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S461LT

SONDA DI TORBIDITA' A INFRAROSSI
INFRARED TURBIDITY PROBE
SONDA INFRARROJA DE TURBIDEZ

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MANUALE TECNICO / TECHNICAL MANUAL / MANUAL TÉCNICO

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The **S461LT probe** is used for the optical measure of turbidity in pure and process waters up to 100 NTU.
The probe uses the 90° scattered light method.

Applications

- Measure of turbidity in pure and drinkable water
- Measure of turbidity in primary, industrial, recirculating water

Features and benefits

- Reliable concentration measurement using optical measuring process
- Infrared light pulsing beams scattering method
- Black rigid PVC sensor body
- No mechanically moving parts
- Measured value pre-processing in sensor resulting in low signal transmission sensitivity
- Immediate installation and easy manteinance

Turbidity measurement with the 90° scattered light method

By turbidity we mean the scattered component of a light beam which is diverted away from its original course by optically denser particles in the medium e.g. solid matter particles.
Measurements are made using the standardised 90° scattered light method in accordance with ISO 7027 / EN 27027. The measuring method is based on the Tyndall effect.
The turbidity of the medium is determined from the amount of scattered light. The transmitted infra-red light beam is scattered by the particles in the medium.
The scattered beams are measured by scattered light receivers which are fixed at an angle of 90 to the transmitted light. The measured scattered light signals are converted to frequency signals.
The frequency signals are assigned to corresponding turbidity units and solid matter concentrations, and appear in the display.

Principle of 90° scattered beam Measurement:

$$I_s = I_0 \cdot A \cdot C \cdot f(\alpha)$$

I_0 = *Intensity of transmitted light*

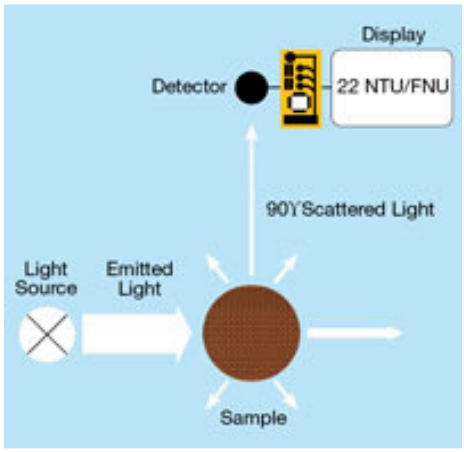
I_S = *Intensity of scattered light*

A = Geometrical factor

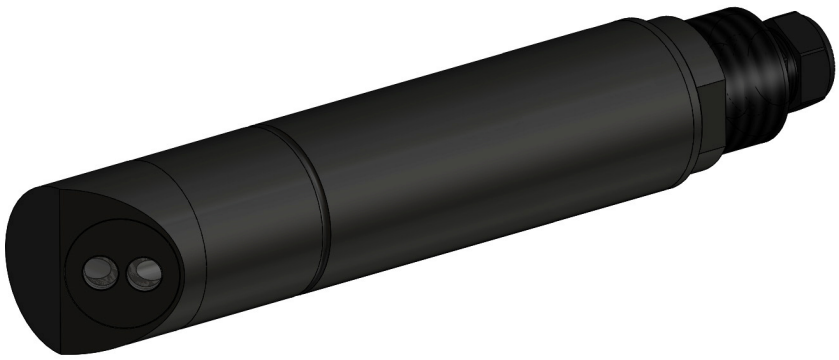
C = Concentration

f(α)= Angle correlation

P = Particle



Composition of the supply



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The supply consists of a single package containing the following parts:

1. 1 S461LT Infrared Turbidity Probe with 10 meter cable
2. 1 Technical manual for instruction

Calibration of the probe

The S461LT probe can be calibrated can be calibrated in several ways:

- On two points:
  You trace the calibration line by using two known solutions: the first point near 0 NTU and the second to a value as close as possible to the working point.

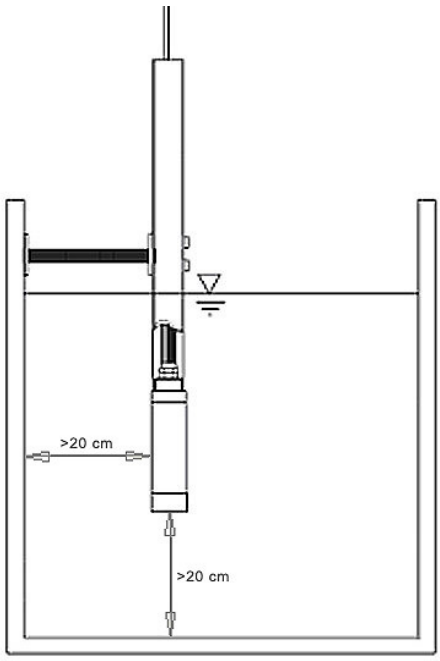
- First point:
  It calibrates the first point of the curve. You enter the calibration menu with two points, but you only perform a calibration of the first. In this way it is possible to align the reading when the read value is lower than 1 NTU, but discordant to a known reference.

- Second point:
  It calibrates the second point of the curve. You enter the calibration menu with two points, but you only perform a calibration of the second. In this way it is possible to align the reading when the read value is higher than 1 NTU, but discordant to a known reference.

- Single point:
  This calibration mode allows to change the offset of all the straight and must be performed only when the turbidity value of the point that we are calibrating is above 1 NTU, because the probe does not allow to change the offset if the values of turbidity are too low.

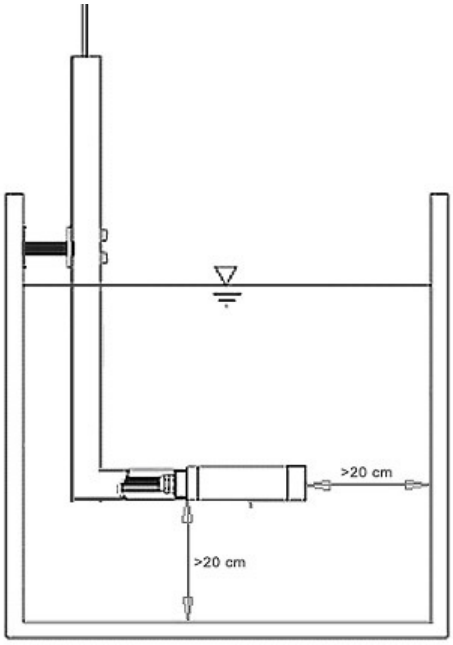
Circulate water with known solution, making sure that there are no air bubbles in the circuit: to eliminate them you can create a small pressure partially closing the output stream.
The liquid can also stay calm inside the probe holder, but you must be careful to deposit phenomena that could distort the reading.
Wait about 4-5 minutes for the reading to stabilize and proceed with calibration from the keyboard by entering the value of the known solution.

Installation in tank



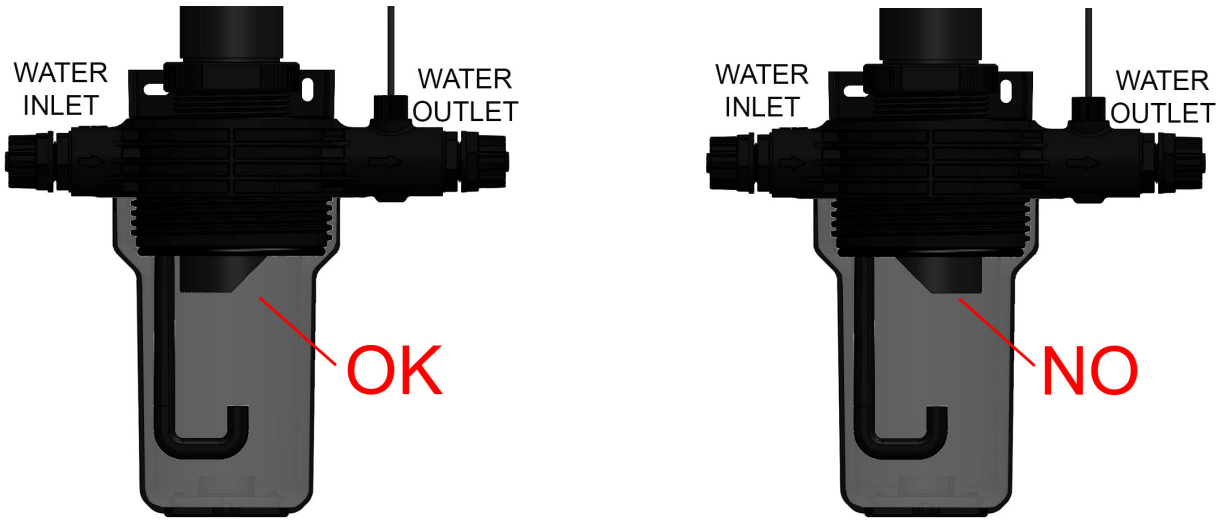
Install the probe in the tank so that it is immersed for at least 20 cm and the distance from the walls and the bottom of the tank is not less than 20 cm.

Installation in channel



Install the probe in the channel so that it is immersed for at least 20 cm and the distance from walls and bottom of the channel is not less than 20 cm.

Installation in PSS8 Probeholder

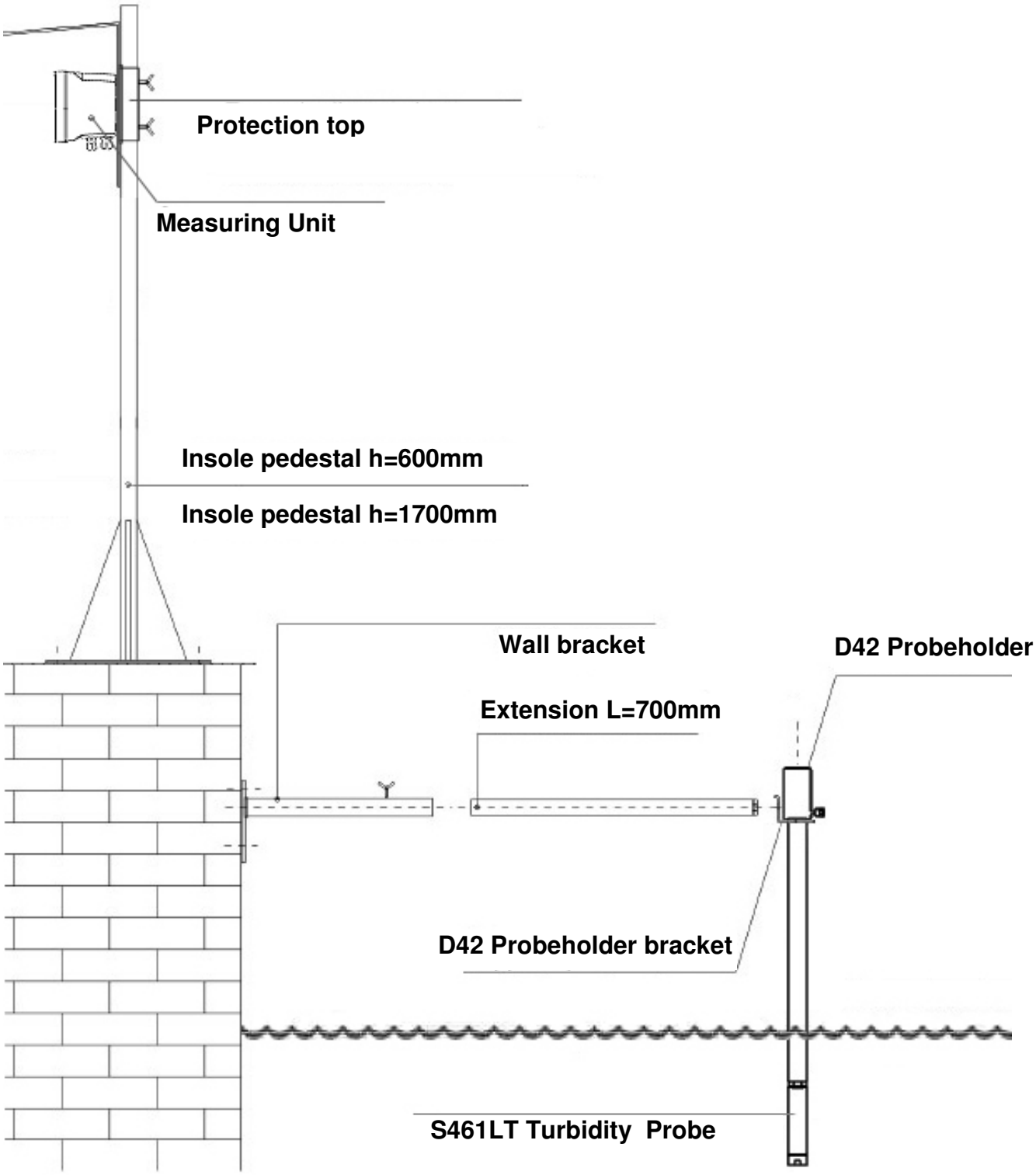


Install the probe in the pss8 respecting the position shown in the figure above.
To facilitate the correct insertion of the probe body there is a signaling tag that indicates the direction of the flow.
When the probe is installed in PSS8 probeholder, the calibration curve must be changed to compensate the offset of the wall of the probeholder itself, which is why when ordering you must specify if the installation will be performed in bypass with the PSS8 probeholder.

CAUTION!!! each probe holder PSS8 has an inherent structure that may slightly interfere with the reading, so each system sensor + probeholder must be calibrated together.

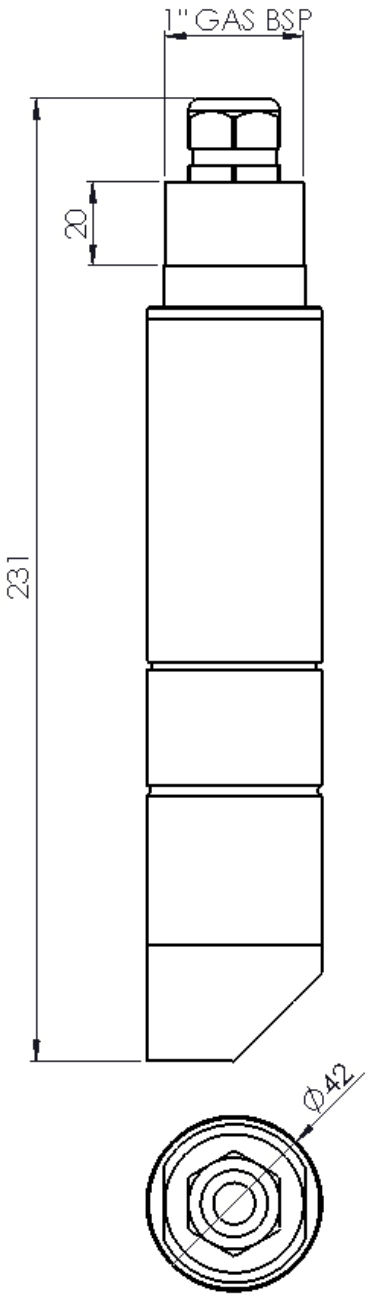
it is recommended to install a tap at the water output of the probeholder in order to reduce the flow and thus create a pressure inside of the probeholder itself able to favor the elimination of any air bubbles.

Anchoring to poolside devices



S461LT Infrared Turbidity Probe

Data Sheet

TECHNICAL DATA	DIMENSIONS
Materials : — Black PVC Body — Special Glass Optics with oleophobic treatment — Viton and Silicon OR	
Thread: 1" GAS	
Measuring ranges: - 0-10NTU - 0-100NTU	
Measuring method: 90° Scattered light	
Resolution: - 0,01 NTU range_0-10NTU(0.001NTU up to9,999NTU) - 0,1 NTU range_0-100NTU	
Accuracy: - ±1% at the measuring point range_0-10 NTU - ±2% at the measuring point range_0-50 NTU - ±5% at the measuring point range_0-100 NTU	
Ripeatability: - ±0.05 NTU f.s 10NTU - ±0.5 NTU f.s 100NTU	
Responding time: T_{90} < 60s	
Calibration: 1-point and/or 2-point for scale	
WorkingTemperature: 0÷50°C	
Max Working Pressure: 4 bar	
Mechanical Protection: IP68 Sensor+cable	
Cable: 10m integral	
Power Supply: 12…24Vdc	
Max Absorption: 3W	
Outputs: RS485 (4-20mA optional)	
Cable colors coding RED +24Vdc BLACK GROUND YELLOW A+ RS485 GREEN B- RS 485 WHITE + 4-20 mA BROWN - 4-20 mA	

Order codes

9700595063	S461LT PVC Turbidity Probe with 4-20mA output
9700596063	S461LT PVC Turbidity Probe with RS485 output
9700597063	S461LT AISI316 and PVC Turbidity Probe with 4-20mA output
9700598063	S461LT AISI316 and PVC Turbidity Probe with RS485 output