USER GUIDE

UTRID-16R

LogTag

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UTRID-16

USB PDF Temperature Recorder with Display

Product User Guide

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Revision History

Version	Date	Author	Details
1.0	1 Sept 2016	Stefan Lenz	Initial release.

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Safety Information

The UTRID-16 PDF USB temperature recorder contains a user-replaceable Lithium Battery. When the battery indicates “LOW”, you can replace it according to the instructions in Appendix 1 - Battery Replacement on page i. The empty battery should be recycled or disposed of according to your local regulations.

Do not expose the recorder to extreme temperatures as it may lead to the destruction of the battery and may cause injuries.

Keep out of the reach of children.

Liability

LogTag® Recorders ’ standard warranty terms apply. A copy can be requested by emailing support@logtagrecorders.com. In addition LogTag® Recorders shall not be held liable:

- If the device was used beyond LogTag® Recorders ’ stated limitations.
- For any claims due to the improper storage and use of the device.
- For any problems with refrigeration units.
- For the bad quality of the monitored goods, if any.
- For incorrect readings if the device was used with a low battery.
- For consequential loss.

Useful Life

The operational life of the UTRID-16 is approx. 12 months after configuration, provided…

… the device was not stored for over 2 years12 months prior to activation,
… the device is not downloaded excessively (more than once a week),
… The recording interval is not shorter than 5 minutes,
… the device is stored and operated according to LogTag® Recorders ’ recommendations.

Disclaimer

The UTRID-16 monitors temperature exposure and not the quality of the goods it accompanies. Its purpose is to signal if product quality evaluation/testing is required.

Typographical Conventions

Text ***in this font*** refers to buttons on the UTRID-16.

Text **in this font** refers to option settings, dialogue boxes or actions to be taken in LogTag® Analyzer.

Text in this font describes features of the product.

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Introduction

LogTag's UTRID-16 is a fully configurable, multi-use USB PDF temperature recorder with a built-in display, that can create temperature reports without the need to install proprietary software or hardware at the destination. Select statistical data can be reviewed directly on the display without the need for a PC. The recorder can be configured using LogTag® Analyzer, and is then placed with the goods to be monitored. At the destination the UTRID-16 can be plugged straight into a computer's USB port and generates a PDF file, which can be accessed using PDF software such as Acrobat Reader.

Checklist - Required Equipment

- LogTag® UTRID-16 temperature recorder. It is recommended that you connect each USB PDF Temperature Recorder with Display via a permanently plugged in USB extension cable to protect your computer's USB socket.
- A computer running Windows XP or later, Mac OSX or Linux.
- For configuration - a PC running Windows XP SP3 or later and LogTag® Analyzer installed.

Features

The UTRID-16 USB PDF temperature recorder features the familiar LogTag case layout with an additional USB plug at the bottom.

Case

- Mounting lug for secure fastening of recorder to fixtures
- USB plug with potective cap - shields USB connector from moisture and dirt
- Temperature sensor located inside case
- Durable polycarbonate case, IP64

Buttons

- **START/Mark** button; can be used to start the unit or place an inspection mark in the data listing
- **STOP/Review** button; can be used to stop the unit and to review data recorded during the trip.

Display

- Shows last recorded temperature and information about alerts
- Allows reviewing statistical data

Software Requirements

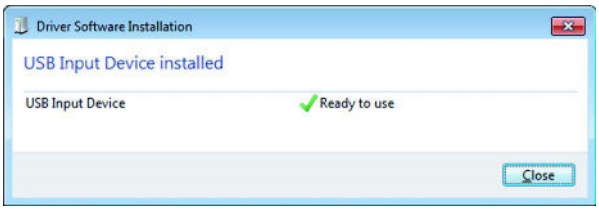
Software requirements vary depending on the type of file you want the UTRID-16 to generate when plugged into a USB port.

- If you wish to ***configure*** UTRID-16 products you will need to download the LogTag® Analyzer software from LogTag®'s web site at http://www.logtagrecorders.com/software/download.php. Follow the instruction to install and start the software.
- If you only plan on ***evaluating data***, plug the UTRID-16 into a computer's USB socket. Depending on the settings made during configuration, a number of files will be generated[1] and made available to you in a new drive:
  - A PDF file; you can open the file directly from the recorder's USB memory storage with Acrobat Reader 4.0 or later, or any other compatible PDF reader software of your choice.
  - A CSV file; this file can be imported into a spreadsheet program such as Microsoft Excel.
  - An LTD file; LTD files are LogTag® Analyzer's native, encrypted data files. You can open this file in LogTag® Analyzer, where you can analyze data in detail and generate report files. Here, you can also combine charts from multiple recorders for comparison.
- You can also ***download*** data directly into LogTag® Analyzer without accessing the recorder's USB memory storage.

Configuring the UTRID-16

UTRID-16 products can be ordered pre-configured, ready to start. Different profiles are available; if none of these suit or the UTRID-16 needs different configuration settings to those already installed, the unit can be configured using LogTag® Analyzer.

- Start the LogTag® Analyzer software.
- Remove the protective cap and insert the UTRID-16 into a USB port. You will receive a message that a new USB device has been found, and a generic driver will be installed[2].



- Once the driver is installed and the UTRID-16 is ready (indicated by the letters USB blinking on the display), it can receive configuration data. Click **LogTag - Configure**; LogTag® Analyzer will scan all USB ports and display the configuration options for connected UTRID-16's. Although you can configure many devices

[1] Depending on the configuration, the UTRID-16 may produce all, some or none of the files.

[2] Depending on the factory configuration additional drivers may be installed at this time.

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at the same time, it is practical to limit the number of devices to about 10, using a powered USB hub. It is not possible to configure different models at the same time.

Standard Configuration Options

The standard configuration options are very similar to those of other LogTag® recorder products and include settings such as **User ID**, **start method**, **pre-start recording**, **logging interval** and **duration**, **start delay**, **temperature alarm parameters** and **password**.

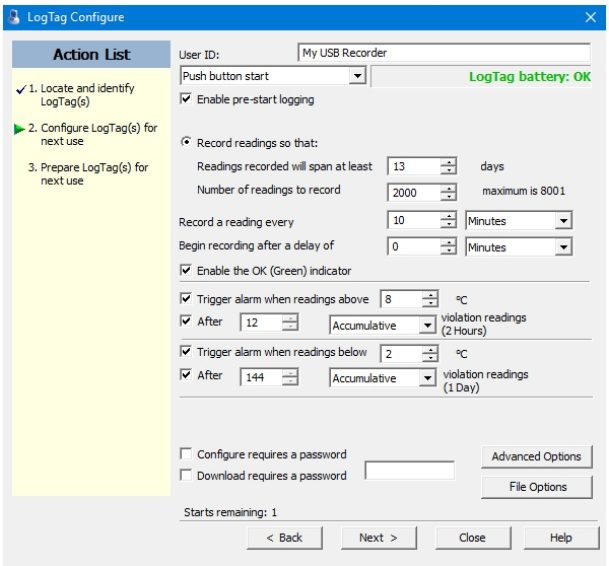

Figure 1: UTRID-16 Standard Configuration Options

For detailed information about each parameter please read the section about **Configuring a LogTag® for logging** in LogTag® Analyzer's User Guide or press F1 for help.

File Configuration Options

Ckick **File Options** for additional configuration settings. These settings decide which files -if any- are generated at the end of the trip and also determine the appearance and contents of the generated files.

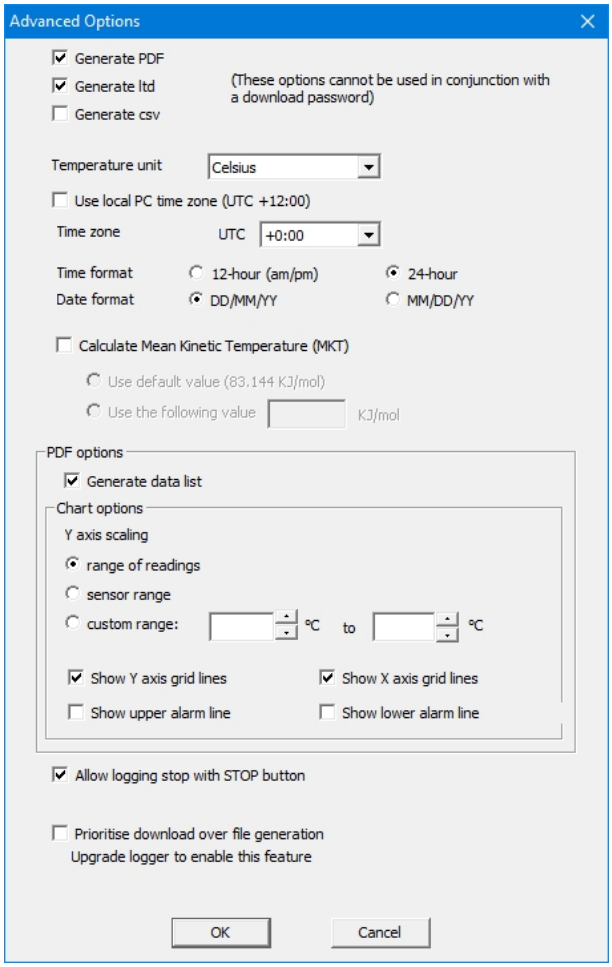

Figure 2: UTRID-16 advanced configuration screen

Parameters that influence the appearance of all files are

- setting of the temperature units used in the files
- date and time format
- Time zone and MKT values

Parameters specifically influencing the appearance of the PDF file are

- scaling parameters for the chart
- showing or hiding gridlines
- showing or hiding alarm threshold lines
- creation of the data list

You can also set whether or not the recorder can be stopped using the **STOP/Review** button, and if the communication with LogTag® Analyzer should be prioritised over the generation of files when the unit is plugged into a computer.

Enter the desired options and click **Close** to accept the new values. This returns you to the standard configuration dialogue.

Advanced Configuration Options

Select **Advanced Options** for additional display configuration settings. These settings determine how some of the elements are displayed on the screen and set certain options specific to the UTRID-16.

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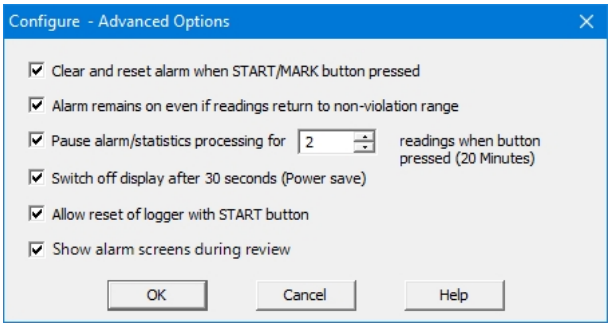

Figure 3: *UTRID-16 advanced configuration screen*

Parameters that influence the appearance of the display are

- Pause alarm/statistics processing (see Paused Readings on page 1)
- Switch off display after 30 seconds (Power save, see Power Save on page 1)
- showing the alarm screens during review (Reviewing Day Statistics on the UTRID-16 on page 1)

Parameters influencing specific behaviour of the UTRID-16 are

- clear and reset alarm when the **START/Mark** button is pressed
- leaving the alarm turned on, even if readings return to the normal temperature range again
- allowing the user to reset the recorder with the **START/Mark** button

Enter the desired options and click **OK** to accept the new values. This returns you to the standard configuration dialogue.

Alarm Configuration Options

LogTag® Analyzer allows up to 6 different alarm trigger conditions when configuring a UTRID-16 for recording, depending on the model. Each alarm trigger condition consists of a threshold temperature value, an activation type (which can be instant, consecutive or accumulative[3]) and a delay time, if it is not an instant alarm.

If an alarm trigger condition requires readings to exceed an upper threshold temperature it is called an ***upper alarm***. If an alarm trigger condition requires readings to go below lower thresholds it is called a ***lower alarm***.

An alarm event is generated, when either of the entered alarm conditions is triggered.

The UTRID-16 can have up to three upper alarms, and up to three lower alarms.

[3]

- Instant = one temperature reading is above (below) the threshold
- Consecutive = temperature readings are above (below) the threshold for the time defined in the activation delay without interruption
- Accumulative = temperature readings are above (below) the threshold for the total time defined in the activation delay time, but may not necessarily be sequential.

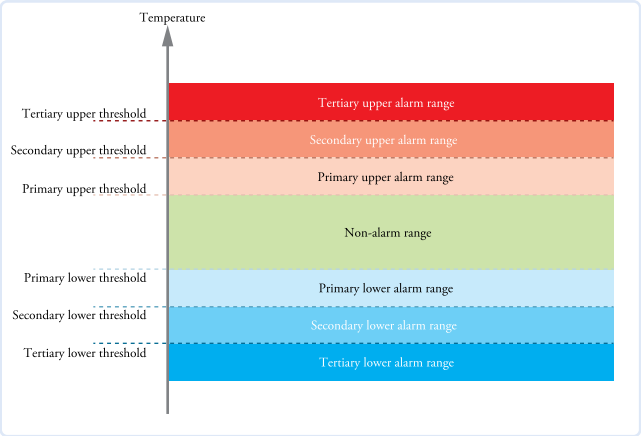

Figure 4: *Alarm ranges and thresholds*

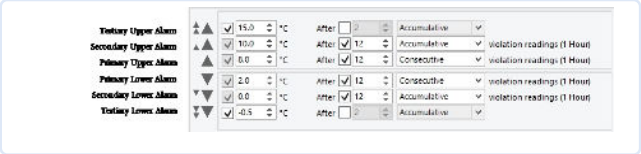

Figure 5: *Representation in LogTag® Analyzer*

You need to observe some basic rules when entering alarm conditions into the configuration screen in LogTag® Analyzer:

- A primary alarm condition must be entered before the corresponding secondary alarm condition.
- Equally, primary and secondary alarm conditions must be entered before the corresponding tertiary alarm condition.
- You can enter a different number of upper and lower conditions, or only upper, or only lower conditions, or none at all.
- A secondary upper alarm cannot be entered with a lower threshold value than the primary upper alarm.
- A tertiary upper alarm cannot be entered with a lower threshold value than the secondary alarm. Threshold values can, however, be equal and combined with different time-to-activation values. For example, you can enter a primary upper alarm with 8°C threshold and 10 accumulative readings, plus an alarm with 8°C threshold and 5 consecutive readings. In this instance the alam will be triggered, if either 10 readings in total are above 8°C, or 5 consecutive readings above 8°C have occurred.

Any alarm condition that is activated will be shown on the PDF, in the software and on the display.

The sections about Recorders with Multiple Alarms on page 1 and Reviewing Alarms on page 12 show examples of how this is represented and reviewed on the display.

Finalising the configuration

- Click **Next** to upload the configuration data to the UTRID-16.
- When the configuration is complete, unplug the UTRID-16 from the USB socket and replace the protective cap.

If you wish to configure more UTRID-16 units with the same configuration, insert the next recorder into the USB socket, wait until it is ready for configuration and click **Again**. Alternatively you can use the **Profile** function to configure multiple units with the same settings.

You can upload the configuration to a UTRID-16 recorder as often as required.

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UTRID-16 Start Options

During configuration with LogTag® Analyzer you can decide when the UTRID-16 starts taking temperature readings.

- ... via **Push button start**: The recorder will start taking temperature readings after you have gone through a specific start sequence of pressing and releasing the **START/Mark** button (see Starting the Recorder on page 1).
- ... via **Date/Time start** : The recorder will start taking temperature readings at the date and time you specify (local time).

When you choose the push button start option, you can select to record **pre-start readings** or **Begin recording after a delay**.

- If you select **pre-start readings**, the UTRID-16 starts recording as soon as it is unplugged from the USB port[4] and will continue to do so until you start the unit. No alarms are processed while pre-start readings are being taken, pre-start readings will not appear in the PDF file, and no PDF file will be generated. Using pre-start readings is a good way do avoid data loss if you forget to start the unit, as you can stillaccess the data using LogTag® Analyzer.
- If you configure the UTRID-16 to start after a delay period, the recorder will not immediately record temperature readings after you have pressed **START/Mark**, but start a countdown timer instead, and record readings only after the timer has ended. It will, however, continue to take pre-start readings, if enabled.

You cannot combine a date/time start with pre-start readings or the start delay function.

[4] The first pre-start reading is taken one log interval after you unplug the unit from the USB port.

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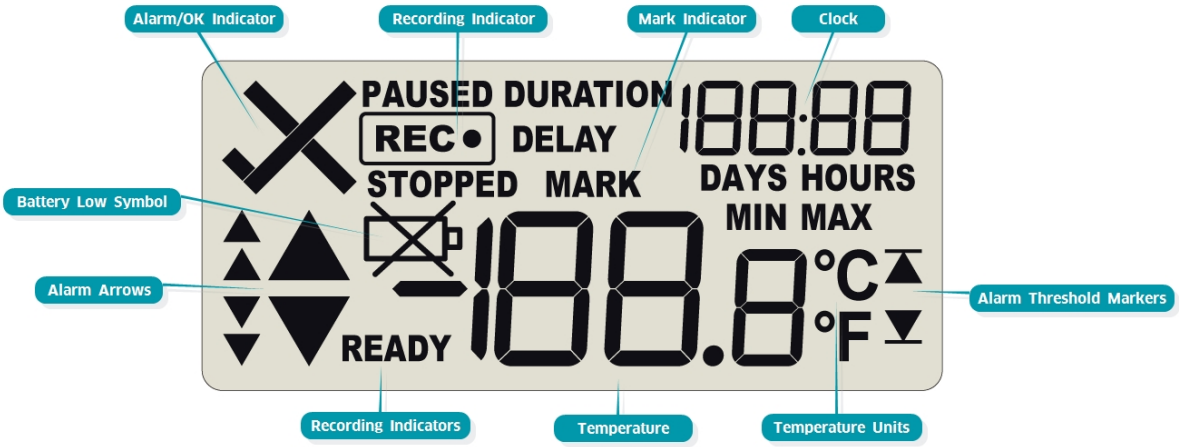
Display Overview



ALERT/OK indicator

The ✕ symbol is shown as soon as the UTRID-16 has registered an alarm event. While there are no alarms, the ✓ symbol is shown.

Recording indicators

The recording indicators show what data the UTRID-16 is currently collecting.

- If the word **READY** is shown, the UTRID-16 is ready to be started. Depending on the configuration it may record pre-start readings.
- If the REC symbol is shown, the UTRID-16 is recording temperatures at the sample interval defined during configuration with LogTag® Analyzer.
- If REC is shown together with the word **PAUSED**, the product is also recording, but the recorded values are not taken into account when calculating alarm events and durations.

If the word **STOPPED** is shown, the UTRID-16 has finished recording temperature data.

Mark indicator

The word **MARK** is shown when the next temperature reading is identified with an inspection mark in the recorded data.

Clock

The clock display is used to show either

- current time,
- time remaining to start of a delayed start or
- duration, for example of an alarm.

The display identifies which of those is displayed as follows:

- If the word **DELAY** is shown, the time value represents a start delay, or the time remaining until a date/time start will occur.
- If the word **DURATION** is shown, the time value represents the duration, for example the time above the upper alarm limit.
- If the word **DAYS** is shown, the clock represents the number of days in a delay or duration.
- If the word **HOURS** is shown, the clock represents the number of hours and minutes in a delay or duration. If none of the above 4 words are displayed, the clock shows the current time.

The word boot appears in place of a clock, if new firmware is being uploaded to the UTRID-16.

The word USb appears when the unit is plugged into a USB port.

MIN/MAX indicator

The word **MAX** is shown when the temperature on the display represents the maximum recorded temperature for the current trip.

The word **MIN** is shown when the temperature on the display represents the minumum recorded temperature for the current trip.

Alarm Threshold Markers

The upper alarm threshold marker is shown if an alarm event occurred at one of the upper temperature limits. It is also shown when one of the upper thrershold values is shown on the review screen.

The lower alarm threshold marker is shown if an alarm event occurred at one of the lower temperature limits. It is also shown when one of the lower threshold values is shown on the review screen.

Temperature Units

Depending on the selected PDF temperature units, this shows either °F or °C.

Temperature Value

This 4 character, 7-segment display shows the last recorded temperature while the UTRID-16 is recording readings. Once the recorder has stopped, nothing will be displayed.

Alarm Arrows

The up-arrow is shown when the temperature displayed is above the specified upper temperature limit. The down-arrow is shown when the temperature displayed is below the specified lower temperature limit.

The four smaller up/down-arrows are secondary and tertiary alarm symbols. They are used when more than one upper or more than one lower alarm is defined and are shown then the current temperature is above or below the corresponding alarm levels.

Battery Low

The battery low symbol will appear if the UTRID-16 has a low battery. If the symbol is not shown while the display is turned on, the battery is still OK.

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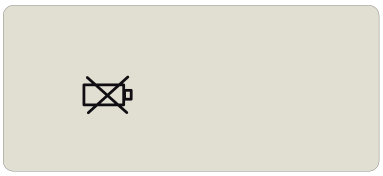
Operating the Recorder

You will receive your UTRID-16 hibernated, i.e. in a state of low power consumption. Pressing either button will briefly show the time:

Should the battery be low, the display will show:



The following sections show how to operate the product, and what information you can expect to see on the display.

Configuring the Recorder

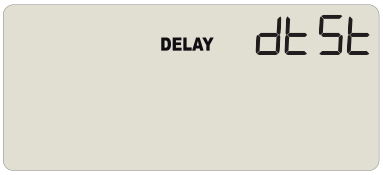
Push Button Start

After configuration with LogTag® Analyzer for push button start the word **READY** is shown, together with the current time in 24 hour format.

Optionally you can configure the unit with a start delay, and pre-start readings. These opotions are not shown on the display.

Date and Time Start

The recorder can also be configured to start at a specific time and date. You will see the word **DELAY** and the letters dtSt instead of the clock.



Pre-start readings and start delay options are not available for a date/time start.

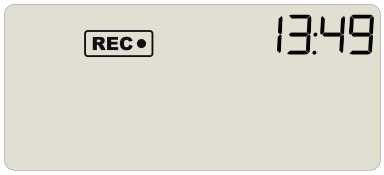
Low Battery

If the recorder has a low battery after configuration, the low battery symbol is shown instead of the time.

The recorder cannot be started until the battery has been replaced. Please see "Appendix 1 - Battery Replacement" on page i for further details.

Starting the Recorder

Push button start, quickstart enabled



Press the **START/Mark** button until **READY** disappears and the REC symbol is shown. The UTRID-16 now records temperature data. This start option works the same as in LogTag®'s LED products.

Push button start, quickstart disabled

Press and hold the **START/Mark** button. **READY** immediately disappears, and the REC symbol blinks for 4 seconds. The symbol then shows permanently for 2 seconds. If you release the button during this time, the recorder starts taking temperature readings. The REC symbol remains shown. If the button is released earlier than 4 seconds or later than 6 seconds, the display shows **READY** again, and the recorder does not start.

Push Button Start with Start Delay

If the recorder was configured for push button start with a start delay (regardless of quickstart settings), the word **DELAY** is shown instead of the REC symbol.

The delay time is shown in hours and minutes, if it is less than 24:00 hours, and the word **HOURS** is shown.
The time counts down and the UTRID-16 starts recording when it reaches 0:00.
If the start delay is greater than 24 hours the word **DAYS** is shown along with the number of full days remaining.

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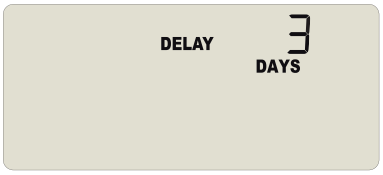


If a user presses the **START/Mark** button during the start delay phase, the start delay value is reset to its originally configured value.

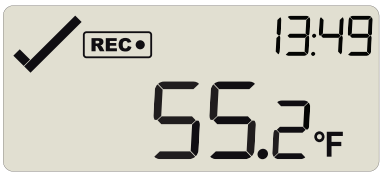
Automatic date/time start

If you configured the UTRID-16 for a date/time start, it will record temperature values as soon as the entered date and time have passed. If the recorder is still plugged into a USB port when the start time passes, the recorded readings will show USB Paused on the PDF and in the software.

During Recording

During normal operation the display shows the most recently recorded temperature. The current time is also displayed in 24 hour format. A tick symbol ✓ is shown as long as no alarm event has occured.

Temperatures can be shown in Celsius (as above) or Fahrenheit (as below).



The temperature unit on the display is the same as used for the PDF and CSV files. It is set during configuration.

Readings above or below alarm thresholds

If the most recently recorded temperature is above or below one of the alarm thresholds, one or more alarm markers will be shown on the display.

This symbol is displayed ...	... when the most recent temperature recorded is
▲	above the primary upper alarm threshold, but below the secondary
▲▲	above the secondary upper alarm threshold, but below the tertiary
▲▲	above the tertiary upper alarm threshold
▼	below the primary lower alarm threshold, but above the secondary
▼▼	below the secondary lower alarm threshold, but above the tertiary
▼▼	below the tertiary lower alarm threshold

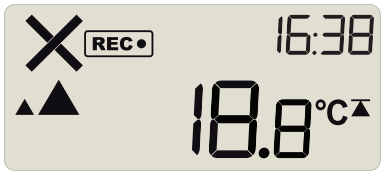
The presence of an alarm marker on the display does NOT indicate an alarm event. It only shows that the most recent temperature recorded was above or below the corresponding alarm threshold value, and the alarm was configured with a delay value.

In this example the most recently recorded temperature is above the primary high alarm threshold, but below a secondary threshold; an alarm event has not been triggered:

Here, the temperature was below the secondary alarm threshold, but above the tertiary threshold; an alarm event has not been triggered:

An alarm event was triggered

If an alarm event occurred, the alarm indicator ✕ is displayed in the upper left corner of the display. Additionally, one of the alarm limit markers ▲ or ▼ is displayed, to show if the event was an upper or a lower alarm.



The alarm marker ▲▲ in this screen does not indicate which alarm threshold caused the alarm, only that the most recent temperature recorded, which you see on the display (18.8°C) was above the secondary threshold.
To identify which of the alarm conditions cause the alarm event you will need to review the data on screen as described in Reviewing Alarms on page 12, or open the PDF file on your PC.

Clearing an alarm

A UTRID-16 can be configured so you can clear an alarm from the display. To do this, press and hold the **START/Mark** button. The ✕ and ▲ (or ✕ and ▼) symbols will start to blink.

After approx. 4 seconds both symbols will remain permanently lit for 2 seconds. If you release the button during this time, the alarm will be cleared. If the button is released earlier than 4 seconds or later than 6 seconds, the display continues to show ✕ and ▲ (or ✕ and ▼

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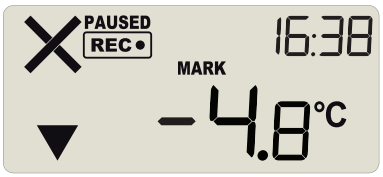
) symbols. In any case an inspection mark will be recorded against the next temperature reading taken.

An alarm cannot be cleared once the UTRID-16 has stopped recording. Alarms resulting from an accumulation of readings can also not be cleared.

Setting an Inspection Mark

When you press the **START/Mark** button while the UTRID-16 is recording temperature, an inspection mark is recorded against the next temperature reading. The **MARK** symbol appears and remains shown until the next reading is taken.

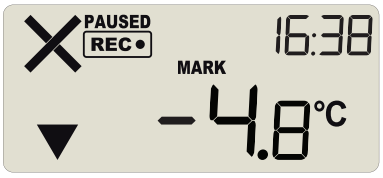
If the Paused Readings function is enabled, you will also see the **PAUSED** symbol.



Paused Readings

During configuration of the UTRID-16 you can set the option to ignore a set number of readings for alarm- and statistics calculations after either button is pressed. The readings are still shown on the graph and in the data listing, but their value is ignored when determining alarm conditions, minimum/maximum values and MKT calculations. This function is useful when you wish to review readings during the recorder's operation (or clear an alarm), but you do not wish to trigger an alarm due to your handling the product. It allows the recorder to acclimatise to the environmental conditions again, before further readings are processed.

After a button press the display shows the word **PAUSED** above the recording symbol. **PAUSED** will turn off as soon as the last ignored reading has been recorded.



Paused readings are marked with a blue dot on the graph, and a $ sign next to the reading in the data list.

The option is set in the advanced options dialogue in LogTag® Analyzer and is expressed in multiples of the logging interval.

The length of time the recorder shows **PAUSED** is therefore dependent on when during the log interval you press one of the buttons.

Battery Low while recording

If the battery is low while the UTRID-16 is still recording temperatures, the battery low symbol is shown in addition to any other currently displayed information.

Stopping the UTRID-16

Automatically

The UTRID-16 automatically stops recording temperature when the maximum number of readings specified during configuration has been reached. Your unit can also be set up to stop when it is inserted into a USB socket. This option needs to be set up at the factory and cannot be changed during configuration with LogTag® Analyzer. Your distributor can supply more information about this option.

Manually

You can configure a UTRID-16 so it can be stopped with the **STOP** button. This feature is useful when you take the recorder out of a shipment and don't want to falsify the statistics with readings taken after the shipment completion. The stop function is enabled in the **Advanced Options** dialogue during configuration.

Press and hold the **STOP/Review** button. REC immediately disappears, and the **STOPPED** symbol blinks for 4 seconds.

The symbol then shows permanently for 2 seconds. If you release the button during this time, the recorder stops taking temperature readings.

If the button is released while **STOPPED** is still blinking, or you wait until it disappears, the display shows REC again, and the recorder continues recording data. In this case an inspection mark will be recorded in the data against the next temperature reading.

The **MARK** symbol will show, and the **PAUSED** symbol also shows if this feature is enabled.

Recorder has stopped

Once the recorder has stopped, the display will show:

- The **STOPPED** symbol
- The OK indicator (✓)if no alarm was recorded
- The alarm (✕)and one or both alarm threshold(▼▲) indicators, if an alarm was recorded during the trip
- The current time
- The battery low symbol (), if the battery is low.

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The recorder has stopped, and no alarms were recorded during the trip.

Here, the recorder has stopped, and an upper alarm was recorded during the trip.

Reviewing Alarms

At any time you can review the recorded statistics by briefly pressing the **STOP/Review** button. You can do this while the recorder is still taking temperature readings, or when it has already stopped, but not when it is plugged into a USB port.

After each subsequent press of **STOP/Review** the next review screen is shown. The number of screens available for review depends on the number of configured alarms, and whether or not the alarm review screens have been enabled. If no alarms are configured, or the alarm review screens are disabled, only the **MIN** and **MAX** screens appear. If 6 alarms are configured and the alarm review screens are enabled (which is the maximum), 8 screens will appear.

You can terminate the review at any time by pressing **START/Mark**, or by waiting 30 seconds without pressing any button.

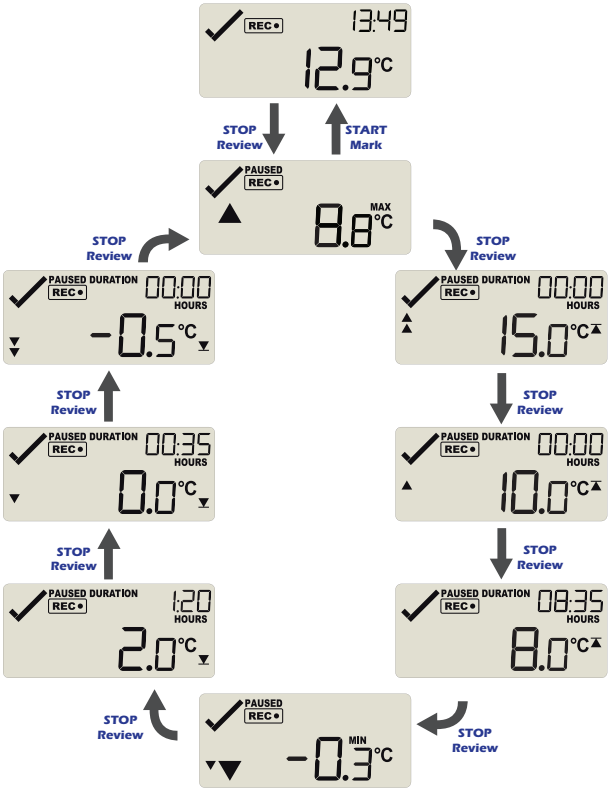
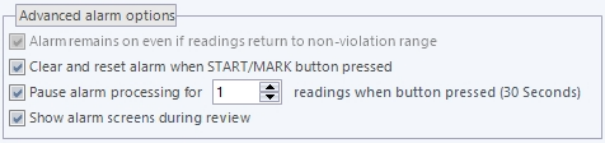


Figure 6: Review cycle with all alarms enabled

The sample screens assume you have activated the Paused functionality and have enabled the alarm review screens:



In the example following alarm settings are used:

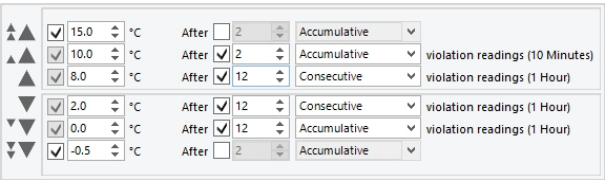
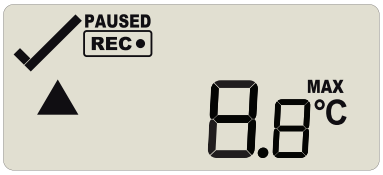


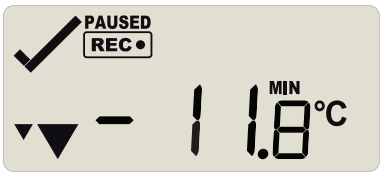
Figure 7: Alarm configuration settings in LogTag® Analyzer

On first press of **STOP/Review** the Maximum Reading screen appears.



The clock disappears, and the **MAX** symbol is shown along with the maximum temperature recorded. If this temperature was above or below one of the alarm thresholds, the corresponding alarm marker is also shown. Here, the maximum was above the primary threshold.

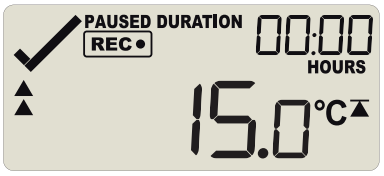
When you press **STOP/Review** again, the Minimum Reading screen appears.



If this temperature was above or below one of the alarm thresholds, the corresponding alarm marker is also shown. Here, the minimum was below the tertiary threshold.

If the alarm review screens are enabled, the next screens show the enabled alarm threshold values in descending order, starting with the upper most alarm threshold. Up to six screens will be shown, depending on how many alarms were enabled during configuration. The Minimum Reading screen is shown after the primary upper and before the primary lower alarm screen.

1. In this example the tertiary upper alarm is enabled, indicated by the alarm threshold marker shown in combination with the two small alarm arrows. The **DURATION** symbol is shown, and the clock shows the total number of hours and minutes above the threshold, instead of the time.



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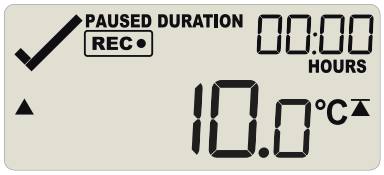
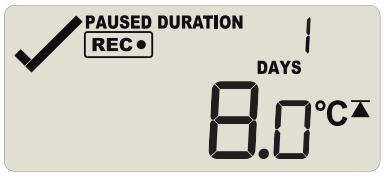
You can see how long the recorded temperature was above this threshold. Here, the 15°C threshold was not exceeded.

2. The secondary upper alarm is shown next, indicated by the alarm threshold marker shown in combination with a single small alarm arrow.

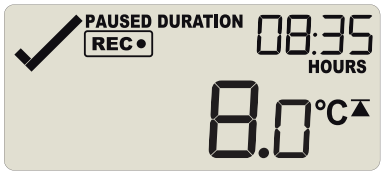


As with the previous alarm the 10°C threshold was not exceeded.

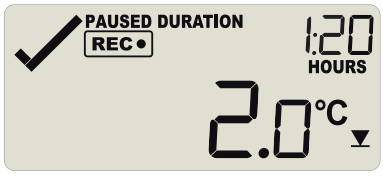
3. The primary upper alarm is shown next, indicated by the alarm threshold marker shown without any small alarm arrows.



In this example the temperature was above 8°C for 1 day, 8 hours and 35 minutes. If the duration is longer than 24 hours, the display will alternate between showing days and hours.

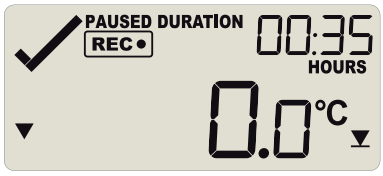


4. The primary lower alarm is shown next, indicated by the alarm threshold marker shown without any small alarm arrows.



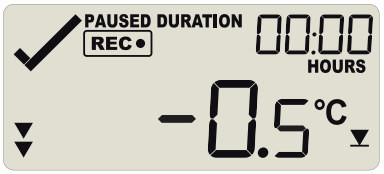
In this example, the temperature was lower than the primary threshold for 1 hour and 20 minutes.

5. The secondary lower alarm is shown next, indicated by the alarm threshold marker shown without one small alarm arrow.



In this example, the temperature was lower than the secondary threshold for 35 minutes.

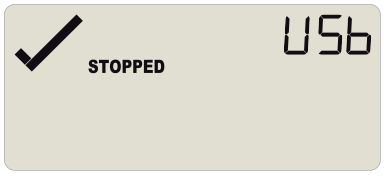
6. The tertiary lower alarm is shown next, indicated by the alarm threshold marker shown with two small alarm arrows.



In this example, the temperature was not lower than the tertiary threshold.

Plugging the UTRID-16 into a USB port

As soon as you plug the UTRID-16 into a USB port, the word USb appears and remains permanently on until all files have been generated.



When complete, USb starts blinking once per second.

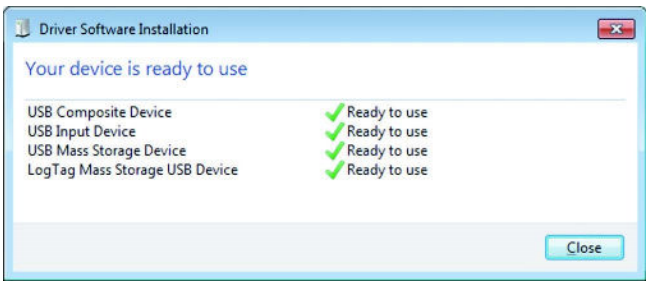
What happens on your computer depends on the operating system of the computer, the settings made during configuration and whether or not LogTag® Analyzer is running.

Microsoft Windows

Up to four drivers will now be installed, depending on the UTRID-16's configuration.

All drivers are part of the operating system and will typically not require administrator privileges for your computer.

1. **Mass Storage Device**
2. **LogTag Mass Storage USB Device**
   These two devices are required so you can access the data files in the same way as a USB memory stick. These drivers will not be installed if the UTRID-16 does not generate files.
3. **USB Input Device (HID)**
   This device is used for communication to LogTag® Analyzer and its driver will always be installed, even if LogTag® Analyzer is not present on the computer.
4. **USB Composite Device**



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If you have configured the UTRID-16 to generate files, these will be created every time you plug the recorder into the USB port.

Once finished, USb will blink every second to indicate these files can now be accessed.
a new drive or mounted device will appear. The device name will be created from the serial number of the UTRID-16.
configuration.

While a UTRID-16 is plugged into USB, no temperature readings are taken. The graph will display a gap and the data list will show --- followed by the # symbol. This also applies when the recorder is connected to a USB power supply.

Accessing the files

If the recorder was configured to generated files, a new drive or mounted device will appear. The device name will be created from the serial number of the UTRID-16. You can access the files by browsing to the newly created drive and double-clicking the PDF, CSV or LTD files. For PDF files you need Adobe Acrobat Reader or a similar PDF viewer. To open the LTD file you need to install the free LogTag® Analyzer software. CSV files can be opened with a text editor, or imported into a spreadsheet program such as Microsoft Excel™.
The file names contain information about the recorded data, which is detailed in the section about Interpreting the Data on page 1. If a recorder has only taken pre-start readings, PDF and CSV files will not be created.

You should copy the files generated by the recorder to a permanent storage location on your computer, such as the **Documents** folder, as they are not automatically copied.
The data on the unit is retained, and each time you plug the UTRID-16 back into the computer the files are re-generated, albeit with a new file name. Once the battery is exhausted, however, the real time clock on the unit stops and dates and times may no longer be accurate.

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Interpreting the Data

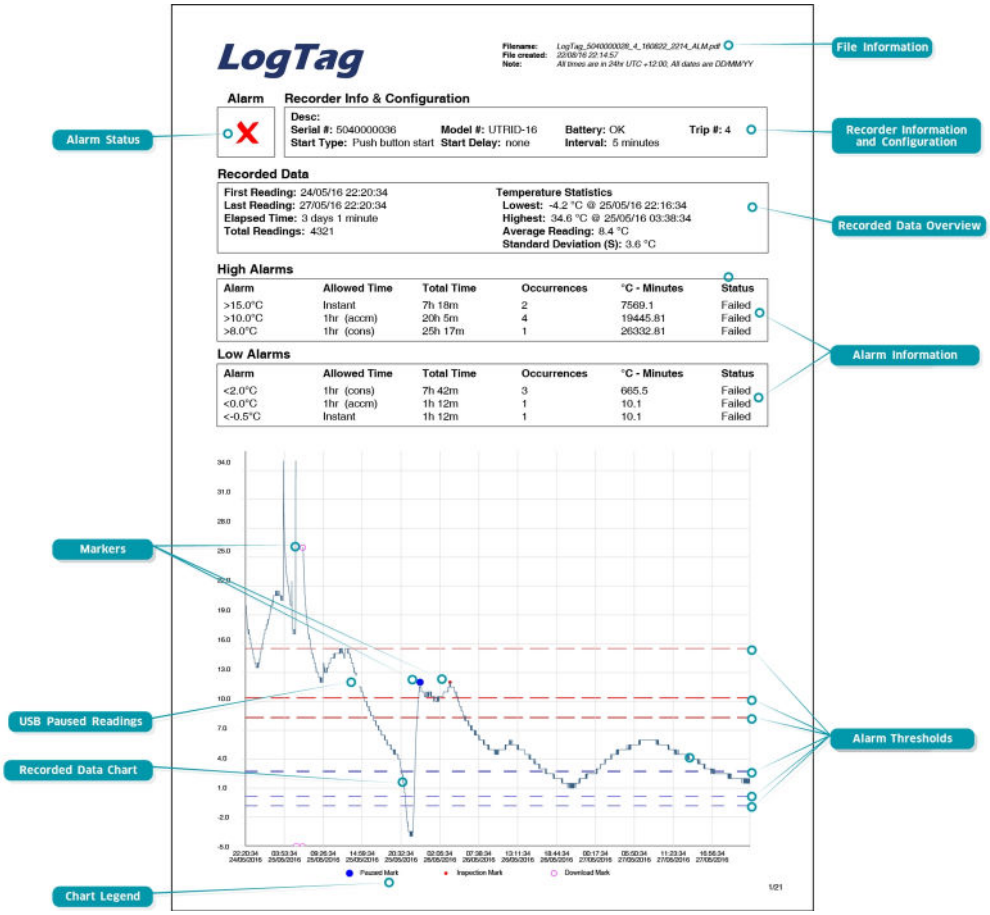

Figure 8: *Sample report page with Multiple Alarm Thresholds*

Data Evaluation - Report with multiple alarms

Alarm Status

This shows at a glance if the UTRID-16 recorded alarm conditions during the trip (showing a red ✗) or if no alarms were recorded (green ✓).

File Information

This section shows general information about the PDF file, such as generation time, date and time formats and the file name, which is compiled from information about the data it contains:

LogTag_[serial_number]_[trip number]_[file creation date]_file creation time]_[OK or ALM].

Recorder Information and Configuration

On recorders with multiple alarms these sections are combined and show general information such as serial and model numbers, trip number, battery status and description. It shows how the recorder was started, if a start delay was active and the interval used for taking readings.

High Alarm and Low Alarm Information

These two sections summarize the alarm occurences during the trip, including statistical data.

Recorded Data Chart

The chart shows a graphical representation of the data during the trip. As part of the UTRID-16 configuration process you set the parameters that influence how the chart is presented.

Markers

The chart will show marks where the UTRID-16 has been downloaded (⁰) or where an inspection mark has been placed with the **START/Mark** or **STOP** button (•). It also shows Paused marks (•) where a button press has prevented readings from being used for statistics and alarm calculations.

USB Paused Readings

A gap is shown in the graph where the UTRID-16 was plugged into a USB port at the time it would otherwise have taken a reading.

High Alarm and Low Alarm Information

These two sections summarize the alarm occurences during the trip, including statistical data. You may see up to 5 alarms for each direction, depending on configuration and zoom settings.

Upper Threshold values

The upper alarm thresholds are shown with red dashed lines ---- so you can see at a glance where temperatures went above set limits. You may see up to three lines depending on configuration and zoom settings.

Lower Threshold values

The lower alarm thresholds are shown with blue dashed lines ---- so you can see at a glance where temperatures went below set limits. You may see up to three lines depending on configuration and zoom settings.

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Chart Legend

Shows the symbols for download marks, inspections marks and paused marks if they appear in the readings.

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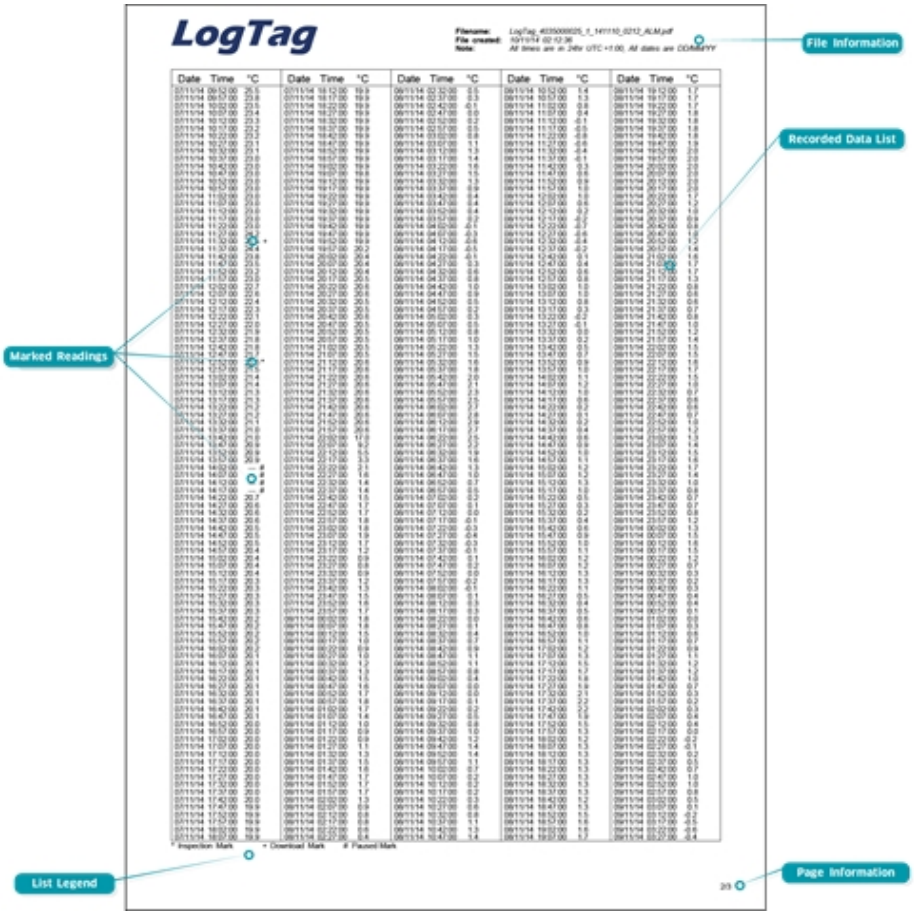

Figure 9: *Sample Data List*

Data Evaluation - Data List

File information
The information from the report page is repeated here.

Recorded Data list
The Data list shows a single row for each recorded reading, along with the with date, time and temperature values, plus any special events that were recorded against this reading.

Marked readings
In the data list readings are marked after the temperature value...

- ...with a + symbol where the UTRID-16 has been downloaded with LogTag® Analyzer.
- ...with a * symbol where an inspection mark has been placed with the **START/Mark** or **STOP/Review** button.
- ...with a **$** symbol where readings were paused as a result of a button press.
- ...with a # symbol where the recorder was plugged into a USB port at the time it would otherwise have taken a reading.

List legend
Shows the symbols for **download marks**, **inspections marks**, **paused** and **USB paused** readings if they appear in the data.

Page information
Curent page number and total number of pages appear on every page.

Tips and Tricks

Configuration
When configuring a USB recorder, allow enough time for the unit to acclimatise to the target environment, particularly if you have configured an upper alarm. This can be best achieved with a start delay, or a date/time start if you know when the shipment takes place.

Make sure you remove your UTRID-16 from the USB socket when you use a date/time start, so it starts at the time you want, rather than when unplugged from the port.

During the trip
Always replace the USB protective cap before placing the UTRID-16 with the goods. While recording, make sure the UTRID-16's protective cap is facing down. The protection rating can only be achieved when used in this orientation. For applications requiring a higher IP rating the unit should be used in the protective case, available as an accessory.

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UTRID-16 Factory Presets

LogTag® UTRID-16 recorders can be client configured using LogTag® Analyzer. For an out-of-box solution they can also be ordered in volume, pre-configured with a factory profile, ready for starting.

If a default configuration does not suit, customers can compile their own profile by specifying the parameters in the tables below when ordering. Please note that minimum order quantities apply for UTRID-16 recorders with profiles not stocked by LogTag® Recorders .

Description		Default Profile	Range/Option	Your requirement
Profile Name				
Standard Options				
UserID		-	ASCII text up to 38 characters[1]	-
Start method		Push button start	Push button start	Push button start
Record pre-start readings		enabled	enabled or disabled	
Number of readings to record		8,000	1-16,129	
Sampling interval		5 minutes	1 minute to 18 hours	
Start Delay		60 minutes	1 minute to 72 hours, 0=no delay	
Configure requires password		disabled	enabled or disabled	
Download requires password		disabled	enabled or disabled	
Password		-	Up to 6 ASCII characters	
Advanced File Options				
Generate PDF file		enabled	enabled or disabled	
Generate LTD file		enabled	enabled or disabled	
Generate CSV file		disabled	enabled or disabled	
Temperature units		°C	°C or °F	
Time Zone		UTC +0:00	-12:00 to +14:00 in 15min steps	
Time format		24-hour	24-hour or 12 hour (am/pm)	
Date format		DD/MM/YY	DD/MM/YY or MM/DD/YY	
Calculate MKT		enabled	enabled or disabled	
Activation Energy		default	default or custom value (please specify)	
PDF Options				
Generate Data List		enabled	enabled or disabled	
Y-Axis scaling	Range	range of readings	range of readings, range of sensor or custom	
	Custom upper[2]	-	-25°C to 60°C (-13°F to 140°F)	
	Custom lower	-	-25°C to 60°C (-13°F to 140°F)	
Show Y-axis grid lines		enabled	enabled or disabled	
Show X-axis grid lines		enabled	enabled or disabled	
Show upper alarm line		disabled	enabled or disabled	
Show lower alarm line		disabled	enabled or disabled	
Allow stopping with **STOP/Review** button		enabled	enabled or disabled	
Prioritise download over file generation		disabled	enabled or disabled	

[1] All units associated with a profile must have the same UserID. The text cannot be individually customised per unit. The text cannot contain characters from an extended character set such as Chinese or Cyrillic

[2] Upper value must be above lower value

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Description		Default Profile	Range/Option	Your requirement
Standard Alarm Parameters				
Upper Alarm	Alarm direction	upper	upper	Upper
	Trigger this alarm	disabled	enabled or disabled	
	Temperature threshold value[3]	-	-25°C to 60°C (-13°F to 140°F)	
	Alarm activation type[4]	instant	instant, accumulative or consecutive	
	Activation delay time	-	1 minute to 45 days	
Lower Alarm	Alarm direction	Lower	Lower	Lower
	Trigger this alarm	disabled	enabled or disabled	
	Temperature threshold value	-	-25°C to 60°C (-13°F to 140°F)	
	Alarm activation type	instant	instant, accumulative or consecutive	
	Activation delay time	-	1 minute to 45 days	
Multi-Alarm Parameters[5]				
Alarm 3	Alarm direction	-	upper or lower	
	Trigger this alarm	disabled	enabled or disabled	
	Temperature threshold value	-	-25°C to 60°C (-13°F to 140°F)	
	Alarm activation type	instant	instant, accumulative or consecutive	
	Activation delay time	-	1 minute to 45 days	
Alarm 4	Alarm direction	-	upper or lower	
	Trigger this alarm	disabled	enabled or disabled	
	Temperature threshold value	-	-25°C to 60°C (-13°F to 140°F)	
	Alarm activation type	instant	instant, accumulative or consecutive	
	Activation delay time	-	1 minute to 45 days	
Alarm 5	Alarm direction	-	upper or lower	
	Trigger this alarm	disabled	enabled or disabled	
	Temperature threshold value	-	-25°C to 60°C (-13°F to 140°F)	
	Alarm activation type	instant	instant, accumulative or consecutive	
	Activation delay time	-	1 minute to 45 days	
Alarm 6	Alarm direction	-	upper or lower	
	Trigger this alarm	disabled	enabled or disabled	
	Temperature threshold value	-	-25°C to 60°C (-13°F to 140°F)	
	Alarm activation type	instant	instant, accumulative or consecutive	
	Activation delay time	-	1 minute to 45 days	
Advanced Display Options				
Alarm remains active when readings return to spec		enabled	enabled or disabled	
Clear alarm with **START/Mark** button		enabled	enabled or disabled	
Pause alarm/statistics processing for X readings		0 (disabled)	0 (disabled) to 255	
Switch off display after 30 seconds (Power save)		enabled	enabled or disabled	
Show alarm screens during review		disabled	enabled or disabled	
Allow reset of the recorder with the start button		disabled	enabled or disabled	

[3] Upper value must be above lower value

[4]

- Instant = one temperature reading is above (below) the threshold
- Consecutive = temperature readings are above (below) the threshold for the time defined in the activation delay without interruption
- Accumulative = temperature readings are above (below) the threshold for the total time defined in the activation delay time, but may not necessarily be sequential.

[5] Only on model "M" with multiple alarms.

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For rules regarding setting up multiple alarms please see Alarm Configuration Options on page 6.

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Technical Specifications

Model Number
UTRID-16

Temperature Sensor Measurement Range
-25°C to +60°C (-13°F to +140°F)

Operating Temperature Range
-25°C to +60°C (-13°F to +140°F)

Storage Temperature Range
0°C to +40°C (32°F to +104°F)

Ambient humidity range during transport and use
0 to 95%RH

Rated Temperature Resolution
0.1°C (0.1°F) across entire range

Rated Temperature Accuracy
- Better than ±0.5°C (±0.9°F) for -20°C to +40°C (-4°F to 104°F)
- Better than ±0.7°C (±1.3°F) for -25°C to -20°C (-13°F to -4°F)
- Better than ±0.7°C (±1.3°F) for +40°C to +60°C (104°F to 140°F)

Sensor Type
Precision thermistor

Sensor Reaction Time
Typically less than 7 minutes (T90) in moving air (1m/s), method as detailed in EN12830:1999.

Clock accuracy
Quartz crystal locked real time clock, rated accuracy ±25ppm @ 25°C (equiv to 2.5 seconds/day)
Rated temperature coefficient is -0.034±0.006ppm/°C (i.e. typically +/- 0.00294seconds/day/°C)

Recording Capacity
16,129 real time temperature values, giving
- 112 days @ 10min logging or
- 168 days @ 15min logging.

Statistics memory
for displaying statistics on LCD
- Max/Min values
- Alarm duration values.

Memory type
Non volatile

Sampling Interval
Configurable from 30 seconds to 18 hours.

Start options
- Push button start with optional configurable start delay from 1 minute to 72 hours
- Date/time start

Alarm functions
- three configurable upper alarms
- three configurable lower alarms
- OK tick and Alarm cross on display, linked to alarms

Vibration
Withstands vibration specification as detailed in EN12830:1999

Shock
- Withstands shock specification as detailed in EN12830:1999
- Withstands 5 drops from 1m onto smooth concrete floor without loss of function or calibration

EMC compliance
- EC EMC directives (EN 61000-6-1:2005 & EN 61000-6-3:2006)
- Includes electrostatic discharge as prescribed in EN 61000-4-2
- Complies with FCC Part 15 Subparts A and B

Environmental
IEC 60529: IP64 with USB cap fitted
Fits into IP67 Protective Enclosure 200-000020

Case Material
Polycarbonate

Power source
CR2032 3V Li-MnO_2battery – User replaceable coin cell, non-rechargeable

Battery life
Typically 1 year of operation with normal use (6 minute logging, statistics reviewed on the display no more than once daily for no longer than 30 seconds each time, download data monthly) provided recorder is kept within the storage temperature range when not in use.

Size
93mm(H) x 54.5mm (W) x 8.6mm (T) including USB cap

Weight
39g

Calibration
Calibration traceable to an ISO/IEC 17025 accredited testing laboratory

PDF features
- compliant with standard 1.6 and later
- Single page report with trip and alarm summary
- Multi page report with list of readings including date/time

Download time
- Typically with full memory (16,129 readings) less than 30 seconds from time of insertion to availability of PDF report.
- Typically less than 10 seconds from time of insertion to availability of LTD file in LogTag® Analyzer (if configured)

Software requirements
- LogTag® Analyzer version 2.8 or later to configure and download
- PDF reader software to access onboard PDF files

USB compatibility
USB 2.0, type A plug

Accessories
- Wall holder 200-000010
- IP67 Protective Enclosure 200-000020
- Replacement protective cap 200-000425

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Appendix 1 - Battery Replacement

Prepare the recorder

- Download the unit to save any recorded data.
- Hibernate the unit using LogTag® Analyzer.

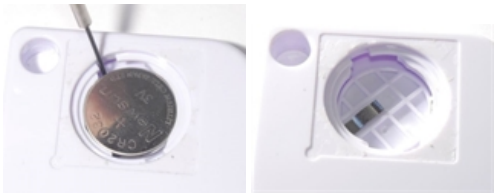
> Failing to hibernate the recorder may result in serious memory corruption. As a result you may no longer be able to use this product.

Remove the old battery

- Carefully remove the rear label covering the battery door using a small-bladed screwdriver or knife:

- Use a coin to turn the battery door anti-clockwise; remove it from the case:

- Remove the battery using a small-bladed screwdriver, as shown:



Insert the new battery

> Only use batteries from a reputable manufacturer! Check the operational temperature range of the battery and make sure it covers the range of the UTRID-16.

- Put a new CR2032 cell into the battery compartment as shown; the right hand edge of the battery is inserted first against the contact:

- Press firmly down on the left hand side of the battery to click the battery into place:

- Replace the battery door; turn clockwise to lock it into place.

- Cover the battery door with either a new label (Part # 100-000502) or reuse the old one.

- Re-configure the recorder with LogTag® Analyzer.

> Please recycle or dispose of the old battery according to your local environmental regulations.

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