

CONDUCTIVITY PROBES

two-pole sensors with ATC Pt100

low, medium and high conductivity ranges

ECS-2K1..K10

Desin
Instruments

DESCRIPTION

Two-pole sensors for measurement from very low to high conductivity ranges (according to model) in aqueous solutions, potable waters, waste waters, cooling, boilers, etc.

It incorporates Pt100 sensor for temperature compensation (ATC). Specific to determine the conductivity together with the measuring and control instruments according to its cell constants K. E.g. FMC... /EC and DMM-4000/EC Series for field mounting and BS-2000/EC, DS-4000/EC, MS-5000/EC Series for panel mounting.

- **CELL CONSTANTS** K=0.01 - K=0.1 - K=1 and K=10
- **RANGES** 0.01 to 9999 $\mu\text{S}/\text{cm}^{-1}$... 0.01 to 20 mS/cm^{-1}
- **ELECTRODES** SS316 or TITANIUM (mod. ECS-2K1/TI)
- **BODY IN A316 and POLYPROPYLENE (PEEK IN OPTION)**
- **PROCESS CONNECTION** 3/4" NPT. **PRESSURE** 20 BAR.
- **TEMPERATURE** 100 °C WITH PP AND 200 °C WITH PEEK
- **TEMPERATURE COMPENSATION (ATC) BY Pt100**
- **CALIBRATION BY BUFFERS IN THE CONTROLLER**
- **COMPACT DESIGN FOR APPLICATIONS IN-LINE**
- **ELECTRICAL CONNECTION DIN 43650 (IEE 4440)**
- **PROTECTED AGAINST AGGRESSIVE ENVIRONMENTS**

FEATURES

The ECS probes for Conductivity measurement use the technique of two concentric poles.

The principle of measurement of these probes is based on apply an AC voltage between its two poles that have a calibrated surface and a separation. The amount of current that can circulate among it will be determined by the conductivity of the liquid to measure.

The range of measurement of the ECS probes depends on the constant of cell K of each model. The constant K is determined by the ratio between the separation and the area from the used electrodes.

The poles of ECS probes are manufactured in stainless A-316L in the upper range models or Titanium (mod. ECS-2K1/TI) to work in waters of very low conductivity.

All the ECS probes incorporates Pt 100 sensors to compensate the influence of the temperature in the liquid to measure.

Their main applications are in:

Monitoring of ion interchange

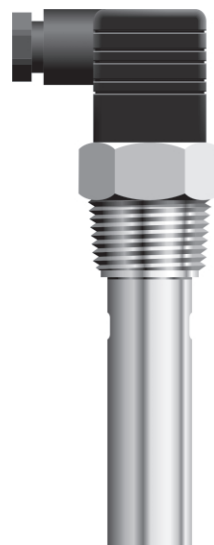
Control of reverse Osmosis

Potable water treatment

Waste water treatment

Water control in boilers, cooling towers, etc.

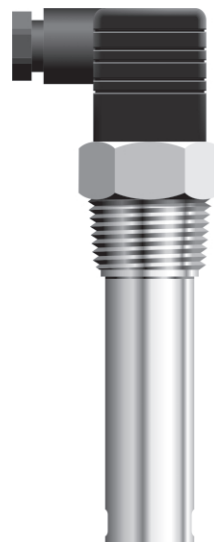
ECS-2K1/TI



ECS-1K1



ECS-0K1



ECS-K10



SPECIFICATIONS

- Sensor EC: 2-pole in SS-316L or 2-pole in Titanium (mod. ECS-2K1/TI)
- Sensor ATC: Pt100 (Pt1000 in option)
- Cell Constants acc./model
ECS-2K1/TI K = 0.01 - Range 0.01 to 99 $\mu\text{S}/\text{cm}^{-1}$
ECS-1K1 K = 0.1 - Range 0.1 to 999 $\mu\text{S}/\text{cm}^{-1}$
ECS-0K1 K = 1 - Range 1 to 9999 $\mu\text{S}/\text{cm}^{-1}$
ECS-K10 K = 10 - Range 0.01 to 20 mS/cm^{-1}
- Max. operating Pressure: 20 bar (to 100°C)
- Max. operating Temp.: 100 °C (200 °C with PEEK)
- Operating flow: toward the holes
- Conductivity output: 2 terminals (GND and Pin 2)
- Pt100 output: 2 terminals (Pins 1 and 3)
- Electric Connection: DIN 43650 (IEC4440)
- Process Connection: 3/4" NPT
- Fitting material: Stainless Steel 316
- Isolating material: Polypropylene (PEEK in opción)

APPLICATIONS

These different ECS probes altogether with its specific measurement systems are used for measuring and control of Conductivity in industrial process applications:

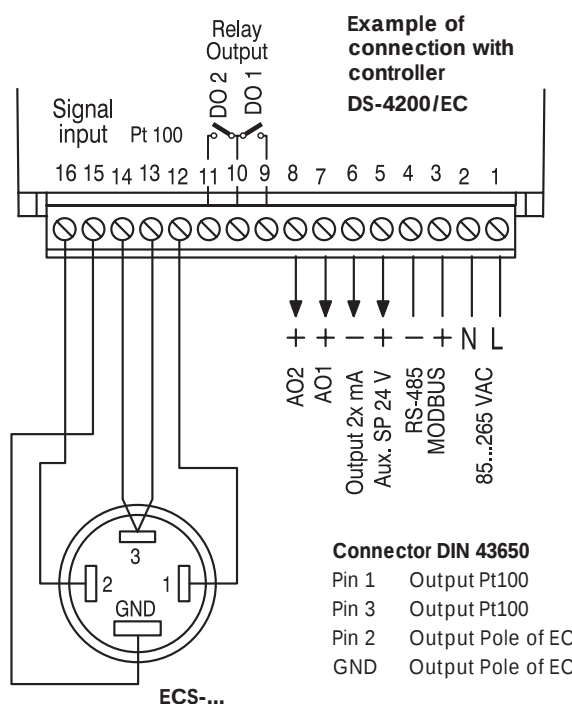
ECS-2K1/TI and ECS-1K1

Measurement of very low and low conductivity in Desmineralization, Reverse Osmosis, Ionic interchangers, Water Treatment in the Pharmaceutical Industry, Food Industry, Drinks, etc.

ECS-0K1 and ECS-K10

Measurement of high and very high conductivity in Phase Disengagement, Cooling Towers, Water Treatment, Waste Water Treatment, Recycling, Sanitary Boilers, Baths, etc.

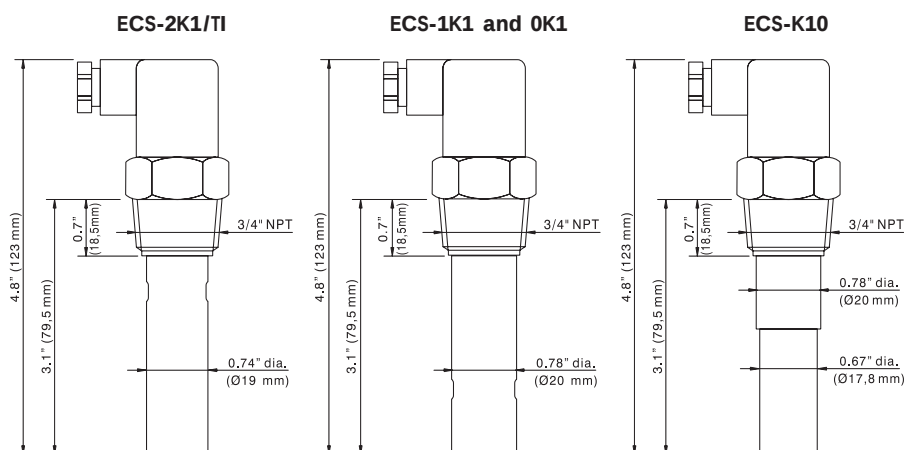
WIRING DIAGRAM



HOW TO ORDER

- Models:** EC probes with Pt100 sensor
ECS-2K1/TI K=0.01 range from 0.01 to 99 $\mu\text{S}/\text{cm}^{-1}$
ECS-1K1 K=0.1 range from 0.1 to 999 $\mu\text{S}/\text{cm}^{-1}$
ECS-0K1 K=1 range from 1 to 9999 $\mu\text{S}/\text{cm}^{-1}$
ECS-K10 K=10 range from 0.01 to 20 mS/cm^{-1}
- Options:** ECS-.../TI Titanium Electrodes
 ECS-.../Pt1K Pt1000 Sensor for ATC
 ECS-.../PK Insulating in PEEK

DIMENSIONS



Weight: 140 gr. (mod. ECS-2K1/TI)
 150 gr. (mod. ECS-1K1, 0K1 and K10)

NOTE FOR MOUNTING OF THE ECS-K10

Mount the probe in a isolated elbow, assuring that the outer pole (cylindrical metal) is in contact with the liquid. If there are metallic parts near the probe, these must be at a minimum distance of 80 mm of the inner pole.

