

TR-1060

Temperature Recorder

The TR-1060 is a 25mm diameter version of TR-1050 and uses less power, but has the same or better performance with a 24 bit a/d. This compact, extremely rugged, high accuracy device is ideal for coastal and deep water oceanography, freshwater, groundwater, and ice research.

Features:

- Smallest size 24 bit temp.
- 1200m depth rating
- Highest accuracy
- 8MB Memory
- 3 years on one battery
- High-speed data download

The Model TR-1060 is calibrated to an accuracy of $\pm 0.002^{\circ}\text{C}$ (ITS-90 and NIST traceable standards). Drift has been measured at better than $0.002^{\circ}\text{C}/\text{year}$.

The thermistors used in the TR-1060 are available in two housings. The standard thermistor has a time constant of less than 3 seconds. The optional fast thermistor has a time constant of about 0.1 seconds.

The TR-1060 can be deployed for a period of up to three years by using one high-power 3V lithium cell battery (CR123A). A new mechanical design mitigates condensation or risk of damage during battery replacement or data download.

8MB of storage provides sufficient memory for 2,400,000 samples and a full set of samples can be taken by one battery. Flash memory ensures data retention for 20 years.



Improved Mechanical Design

Technical

General

Power:	QTY 1, 3V CR123A cell
Communications:	RS-232
Depth Rating	1200m
Download Speed:	~115,000 sample/minute
Clock Accuracy:	± 32 seconds/year
Memory:	8Mbyte Flash (2,400,000 samples)
Size:	240mm x 25mm diameter
Weight:	150g in air, 55g in water
Calibration:	NIST traceable standards

Temperature

Range:	-5°C to 35°C (may be calibrated from -40°C to $+50^{\circ}\text{C}$ on request)
Accuracy:	$\pm 0.002^{\circ}\text{C}$
Resolution:	$< 0.00005^{\circ}\text{C}$
Time Constant:	~3 sec (standard); or ~0.1 sec (option)
Drift:	$< 0.002^{\circ}\text{C}/\text{year}$

Ordering Information

Temperature Recorder

Model TR-1060P	Delrin® case, 1200m depth rating ~3 sec standard thermistor
Model TR-1060PF	Delrin® case, 1200m depth rating ~0.1 sec fast thermistor

Accessories:

Mooring clamp, 1/4" hole size, Part # 2194-704
 Support kit for TR-1060 (10 O-rings, grease, desiccant)
 Transit case, part # 2100
 Optional u/w connector for data & power
 For further information on sensor performance please consult RBR.

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.

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RBR 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.

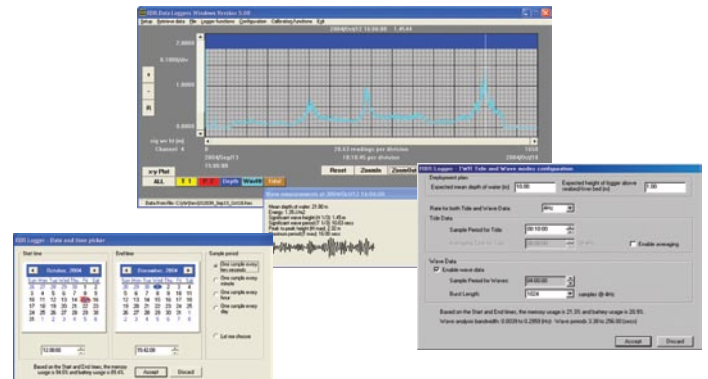
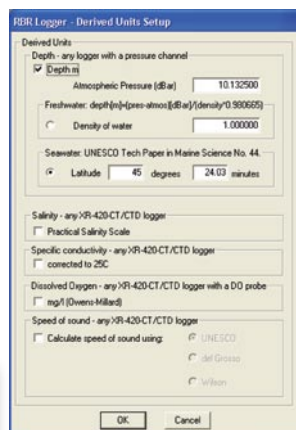
Some basic analysis features are included that allow the user to review the data graphically. Data can also be saved in various file formats for easy import into third party software packages, such as Matlab® or Microsoft® Excel®.

Derived Units

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

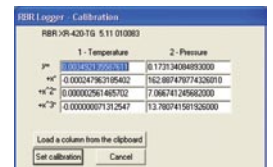
Analysis of waves & wave spectra:

- 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.



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