

Description	ETR101A
Internal Channel Temperature Sensor	Semiconductor
Internal Channel Temperature Resolution	0.1 °C (0.18 °F)
Internal Channel Accuracy	±0.25 °C (±0.45 °F)
Remote Channel Temperature Sensor	Thermocouple Type K
Remote Channel Range	-260 °C to +899 °C
Remote Channel Resolution	0.1 °C
Remote Channel Accuracy	±2.0
Cold Junction Compensation	Automatic
Channels	1 internal & 1 remote
Memory	500,000 readings; 250,000 readings in multiple start/stop mode or trigger settings mode
Wrap Around	Yes
Reading Rate	1 reading every second up to 1 reading every 24 hours
LED Indicator	Red and Green
Required Interface Package	IFC200
Baud Rate	115,200
Typical Battery Life	10 years at a 15 minute reading rate
Operating Environment	-20 °C to +80 °C (-4 °F to +176 °F), 0 %RH to 95 %RH non-condensing
Material	ABS plastic
Dimensions	Data Logger: 1.4 in x 2.2 in x 0.6 in (36 mm x 56 mm x 16 mm) Waterbox: 3.66 in x 2.45 in x 0.93 in (93 mm x 62 mm x 24 mm) Thermocouple Wire: 24 gauge, 30 inches (762 mm) Thermocouple Probe: 6 in x 1/8 in dia. (153 mm x 3.2 mm)
Weight	Complete Kit: 9.5 oz (269 g)
Approvals	CE

If using a stainless steel braided thermocouple please note that the water can wick into the waterbox through the cable and cause damage to the data logger. MadgeTech recommends mounting the box above the thermocouple so that the water wicks away from the waterbox and data logger, or use epoxy to seal the thermocouple around the compression fitting.

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).

Specifications subject to change.

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



ETR101A

Exhaust Temperature Data Logging System

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Product Notes

Connecting to Exhaust Pipe

Additional Materials: 68 x 4 x 4 weatherhead and a 1/4 inch NPT Coupler

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

LEDs

- Green LED blinks: 10 seconds to indicate logging and 15 seconds to indicate delay start mode
- Red LED blinks: 10 seconds to indicate low battery and/or memory and 1 second to indicate an alarm condition

Thermocouple Type

To change the thermocouple type:

- In the Connected Devices panel, click the device desired.
- On the Device Tab, in the Information Group, click Properties. Users can also right-click the device and select Properties in the context menu.
- On the General Tab, change the Thermocouple type in the drop down menu.
- Apply these changes, there will be a prompt to reset the device, select yes.

Password Protection

An optional password may be programmed into the device to restrict access to configuration options. Data may be read out without the password.

Multiple Start/Stop Mode Activation

- To start device: Press and hold the pushbutton for 5 seconds, the green LED will flash during this time. The device has started logging.
- To stop the device: Press and hold the pushbutton for 5 seconds, the red LED will flash during this time. The device has stopped logging.

Alarm and Cumulative Alarm Delay

To change the alarm setting of a device:

- In the Connected devices panel, select the intended device to change the alarm settings.
- On the Device tab, in the Information group, click Properties.
- Users can also right-click on the device and select Properties in the context menu.
- Click the Alarm tab. If the Alarm tab is missing, the device does not have any alarm settings.

Configure the alarm settings:

- The High and Low settings indicate reading thresholds at which the alarm becomes active.
- The Warn high and Warn low settings indicate reading thresholds at which the alarm warning becomes active.
- The Delay setting indicates how long to wait before the alarm becomes active after passing an alarm threshold.
- The Use cumulative alarm delay checkbox indicates whether the alarm delay should reset when reading values fall back within the alarm threshold. *Note: Available settings vary per model.*
- Click the Apply button.

Trigger Settings

The device can be programmed to only record based off user configured trigger settings.

- In the Connected Devices panel, click the device desired.
- On the Device Tab, in the Information Group, click Properties. Users can also right-click the device and select Properties in the context menu.
- Select Trigger Settings from the Device Menu: Start Device or Identify Device and Read Status.
Note: Trigger formats are available in Window and Two Point (bi-level) mode. Window allows for one range of temperature monitoring and two point mode allows for two ranges of temperature monitoring.

Installation Guide

Installing the Interface cable

- IFC200: Insert the device into a USB port. The drivers will install automatically.

Installing the software

Download the MadgeTech 4 Software on our website at www.madgetech.com/software-download.

Device Operation

Connecting and Starting the data logger

- Once the software is installed and running, plug the interface cable into the data logger.
- Connect the USB end of the interface cable into an open USB port on the computer.
- The device will appear in the Connected Devices list, highlight the desired data logger.
- For most applications, select "**Custom Start**" from the menu bar and choose the desired start method, reading rate and other parameters appropriate for the data logging application and click "**Start**". ("**Quick Start**" applies the most recent custom start options, "**Batch Start**" is used for managing multiple loggers at once, "**Real Time Start**" stores the dataset as it records while connected to the logger.)
- The status of the device will change to "**Running**", "**Waiting to Start**" or "**Waiting to Manual Start**", depending upon your start method.
- 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 logger to the interface cable.
- Highlight the data logger in the Connected Devices list. Click "**Stop**" on the menu bar.
- Once the data logger is stopped, with the logger highlighted, click "**Download**". You will be prompted to name your report.
- Downloading will offload and save all the recorded data to the PC.

Device Maintenance

Battery Replacement

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

- Remove the cover from the Waterbox by unscrewing the four screws.
- Remove the data logger from the Waterbox.
- 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.*

Recalibration

The ETR101A standard calibration is two points at 25 °C and 60 °C for the internal sensor and 0 mV for the Thermocouple channel.

Prices and specifications subject to change. See MadgeTech's terms and conditions at www.madgetech.com. To send the devices back, visit www.madgetech.com, select Services then RMA Process.