

# Inductive positioning system

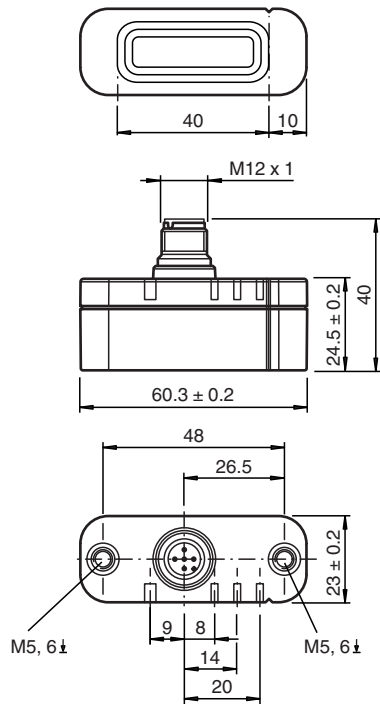
## PMI40-F90-3EP-IO-V15



- Parameterization and diagnosis via IO-Link
- Measuring range 0 ... 40 mm
- Parameterisable measuring range
- 3 Push-pull outputs
- Switch points programmable via IO-Link



### Dimensions



### Technical Data

#### General specifications

Switching element function	3 switch outputs, programmable
Object distance	0.5 ... 3 mm , recommended: 1.5 mm
Measurement range	0 ... 40 mm
Linearity range	1 ... 39 mm

#### Nominal ratings

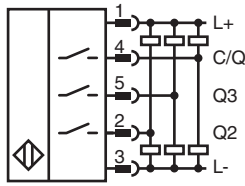
Operating voltage	U <sub>B</sub>	12 ... 30 V DC
Reverse polarity protection		reverse polarity protected
Linearity error		within measuring range: ± 0.8 mm within linearity range: ± 0.4 mm

Release date: 2022-05-17 Date of issue: 2022-05-17 Filename: 231920\_eng.pdf

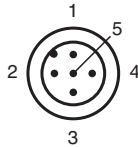
## Technical Data

Repeat accuracy	R	± 0.1 mm
Resolution		50 µm
Temperature drift		± 0.5 mm (-25 °C ... 70 °C)
No-load supply current	I <sub>0</sub>	≤ 40 mA
Operating voltage indicator		LED green
<b>Functional safety related parameters</b>		
MTTF <sub>d</sub>		365 a
Mission Time (T <sub>M</sub> )		20 a
Diagnostic Coverage (DC)		0 %
<b>Indicators/operating means</b>		
LED S1		switching state Switching output 1
LED S2		switching state Switching output 2
LED S3		switching state, Switching output 3
LED STATUS		Status display LED, green/red (Power on, communication/error, missing damping element)
<b>Interface</b>		
Interface type		IO-Link (via C/Q = Pin 4)
IO-Link revision		1.1
Device profile		Smart Sensor
Device ID		0x200202 (2097666)
Transfer rate		COM2 (38.4 kBaud)
Value range		0000h ... 3200h
Min. cycle time		2.3 ms
Process data width		Process data input: 16 Bit Process data output: none
SIO mode support		yes
Compatible master port type		A
<b>Switching output</b>		
Output type		3 push-pull outputs (can be parameterized), short-circuit-proof, reverse polarity protection, overvoltage protected
Operating current	I <sub>L</sub>	≤ 100 mA / Output
Switching window		± 1 mm
Switching hysteresis		0.2 mm
Voltage drop		≤ 3 V
Short-circuit protection		pulsing
<b>Compliance with standards and directives</b>		
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 EN 61131-9:2013
<b>Approvals and certificates</b>		
UL approval		cULus Listed, Class 2 Power Source, Type 1 enclosure
Marine approval		DNVGL TAA00001V2
<b>Ambient conditions</b>		
Ambient temperature		-25 ... 85 °C (-13 ... 185 °F)
<b>Mechanical specifications</b>		
Connection type		5-pin, M12 x 1 connector
Degree of protection		IP67 / IP69K
Material		
Housing		PBT, stainless steel 1.4571, brass, nickel-plated
Target		mild steel, e. g. 1.0037, SR235JR (formerly St37-2)
Mass		56 g

## Connection



## Connection Assignment

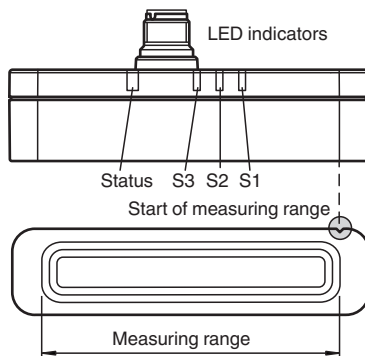
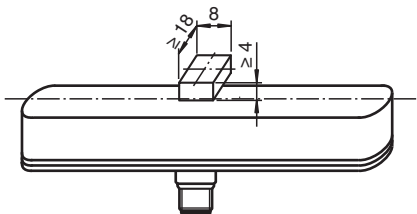


Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)
5	GY	(gray)


## Application

dimensions for the target object:



Release date: 2022-05-17 Date of issue: 2022-05-17 Filename: 231920\_eng.pdf

## Accessories

	<b>BT-F90-W</b>	Damping element for sensors of type F90, F112, and F166; side hole
---	-----------------	--

## Accessories

	<b>MH-F90</b>	Mounting bracket for mounting of F90 sensors
	<b>V15-G-2M-PVC</b>	Female cordset single-ended M12 straight A-coded, 5-pin, PVC cable grey
	<b>V15-W-2M-PVC</b>	Female cordset single-ended M12 angled A-coded, 5-pin, PVC cable grey
	<b>ICE2-8IOL-G65L-V1D</b>	EtherNet/IP IO-Link master with 8 inputs/outputs
	<b>ICE3-8IOL-G65L-V1D</b>	PROFINET IO IO-Link master with 8 inputs/outputs
	<b>ICE1-8IOL-G30L-V1D</b>	Ethernet IO-Link module with 8 inputs/outputs
	<b>ICE1-8IOL-G60L-V1D</b>	Ethernet IO-Link module with 8 inputs/outputs
	<b>ICE2-8IOL-K45P-RJ45</b>	EtherNet/IP IO-Link master with 8 inputs/outputs, DIN rail, push-in connectors
	<b>ICE2-8IOL-K45S-RJ45</b>	EtherNet/IP IO-Link master with 8 inputs/outputs, DIN rail, screw terminal
	<b>ICE3-8IOL-K45P-RJ45</b>	PROFINET IO IO-Link master with 8 inputs/outputs, DIN rail, push-in terminals
	<b>ICE3-8IOL-K45S-RJ45</b>	PROFINET IO IO-Link master with 8 inputs/outputs, DIN rail, screw terminal
	<b>IO-Link-Master02-USB</b>	IO-Link master, supply via USB port or separate power supply, LED indicators, M12 plug for sensor connection

## Operation

**Attention!**

If the sensor is supplied via an IO-Link-Master, ensure that the sum of the no-load supply current and operating currents of all sensor outputs does not exceed the maximum current the IO-Link-Master can supply.