Electronic Temperature Instruments Ltd

Easting Close, Worthing, West Sussex BN14 8HQ · tel: 01903 202151 · fax: 01903 202445

specialists in the design and manufacture of temperature measuring equipment

RF ThermaData™ Logger

RF ThermaData™ Logger Overview

The RF ThermaData™ Logger is used to record temperature at specified intervals and can also report this information to the PC at intervals:

For the RF ThermaData™ Logger; over the range -40°F to +257°F [*+185°F for an internal sensor*] with a resolution of 0.1°F and an accuracy of ±0.5°F, although with trim (by the user) the accuracy can be improved.

The sample interval can be set anywhere from 1 minute to 255 minutes in 1 minute steps. It can also be programmed with a Start Delay from 1 second to 23 hours, 59 minutes.

Alarm settings can be programmed into the RF ThermaData™ Logger for Over Temperature and Under Temperature. These would normally be set to levels acceptable for the environment in which the unit is recording. The LEDs will flash at 12 second intervals, with a green LED indicating that the temperature has not gone outside the alarm levels, and a flashing red LED indicating that an alarm has occurred. For a more detailed description see the *Button and LED indicators* section.

User identification can be entered into the RF ThermaData™ Logger to aid the use of multiple loggers; up to 32 characters can be stored within the logger as the ID. This ID is case sensitive and can take any characters except the following

\ / : * ? < > |

The RF ThermaData™ Logger can also store trim data for improved accuracy. This feature can be password protected for security. The password is case sensitive and can be any characters except the following

\ / : * ? < > |

The RF ThermaData™ Logger can store up to 8000/16000 readings at any time. It can be set to stop recording once the internal buffer is full, or to loop back to the beginning and overwrite the oldest data (oldest data will be lost as it is overwritten).

The RF ThermaData™ Logger interface buttons provide the ability to perform the following functions: -

- Extracting Data.
- Control settings.
- Calibration & Test.

- Starting.
- Stopping.
- Initialising (for manual start).
- Log Summary retrieval.
- Current temperature retrieval.

For a full explanation of these features, see the relevant help section.

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Battery Replacement

Note: Removing the battery will* NOT *cause all stored readings to be lost.

The RF ThermaData™ Logger internal battery has a minimum expected life of 1.5 Years. A battery level indicator in the application software will indicate the approximate battery level when the logger is accessed. If the battery expires the application software will inform you next time you attempt to access it.

The RF ThermaData™ Logger is constructed from a two-part case. The case can be opened by unscrewing the three retaining screws and removing the rear case. The screws are retained by rubber seals (*ensure these are not lost*).

Once the case is apart the battery can be seen and removed manually. When removing the battery, it is important to note the orientation and polarity. The battery compartment is marked with the polarity for the battery.

It is recommended that only Tadiran SL750 batteries supplied by ETI Ltd are fitted. However if fitting a third party battery, fit only an inorganic lithium battery with a specification of 3.6V, ½AA size that has an operational temperature range equal to or greater than the ThermaData Logger (-40 to +185F). Fitting a third party battery may lead to a significant reduction in the battery life of the instrument. Be sure to fit the battery in the correct orientation. The battery compartment will have a + and a - sign, the battery will have at least a + sign. These symbols must be aligned for correct polarity.

Once the battery is fitted correctly, replace the rear case, and screw the screws in two turns.

Stretch the seal (with the narrower lip towards the rear case) over the case and allow the tongue to drop into the gap between the case halves. Once in place tighten the screws fully; but do not over tighten.

Once the battery replacement has been completed a factory reset is advised. Any readings that were stored in the logger memory will be retained; these may be downloaded before a factory reset is performed.

To perform the factory reset, connect the RF ThermaData™ Logger and select the Factory reset function (see relevant help section).

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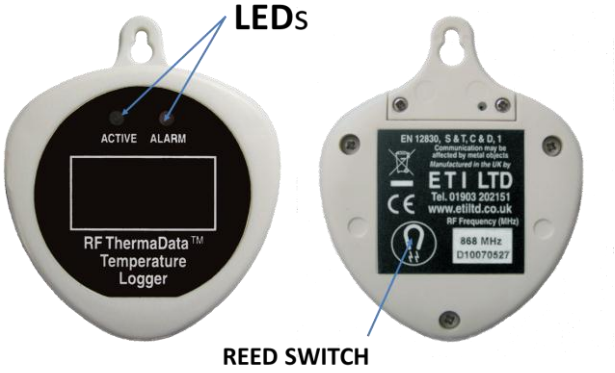
Buttons and LED indicators

The RF ThermaData™ Logger has 1 internal reed switch and 2 LEDs (one red, one green).



The reed switch, in conjunction with a magnet, is used initially to Start the logging (can also be started from the PC software). The magnetic start is performed by touching the smaller end of the magnet fob flat against the rear of the logger, over the magnet symbol on the rear label.

From the point at which the start is requested the Start Delay is initiated, after the required delay, the RF ThermaData™ Logger starts taking samples at the specified interval (the start instruction is acknowledged by both the red and green LEDs flashing together 4 times).

After the RF ThermaData™ Logger has started logging, the LEDs will flash automatically to indicate the log alarm status.

Below are descriptions for the possible LED signals:

Red & Green LEDs Flash together (four times)

The RF ThermaData™ Logger has received a Start instruction, and acknowledges that the start delay has been initiated (after the start delay logging will start at the specified sample interval).

Red & Green LEDs Flash alternately (four times)

The RF ThermaData™ Logger has started, but not yet taken its first reading. This could be due to the Start delay, or the interval for the first sample has not yet elapsed.

Red LED flashes (once every 12 seconds)

The RF ThermaData™ Logger has been taking samples and at least one of the samples taken is outside of the specified Over / Under Temperature alarm levels.

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Red LED flashes twice (once every 12 seconds)

The RF ThermaData™ Logger has been taking samples and at least one of the samples taken was outside of the specified Over / Under Temperature alarm levels, but the samples being taken have now returned to within the alarm levels.

Green LED Flashes (once every 12 seconds)

The RF ThermaData™ Logger has been taking samples and none of the samples taken are outside of the specified Over / Under Temperatures alarm levels.

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Start

The RF ThermaData™ Logger can be started within Monitoring Studio in 2 ways, or it can be manually started. In the software you can start by:

- 

Pressing the start button on the RF ThermaData™ Logger ribbon.
- 

In Logger Settings, press the “Start Logging” button

A manual (magnetic) start can be achieved by initialising the RF ThermaData™ Logger using the software, and then the magnetic start is performed by touching the smaller end of the magnet fob flat against the rear of the logger, over the magnet symbol on the rear label.

The first reading will be taken immediately.

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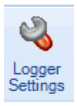
Stop

The RF ThermaData™ Logger sampling activity can be stopped by using the Stop button on the RF ThermaData™ Logger ribbon.



Alternatively the RF ThermaData™ Logger can be stopped within “Logger Settings” dialog by choosing the “Stop Logger” button

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Get Data

The data within a RF ThermaData™ Logger can be extracted without interfering with any current logging under way and also without corrupting any of the existing data. Effectively accessing the data within the RF ThermaData™ Logger is non-intrusive and non-destructive.

Click the 'Existing Document' button to start the download process into the existing document...

Click the 'New Document' button to start the download process into a new document...

While the data is being retrieved a communications window will keep one appraised of the progression of the download progress.

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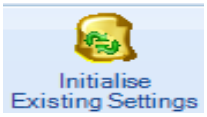
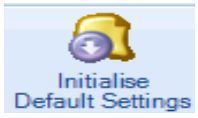
Initialise

The facility to Initialise the ThermaData Logger is available to allow the user to set the unit to be started when the onboard push button/magnetic switch is pressed.

The initialisation can be achieved in one of 3 ways:



Initialise the logger with its existing settings [making it ready to log again].



Initialise the logger with the default settings for the logger type.

Enter the logger settings menu then choose “Send Settings”

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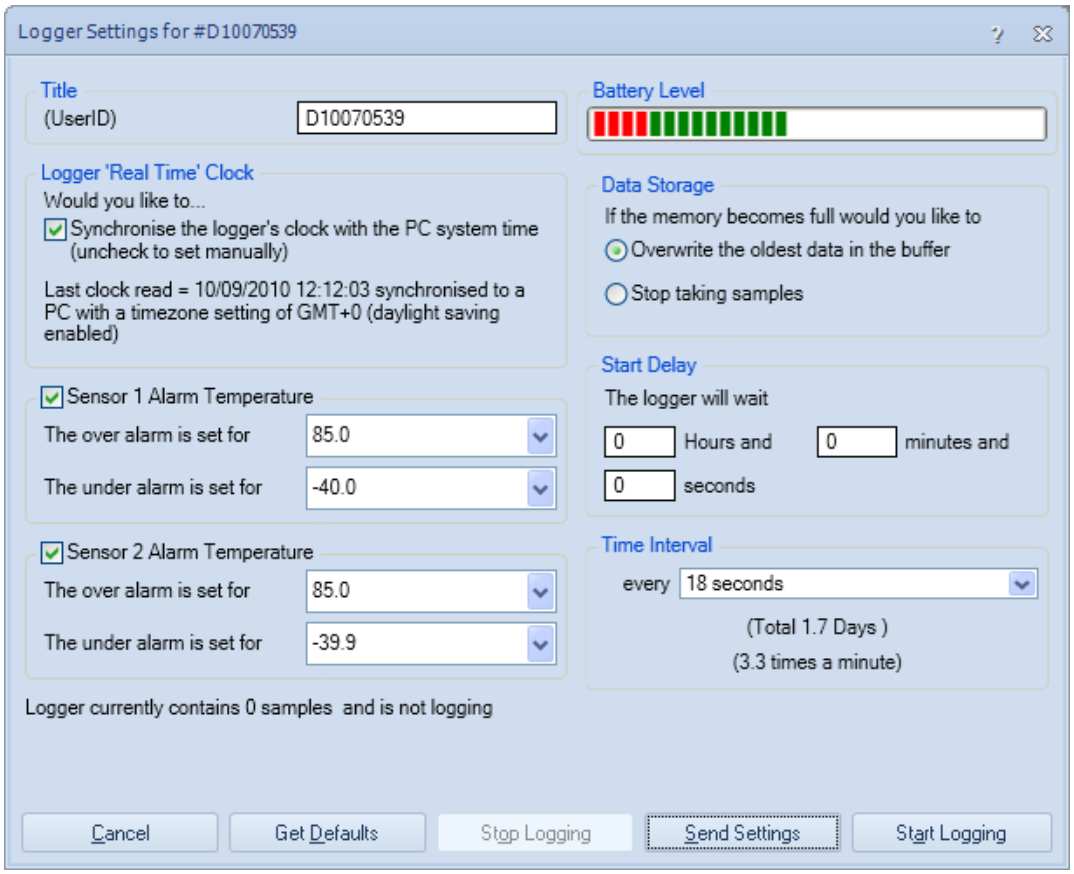
Settings

The set-up of the RF ThermaData™ Logger can be achieved using the Settings window. The Settings Control Window can be accessed by clicking on the "logger settings" button on the ribbon.

Once the Settings control window is open you may change any of the settings within the RF ThermaData™ Logger. The following diagram shows the settings window:



The following list shows the elements of the settings window that can be modified

- User ID (Log Title)
- Battery Level (*read-only*)
- RF ThermaData™ Logger Real time Clock (internal clock can be set manually or synchronised with the PC clock).
- Alarm levels (over and under alarm levels)
- Log Interval (*how often it will log data*)

- Transmit Interval (*how often it will transmit data to the PC*)
- Data storage (can be set to stop once buffer is full, or, loop back to the beginning and overwrite the oldest data).

Start Delay and sample rate (NOTE: If the RF ThermaData™ Logger has already been started and is counting down the start delay, then the start delay time shown will be updated with the remaining start delay each time the logger is accessed). There is also an indicator next to the sample rate that shows the total time before memory becomes full. This indicator automatically updates whenever the sample rate is changed.

There are facilities within the Settings Control window to Stop, Start and Send settings. If modifications have been made and the Stop facility is used then the settings will be updated from within the logger (the settings will restore back to the original settings before the modifications were made). Either sending the modified settings or starting the RF ThermaData™ Logger will cause the new settings to be sent to the unit.

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Factory Reset

The RF ThermaData™ Logger can be reset to factory settings by selecting:

Several verification windows will have to be acknowledged before the actual reset will occur as all settings, activities and data will be destroyed in the process.

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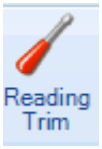
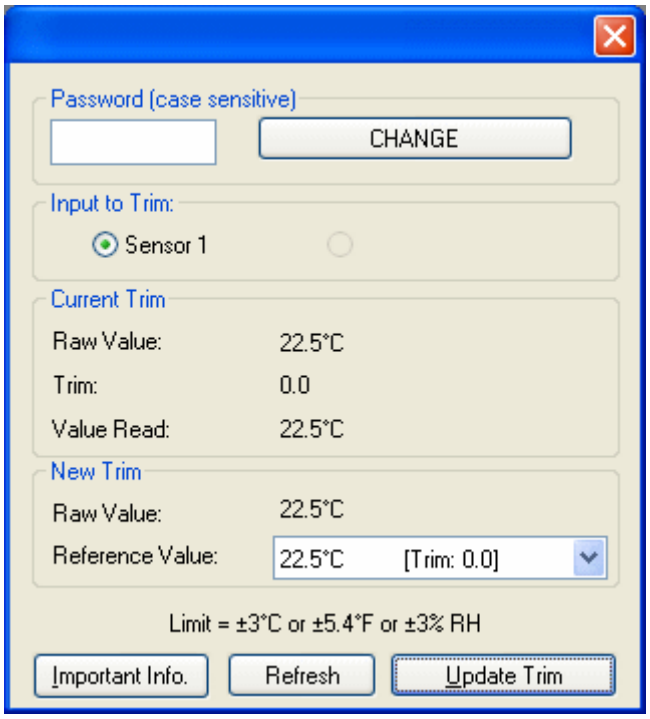
Reading Trim

Access to the reading trim is through the “Reading Trim” button





The RF ThermaData™ Logger must be allowed time to equilibrate in a controlled environment before the Reading Trim should be adjusted. The 'Actual temperature' of the controlled environment should be read from a certified, calibrated instrument and then entered into the 'Actual Temperature from Ref.' input box. Once this is done, click the update Reading Trim button. The Reading Trim of the ThermaData Logger will then be set according to the reference temperature.

If necessary, repeat this for the second input.

It is recommended that the Reading Trim be carried out, as near to the temperature that the unit will be recording in as is possible.

There is also a button to change the Reading Trim password. The existing password is required to change the password as well as modify the Reading Trim.

If the Reading Trim password is forgotten, a factory reset will clear the password to nothing, although all data and settings will be lost.

The Reading Trim facility can be accessed by clicking on the Reading Trim button.

Regulatory Compliance Statements

United States of America

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Canada

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (*e.i.r.p.*) is not more than that necessary for successful communication.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

(1) This device may not cause interference, and
(2) This device must accept any interference, including interference that may cause undesired operation of the device.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada.

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Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
(1) l'appareil ne doit pas produire de brouillage, et
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.