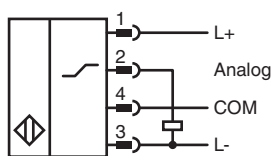
| | |
|----------------|--------------------|
| Interface type | IO-Link |
| Mode | COM2 (38.4 kBit/s) |
| Value range | 0000h ... 7000h |

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Technical Data

| Analog output | |
|--|---|
| Output type | voltage output 0 ... 10 V |
| Load resistor | $\geq 2000 \Omega$ |
| Short-circuit protection | limited to 6 mA |
| Compliance with standards and directives | |
| Standard conformity | |
| Standards | EN 60947-5-2:2007 EN 60947-5-2/A1:2012 IEC 60947-5-2:2007 IEC 60947-5-2 AMD 1:2012 IEC 61131-9:2013 |
| Approvals and certificates | |
| UL approval | cULus Listed, Class 2 Power Source, Type 1 enclosure |
| CCC approval | CCC approval / marking not required for products rated ≤ 36 V |
| Ambient conditions | |
| Ambient temperature | -25 ... 70 °C (-13 ... 158 °F) |
| Mechanical specifications | |
| Connection type | Cable connector |
| Housing material | diecast zinc, not laquered or coated |
| Degree of protection | IP67 |
| Material | |
| Target | mild steel, e. g. 1.0037, SR235JR (formerly St37-2) |
| Connector | |
| Threading | M8 x 1 |
| Cable | |
| Cable diameter | 4.8 mm |
| Bending radius | > 10 x cable diameter |
| Material | PUR |
| Length | L |
| Note | The data relating to accuracy only apply to a distance to the object to be detected of 1 ... 2.5 mm. |

Connection



Connection Assignment

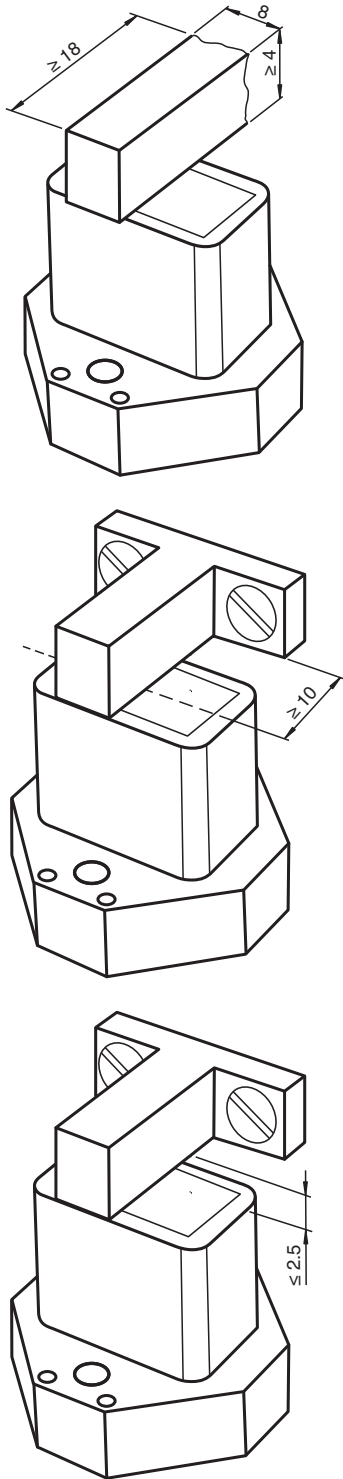


Connection Assignment

Wire colors in accordance with EN 60947-5-2









| | | |
|---|----|---------|
| 1 | BN | (brown) |
| 2 | WH | (white) |
| 3 | BU | (blue) |
| 4 | BK | (black) |

Installation Conditions



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Accessories

| | | |
|---|-----------------------------|--|
|  | BT-F90-W | Damping element for sensors of type F90, F112, and F166; side hole |
|  | V31-GM-2M-PUR-V1-G | Cordset M8 socket straight to M12 plug straight A-coded, 4-pin, PUR cable grey |
|  | BT-F90-G | Damping element for sensors of type F90, F112, and F166; front hole |
|  | ICE2-8IOL-K45S-RJ45 | EtherNet/IP IO-Link master with 8 inputs/outputs, DIN rail, screw terminal |
|  | ICE3-8IOL-K45P-RJ45 | PROFINET IO IO-Link master with 8 inputs/outputs, DIN rail, push-in terminals |
|  | ICE3-8IOL-K45S-RJ45 | PROFINET IO IO-Link master with 8 inputs/outputs, DIN rail, screw terminal |
|  | IO-Link-Master02-USB | IO-Link master, supply via USB port or separate power supply, LED indicators, M12 plug for sensor connection |
|  | ICE2-8IOL-K45P-RJ45 | EtherNet/IP IO-Link master with 8 inputs/outputs, DIN rail, push-in connectors |

Technical Features

Description of Sensor Functions

Additional Functions and Parameters (IO-Link)

| | |
|----------------------|--|
| Additional functions | Sensor temperature indicator Measuring range overrun and underrun indicator |
| Measuring range | Scalable measuring range Invertible measuring range |
| Analog output | Selectable output type (0 V..10 V; 1 V..5 V) |

Installation

Information on Installation and Operation

Safety Information



Warnung

This product must not be used in applications in which the safety of persons depends on the function of the device. This product is not a safety component as specified in the EU Machinery Directive.

Actuator

The linear position measurement system is optimally aligned to the geometry of Pepperl+Fuchs actuators.

Using Your Own Actuators

Generally speaking, it is possible for you to use your own actuators. The specified measurement accuracy of the sensor will be achieved only if the actuator has the following properties:

- Material: construction steel such as S235JR+AR (previously St37)
- Dimensions (L x W x H): $\geq 18 \text{ mm} \times 8 \text{ mm} \times \geq 4 \text{ mm}$
- The active surface of the actuator must protrude across the entire sensor width.

Note:

The width of the actuator must be precisely 8 mm. If the width of the actuator deviates from this value, the position values will differ.

Installation

- It is possible to flush mount the device.
- The distance between the center of the measurement field (framed area on the front panel of the sensor) and the fixing base or fixing elements (e.g., protruding screw heads) of the actuator must be at least 10 mm.

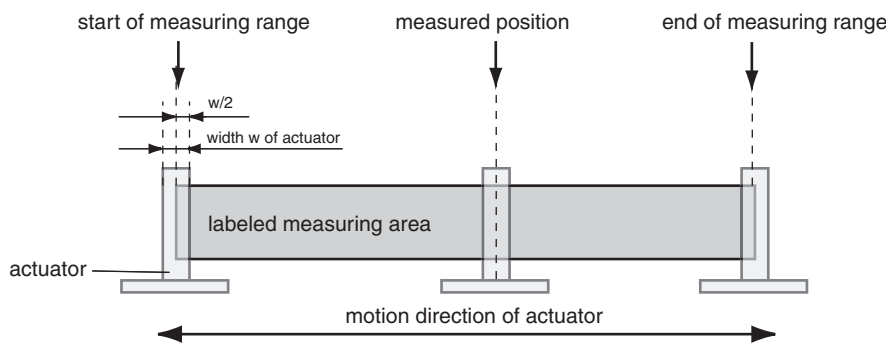
Operating Instructions

The specified measurement accuracy is achieved if the distance of the actuator from the sensor surface is max. 2.5 mm.

Definition of the Measuring Range/Measured Position

The measured position of the actuator is based on half of the width (center of the actuator).

The measuring range starts and ends when the actuator covers the measurement field marked on the sensor with half of its width in the course of its longitudinal movement.



Parameterization

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Supported IO-Link device parameters

| Index | Subindex | Name |
|--------------------------------------|------------------------|---|
| Smart sensor profile parameters | | |
| 0x3A | | Teach-In Channel |
| 0x3B | | Teach-In Status |
| 0x3C | 1, 2 | BD1_SPV, Switching signal 1 |
| 0x3D | 1, 2, 3 | BD1_SPV, Switching signal 1 configuration |
| 0x3E | 1, 2 | BD2_SPV, Switching signal 2 |
| 0x3F | 1, 2, 3 | BD2_SPV, Switching signal 2 configuration |
| 0x4000 | 1, 2 | BD3_SPV, Switching signal 3 |
| 0x4001 | 1, 2, 3 | BD3_SPV, Switching signal 3 configuration |
| Device specific operation parameters | | |
| 0x40 | 1, 2, 3 | Centered Window Width |
| 0x42 | 1, 2 | AD_SPC, Analog signal setpoint value |
| 0x43 | 1, 2, 3 | AD_SPC, Analog signal configuration |
| 0x5F | 1, 2, 3, 4, 5 | Measurement data collection |
| Standard operation control | | |
| 0x70 | 1, 2, 3, 4, 5, 6, 7, 8 | Output configuration |
| 0x74 | | Event configuration |
| 0x7F | | Locator indication control |
| User information | | |
| 0xC0 | | UT1, User tag 1 |
| 0xC1 | | UT2, User tag 2 |
| Special function | | |
| 0xE2 | | Operating temperature |
| 0xE8 | 1, 2 | Device characteristics |

Details of the listed device parameters can be found in the manual.