MS-310e

Portable Salinometer with remote control

Now with Ethernet

The MS-310e provides oceanographers with a reliable shipboard and laboratory method to verify the performance of sophisticated modern CTD instruments. The microsalinometer operation is based on the innovative dual cell concept in which the conductivity of the sample of water is simultaneously compared with the conductivity of standard seawater. The inductive measuring technique, and the wide range of conductivity ratios the MS-310e can measure, increase its versatility such that the conductivity of other fluids can also be determined.

The automated three step standardisation process used in the MS-310e can be performed easily on board ship or in the field using IAPSO standard seawater. The requirement for a highly stable bath temperature is removed by the dual cell configuration; the well-stirred oil bath ensures thermal uniformity. The consumption of standard seawater in the reference cell and sample is dramatically reduced by the small measuring volume, while the quartz glass cell preserves the integrity of the standard over time.

Direct reading of R_T and immediate calculation of salinity allows the MS-310e to rapidly confirm the accuracy of a CTD. Operator intervention is reduced through remote automated control of the MS-310e. An Ethernet interface along with the Ruskin software allows the operator remote control of the sampling and measuring process. This feature extends the potential use to monitoring of calibration baths, underway sampling and Ferry-box measurement in almost any environment.

- Minimises use of Standard Seawater
- Small foot print and low weight; easily portable
- Automatic real-time logging of all measured data
- No thermal stabilisation required
- No special room environmental controls required
- Can sample directly from Niskin bottles, pipelines, reservoirs and calibration baths
- High accuracy, short measuring times
- Ethernet control of sampling

General

Power:	115/230 VAC; 12VDC, 10VA
Communications:	Ethernet (10 or 100baseT), RS-232
Size:	L 307mm x H 280mm x D 245mm
Weight:	4.6kg (bath empty), 6.6kg (bath filled)
Consumption:	< 80 ml (3 flushes)
Bath Volume:	2.0 litres
Bath Oil:	Marcol 7 white mineral oil
Operating Temp.:	0˚C to +35˚C
Reference:	IAPSO Standard Seawater
Calibration:	NIST traceable standards
Settling Time:	~ 2 minutes typical
Set Up Time:	~ 30 minutes typical

Temperature

Sensor:	Thermistor
Accuracy:	±0.002 ˚C
Resolution:	<0.00005 ˚C
Drift:	~0.002 ˚C/year - typical

Conductivity Ratio R_T

Sensor:	Inductive Conductivity
Range:	0.05 to 1.2
Linearity:	±0.00005
Repeatability:	±0.00005
Stability:	±0.00005 / 24hrs

Practical Salinity (defined by PSS-78)

Range:	2 to 42 PSU
Accuracy:	±0.002 PSU within ±4˚C of temp. at standardisation
Resolution:	<0.001 PSU

Software

Ruskin software is included with the MS-310

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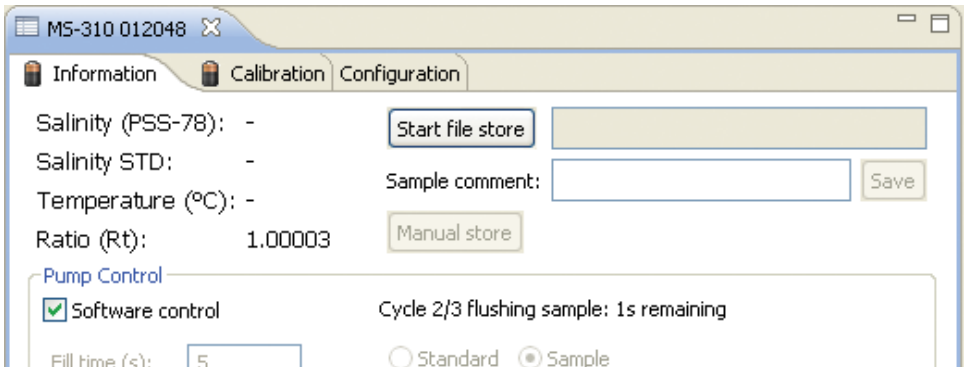
Remote control and automation

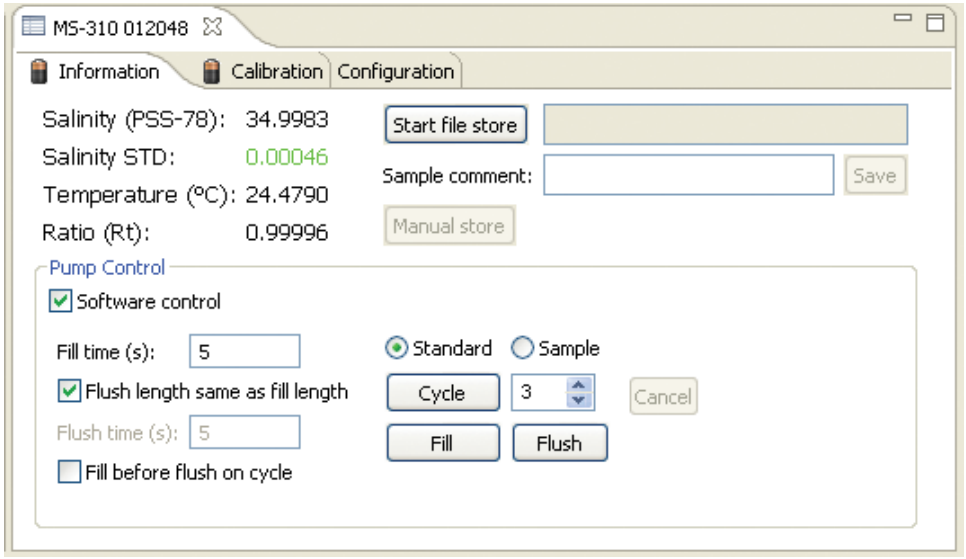
The MS-310e when interfaced with Ruskin software through an Ethernet connection can be operated remotely to automate sampling and measurements.

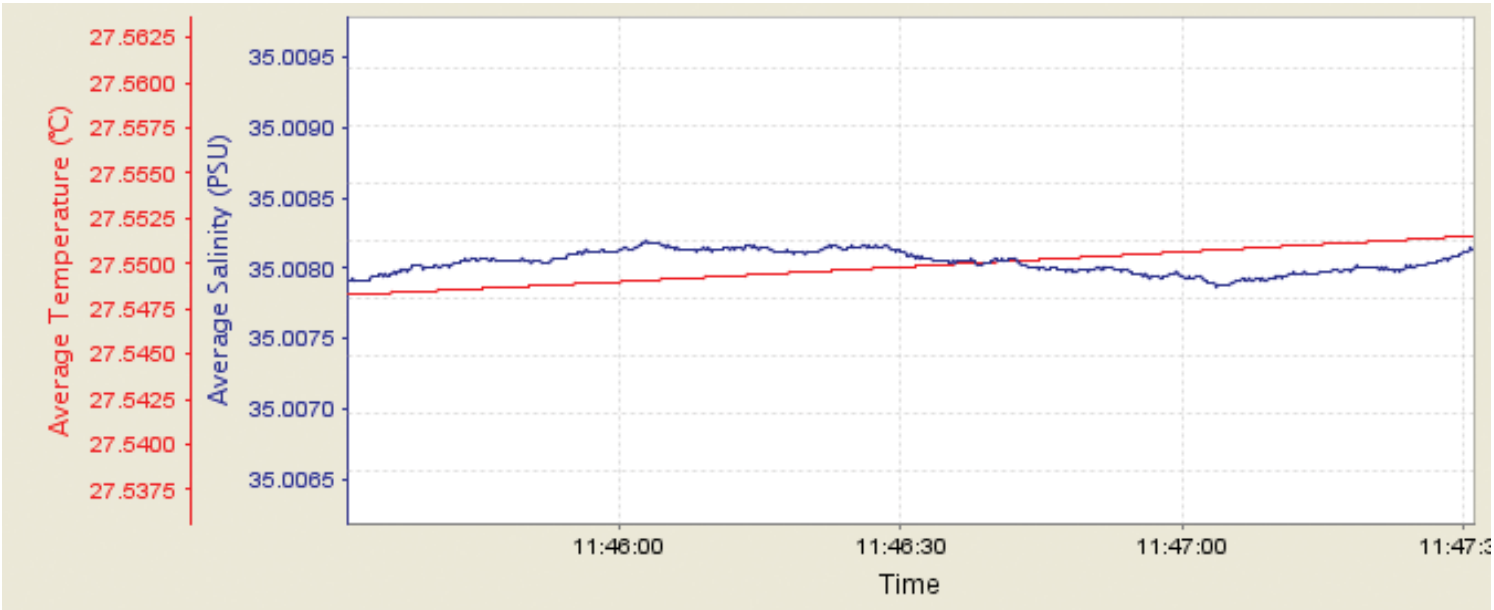
Under software control the MS-310e can be commanded to fill or flush the sample or reference cell once or flush and fill the cells. The number of flush/fill cycles is under user control. During the flush/fill procedure the software indicates the status of the process.

Once the sample is ready to be measured the software reports the temperature and salinity of the sample in graphical form and reports the average salinity and standard deviation, average temperature and the conductivity ratio.

TCP/IP sockets complement the graphical interface with both data output and a control channel using a simple command language, permitting complete integration into laboratory workflows.







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