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**JUMO Process Control, Inc.**  
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# Level Probe

Type 4390

## General application

The type 4390 level probe is used for the hydrostatic measurement of levels in liquids. The pressure is converted into an electrical signal. Applications include: level measurement in wells, boreholes, wastewater plant, vessels, and standing or running water.



## Technical data

**Reference conditions**  
as per DIN 16 086 and IEC 770/5.3

**Measuring ranges**  
see order details

**Overload limit**  
3 x full scale; 40 bar max.

**Bursting pressure**  
≥ 4 x full scale; 50 bar max.

**Parts in contact with the medium**  
stainless steel, Mat. Ref. 1.4435  
FPM, polyolefin, PE (polyethylene),  
with extra code /013: PUR (polyurethane)

**Output**  
4 – 20 mA 2-wire connection  
burden  $\leq (U_B - 10 \text{ V}) / 0.02 \text{ A } (\Omega)$

**Burden error**  
< 0.1% of full scale

**Zero signal deviation**  
≤ 0.5% of full scale

**Ambient temperature error**  
within the range 0 to +50° C  
(compensated temperature range)  
zero point: < 0.2%/10° C typical,  
< 0.4%/10° C max.  
span: < 0.2%/10° C typical,  
< 0.4%/10° C max.  
for range 0 to 250 mbar and  
0 to 400 mbar:  
zero point: < 0.4%/10° C typical,  
< 0.6%/10° C max.  
span: < 0.3%/10° C typical,  
< 0.5%/10° C max.

**Characteristic**  
linear

**Deviation from characteristic**  
≤ 0.5% of full scale  
(starting point setting)

**Settling time**  
≤ 10 msec

**Supply**  
10 – 30 V DC  
Ripple: the voltage peaks must not go  
above or below the values specified for the  
supply.  
max. current drawn:  
≤ 30 mA

**Supply voltage error**  
≤ 0.01% per V of full scale  
(nominal supply voltage 24 V DC)

**Permissible ambient  
and media temperature**  
0 to +50° C  
(the instrument must not freeze in the  
medium)

**Storage temperature**  
-20 to +80° C (dry)

**Electromagnetic compatibility EMC**  
EN 61 326  
interference emission: Class B  
interference immunity: to industrial  
requirements

**Electric strength**  
connections to housing as per  
VDE 0411, 150 V<sub>eff</sub>, 50 Hz, 1 min.

**Enclosure protection**  
with connecting cable:  
IP68 (up to 40 bar) to EN 60 529

**Pressure connection**  
see order details;  
other connections on request

**Electrical connection**  
6-core screened PE cable with internal  
pressure equilibration tubing. Minimum  
bending radius of cable: 120 mm (fixed  
installation). Can be used up to 250 m  
depth without additional strain relief.

**Core cross-section**  
6 x 0.25 mm<sup>2</sup>

**Nominal position**  
vertical / suspended from control cable

**Weight**  
approx. 400 g (without cable)

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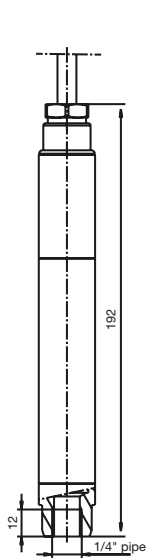
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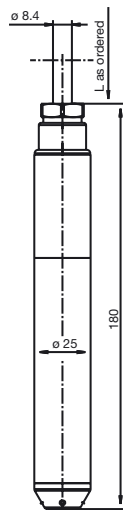
## Electrical connection

Connection		Terminal assignment / cable
Supply 10 – 30 V DC		+ white - gray
Output 4 – 20 mA 2-wire		+ white - gray proportional current in supply
Temperature sensor (with extra code /027)		for version with Pt100 temperature sensor pink (pk), brown (bn) green (gn), yellow (ye)
Screening Earth the device!		black

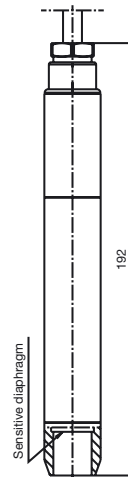
## Dimensions



Process connection 567

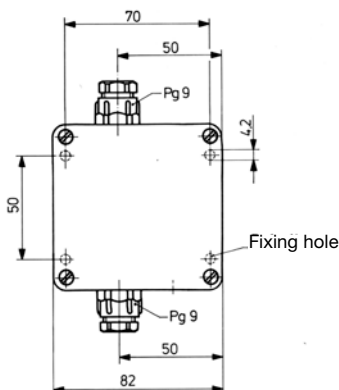


Process connection 658

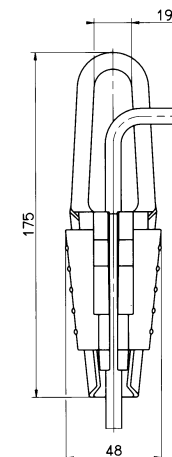
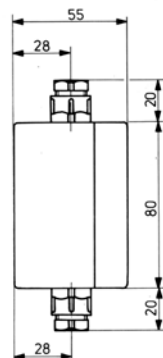


Process connection 659

## Accessories



Clamping housing with pressure equilibration, Part No. 00061206



Cable holder, Part No. 00061389

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## Order details

### (1) Basic type

404390 Level probe

### (2) Basic type extensions

000 none  
 999 special version

### (3) Input for gauge pressure

451 0 – 0.25 bar  
 452 0 – 0.4 bar  
 453 0 – 0.6 bar  
 454 0 – 1.0 bar  
 455 0 – 1.6 bar  
 456 0 – 2.5 bar  
 457 0 – 4 bar  
 458 0 – 6 bar  
 459 0 – 10 bar  
 460 0 – 16 bar  
 461 0 – 25 bar  
 999 special measuring range

### (4) Output

405 4 – 20mA 2-wire

### (5) Process connection

567 G1/4 internal  
 658 connection closed at bottom  
 659 connection open at bottom

### (6) Material of process connection

20 stainless steel

### (7) Electrical connection

14 PUR cable  
 15 PE-LD cable

### (8) Cable length L

005 5 m  
 010 10 m  
 015 15 m  
 020 20 m  
 025 25 m  
 030 30 m  
 035 35 m  
 040 40 m  
 045 45 m  
 050 50 m  
 055 55 m  
 060 60 m  
 065 65 m  
 070 70 m  
 075 75 m  
 080 80 m  
 085 85 m  
 090 90 m  
 095 95 m  
 100 100 m  
 999 special length on request

### (9) Extra codes

000 none  
 027 integrated Pt100 temperature sensor

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Order code	<input type="text"/>	/ <input type="text"/>	- <input type="text"/>	- <input type="text"/>	- <input type="text"/>	- <input type="text"/>	- <input type="text"/>	- <input type="text"/>	/ <input type="text"/>
Order example	404390	/ 000	- 452	- 405	- 659	- 20	- 15	- 20	/ 000

## Accessories

### Type

Cable holder  
 Clamping housing with pressure equilibration

### Sales No.

40/00061389  
 40/00061206