

Thermistor Chains

XR-420 T8, T16 or T24

Features:

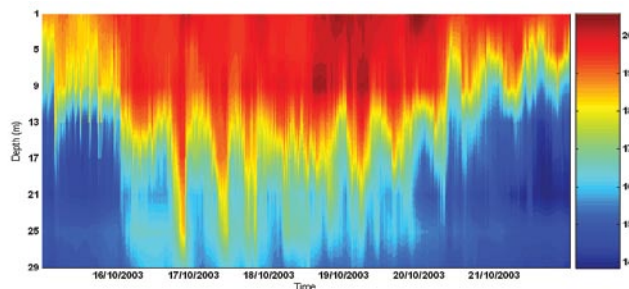
- Accuracy $\pm 0.005^{\circ}$
- 8MB Memory
- Up to 2 years runtime
- High-speed Data Download
- Custom Configuration

The XR-420 T8, T16 and T24 are a series of multi-channel temperature data recorders designed to operate with arrays of thermistors. The XR-420 can include up to three eight-channel modules, and any combination of thermistors (up to 24) can be readily made using the eight channel modules. Other sensor channels may be added to the T8 and T16.

The thermistor arrays are made to order, and may be any practical length. They have been made to be deployed in sea or lake water, as well as underground, in concrete, in permafrost or in ice. They have been used to measure internal waves and for cryospheric studies. The array may be mounted in-line on a cable, or embedded into a rugged PVC tube for ground temperature measurements. They may be used at depths up to 4,000m, and there are versions for sediment probes. The data logger has an extended operational temperature range of -40°C to $+35^{\circ}\text{C}$.

The standard thermistor used in the strings is the Thermometrics P Series, chosen for stability. The thermistor strings are calibrated to $\pm 0.005^{\circ}\text{C}$ against ITS-90 primary standards.

The T8 and T16 may be combined with other sensors.



Data may be exported to Matlab™ for further analysis

Technical

Base Logger

Power:	QTY 4, 3V CR123A cells
Communications:	RS-232/485; logged, cable, or telemetry
Download Speed:	~115,000 samples/minute
Clock Accuracy:	± 32 seconds/year
Size:	230mm (T8), 310mm (T16, T24) x 64mm diameter
Weight:	850g in air, 200g in water (T8) 1200g in air, 380g in water (T16, T24)
Memory:	8MByte Flash (2,400,000 samples)
Calibration:	NIST traceable standards

Temperature

Range:	$+5^{\circ}\text{C}$ to 35°C ; extended range to -40°C
Accuracy:	$\pm 0.005^{\circ}\text{C}$
Resolution:	$< 0.00005^{\circ}\text{C}$
Time Constant:	Depends on probe construction

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.

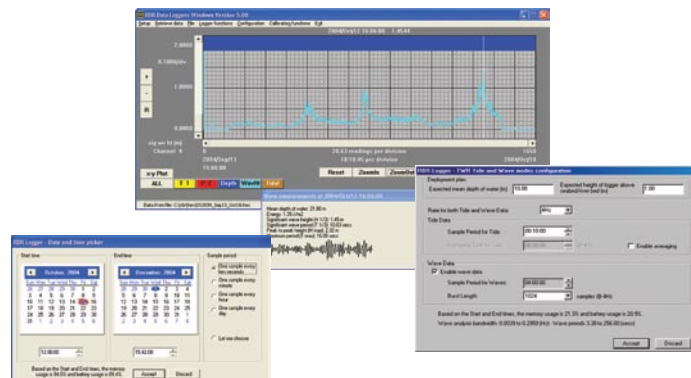
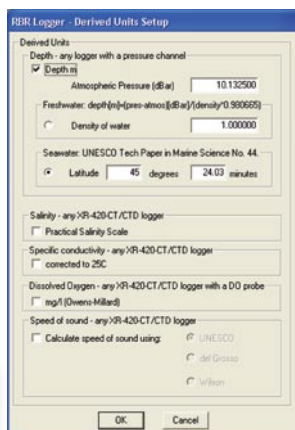
Some basic analysis features are included that allow the user to review the data graphically. Data can also be saved in various file formats for easy import into third party software packages, such as Matlab® or Microsoft® Excel®.

Derived Units

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

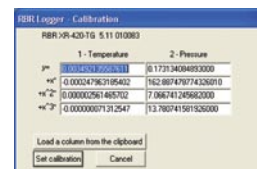
Analysis of waves & wave spectra:

- 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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