

XR-420/620 Series

Multichannel Loggers

Features:

- Highest accuracy
- Large Memory (up to 2GB)
- Up to 3 years on one battery set
- High-speed Data Download
- Custom Configuration

The XR-420 and XR-620 are small, autonomous 24-bit profiling loggers with 1Hz (6Hz for the XR-620) sampling and capacity to support up to six sensors in the standard enclosure and up to 11 in custom configurations. These include Conductivity, Temperature, Depth, pH, ORP, Dissolved Oxygen, Fluorescence, Turbidity, Transmittance, PAR, etc. in any combination. All calibration constants are stored in the logger and recalibration is possible by the end-user under suitable conditions.

Conductivity, Temperature and Depth are measured using RBR sensors calibrated to NIST traceable standards. Please see the other side of this sheet for a listing of some of the third party sensors available for the XR-Series logger platform.

Real time clock accuracy is ± 32 seconds/year. 8MB of nonvolatile flash provides sufficient memory for 2,400,000 readings which can be logged using one set of high-powered 3V lithium cell batteries. A 2GB memory upgrade is available.



Software

The XR-420 and XR-620 use fully integrated RBR Windows® compatible software. The XR-620 contains profiling software, and includes a programmable "wet-switch" that may be assigned to any channel.

Technical

General

Internal Power:	QTY 4, 3V CR123A cells
Communications:	RS-232/485 cable, telemetry, USB
Download Speed:	~115,000 samples/minute
Clock Accuracy:	± 32 seconds/year
Size:	310mm x 64mm diameter
Memory:	8MByte Flash (2,400,000 samples) 2GByte option
Body Weight:	1.2kg in air, 389g in water (Delrin®) 2.5kg in air, 1.6kg in water (titanium)
Calibration:	NIST traceable standards
See the Loggers for CT and CTD data sheet for full specifications.	

Temperature

Range:	-5°C to 35°C
Accuracy:	$\pm 0.002^\circ\text{C}$
Resolution:	$< 0.00005^\circ\text{C}$
Time Constant:	~3 sec (standard); option ~0.1 sec
Drift:	$\sim 0.002^\circ\text{C}/\text{year}$

Depth

Range:	10/20/50/100/200/500/740/1000/ 2000/4000/6000m (dBar)
Accuracy:	$\pm 0.05\%$ full scale
Resolution:	$< 0.001\%$ full scale
Time Constant:	< 10 msec
Drift:	$\sim 0.1\%/\text{year}$

Conductivity

Range:	0-2mS/cm (freshwater) or 0-85mS/cm (marine)
Accuracy:	± 0.003 mS/cm at 35psu 15°
Drift:	~ 1 $\mu\text{S}/\text{cm}/\text{month}$
Resolution:	~ 0.01 $\mu\text{S}/\text{cm}$ (freshwater) and ~ 1 $\mu\text{S}/\text{cm}$ (marine)
Time Constant:	Depends on cast rate. Cell length is ~ 60 mm

The XR logger range is able to support sensors to measure Conductivity, Temperature, Depth, pH, ORP, Dissolved Oxygen, Fluorescence, Turbidity, Transmittance, and PAR. A selection of those which have been supplied is illustrated in the table below. We are able to interface many other sensors which are not mentioned in this table. The typical requirements are that the external sensor accepts 12V power (or is self-powered), and either gives a voltage output or provides serial data. The voltage output may either be low impedance (typically 0 to 5 volts) or high impedance, as from a pH or ORP electrode. Serial data may be accepted by a generic interface using a Metatable XML code drivers. Consult RBR for more information.

Additional Sensors

Sensor Specifications (these represent the manufacturer's ratings)

Parameter	Sensor Manufacturer	Max Depth (m)	Range	Accuracy
Conductivity	RBR Inductive	6,600	0-85 mS/cm	±0.003
Conductivity	AMT 3 Electrode	2,000	0-2 mS/cm	±0.003
Temperature	RBR Thermometrics	10,500	-40 to +35 °C	±0.002
T 8, 16, 24	RBR thermistor chain	6,600	-40 to +35 °C	±0.005
Depth	Keller	10,000	Various	±0.05%
Depth	Paroscientific / Serial	10,000	Various	±0.01%
pH	AMT	1,200 / 6,000	0 to 14 pH	±0.1
ORP	AMT	1,200 / 6,000	-2 to +2 V	±0.01
DO	Oxyguard	2,000	0 to 200%	±2%
DO	Aanderaa Optode	6,000	0 to 120%	±5%
Turbidity	Seapoint Auto ranging	6,000	0 to 2,500 FTU (NTU)	±2% ^[1]
Fluorometer	Seapoint Auto ranging	6,000	0.02 - 150 µg/L	±2%
Transmissometer	Wetlabs	600 / 6,000	660, 530, 470, 370 nm	±0.1%
PAR	Licor	560	0-10,000 µmol/s-m ²	±2%
PAR (5 decade)	BioSpherical	2,000	0-5,000 µmol/s-m ²	±2%
Heading	PNI	Internal	0-360°	±0.5
Flow	Nortek Aquadopp	2,000 / 6,000	±5m/sec	±1%
Tilt	RST Instr	Geological	±40°	±0.01°

[1] Applies to 0 to 750 FTU range.

This table lists some of the sensors available for the XR-Series Logger. For further options and for further information on sensor performance, please consult RBR.



Up to 11 sensor cards may be accommodated in 75mm housing



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