The **Multiparameter ISE Sensor** is used for the measures of various parameters in pure and process waters.
The principle of measurement is based on the contact between the process liquid and the sensitive membranes, formed by a polymeric matrix, of the measuring electrodes.

Applications

- Measure of ammonia
- Measure of potassium
- Measure of nitrates
- Measure of chlorides
- Measure of temperature

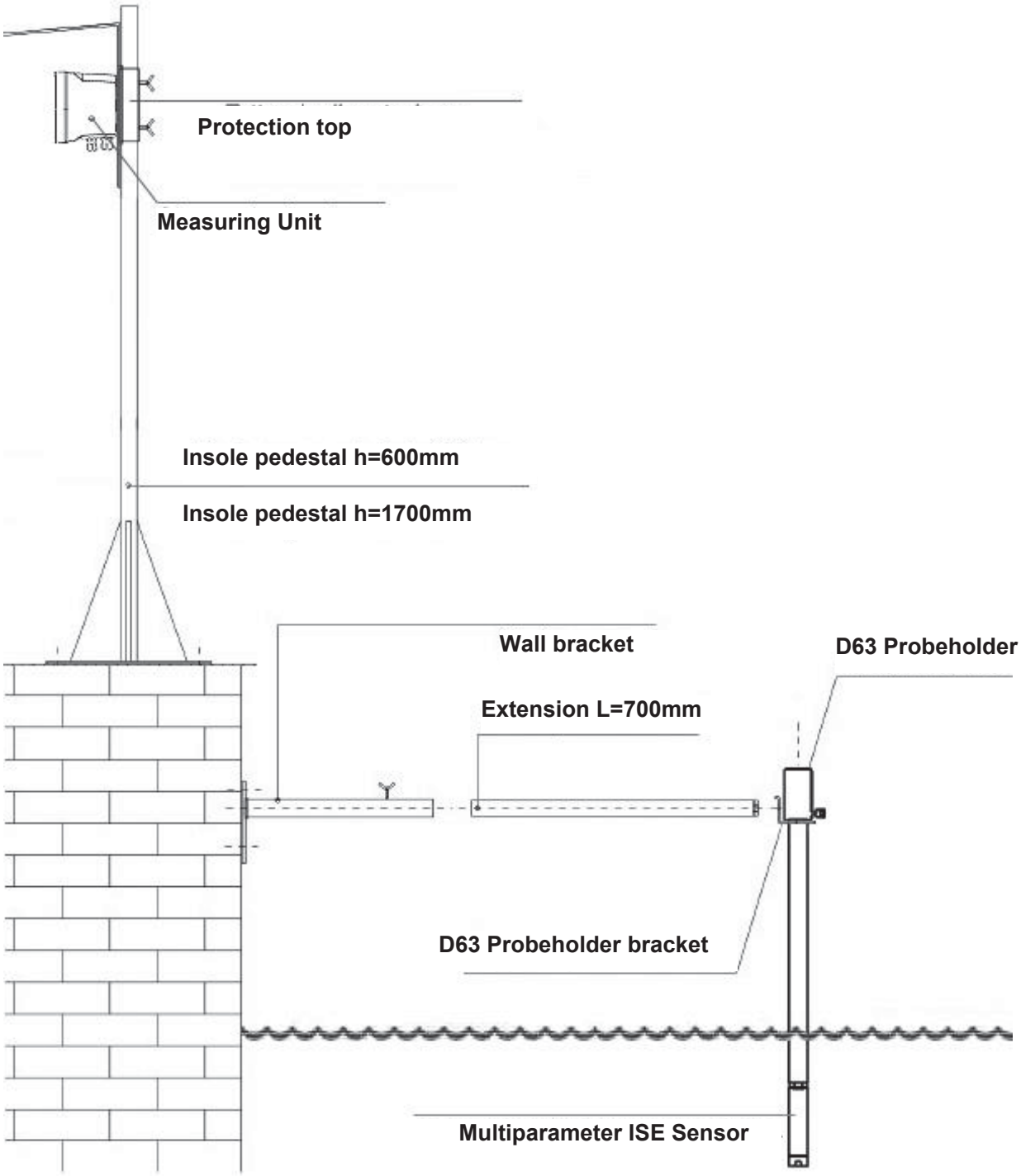
Features and benefits

- Real time measure of all the parameters
- Measuring method with sensitive membranes
- AISI 316 and Black rigid PVC sensor body
- PVC protection to avoid incidental hurts of the electrodes
- No mechanically moving parts
- Immediate installation and easy manteinance
- Quick connections for electrodes' washing

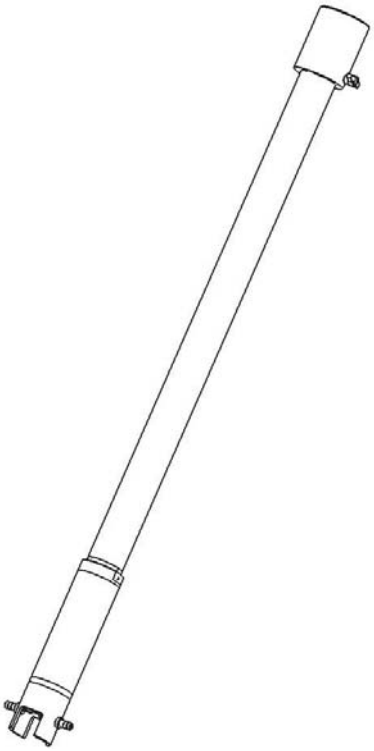
Measure of ammonia, potassium, nitrates, chlorides, temperature

The electrodes have sensitive membranes, formed by a polymeric matrix, in which an active substance is anchored. The connection of the sensitive membrane to the coaxial cable is effected by means of liquid contact. The electrode body is made of plastics. The modern design of ion-selective electrodes with a PVC membrane enables very quick replacements of the complete electrode system mounted in exchangeable module. From the point-of-view of the chemical resistivity, the electrode body is highly resistant against the normally used organic solvents, mineral acids and bases. Exchangeable modules for this series are supplied separately.
The potassium electrode is necessary for the compensation of the measure of ammonia while the chlorides one is necessary for compensation of the reading of nitrates.
The electrodes are all interchangeable, including the reference one.

Anchoring to poolside devices

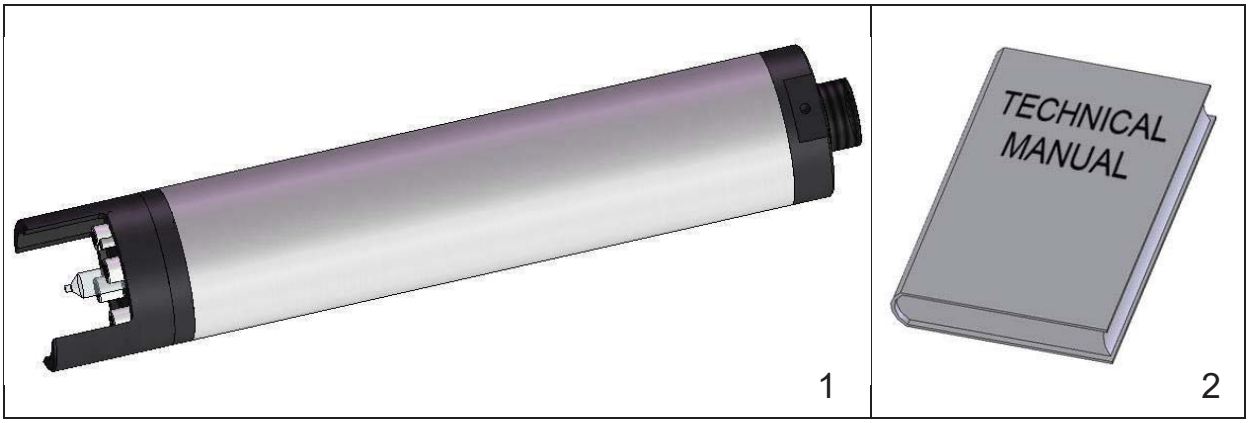


S315 Probeholder, diameter 63



Probeholder is available in various tube length, starting from 500mm to 2000mm

Composition of the supply



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

1. 1 S470 Multiparameter ISE Probe with a 10 m cable
2. 1 Technical Manual for instructions

Troubleshooting

Problem	Suggested Correction	Reference
Wrong readings (overestimation, underestimation) compared to laboratory results	1- It is mandatory to calibrate the ISE probe, ammonium, potassium, nitrates and chloride every 15 days; calibration can be carried out in the process water in which the probe is immersed having a laboratory reference or a portable instrument. The calibration can be done using one point, but it can also be performed on several points, in this case it is necessary to prepare solutions suited to the purpose. It is also mandatory that the probe has been immersed in the liquid for at least 24 hours before performing any calibration. If these conditions are met, but the measurement continues to be incorrect, the measuring cap must be replaced. 2- If there is a significant concentration of suspended solids, the measurement may be incorrect; the selective ion membrane could be clogged or polluted.	1-Replacement of ISE electrodes procedure 2-Replacement of reference electrode procedure
Probe communication error	1- Check electrical connections. 2- Check that the electric extensions is carried out correctly.	

Replacement of ISE electrodes procedure

1) Clean the electrodes thoroughly with water, dry thoroughly all parts

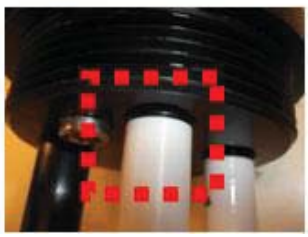
2) Unscrew the PVC electrodes protection

3) Clean any residue and dry thoroughly all the electrodes

4) Unscrew the electrode to be replaced. Note the correct location of the electrode watching the Nr. printed on the PVC near the electrode body* (we suggest to change one electrode at a time)

* **1** NH4+ **2** K+ **3** NO3- **4** Cl-

5) Fasten the new electrode, in order to ensure the watertight of the oring



6) Carefully check the tightness of the oring; this is a critical step to prevent water passages inside the probe.

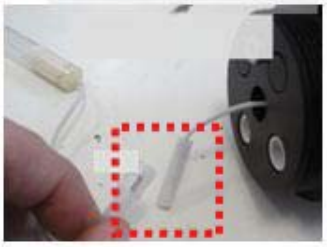
NOTE the probe must be calibrated after at least 12 hours that has been inserted into the water. This must be done at the first time and at every change of sensor cap.

Replacement of reference electrode procedure

1) Clean the electrode thoroughly with water, and dry thoroughly on all sides. Remove PVC protection and pull out the reference electrode

2) Remove the electrode until the end, letting cable and connector out , so that it can be disconnected

3) Once the connector is pulled out and disconnected, reconnect the new electrode

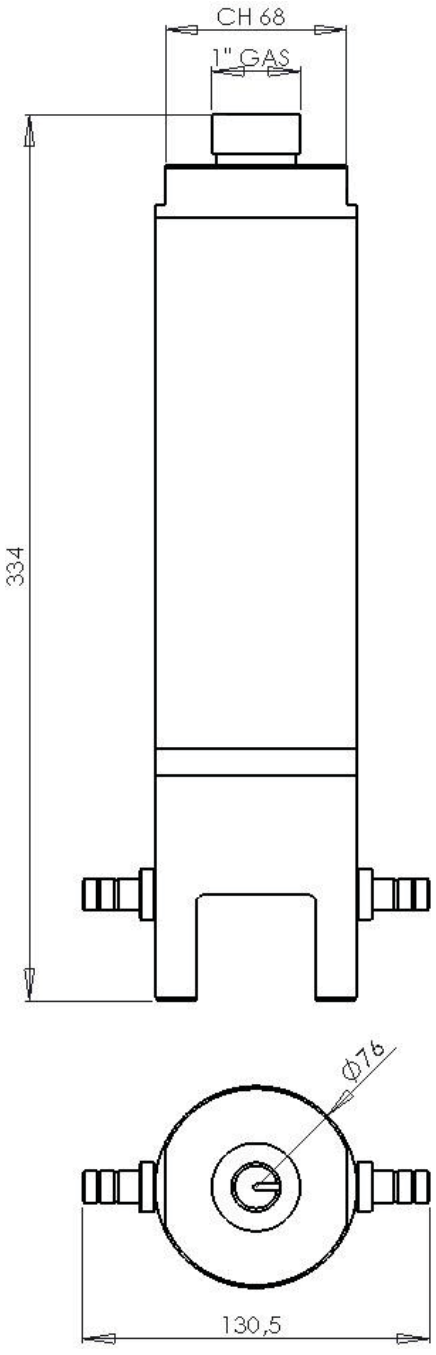


4) Insert the connector and the cable inside the tube

5) Press the electrode inside its hole until it stops, then thoroughly tighten the electrodes PVC protection

S470 Multiparameter ISE Sensor

Data Sheet

TECHNICAL DATA	DIMENSIONS
Materials: – AISI 316 Body – Black PVC protection, electrodes' housing and cap – NBR O-Rings	
Thread: 1" BSP	
Measuring ranges: – NH_4: 0-100 ppm or 0-20ppm for cod. **9730881067** – K+: 0-1000ppm – NO_3: 0-100 ppm – Cl-: 0-1000ppm	
Measuring method: Via sensitive membranes	
Resolution: 0.1 mg/L	
Accuracy: ± 5 mg/L probe code [**9700880067,9700881067, 9700882067**] ± 1 mg/L probe code [**9730881067**]	
Repeatability: ± 3 mg/L probe code [**9700880067,9700881067, 9700882067**] ± 0.5 mg/L probe code [**9730881067**]	
Response: T_{90}<60s	
Maximum refreshing time: < 1 second	
WorkingTemperature: 5-40°C	
Max Working Pressure: 1 bar	
Maximum absorption: 3W	
Working pH range : 4-10 pH	
Mechanical Protection: IP68 Sensor+cable	
Cable: 10m submersible	
Power supply: 12…24Vdc	
Signal interface: Modbus RTU Standard Protocol	
Temperature sensor: PT100 included	
Calibration: The electrodes are all factory calibrated according to a calibration curve. This can be changed simply by changing a calibration factor k, or performing a new calibration table with two or more reference standards up to 6; this process can be made for all available measures. Factory-calibration tables remain available in the probe memory. ISE sensor must be recalibrated once every 15/20 days. Typical duration 12 months.	
Cable connections	

RED	+12V …24V
BLACK	GROUND
YELLOW	A+ RS485
GREEN	B- RS485

Order codes

9700880067	S470 ISE immersion probe for NH4, K+, NO3, Cl- 10m cable measure Range 0-100mg/L
9700881067	S470/NH4 immersion probe for NH4 10m cable
9700882067	S470/NO3 immersion probe for NO3 10m cable
9730881067	S470 ISE immersion probe for NH4, K+, NO3, Cl- measure 10m cable Range 0-20mg/L

El **sensor multiparámetrico de ISE** se utiliza para las medidas de diversos parámetros en aguas puras y de proceso.
El principio de medición se basa en el contacto entre el líquido de proceso y las membranas sensibles, formadas por una matriz polimérica, de los electrodos de medición.

Aplicaciones

- Medición de amoniaco
- Medición de potasio
- Medición de nitratos
- Medición de cloruros
- Medición de temperatura

Características y beneficios

- Medición en tiempo real de todos los parámetros
- Método de medición con las membranas sensibles
- Cuerpo del sensor de PVC rígido Negro y AISI 316
- Protección de PVC para evitar incidental daños de los electrodos
- Sin piezas mecánicas móviles
- Instalación inmediata y mantenimiento fácil
- Conexiones rápidas para el lavado de los electrodos

Medición de amoniaco, potasio, nitratos, cloruros, temperatura

Los electrodos tienen membranas sensibles, formadas por una matriz polimérica, en la que se ancla una sustancia activa. La conexión de la membrana sensible al cable coaxial se efectúa por medio de contacto con el líquido. El cuerpo del electrodo está hecho de plásticos. El moderno diseño de los electrodos selectivos de iones con una membrana de PVC permite sustituciones muy rápidas del sistema de electrodos completo montado en el módulo intercambiable. Desde el punto de vista de la resistividad química, el cuerpo del electrodo es muy resistente contra los disolventes orgánicos, ácidos y bases minerales utilizados normalmente. Los módulos intercambiables para esta serie se suministran por separado.
El electrodo de potasio es necesario para la compensación de la medida de amoniaco, mientras que el cloruro es necesario para la compensación de la lectura de los nitratos.
Los electrodos son todos intercambiables, incluyendo el electrodo de referencia.