SENSORS & CONTROLLERS

ANALYZERS & SAMPLERS

LEVEL, FLOW & PRESSURE

WEB APP & DATALOGGING

ACCESSORIES

S425C DATASHEET

ULTRASOUND LEVEL SENSOR

MAIN FEATURES

- Integrated sensor for temperature compensation
- PVDF body suitable for aggressive environments
- High-resolution 1mm measurement
- Double-threaded connection
- Immediate installation with removable IP67-rated connector
- Modbus RTU protocol

APPLICATIONS

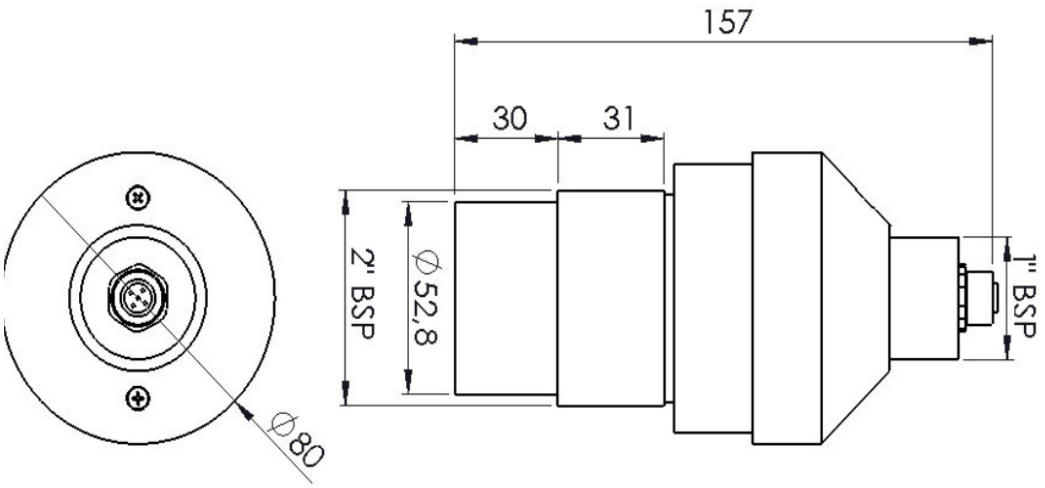
Non-contact level measurement, ultrasonic, suitable for measuring liquids, with integrated temperature sensor for temperature compensation.

CHEMITEC S.R.L.
VIA I.NEWTON, 30 50018 SCANDICCI (FI)- ITALY
+39 0557576801 • sales@chemitec.it • www.chemitec.it

TECHNICAL DATA

Measuring ranges	S425 C5	S425 C12
Measurement intervals	30...500 cm	50...1200 cm
Measurement method	Ultrasonic with automatic temperature compensation	
Emission angle	14° ±1°	10° ±1°
Accuracy	± 0.2% of measured distance (but not better than 2mm)	
Resolution	1 mm	1 „
Working temperature	-10°C …75°C	-10°C …75°C
Max pressure	0,5 bar…1,5 bar	0,5 bar…1,5 bar
Body materials	PVDF – PCV	PVDF – PCV
Thread	1"g.m. / 1.5"g.m.	1"g.m. / 2"g.m.
Degree of protection	IP67 (IP68 optional)	IP67 (IP68 optional)
Electrical connection	Screw connector	Screw connector
Power supply	24 Vdc	24 Vdc
Absorption	2 W	2 W
Cable	5 m	12m
Current output	Optional max load 500 ohm	Optional max load 500 ohm
Signal interface	Standard Modbus RTURS485 protocol	Standard Modbus RTURS485 protocol

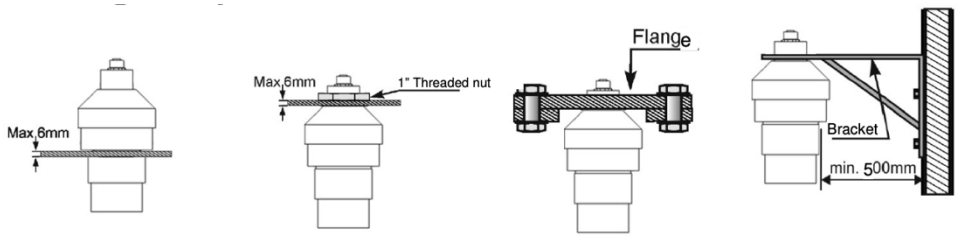
DIMENSIONS



ORDER CODES

9700920097	S425C/5 5 meters Ultrasound Level Sensor without cable
9700922097	S425C/5 5 meters Ultrasound Level Sensor IP68 5m cable
9700924097	S425C/5 5 meters Ultrasound Level Sensor 5m cable
9700926097	S425C/5 5 meters Ultrasound Level Sensor 10m cable
9700928097	S425C/5 5 meters Ultrasound Level Sensor IP68 10m cable
9400400019	10m Extending cable with connectors for digital sensors
9400400021	50m Extending cable with connectors for digital sensors
9700921097	S425C/8 8 meters Ultrasound Level Sensor without cable
9700923097	S425C/8 8 meters Ultrasound Level Sensor IP68 5m cable
9700925097	S425C/8 8 meters Ultrasound Level Sensor 5m cable
9700927097	S425C/8 8 meters Ultrasound Level Sensor 10m cable
9700929097	S425C/8 8 meters Ultrasound Level Sensor IP68 10m cable
9400400020	20m Extending cable with connectors for digital sensors

MOUTING EXAMPLES



Precautions for installation and assembly

When the ultrasound probe is installed on a tank with convex roof, don't mount it in the center of the tank, but leave a minimum distance of 500 mm for the 5m probe and 800mm for the 8m probe between the sensor and the smooth wall of the tank (Fig. 1).

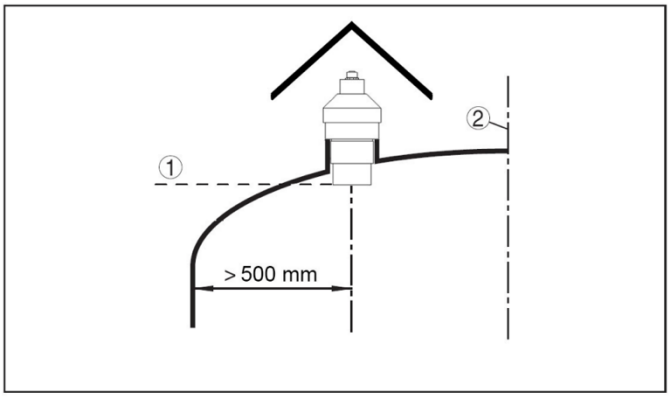


Fig. 1

1. *Reference level*
2. *Axis of symmetry of the tank*

Also use protection, to protect the sensor from direct sunlight and rain (Fig. 1).
Make sure that there are no obstacles in the range of the emission beam of the probe, and that the sensor is not installed in the proximity of the load flow (Fig. 2, Fig. 3).

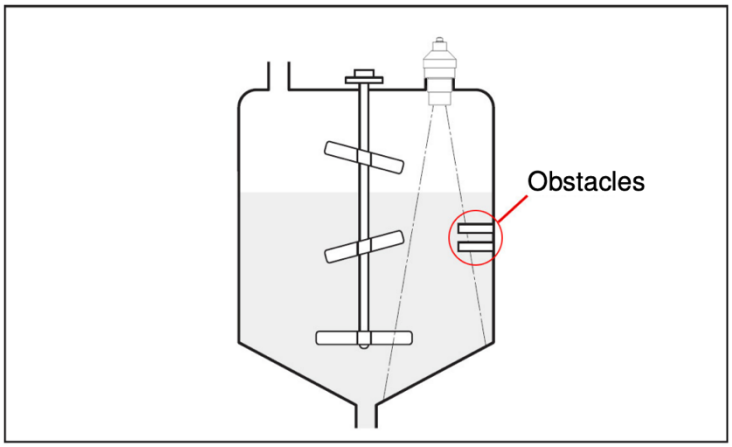


Fig. 2

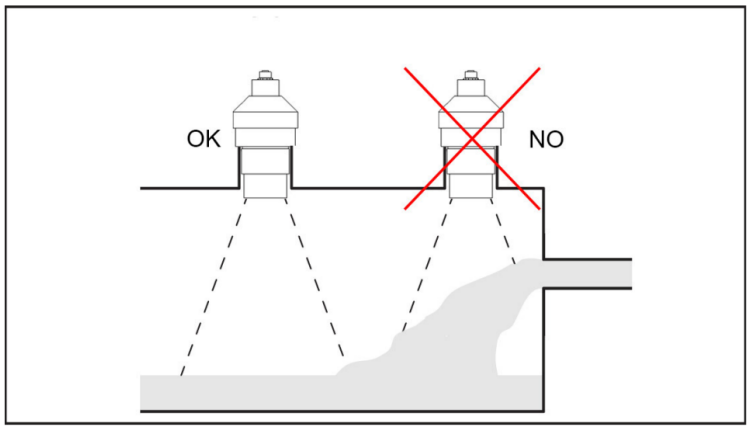
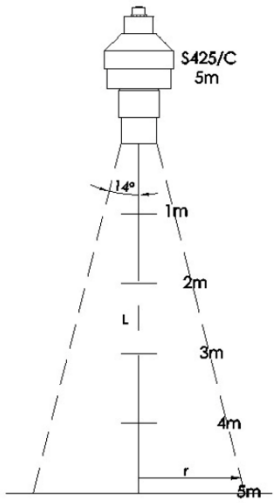


Fig. 3

In particular, check that there are no obstacles, or that it is not intercepted a wall of the tank, in the range of a radius "r" corresponding to the distance "L" from the probe (see table in Fig. 4).Make sure that there are no foam on the surface of the product.

S425/C 5m

L(m)	r(m)
1	0,25
2	0,5
3	0,75
4	1
5	1,25



S425/C 8m

L(m)	r(m)
1	0,18
2	0,36
3	0,54
4	0,72
5	0,9
6	1,08
7	1,2
8	1,38

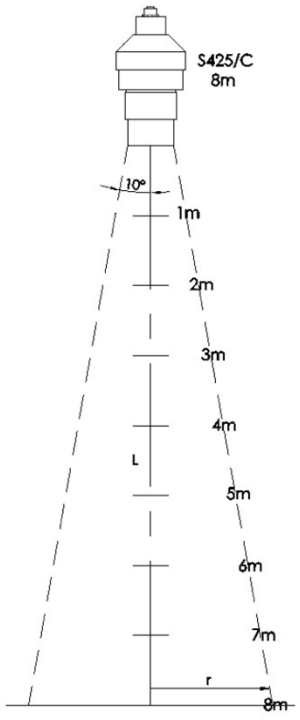


Fig. 4

During installation, please note that in the vicinity of the probe there is a BLIND ZONE (or DEAD ZONE) that is 30cm for the 5m probe and 40cm for the 8m probe, within which the sensor can not measure (Fig. 4, Fig. 5).

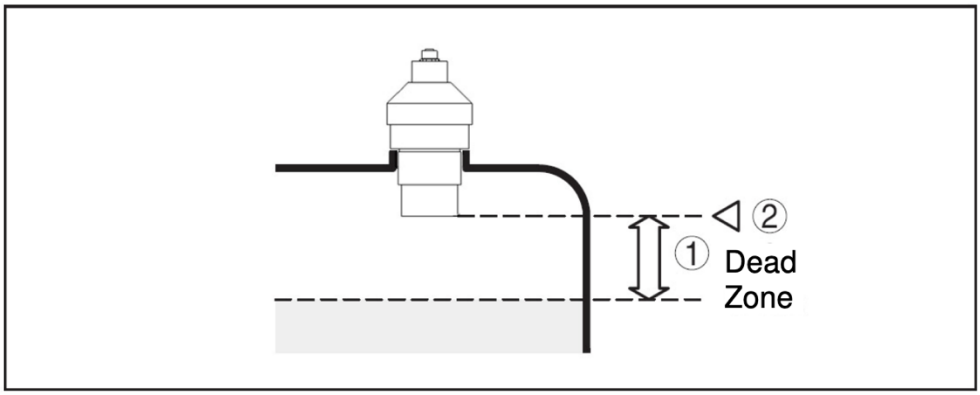


Fig. 5

1. *Dead zone*
2. *Reference level*

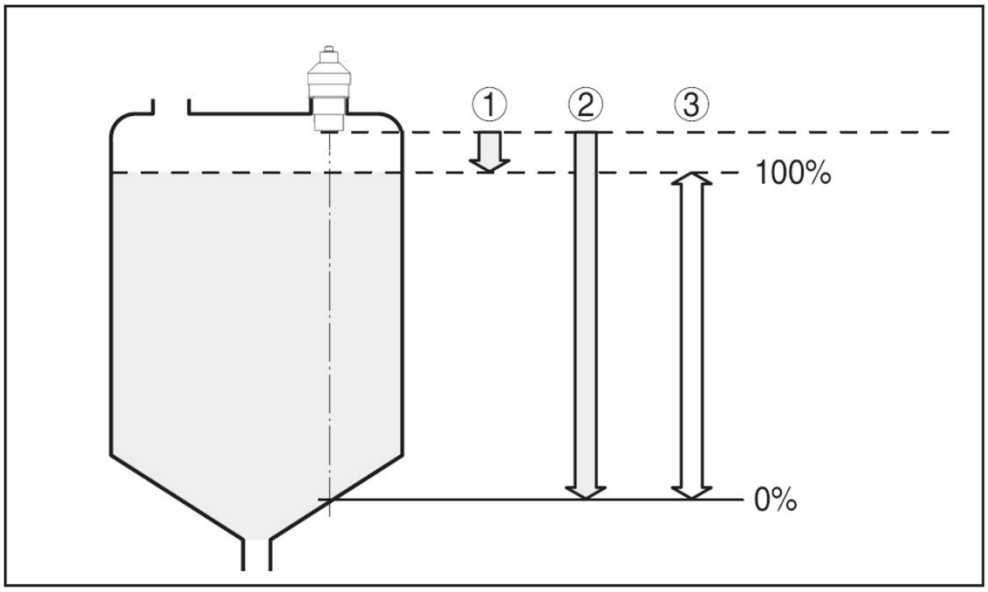


Fig. 6

1. *Full tank*
2. *Empty (max. measuring distance)*
3. *Measuring range*

Therefore, install the probe considering this dead zone.
By installing the probe into a socket, make sure that the transmitting part of the probe protrudes at least 10mm from the socket itself (Fig. 7, Fig. 8).

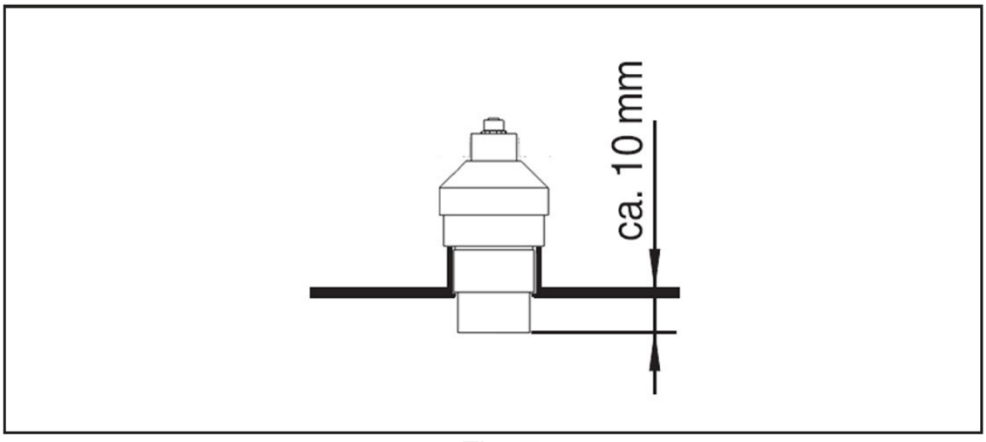


Fig. 7

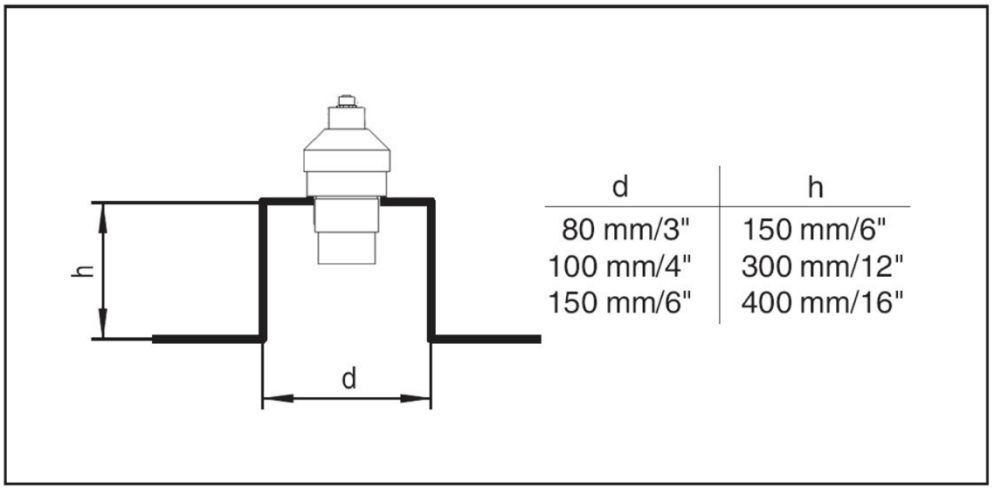


Fig. 8

Pay attention to the presence of disruptive influences that can affect the liquid level measurement, such as foam, obstacles in the tank, floating solids; problems can be avoided by performing the level measurements in internal stillwells with minimum diameters of 130mm. The tube must have a length greater than or equal to the distance to the empty, and one or more vent holes to allow itself filling and emptying (Fig. 9).

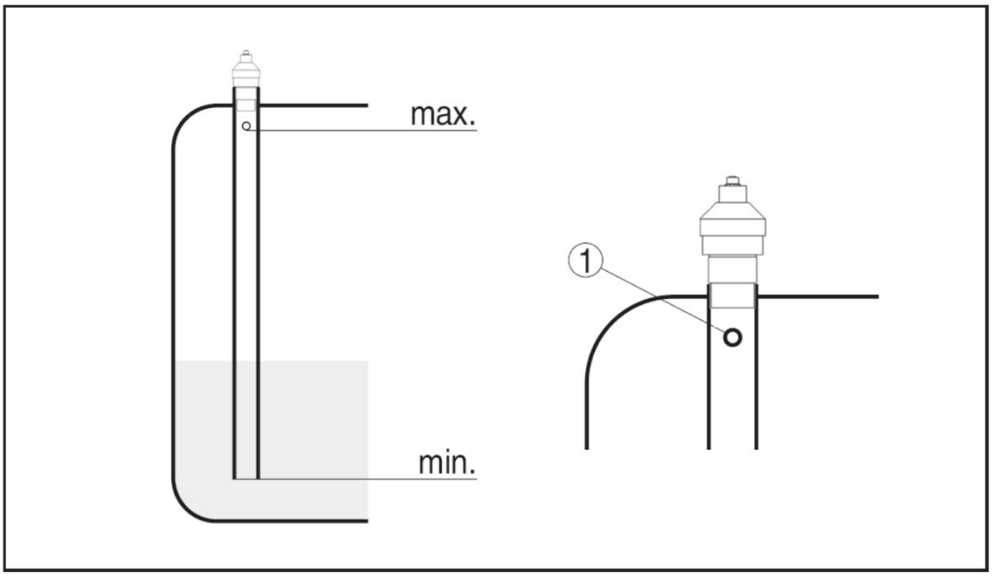


Fig. 9

1. *Vent hole D5 … 10mm (0.197 … 0.395 in)*

For the measurement of liquids align the sensor so that it is as perpendicular as possible to the surface of the product (Fig. 10).

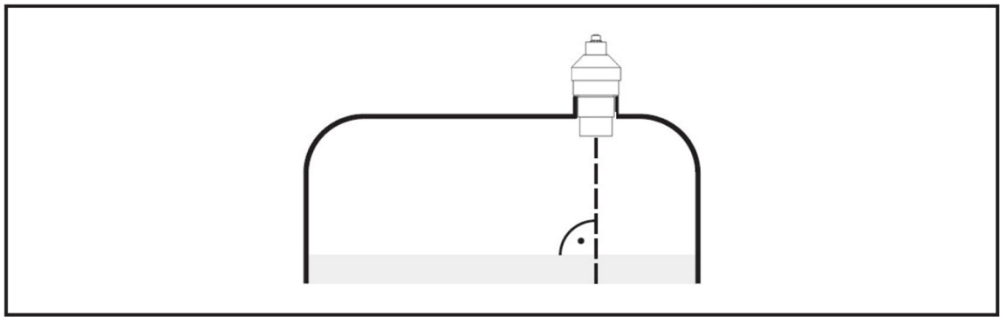


Fig. 10