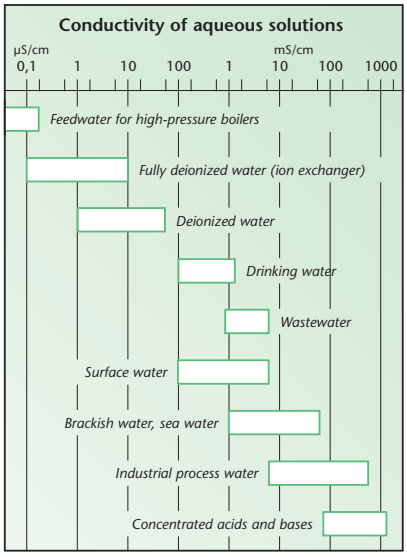
Conductivity Meters

Conductivity

Conductivity is a parameter used to measure the ionic concentration and activity of a solution. The more salt, acid or alkali in a solution, the greater its conductivity. The unit of conductivity is S/m, often also S/cm. The scale for aqueous solutions begins with pure water at a conductivity of 0.05 µS/cm (77 °F / 25°C). Naturally occurring waters such as drinking water or surface water have a conductivity in the range 100 – 1000 µS/cm. At the upper end of the chart some acids and alcalines can be found.



Conductivity measurements are used for applications such as in the production of ultrapure water or determining the salinity of sea water.

Conductivity is measured by making a measurement of the electrical resistance. The simplest kind of measuring cell used consists of two similar electrodes. An alternating voltage applied to one of the electrodes causes the ions in the solution to migrate towards the electrodes. The more ions in the solution, the greater the current which flows between the electrodes. The instrument measures the current and uses Ohm's law to calculate first the conductance of the solution and then – by taken the cell data into account – the conductivity.

● recommended by WTW ❍ conditionally applicable – not recommended

Application Range	inoLab® Cond 720	inoLab® Cond 730	inoLab® Cond 740	Profi-Line Cond 197i	VARIO C_{ond}	Handheld Meters Cond 315i	Handheld Meters Cond 330i	Handheld Meters Cond 340i
Routine measurement	●	–	–	–	●	●	●	–
Routine measurement with documentation	–	●	●	●	–	–	–	●
AQA with documentation	–	●	●	●	–	–	–	●
R&D hidh precision	–	●	●	●	–	–	●	●
Control measurements	–	●	●	●	●	–	●	●
LIMS connection	–	●	●	●	–	–	–	❍
Quality assurance	–	●	●	●	–	–	●	●
Training	●	●	●	❍	●	●	●	❍
Service	–	–	–	●	●	●	●	●
Laboratory measurements	●	●	●	●	●	–	–	❍
Field measurements	–	–	–	●	–	●	●	●
Depth measurements	–	–	–	●	–	–	–	–
External control/PC connection/ PC control	–	●/●/–	●/●/●	●/●/–	–	–	–	●/●/–
Salinity/TDS measurement	●	●	●	●	●	only SAL	●	●
Specific resistance	●	●	●	–	–	●	●	●
Suitable for USP 27	●	●	●	●	–	–	●	●
Measurement of ultrapure water	●	●	●	●	●	●	●	●
Trace conductivity	●	●	●	●	–	–	●	●
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for conductivity measurements with multi-parameter instruments see page 50

Application Range Sensors	TetraCon® 325	TetraCon® 325/S	LR 325/01	LR325/001	TetraCon® DU/T	TA 197 LF
USP 27	–	–	●	●	–	–
Pharmaceutical water	❍	–	●	●	–	–
Chemical water	❍	–	–	–	●	–
Ground water	●	–	❍	–	–	●
Surface waters	●	–	–	–	–	–
Depth measurements (barrages)	❍	–	–	–	–	●
Laboratory measurements	●	–	●	●	–	–
Foods industry (juices)	●	–	–	–	❍	–
Swimming pools	●	–	–	–	❍	–
Pharmaceutics	●	–	●	❍	❍	–
Cosmetics/Detergents	❍	●	–	–	–	–
Semi-conductor industry	–	–	●	●	–	–
Paint/Varnish (soluble)	●	❍	–	–	–	–
Electroplating	●	–	–	–	–	–
applicable instruments:	*all/except VARIO*	*all/except VARIO/ 315i*	*all/except VARIO*	*all/except VARIO/ 315i*	*all/except VARIO/ 315i*	*Cond 197i*

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