



Fig. 1

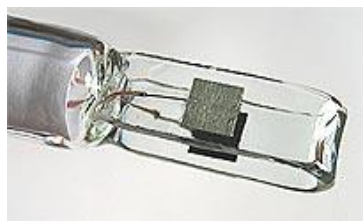


Fig. 2



Fig. 3



Fig. 4

Fig. 1 Glass Conductivity and a Plastic Conductivity Cell

Fig. 2 Platinum black Electrodes of a Glass Conductivity Cell with Cell Constant $K = 1$

Fig. 3 Platinum black Electrodes of a Glass Conductivity Cell with Cell Constant $K = 10$

Fig. 4 Platinum black Electrodes of a Plastic Conductivity Cell with Cell Constant $K = 10$

Cost-effective Conductivity Cells (2-Plate) for General Applications:

Lab, Field and light Industrial use, where the cells are not submerged or under pressure.

We offer five types of Conductivity Cells:

- Glass Conductivity Cells with Platinum electrodes ($K=0.1$, CND-01G)
- Glass Conductivity Cells with Platinum black electrodes ($K=1$, CND-11G)
- Glass Conductivity Cells with Platinum black electrodes ($K=10$, CND-101G)
- Plastic Conductivity Cells with Platinum black electrodes ($K=10$, CND-101P)
- Plastic Conductivity Cells with Graphite electrodes ($K=1$, CND-11P)

K: Cell Constant	Optimum Conductivity Range ($\mu\text{S}/\text{cm}$)
0.1	0.5 to 400
1	10 to 2,000
10	1000 to 200,000

Glass-body conductivity cells are chemical-resistant. They can be used in samples containing organic solvents as well as in aqueous samples.

Plastic-body conductivity cells are durable and rugged, making them ideal for field measurements.

Operating Instructions:

Preparation:

1. The transparent Protective Cap of the Glass Cell should be removed.
2. Before using, soak the electrode in the distilled water for 15 minutes, make sure the measuring cell is clean.
3. Swirl the cell to get rid of any air bubble trapped within the cell chamber.

Calibration:

1. Conductivity measurements are temperature sensitive.
2. The temperature coefficient for natural waters is 2% per 1°C .
3. Calibrate using a standard solution in the range of the sample you are measuring.
4. Calibrating solutions could be bought from your local lab reagent suppliers.
5. A 0.01 M KCl solution has $1413 \mu\text{S}/\text{cm}$ at 25°C . In 1:10 dilution it has $147 \mu\text{S}/\text{cm}$ at 25°C .
6. They can also be prepared according to the table on the following page:

Conductivity $\mu\text{S/cm}$ at 25°C	dried KCl	dried NaCl
	mg/L	mg/L
23	11.6	10.7
84	40.38	38.04
447	226	215
1413	746	702
1500	757	737
2070	1045	1041
2764	1382	1414
8974	5101	4487
12,880	7,447	7,230
15,000	8,759	8,532
80,000	52,168	48,384

Which Conductivities at 25°C to expect:

- Ultrapure water 0.055 $\mu\text{S/cm}$
- Distilled water 0.5 $\mu\text{S/cm}$
- Deionised water 1 $\mu\text{S/cm}$
- Boiler Feed water 1 to 5 $\mu\text{S/cm}$
- City drinking water 50 to 500 $\mu\text{S/cm}$
- Limit for potable water (EC) 1500 $\mu\text{S/cm}$
- Most natural waters 50 to 1,000 $\mu\text{S/cm}$
- Thames river water 600 $\mu\text{S/cm}$
- Rivers in Scotland 80 $\mu\text{S/cm}$
- 0.001 M KCl solution 147 $\mu\text{S/cm}$
- 0.01 M KCl solution 1,413 $\mu\text{S/cm}$
- 0.1 M KCl solution 12,880 $\mu\text{S/cm}$
- 1 M KCl solution 111,300 $\mu\text{S/cm}$
- Ocean water 53,000 $\mu\text{S/cm}$

Hints on Measurement:

- Before making a measurement, perform a calibration by using a calibrating standard in the range of the samples
- Platinum electrodes are usually platinised with platinum black to reduce polarization. When the platinum black wears off, the cell constant changes
- Conductivity measurements are often used to determine the amount of Total Dissolved Solids (TDS) or the level of the Salinity.

A common conversion is: $\text{TDS / Salinity (ppm)} = K \times \text{Conductivity (mS/cm)}$

For TDS in natural waters, $K = 0.6$ to 0.7 , please refer to the conductivity meter manual

For Salinity (Concentration of NaCl) between 0 to 100 mg NaCl / L, $K = 0.52$

For more than 100 mg NaCl / L, $K = 0.55$

Maintenance:

Storage:

- For short-term storage, between sample measurements, please stand cell in distilled water.
- When not in use, store dry, with the protective cap in place, Soak in distilled water before use.

Cleaning:

- For general cleaning use hot water with household detergent.
- For Fats and Oils use Acetone.
- For non-organic contamination, soak the electrode in 0.1 M HCl for 10 minutes, rinse with distilled water.
- For Algae and Bacteria use bleach.
- For a very strong cleaning solution mix Isopropyl Alcohol with concentrated HCl in the ratio 1:1.

Options:

The default Conductivity cells connector for using ELIT instruments is 6-pin DIN. When connecting it to the other brand's instruments, other type of connector maybe needed, please see the following:

Conductivity Cells are available with

- 6-pin DIN connector
- 4-pin Mini-DIN connector
- BNC connector
- 1 metre cable length
- 3 metres cable length

Please specify the options when placing the order

