MODICA

A Multifunction Dissolved Inorganic Carbon Analyzer

MODICA was jointly developed by UIC INC. and AlphaZeta Sciences LLC. For decades UIC Inc. has served marine science community with reliable coulometers for measuring carbon content in natural waters. The UIC Inc. coulometers have been routinely used with manual acidification units or automatic instruments such as SOMMA, VINDTA, or NOAA's DICE system. Now UIC INC. and AlphaZeta Sciences LLC proudly offer MODICA – A multi-detector, multichannel capable dissolved inorganic carbon analyzer.
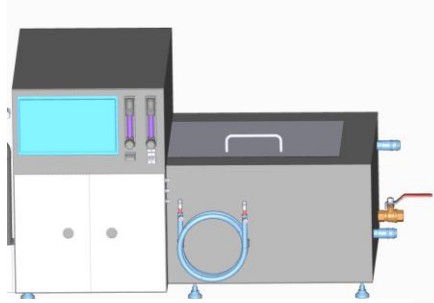

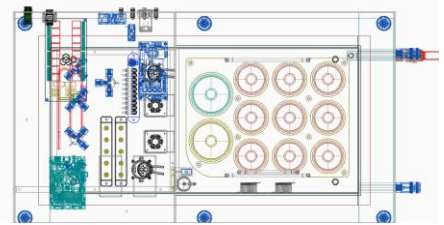Fig. 1. UIC 5017 Coulometer

Fig. 2. MODICA front view

Fig. 3. MODICA top view

Instrument Capabilities

1. Multi sample - batch processing
MODICA could process 10 samples in a single batch run. Samples can also include certified reference materials (CRMs). Once samples are loaded, with one click, the user could walk away, and MODICA will automatically process all samples. Multiple readings could be obtained from
the same sample.

2. Multidetector connectivity
MODICA can be seamlessly connected to our newest CM5017 coulometer. In addition, MODICA can also be connected to CRD-based instrument, such as Picarro isotopic carbon analyzer with peak integration plugin installed so not only DIC but also C^{13} and C^{12} ratios could be obtained in precision comparable to that obtained with coulometry. This approach is especially desirable as only phosphoric acid is used and no change of coulometric reagents is needed. Down time due to refresh of coulometry cell solutions is eliminated.

3. Multiparameter capability
In addition to measuring DIC, MODICA can also provide spectrophotometric pH readings from the same sample as an option, offering a possibility of obtaining two CO_2 parameters from the same instrument to fully characterize CO_2 chemistry in single run.

4. Powerful software interface
MODICA software is run on a powerful built-in single board computer under Windows 10 environment. To run MODICA user simply configures a run sequence based on sample types, such as standard, sample, junk, or CO_2 gas calibration. Based on the different sample type, the software will automatically load appropriate predefined missions, and apply relevant calculations. At each of the steps the software takes readings of salinity, temperature, and barometric pressure from probes and pressure transducer.

5. Pure CO_2 gas calibration routine
MODICA also includes integrated pure CO_2 calibration hardware which gives users additional tools to evaluate instrument performance by measuring CO_2 from calibrated CO_2 loops, in addition to CRMs. The CO_2 calibration includes two CO_2 loops to cover the full DIC range that users generally encounter.

6. Ample peripherals with a powerful computer
With a powerful Windows 10 computer built in the system, MODICA offers ample peripherals users can add. WiFi and Ethernet connections are provided. Data can be retrieved through USB port or network. Instrument could be operated or monitored from remote location once sample is loaded.

For price inquiry,
and product availability,
please call 815.744.4477

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