

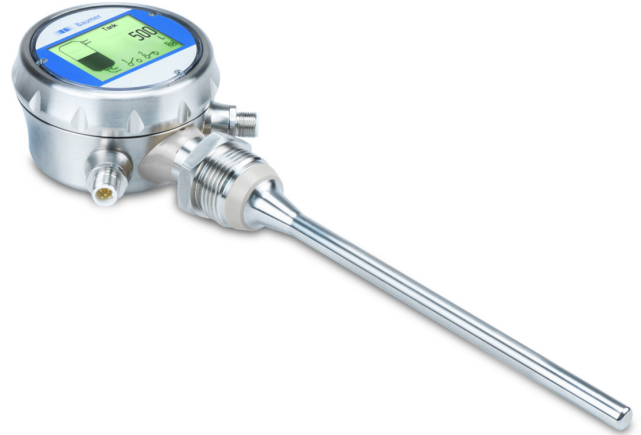
## PLP70S

Potentiometric level measurement

PLP70S-50###0##.D11#A040.310#

### Overview

- Potentiometric Level Transmitter
- IO-Link Dual Channel
- Compact design
- Wetted parts in acid-proof, stainless steel and PEEK
- Defined empty registration
- Unaffected by strong adhesive media
- Configurable measuring range



### Technical data

#### Performance characteristics

Measuring principle	Potentiometric level measurement
Max. measuring error	$\pm 1\%$ FSR ,for media conductivity $\geq 50\ \mu\text{S}$ $\pm 3\%$ FSR ,for media conductivity $< 50\ \mu\text{S}$
Measuring range	20 ... 300 cm
Media characteristics	$\geq 10\ \mu\text{S}/\text{cm}$ $\leq 10\ \mu\text{S}/\text{cm}$ , tests currently in progress for lower values
Step response time, T90	$\leq 100\ \text{ms}$
Damping	$\leq 60\ \text{s}$
Repeatability	0.2 % FSR , for rod length $\geq 500\text{mm}$ 1 mm , for rod length $< 500\text{mm}$

#### Process conditions

Process temperature	-10 ... 115 °C , permanent < 140 , max. t < 30 min
Process pressure	$\leq 16\ \text{bar}$

#### Process connection

Connection variants	G 1 A hygienic
Mounting position	Any, top, bottom, side
Wetted parts material	AISI 316L (1.4404) PEEK Natura
Surface roughness wetted parts	$R_a \leq 0.8\ \mu\text{m}$

#### Ambient conditions

Operating temperature range	-20 ... 65 °C
Storage temperature range	-40 ... 85 °C
Degree of protection (EN 60529)	IP 67
Vibration (sinusoidal) (EN 60068-2-6)	GL, test 2

#### Switching output

Output type	PNP NPN Digital (push-pull) Off
Switching logic	High-Active Low-Active
Relays	2 relays included in the display
Current rating	100 mA , max.
Off leak current	$< 100\ \mu\text{A}$
Short circuit protection	Yes

#### Analogue output

Output signal	4 ... 20 mA
Accuracy	$\leq 40\ \mu\text{A}$
Load resistance	500 $\Omega$ max.
Temperature drift	$< 0.01\%$ FSR/K ( $\pm 1.6\ \mu\text{A}/\text{K}$ )
Resolution	3 $\mu\text{A}$
Status signal empty	3.5 mA , programmable

#### IO-Link interface

IO-Link version	1.1
Device profile	Smart Sensor Profile
IO-Link port type	Class A
Baud rate	38,4 kbaud (COM2)
SIO-mode	Yes
Process data (cyclic)	Process Value Device Status
Adjustable data (acyclic)	Sensor Adjustment Switch parameters Analog Output Signal Adjustment Analog Output Signallimits (Minimum, Maximum, Alarm)

#### Technical data

##### Housing

Style	Compact version FlexHousing, Ø80 mm
Overall size	Refer to section "Dimensional drawings"
Material	AISI 304 (1.4301)

##### Electrical connection

Connector (available for left side)	M12-A, 5-pin, stainless steel M16x1.5, stainless steel M20x1.5, stainless steel
Connector (available for right side)	M12-A, 4-pin, stainless steel M16x1.5, stainless steel M20x1.5, stainless steel

##### Power supply

Voltage supply range	18 ... 35 V DC
Current consumption (no load)	≤ 100 mA , max.
Power-up time	< 5 s
Reverse polarity protection	Yes

##### Factory settings

QTeach	Activated
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##### Compliance and approvals

EMC Emission	EN 61326, installed in a closed metal tank
EMC Immunity	EN 61326

#### Display

##### General information

Panel type	FSTN Graphical LCD
Display range	-9999 ... 99999
Max. digit height	22 mm
Material	Polycarbonate

##### Ambient conditions

Operating temperature range	-30 ... 80 °C
Optimal readability temperature range	-10 ... 70 °C
Degree of protection (EN 60529)	IP67 IP69K

##### Input signal

Input signal from transmitter	Digital, 2-way for communication between transmitter and display
Update time	≤ 1 s , max. 0.3 s , typ.

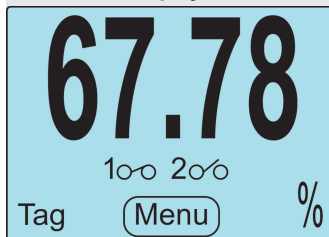
##### User configurable data

Error- / Warning-indication	Individually configurable display and backlight indication in white, green or red colour, steady or flashing light. Configurable limits over the range
Measuring unit	% mm cm
User defined measuring unit	8 × 20 pixel matrix

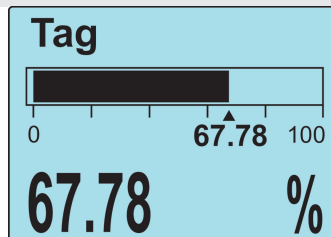
##### Relays

Contacts	2 x solid state relays
Max. load current	75 mA
Max. switching voltage	60 V

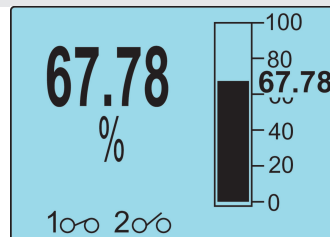
#### Selectable display views



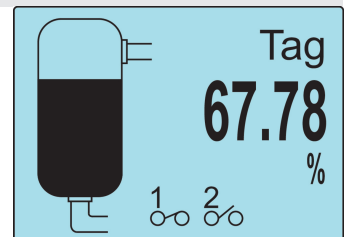
Filling level and additional values



Filling level and horizontal bar graph



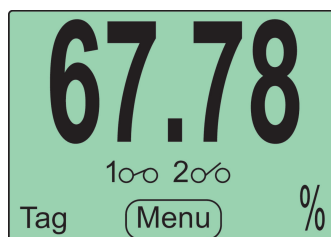
Filling level and vertical bar graph



Filling level and tank illustration



White background



Green Background



Red background



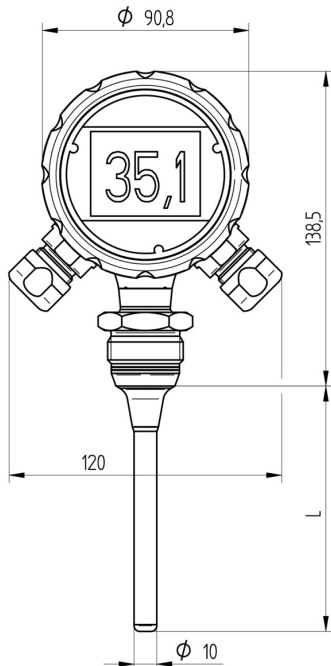
Exemplary error message

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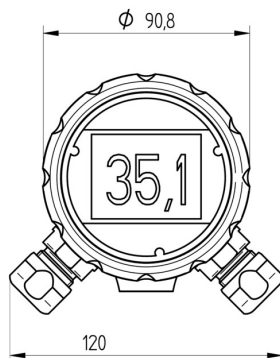
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### Dimensional drawings (mm)

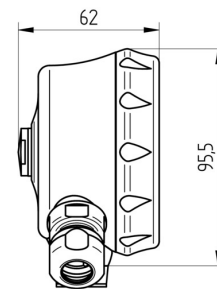


G 1 A hygienic (BCID: A04), Length from 200 mm ... 3000 mm

### Housing



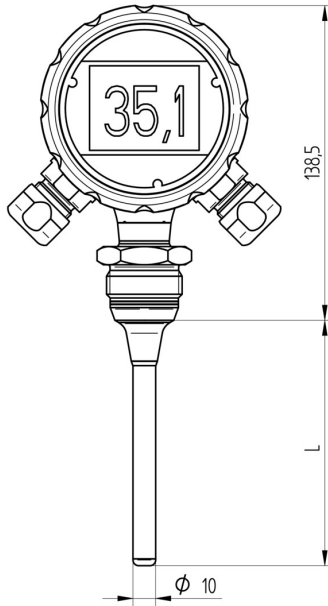
FlexHousing, available with or without DFON touchscreen



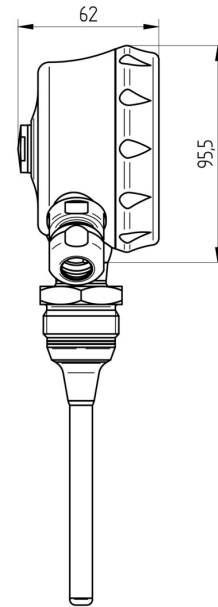
FlexHousing with bottom process connection

**Dimensional drawings (mm)**

**Housing**



FlexHousing with measuring rod



FlexHousing with measuring rod

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### Electrical connection



#### Left side connection (front view): M12-A, 5-pin

Function	Description		Pin assignment
+Vs	Power supply +	18 ... 35 V DC	1
GND (0V)	Power supply -	18 ... 35 V DC	3
Iout+	Level +	4 ... 20 mA	5
Iout-	Level -	4 ... 20 mA	2
IO-Link/SW	IO-Link/SW		4

#### Right side connection (front view): M12-A, 4-pin

Function	Description	Pin assignment
R11	Relay 1	1
R12	Relay 1	2
R21	Relay 2	3
R22	Relay 2	4

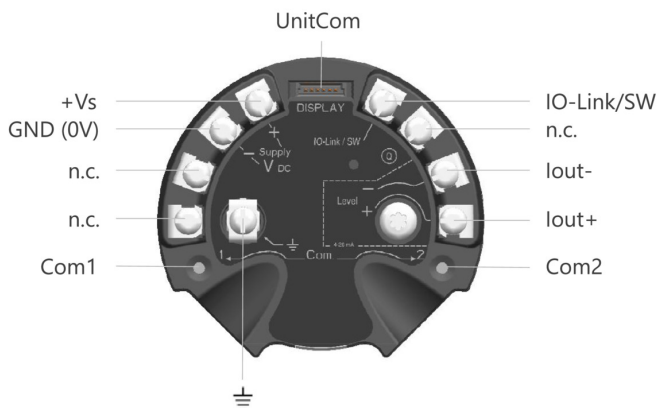
#### Left side connection (front view): Cable gland

Function	Description	Recommended wiring
+Vs	Power supply +	18 ... 35 V DC
GND (0V)	Power supply -	18 ... 35 V DC
Iout+	Level +	4 ... 20 mA
Iout-	Level -	4 ... 20 mA
IO-Link/SW	IO-Link/SW	

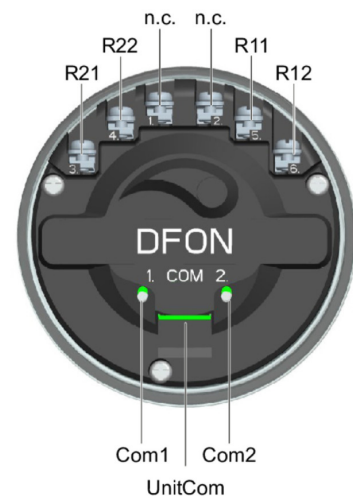
#### Right side connection (front view): Cable gland

Function	Description	Recommended wiring
R11	Relay 1	BN
R12	Relay 1	WH
R21	Relay 2	BU
R22	Relay 2	BK

#### Terminal assignment transmitter



#### Terminal assignment DFON display



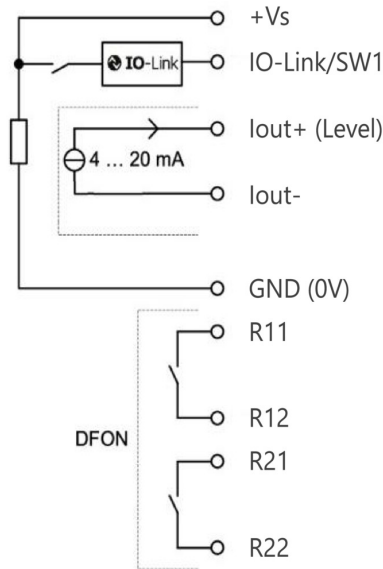
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### Electrical connection

#### Equivalent circuit diagram



### Ordering information

Ordering key - Configuration possibilities see website

	PLP70S	-	5	0	###	0	#	#	.	D1	1	#	A040	.	3	1	0	#
<b>Product</b>	PLP70S																	
<b>Housing</b>																		
Bottom process connection			5															
<b>Version</b>																		
Straight version				0														
<b>Rod length (cm)</b>																		
20 - 300					20 - 300													
<b>Cable length (cm)</b>																		
No cable, compact version					0													
<b>Display</b>																		
Without display								1										
With display, with activated relays								4										
<b>Mounting position</b>																		
Bottom mounted								1										
Top mounted								2										
<b>Output signal</b>																		
IO-Link Dual Ch., 4 ... 20 mA V1										D1								
<b>Protection class</b>																		
IP67, IP69K											1							

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### Ordering information

Ordering key - Configuration possibilities see website

	PLP70S	-	5	0	###	0	#	#	.	D1	1	#	A040	.	3	1	0	#
<b>Electrical connection</b>																		
1 x M12-A, 5-pin													1					
2 x M16x1.5 cable gland													8					
2 x M20x1.5 cable gland													B					
1 x M12-A, 5-pin + 1 x M12-A, 4-pin													C					
1 x M16x1.5 cable gland													F					
1 x M20x1.5 cable gland													G					
<b>Process connection</b>																		
G 1 A hygienic (A04)													A040					
<b>Wetted parts material</b>																		
PEEK / AISI 316L (1.4404)																3		
<b>Surface roughness</b>																		
Ra < 0,8 µm																	1	
<b>Special approvals</b>																		
Standard																		0
<b>Configuration</b>																		
Factory settings																		0
Customer-specific																		1