

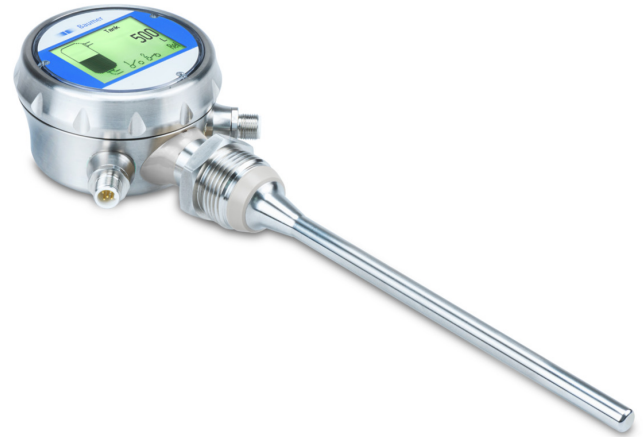
PLP70S

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 | ± 1 % FSR ,for media conductivity ≥ 50 µS/cm ± 3 % FSR ,for media conductivity < 50 µS/cm |
| Measuring range | 200 ... 3000 mm |
| Media characteristics | ≥ 5 µS/cm |
| Step response time, T90 | ≤ 100 ms |
| Damping | ≤ 60 s |
| Repeatability | 0.2 % FSR , for rod length ≥ 500mm 1 mm , for rod length < 500mm |

Process conditions

| | |
|---------------------|--|
| Process temperature | -10 ... 115 °C , permanent < 140 °C , max. t < 30 min |
| Process pressure | ≤ 16 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 | Ra ≤ 0.8 µm |

Ambient conditions

| | |
|---------------------------------------|---|
| Operating temperature range | -20 ... 65 °C |
| Storage temperature range | -30 ... 80 °C , with DFON touch screen -40 ... 85 °C , without DFON touch screen |
| Degree of protection (EN 60529) | IP 67 |
| Vibration (sinusoidal) (EN 60068-2-6) | 1.6 mm p-p (2 ... 25 Hz), 4 g (25 ... 100 Hz), 1 octave / min. |

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 µA |
| Short circuit protection | Yes |

Analogue output

| | |
|---------------------|-----------------------------|
| Output signal | 4 ... 20 mA |
| Accuracy | ≤ 40 µA |
| Load resistance | 500 Ω max. |
| Temperature drift | < 0.01 % FSR/K (± 1.6 µA/K) |
| Resolution | 3 µA |
| 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) |

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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 | < 3 s |
| Reverse polarity protection | Yes |

Factory settings

| | |
|--------|-----------|
| QTeach | Activated |
|--------|-----------|

Compliance and approvals

| | |
|--------------|----------|
| EMC Emission | EN 61326 |
| EMC Immunity | EN 61326 |

Display

General information

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

Input signal

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

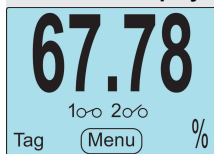
Relays

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

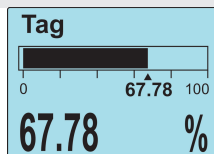
User configurable data

| | |
|-----------------------------|--|
| 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 m Inch Feet |
| User defined measuring unit | 8 × 20 pixel matrix |

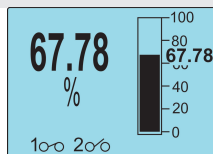
Selectable display views



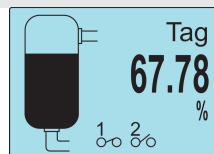
Filling level and additional values



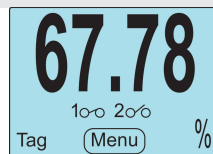
Filling level and horizontal bar graph



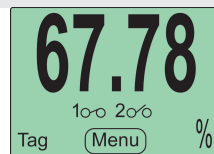
Filling level and vertical bar graph



Filling level and tank illustration



White background



Green Background



Red background



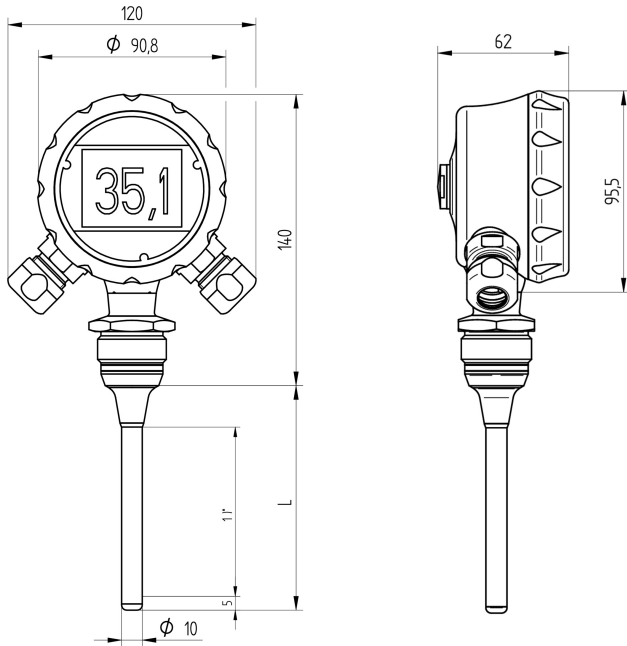
Exemplary error message

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Dimensional drawings (mm)



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

FlexHousing with measuring rod,
side view

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 |
| lout+ | Level + | 4 ... 20 mA | 5 |
| lout- | 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 | BN |
| GND (0V) | Power supply - | 18 ... 35 V DC | BU |
| lout+ | Level + | 4 ... 20 mA | GY |
| lout- | Level - | 4 ... 20 mA | WH |
| IO-Link/SW | IO-Link/SW | | BK |

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 |

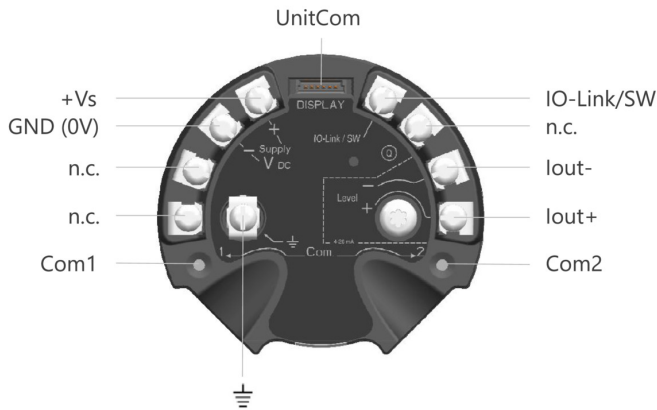
PLP70S

Potentiometric level measurement

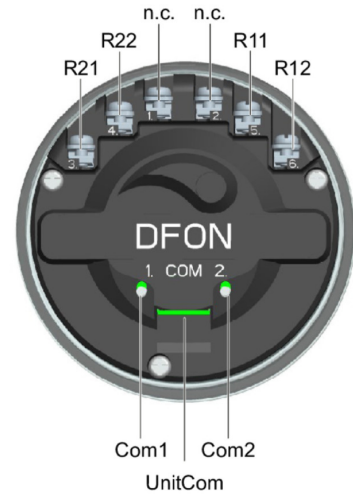
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Electrical connection

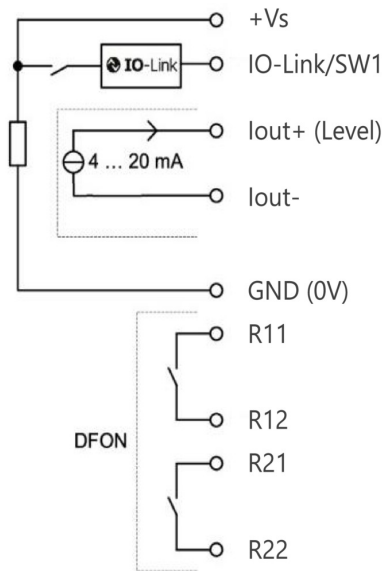
Terminal assignment transmitter



Terminal assignment DFON display



Equivalent circuit diagram



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Ordering information

Ordering key - Configuration possibilities see website

| | PLP70S | - | 5 | 0 | #### | 0 | # | # | . | D1 | 1 | # | A040 | . | 3 | 1 | 0 | # | |
|-------------------------------------|--------|---|---|---|--------|---|---|---|---|----|---|---|------|---|---|---|---|---|--|
| Product | PLP70S | | | | | | | | | | | | | | | | | | |
| | PLP70S | | | | | | | | | | | | | | | | | | |
| Housing | | | | | | | | | | | | | | | | | | | |
| Bottom process connection | | | | 5 | | | | | | | | | | | | | | | |
| Version | | | | | | | | | | | | | | | | | | | |
| Straight version | | | | 0 | | | | | | | | | | | | | | | |
| Rod length (mm) | | | | | | | | | | | | | | | | | | | |
| 0200 - 3000 | | | | | 0200 - | | | | | | | | | | | | | | |
| | | | | | 3000 | | | | | | | | | | | | | | |
| Cable length (cm) | | | | | | | | | | | | | | | | | | | |
| No cable, compact version | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| Display | | | | | | | | | | | | | | | | | | | |
| Without display | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| With display, with activated relays | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| Mounting position | | | | | | | | | | | | | | | | | | | |
| Bottom mounted | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| Top mounted | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| Output signal | | | | | | | | | | | | | | | | | | | |
| IO-Link Dual Ch., 4 ... 20 mA V1 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| Protection class | | | | | | | | | | | | | | | | | | | |
| IP67, IP69K | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| Electrical connection | | | | | | | | | | | | | | | | | | | |
| 1 x M12-A, 5-pin | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| 2 x M16x1.5 cable gland | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| 2 x M20x1.5 cable gland | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| 1 x M12-A, 5-pin + 1 x M12-A, 4-pin | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| 1 x M16x1.5 cable gland | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| 1 x M20x1.5 cable gland | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| Process connection | | | | | | | | | | | | | | | | | | | |
| G 1 A hygienic (A04) | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| Wetted parts material | | | | | | | | | | | | | | | | | | | |
| PEEK / AISI 316L (1.4404) | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| Surface roughness | | | | | | | | | | | | | | | | | | | |
| Ra ≤ 0.8 µm | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| Special approvals | | | | | | | | | | | | | | | | | | | |
| Standard | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| Configuration | | | | | | | | | | | | | | | | | | | |
| Factory settings | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| Customer-specific | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |