

The sensor **S461/S** is used for the optical measurement of suspended solids in industrial water and process up to 30 g/l.
The probe uses the method of measuring light absorption.

Applications

- Measure of Suspended solids in wastewater
- Measure of Sludge and Staff concentration, industrial water

Features and benefits

- Reliable concentration measurement using optical measuring process
- Infrared light pulsing beams scattering method
- Stainless Steel sensor body (PVC optional)
- No mechanically moving parts
- Measured value pre-processing in sensor resulting in low signal transmission sensitivity
- Immediate installation and easy maintenance

Measurement of sludge concentration with the method of light absorption

Turbidity is a decrease of transparency of the water, due to the presence of suspended solids - that consist of very fine particles - unable to settle in a reasonably short time. The particles in suspension determine an absorption of the electromagnetic radiation depending on the number and size of the particles themselves. Comparing the absorption of the test sample with values derived from a well known calibration curve, it's possible to determine the value of the turbidity.

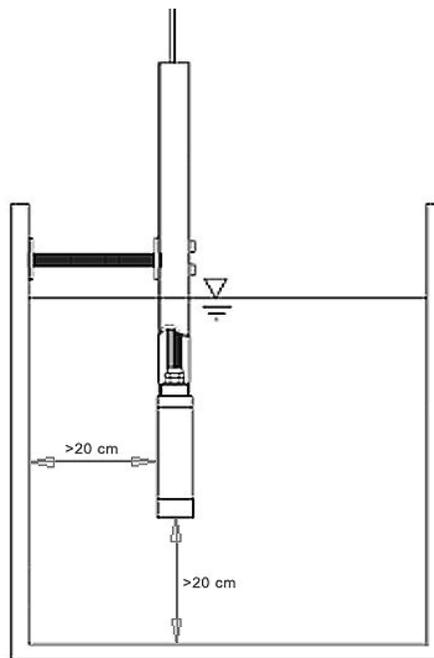
Composition of the supply



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

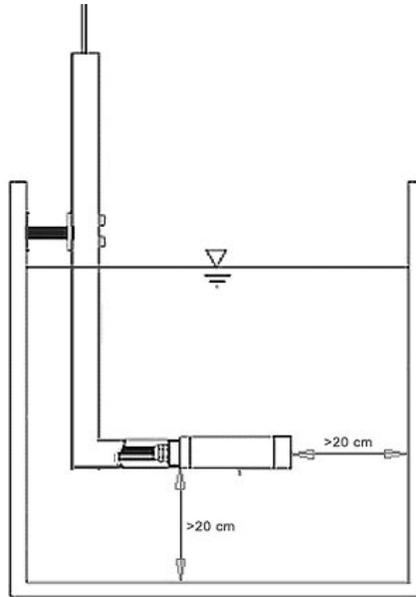
1. 1 S461/S Infrared Suspended Solids probe with 10m cable
2. 1 Technical manual for instruction

Installation in tank



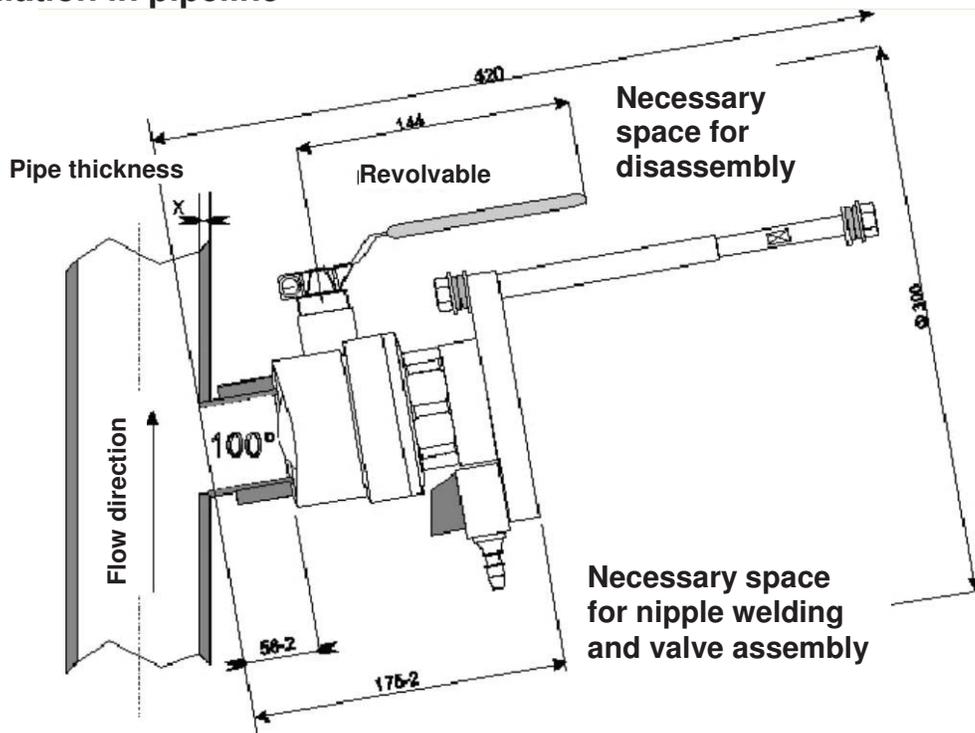
Install the probe in the tank so that it is immersed for at least 20 cm and the distance from the walls and the bottom of the tank is not less than 20 cm.

Installation in channel



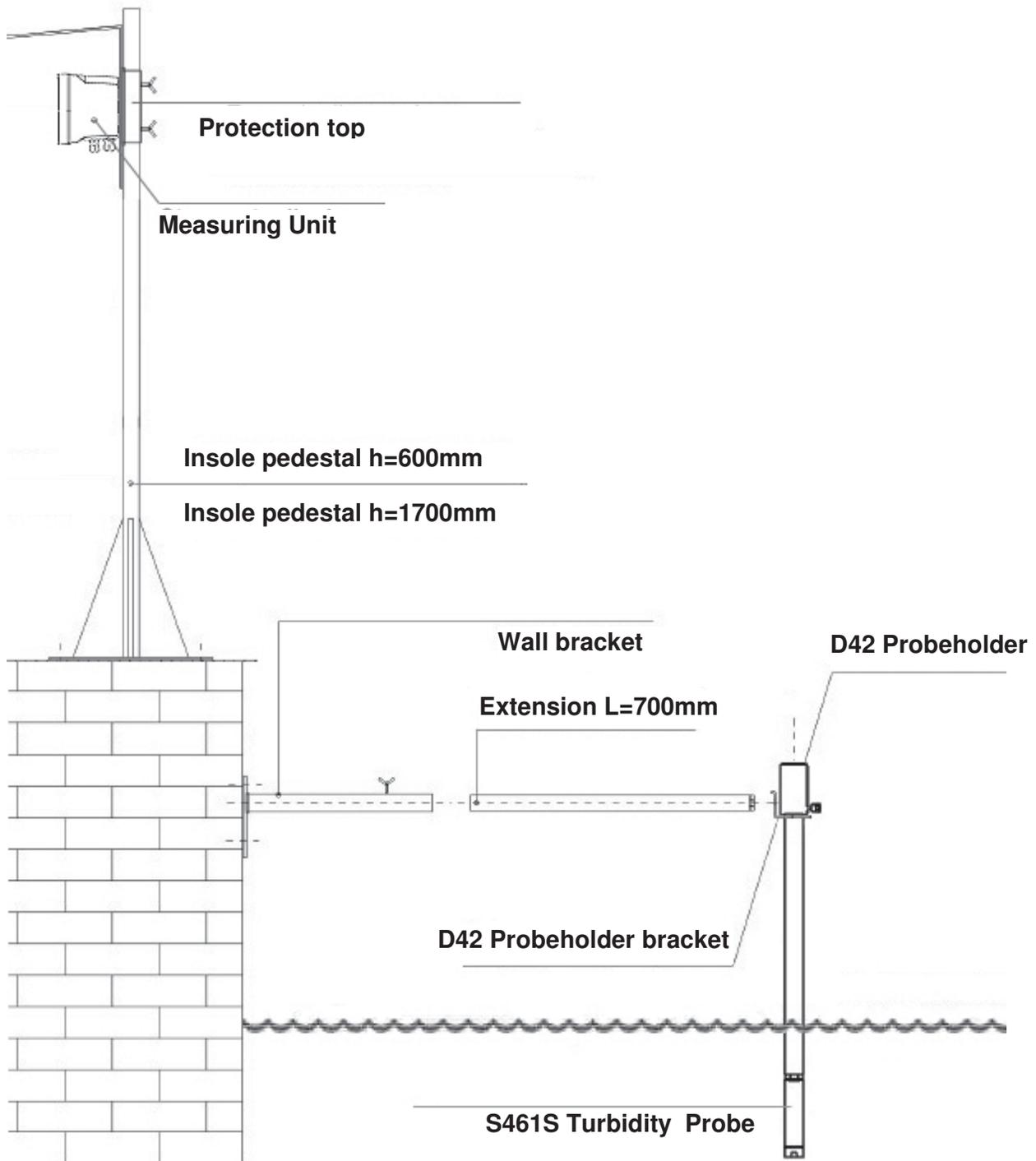
Install the probe in the channel so that it is immersed for at least 20 cm and the distance from walls and bottom of the channel is not less than 20 cm.

Installation in pipeline



Attention: measures refer to the inside part of the pipe

Anchoring to poolside devices



Troubleshooting

| Problem | Suggested Correction | Reference |
|---|---|-----------|
| Wrong readings (overestimation, underestimation) compared to laboratory results | <p>1- If the laboratory values are different from the values read by the probe, proceed with one-point calibration keeping the probe in the process water, making sure that the solid part has not separated from the liquid part, i.e. the solution must be kept in agitation; for example in an oxidation tank, during one-point calibration, the blowers with the mixers must be switched on to maintain a homogeneous measurement solution.</p> <p>2- Verify that the probe is immersed in water in the area with the maximum concentration of solids paying attention to the solid-liquid separation zone.</p> <p>3- Verify that the probe is far from the walls of the containment tank at least 20 cm for each side.</p> <p>4- If you do not solve the problem checking the first 3 points, we should enter a specific calibration curve for that sludge because the curve inserted by default is relative to a standard biological sludge. This operation, however, can only be done by Chemitec.</p> | |
| Oscillating measurements | <p>1- In the presence of oscillating measurements we should check the installation position of the probe. If in presence of strong movements of water, for example near the outlet of the tank, the stability of reading can be altered because the sludge and the water move very fast near the point of measurement. Reposition the probe in a calm place, where there is a modest water movement.</p> | |
| Frozen measures | <p>1- The probe has been installed at a point where the sludge is stratified, the water movement is at rest and the sludge sticks to the probe. Reposition the probe in an area with sufficient movement of water.</p> <p>2- Thoroughly clean the probe before positioning; probe cleaning can be performed with water by carefully removing any sludge residue on the probe.</p> | |
| Probe communication error | <p>1- Check electrical connections.</p> <p>2- Check that the presence of electric extensions is carried out correctly.</p> | |

Insertion in pipeline devices

Insertion probeholder

Code 9700740060

Nomenclature of the parts included in the delivery:

1. Valve ensemble
2. Probe ensemble
3. Stop Pole (2)
4. M12 Nut (4)
5. 12 Washer (8)
6. O-ring 4050 (8)
7. AISI 316 weld socket
8. M16x60 Bolt (2)
9. M16 Nut (2)

Instructions for a proper assembly:

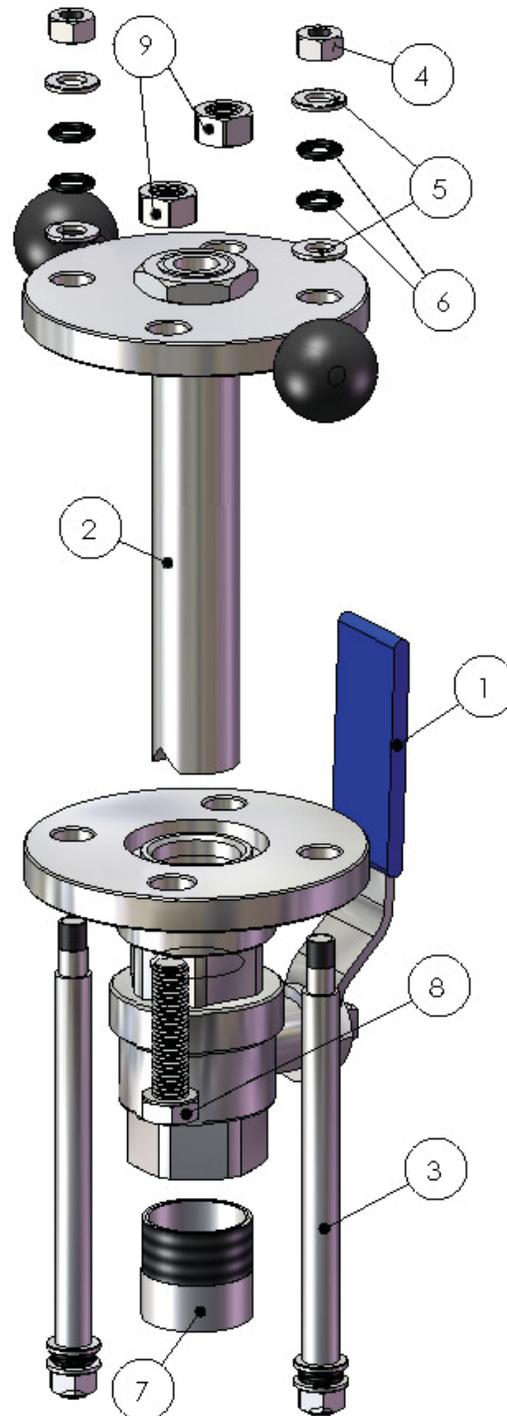
Unscrew the socket (7) from the valve ensemble (1) and weld it on the pipe.

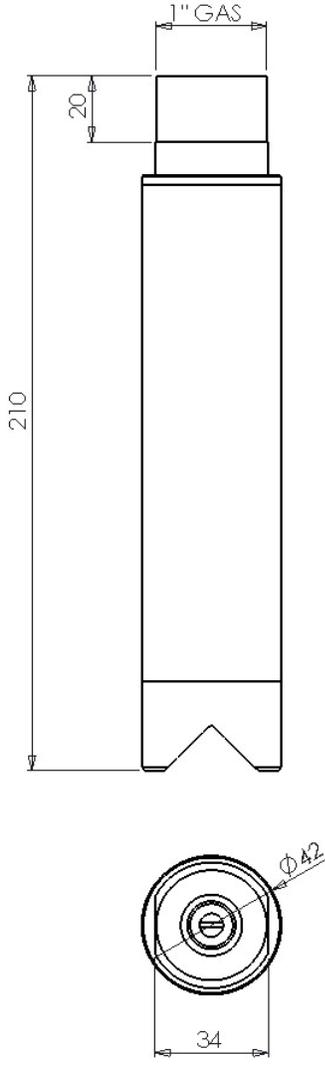
Unscrew the two M16x60 bolts (8) from their respective nuts (9).

Unscrew the two superior M12 nuts (4) from the stop poles (3) and remove the superior washers (5) and O-rings (6).

Then insert the probe ensemble (2) into the valve unit (1) until aligning the two flanges and the corresponding holes of the two blocks.

Let the stop poles (3) pass through the holes of the probe ensemble and then reinsert superior washers (5) and O-rings (6), then screw the M12 superior bolts (4) to the stop poles (3). Repeat this procedure with the M16x60 bolts (8), then tighten the corresponding M16 Nuts (9).



| TECHNICAL DATA | DIMENSIONS | | | | | | | | | | | |
|---|---|--------|-------|--------|--------|----------|-------|-----------|-------|-----------|-------|-----------|
| Materials : — Stainless Steel 1.4401 (316) body — Special Glass windows — NBR O-rings |  | | | | | | | | | | | |
| Thread: 1" GAS | | | | | | | | | | | | |
| Measuring range: 0-30 g/l active sludge or 0-100g/l Kaolin | | | | | | | | | | | | |
| Measuring method: Light absorption | | | | | | | | | | | | |
| Resolution: 0.1 g/l | | | | | | | | | | | | |
| Accuracy: ± 0,3 g/l | | | | | | | | | | | | |
| Repeatability: ± 0,5 g/L | | | | | | | | | | | | |
| Calibration: by steps | | | | | | | | | | | | |
| Responding time: T ₉₀ < 60s | | | | | | | | | | | | |
| Working temperature: 0÷70 °C | | | | | | | | | | | | |
| Max Working pressure: 4 bar | | | | | | | | | | | | |
| Maximum absorption: 3W | | | | | | | | | | | | |
| Mechanical Protection: IP68 – cable included | | | | | | | | | | | | |
| Cable: 10m integral | | | | | | | | | | | | |
| Power supply: 12...24Vdc | | | | | | | | | | | | |
| Outputs: RS485 (4-20mA optional) | | | | | | | | | | | | |
| Cable color codes <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">RED</td> <td>+24Vdc</td> </tr> <tr> <td>BLACK</td> <td>GROUND</td> </tr> <tr> <td>YELLOW</td> <td>A+ RS485</td> </tr> <tr> <td>GREEN</td> <td>B- RS 485</td> </tr> <tr> <td>WHITE</td> <td>+ 4-20 mA</td> </tr> <tr> <td>BROWN</td> <td>- 4-20 mA</td> </tr> </table> | RED | +24Vdc | BLACK | GROUND | YELLOW | A+ RS485 | GREEN | B- RS 485 | WHITE | + 4-20 mA | BROWN | - 4-20 mA |
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Order codes

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| 9780620063 | S461S Suspended Solids sensor 30g/l RS485 with glasses |
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