Small loggers for Temperature, Depth and DO
One or Two Channel Submersible Recorders

These single and dual channel loggers set the standard for submersible measurements. For single channel temperature see the TR-1060P data sheet fo even better cost/performance.

General Specifications

Case Size:	<270mm x 38mm diameter
Material:	Delrin® (acetal copolymer) Titanium (for up to 10,500m)
Memory:	8Mbyte Flash (2,400,000 samples)
Power:	Two CR123A Lithium (3V) Standard camera batteries or external power (6 to 15 V) via optional connector. Battery power sufficient for 2,400,000 readings or three years of operation
Weight:	310g in air 45g in water (Delrin®) 500g in air 220g in water (titanium)
Depth ratings:	740m (Delrin® housing) 10,500m Titanium, temperature 10,000m Titanium, depth 2,000m Titanium, with DO
Calibration:	NIST traceable standards
Communications:	RS-232/485 RF Modem control or GSM/CDMA modem
Download Speed:	~115,000 samples/minute
Clock Accuracy:	±32 seconds/year

Software

Integrated RBR Windows® software is available at no additional charge for all of our instruments. See reverse for further details or check our website for details, downloads and upgrades.

Temperature

Range:	-5 °C to 35 °C Standard range -40°C to 50° Extended ranges To >300°C with special probes
Accuracy:	± 0.002 °C (ITS-90 and NIST traceable standards)
Resolution:	<0.00005 °C
Time Constant:	~3 sec (standard); or ~0.1 sec (option)
Drift:	~0.002°C/year - typical

Depth

Range:	10/20/50/100/200/500/740/1000/2000/4000/6000/10,000m (dBar)
Accuracy:	±0.05% full scale
Resolution:	<0.001% full scale
Time Constant:	< 10 msec
Drift:	~0.1%/year - typical

Dissolved Oxygen

Sensor:	Oxyguard DO522M18
Range:	0 to 200%*
Accuracy:	±2% O_2 saturation, over 5° to 25°*

* These represent the manufacturer's specifications. For further information on sensor performance please contact RBR.

Ordering Information

Temperature	
TR-1050P	See the TR-1060P; TR-1050Ti up to 10,500m
Depth	
DR-1050P	10/20/50/100/200/500/740m
DR-1050Ti	1,000/2,000/4,000/6,000/10,000m
Dissolved Oxygen	
DO-1050P	Up to 740m; DO-1050Ti up to 2,000m
Temperature and Depth	
TDR-2050P	10/20/50/100/200/500/740m
TDR-2050Ti	1000/2000/4000/6000/10,000m
Temperature and DO	
TDO-2050P	Up to 740m; TDO-2050Ti up to 2,000m

Accessories: mooring clamps, support kits, DO sensor membranes, u/w connectors, desiccant packs.

Windows® Software

Data Logger Software

The RBR Windows® software package has been designed for easy use while still providing the necessary features for logger programming, data retrieval and analysis. One piece of software does it all!

Features:

- Intuitive
- Graphical Display
- Real-time data
- Derived Units
- Export to Matlab®
- GPS Integration
- Telemetry ready
- Setup cloning

RBR's Windows®-based data logger software includes a straightforward logger setup display menu that includes options for programming start and stop time, thresholding, sampling rates for both tides and waves (TWR-2050), burst rate, burst length, averaging, and batch programming.

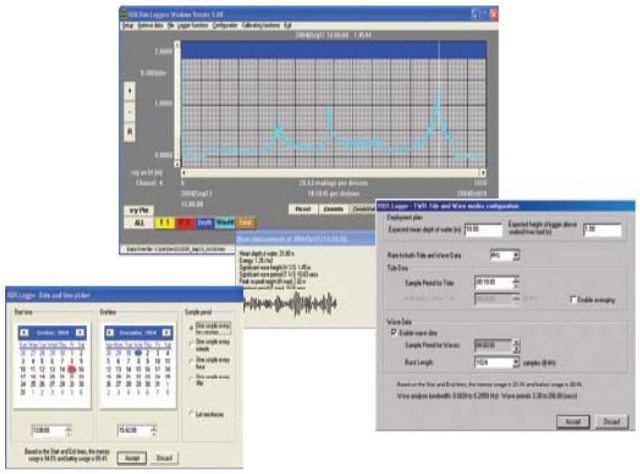
Some basic analysis features are included that allow the user to review the data graphically. Data can also be saved in various file formats for easy import into third party software packages, such as Matlab® or Microsoft® Excel®.

Derived Units

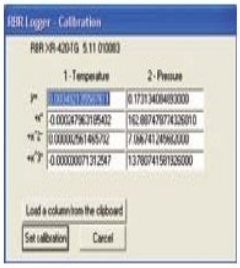
- Salinity (PSS-78)
- Depth
- Speed of Sound
- Density
- Dissolved Oxygen
- Specific Conductivity

Analysis of waves & wave spectra:

- Mean level
- Tidal slope
- Significant Wave Height
- Min & Max Elevation from Mean
- Mean Period
- Significant Wave Period
- Total Energy



Logger programming is easily achieved by using the 'Setup' dialog, which allows the user to choose Start and End times, Sampling Rate, Averaging, Thresholding, as well as synchronize the logger with the PC clock. The setup dialog also indicates the expected battery and memory usage for the chosen deployment settings.



Re-calibration is done easily by entering the coefficients for each channel of the logger in the appropriate columns. These values are stored in the logger, and a complete calibration history is always available at the click of a button. In order to reduce deployment error, a log file is automatically generated for all logger setup activity.

System Requirements

Operating System:	Windows® 95/98/ME/2000/XP/Vista
CPU:	x86 133Mhz or higher
RAM:	128MB recommended
Communications:	At least 1 RS-232 serial port, or USB
Cost:	RBR Software is free.