

Device Maintenance

Battery Replacement

- Materials:
 3/32" HEX Driver (Allenkey)
 Small Phillips Head Screwdriver
 Replacement Battery (LTC-7PN)

- Remove the cover from the Waterbox110C by unscrewing the four screws.
- Remove the data logger from the Waterbox110C.
- Puncture the center of the back label with the screw driver and unscrew the enclosure.
- Remove the battery by pulling it perpendicular to the circuit board.
- Insert the new battery into the terminals and verify it is secure.
- Screw the enclosure back together securely.

Note: Be sure not to over tighten the screws or strip the threads.

Battery Warning

WARNING: FIRE, EXPLOSION, AND SEVERE BURN HAZARD. DO NOT SHORT CIRCUIT, CHARGE, FORCE OVER DISCHARGE, DISASSEMBLE, CRUSH, PENETRATE OR INCINERATE. BATTERY MAY LEAK OR EXPLODE IF HEATED ABOVE 80°C (176°F).

Recalibration

The ETR110 standard calibration is one point at 25°C for the internal sensor and 0mV for the Thermocouple channel.

Pricing:

Recalibration traceable to NIST \$60.00
 Recalibration \$40.00

Additional:

As Found Data \$15.00 per parameter/channel
 Verification Point \$15.00 per point
 Channel (1st) \$30.00 at 25°C
 \$45.00 at custom point
 Additional Channels \$3.00 at 25°C
 \$4.50 at custom point

To send the devices back, visit www.madgetech.com, select Services then RMA Process.

Part Number	ETR110	
Remote Channel Temperature Sensor	Thermocouple Types J, K, T, E, R, S, B, N	
Remote Channel Temperature Range	*See Table Below	
Memory	16,383/channel	
Sample Rate	2 seconds up to 12 hours	
Typical Battery Life	10 years	
Required Interface Package	IFC110 or IFC200	
Baud Rate	57,600	
Operating Environment	-40 to +80°C 0 to 95%RH	
Dimensions	Body: 1.7" x 2.3" x 0.8" (44mm x 59mm x 21mm)	Probe: 6" x 1/8" dia. (153mm x 3.2mm dia.)
Approvals	-	

* Remote Channel Range, Resolution & Accuracy

Thermocouple	Range (°C)	Resolution	Accuracy
J	-210 to +760	0.1°C	±0.5°C
K	-260 to +1370	0.1°C	±0.5°C
T	-260 to +400	0.1°C	±0.5°C
E	-260 to +980	0.1°C	±0.5°C
R	-50 to +1760	0.5°C	±2.0°C
S	-50 to +1760	0.5°C	±2.0°C
B	+60 to +1820	0.5°C	±2.0°C
N	-260 to +1300	0.1°C	±0.5°C

Specifications subject to change.

See MadgeTech's terms and conditions at www.madgetech.com

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ETR110

Exhaust Temperature Recording System

Product Notes

LEDs

Once started, the LED will flash at the selected reading rate to indicate that the device is running.

Thermocouples and the Software

To change the thermocouple type in the MadgeTech software:

- Select **Thermocouple Type** from the **Device Menu**.
- Click on the **Change** button in the Thermocouple Type window.
- Select the correct thermocouple type from the drop down list.
- Click on the **Save** button to store the thermocouple type in the device.
- Click **OK**.

Connecting to Exhaust Pipe

Additional Materials

68 x 4 x 4 weatherhead
1/4" NPT Coupler

Weld the Coupler into the exhaust pipe within 6" of the inlet of the muffler. Mount the Waterbox110C to the truck and insert the thermocouple into the dapier and use the weatherhead to secure it down.

Installation Guide

Installing the Interface cable

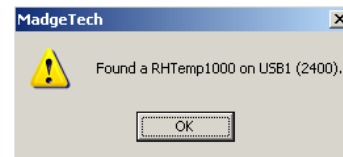
- IFC200, IFC202 or IFC300
Refer to the "Quick Start Guide" included in the package.
- IFC110, IFC102 or IFC103
Plug the serial cable into the port and verify it is secure.
- USB-1 or USB-101
Install the USB drivers from the CD provided in the kit, then plug the USB cable into the computer and the serial cable into the serial port.

Installing the software

Insert the Software CD in the CD-ROM Drive. If the autorun does not appear, locate the drive on the computer and double click on **Autorun.exe**. Follow the instructions provided in the Wizard.

Connecting the data logger

- Once the software is installed and running, plug the interface cable into the data logger.
- Click the **Communication Menu**, then **Auto Configure Port**.
- After a moment, a box similar to the following will appear;



- Click **OK**. The **Device Status** box will appear. Click **OK**.
- At this point, communications have been configured for your logger. These settings can be found under the **Communication Menu**.

Note: For additional installation instructions refer to your "Data Logger & Software Operating Manual".

Device Operation

Starting the data logger

- Click **Device Menu** then **Start Device**.
- Choose the desired start method.
- Choose the start parameters by selecting a **Reading Rate** suitable for your application.
- Enter in any other desired parameters and click **Start**.
- A box will appear stating the data logger has been started. Click **OK**.



- Disconnect the data logger from the interface cable and place it in the environment to measure.

Note: The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Downloading data from a data logger

- Connect the data logger to the interface cable.
- Click the **Device Menu** then **Read Device Data**. This will offload all recorded data onto the PC.

Technical Support

Visit www.madgetech.com, or call (603) 456-2011. Technical support is also available by e-mailing support@madgetech.com

Additional product information is available by e-mailing info@madgetech.com.