

COMPANY PROFILE

General Activities

SiS is a company founded in 1984 with the emphasis on the field of sensors, instruments and systems in marine sciences, metrology, environment, calibration equipment and engineering services. Besides own products a number of well-known manufacturers are represented.

Research & Development

The R&D staff consists of applied physicists, computer scientists, engineers, technicians and craftsmen. Fields of interest are sensor development, precision analog electronics, high resolution fast data acquisition systems, μ -controller hard- and software. Autonomous battery powered systems. Metrologic grade standards and instruments. Software development for technical and scientific applications. IEEE-bus controlled measuring systems. Optical remote sensing, satellite telemetry.

Test Facilities & Services

Pressure test vessel up to 1000 bar. Pressure calibration with relative accuracy of $3 \cdot 10^{-4}$. Temperature calibration laboratory according to ITS 90 with metrological standards in the range of $-5 \text{ }^{\circ}\text{C}$ to $40 \text{ }^{\circ}\text{C}$. Resolution, reproducibility and absolute accuracy of $10 \text{ }\mu\text{K}$, $100 \text{ }\mu\text{K}$ and $200 \text{ }\mu\text{K}$ respectively. Our test facilities and R&D capabilities are offered to customers for commercial services or userspecific developments. CLS Argos Services. Software tools. Consulting.

PRODUCTS



The second generation of electronic reversing thermometers RTM 4002 X and pressure meters RPM 2000 X, 6000 X and 10000 X

These instruments are the successor instruments of the industry standard SiS digital reversing thermometers and pressure meters respectively. The main new advantages are the improved housing design, the burst sampling with calculation of the mean value and the standard deviation and the improved resolution and accuracy. Price unchanged!

Specifications of the RTM/ RPM: Dimension of 327 mm length and 20 mm diameter, weight of 170 g/ 180 g, sampling frequency of 1.25 Hz, burst size of 16 samples, power supply by one lithium thionyl battery sufficient for 3000 samples, Range 2.0000 to 40.000 $^{\circ}\text{C}$ / 0.0 to 2000.0 dbar (6000.0 dbar, 9999.9 dbar), accuracy 3mK/ 0.1% of range, resolution 0.0001 $^{\circ}\text{C}$ (-2.0000 to $9.9999 \text{ }^{\circ}\text{C}$) and 0.001 $^{\circ}\text{C}$ (10.000 to 40.000 $^{\circ}\text{C}$)/ 0.1 dbar, stability of 0.00025 $^{\circ}\text{C}$ per month/ 0.01% of range per month.



CTD plus 100, 500 and 1000

The CTD plus 100, 500 and 1000 is a family of CTD "hang alone" systems for use in water depth of 100, 500 and 1000 metres respectively. For simple use they are activated by three cursor keybuttons to take samples and store them to solid state CMOS RAMs, to read out samples on the display, to continuously sample, calculate and display parameters. For field analysis and processing the SiS fieldsoft program is included. The system is self-contained and powered by two D-type batteries.

Specifications of the CTD plus: Dimensions of 60 mm diameter, main housing of 520 mm length, battery module length of 180 mm. Weight in air 4.5 kg with battery module and batteries installed. Available options are the mounting cage and stowage cases for instruments with and without mounting cages. Range of the basic parameters C/T/D are 1 - 65 mScm^{-1} / $-2 \text{ }^{\circ}\text{C}$ - $40 \text{ }^{\circ}\text{C}$ / 0 - 100 m, 0 - 500 m, 0 - 1000 m. The accuracies are C/T/D $10 \text{ }\mu\text{Scm}^{-1}$ / 0.005 $^{\circ}\text{C}$ / 0.05 % of range.

PRODUCTS



DO Analyser

The DO Analyser is an easy to use, PC controlled instrument for the determination of dissolved oxygen according to the method of L. W. Winkler in 1888.

This chemical titration method is the standard for determination of oxygen in samples, even in modern times, because all in situ systems are less accurate. The method needs well educated and experienced personnel but nevertheless produces individual results because the titration endpoint is determined by eye. Qualified personnel get very reproducible results which have an individual offset. This offset limits the accuracy to a value considerably beyond the principle accuracy limits of the method. The current

trend towards increasing international cooperation and participation in joint programmes brings with it the greater need for measurement comparability.

The features and specifications of the instrument: Bottle volume from 10 ml to 250 ml. Range according to your needs selected by the titer concentration. The absolute accuracy is 0.3 % of the selected range with a reproducible accuracy of 0.1 %. The instrument uses an alternating light photometer to be uninfluenced from the surrounding light conditions. WOCE and ISO 5813 standards are supported by the software. The titration curve can be inspected on screen.



ARGOS Beacons SMM 500, SMM 2000, SMM 6000 and ASB

This product range is divided in two groups. The first is the SMM product spectrum. The **S**ub-**s**urface **M**ooring **M**onitoring beacon remotely monitors underwater moorings that may accidentally rise to the surface. If the mooring breaks, the platform floats to the surface and starts transmitting. CLS Service Argos has developed a special service for monitoring the status of the moorings. In the silent status nothing happens. When the system has surfaced, the status is set to alarm and the user will be informed. The ASB is an **A**rgos **S**urface **B**eacon. Applications for it are the monitoring of moored surface buoys, location of floating objects and drifters.

Specifications of the beacons: The SMM 500 is for applications up to 500 m depth. The system is powered by five pieces of lithium D-type batteries for up to 3 months transmission time. Mooring time is limited by biofouling in the euphotic zone to six months. The 2000 and 6000 version is for mooring up to 2000 m and 6000 m respectively with double battery capacity. The ASB has a transmission capability of six months. The mechanical data of SMM 500/ SMM 2000 (6000)/ASB are: Pressure range of 500 m/ 2000 m (6000 m)/ 10 m, dimensions (l x d) 853x60.3 mm/ 742x89 mm, mass 3.8 kg/ 6.7 kg/ 6.7 kg. Displacement is 2.4 dm³/ 3.1 dm³/ 5.6 dm³.



Softsal

The SOFTSAL package is a comfortable add on for AUTOSAL users who want to acquire salinity data from the salinometer by personal computer. During salinometry the PC receives specific information on what you are doing. The system checks for data quality (standard deviations, freak value elimination, sufficient flushing of the cell), inconsistent input (double occurrence of bottle numbers within same box) or instability of electronics (monitors the transferred value of the cell equivalent network which is switched instead of the cell to the electronics during STANDBY). If you don't want the software to decide on your data, you may switch off the automatism and decide which 2 Rt should

be used for calculation of salinity by pressing down the DATALOG push-button. Besides data acquisition there is a second part within the package, that is the data postprocessing. If you have generated control data sets during measuring by taking samples of well known salinity, e.g. sample from standard water ampoules or from prepared substandards, you can eliminate zero order drift of the salinometer. With the SOFTSAL data management packages comes the necessary hardware, that are cables, connectors and an optoisolated interface box for connecting the BCD port of the AUTOSAL with a PC COM port.



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