



## Model Number

PMI120-F90-C2EP-IO-V15-3G-3D

## Features

- Parameterization and diagnosis via IO-Link
- Measuring range 0 ... 120 mm
- Parameterisable measuring range
- Analog current or voltage output, programmable
- 2 Push-pull outputs
- Switch points programmable via IO-Link

## Application

### 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.

## Accessories

### BT-F90-W

Damping element for sensors of type F90, F112, and F166; side hole

### MH-F90

Mounting bracket for mounting of F90 sensors

### V15-G-2M-PVC

Female cordset, M12, 5-pin, PVC cable

### V15-W-2M-PVC

Female cordset, M12, 5-pin, PVC cable

## Technical Data

### General specifications

Switching element function	Analog current or voltage output, programmable
Object distance	2 switch outputs, programmable
Measurement range	0.5 ... 3 mm, recommended: 1.5 mm
Linearity range	0 ... 120 mm
	1 ... 119 mm

### Nominal ratings

Operating voltage	$U_B$	12 ... 30 V DC (13 ... 30 V when analog voltage output is parameterized)
Reverse polarity protection		reverse polarity protected
Linearity error		within measuring range: $\pm 0.8$ mm within linearity range: $\pm 0.4$ mm
Repeat accuracy	R	$\pm 0.1$ mm
Resolution		50 $\mu$ m
Temperature drift		$\pm 0.5$ mm (-25 °C ... 70 °C)
No-load supply current	$I_0$	$\leq 40$ mA
Operating voltage indicator		LED green

### Functional safety related parameters

MTTF <sub>d</sub>	278 a
Mission Time (T <sub>M</sub> )	20 a
Diagnostic Coverage (DC)	0 %

### Indicators/operating means

LED S1	switching state	Switching output 1
LED S2	switching state	Switching output 2
LED S3	Damping element in the configured analog measuring range	
LED STATUS	Status display LED, green/red	(Power on, communication/error, missing damping element)

### Interface

Interface type	IO-Link (via C/Q = Pin 4)
Device profile	Smart Sensor
Transfer rate	COM 2 (38.4 kBaud)
Value range	0000h ... 9600h
IO-Link Revision	1.1
Min. cycle time	2.3 ms
Process data width	Process data input: 16 Bit Process data output: none
SIO mode support	yes
Device ID	0x200404 (2098180)
Compatible master port type	A

### Switching output

Output type	2 push-pull outputs (can be parameterized), short-circuit-proof, reverse polarity protection, surge-proof
Operating current	$I_L$ $\leq 100$ mA / output
Switching window	$\pm 1$ mm
Switching hysteresis	0.2 mm
Voltage drop	$\leq 3$ V
Short-circuit protection	pulsing

### Analog output

Output type	1 current output: 4 ... 20 mA or 1 voltage output: 0 ... 10 V, programmable
Load resistor	current output: $\leq 400$ $\Omega$ voltage output: $\geq 1000$ $\Omega$
Short-circuit protection	voltage output: current limit

### Ambient conditions

Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
---------------------	--------------------------------

### Mechanical specifications

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	113 g

### General information

Use in the hazardous area	see instruction manuals
---------------------------	-------------------------

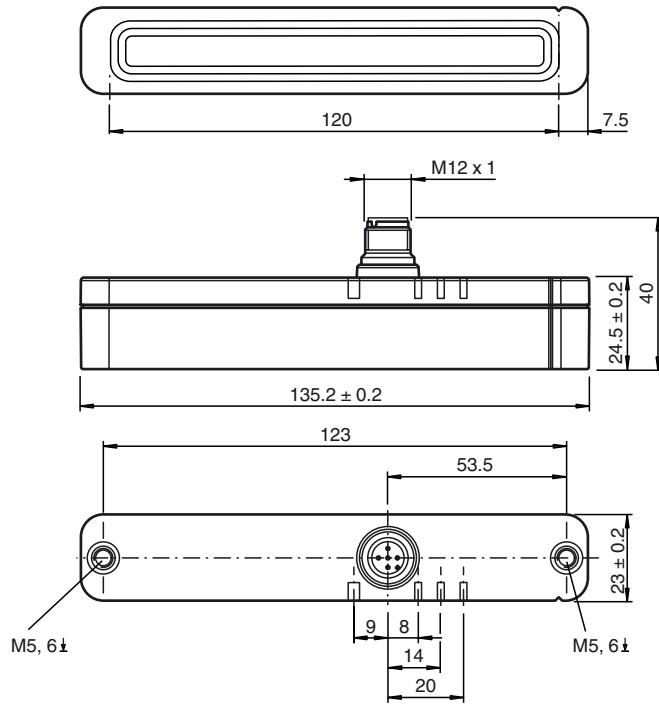
### Compliance with standards and directives

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 EN 60947-5-7:2003 EN61131-9:2013 IEC 60947-5-7:2003 IEC 61131-9:2013

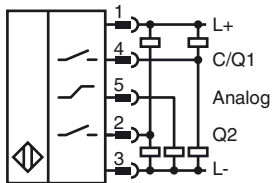
### Approvals and certificates

UL approval	cULus Listed, Class 2 Power Source, Type 1 enclosure
-------------	--

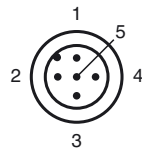
**Dimensions**



**Electrical Connection**



**Pinout**

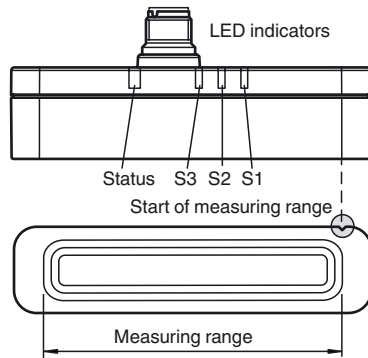
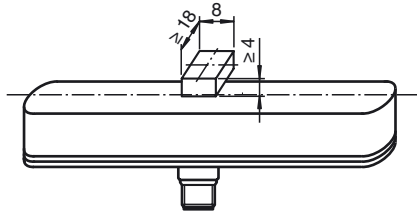


Wire colors in accordance with EN 60947-5-2

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

**Additional Information**

dimensions for the target object:



Release date: 2017-10-04 14:16 Date of issue: 2017-10-04 231931\_eng.xml

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

Pepperl+Fuchs Group  
www.pepperl-fuchs.com

USA: +1 330 486 0001  
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776 4411  
fa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091  
fa-info@sg.pepperl-fuchs.com

**Data for application in connection with hazardous areas**

Equipment protection level	Gc (nA) , Dc
<b>Equipment protection level Gc (nA)</b>	
Type of protection	"n"
CE marking	
<b>Certificates</b>	
ATEX certificate	PF 15 CERT 3754 X
ATEX marking	
Standards	EN 60079-0:2012+A11:2013 , EN 60079-15:2010
Possible characteristics	maximum operating voltage $U_{Bmax}$ , maximum load current $I_{Lmax}$ , minimum series resistance $R_V$ , maximum analog output voltage $U_{Amax}$ , maximum analog output current $I_{Amax}$
Maximum permissible ambient temperature $T_{amb}$	Also observe the maximum permissible ambient temperature stated in the general technical data. Keep to the lower of the two values. <b>mode of operation 1</b> at $U_{Bmax} = 30$ V and maximum 2 switching outputs with each $I_{Lmax} = 100$ mA and 1 analog output with $I_{Amax} = 20$ mA or $U_{Amax} = 10$ V : 35 °C (95 °F) <b>mode of operation 2</b> at $U_{Bmax} = 30$ V and maximum 1 switching output with $I_{Lmax} = 100$ mA : 50 °C (122 °F)
<b>Equipment protection level Dc</b>	
Type of protection	Protection by enclosure "tc"
CE marking	
<b>Certificates</b>	
ATEX certificate	PF 15 CERT 3774 X
ATEX marking	
Standards	EN 60079-0:2012/A11+2013 , EN 60079-31:2014
Possible characteristics	maximum operating voltage $U_{Bmax}$ , maximum load current $I_{Lmax}$ , minimum series resistance $R_V$ , maximum analog output voltage $U_{Amax}$ , maximum analog output current $I_{Amax}$
Maximum permissible ambient temperature $T_{amb}$	Also observe the maximum permissible ambient temperature stated in the general technical data. Keep to the lower of the two values. <b>mode of operation 1</b> at $U_{Bmax} = 30$ V and maximum 2 switching outputs with each $I_{Lmax} = 100$ mA and 1 analog output with $I_{Amax} = 20$ mA or $U_{Amax} = 10$ V : 35 °C (95 °F) <b>mode of operation 2</b> at $U_{Bmax} = 30$ V and maximum 1 switching output with $I_{Lmax} = 100$ mA : 50 °C (122 °F)

Release date: 2017-10-04 14:16 Date of issue: 2017-10-04 231931\_Leng.xml