USER GUIDE

USRIC-8

LogTag

Distributed by AKRIBIS

USRIC-8(M)

USB PDF Temperature Recorder

Product User Guide

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Revision History

Version	Date	Author	Details
1.0	4 Sept 2015	Stefan Lenz	Initial release.
2.0	16 Aug 2016	Stefan Lenz	Updated for USRIC-8M multi-alarm features, added alarm configuration section, updated factory profile page

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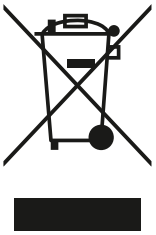
Safety Information

The USRIC-8(M) PDF USB temperature recorder contains a non-replaceable Lithium Battery. When the battery indicates “LOW”, the recorder should be replaced, and the battery 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 USRIC-8(M) is approx. 6 months after configuration, provided...

... the device was not stored for over 2 years 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 USRIC-8(M) 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 USRIC-8(M).

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

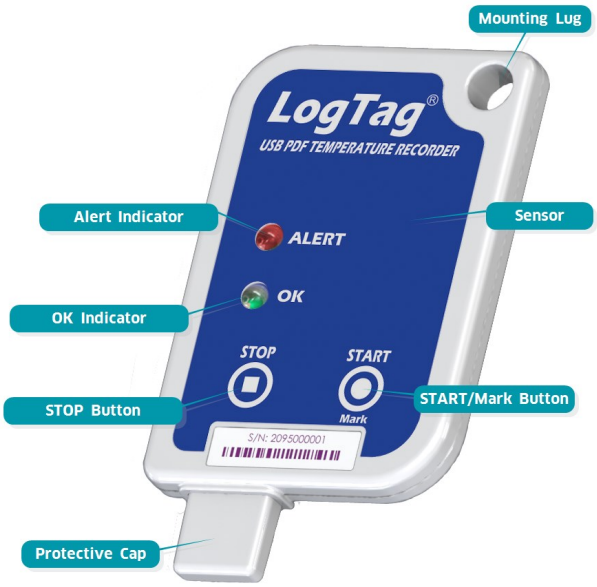
LogTag's USRIC-8(M) is a fully configurable, single-use USB PDF temperature recorder that can create temperature reports without the need to install proprietary software or hardware at the destination. The recorder can be ordered with pre-set profiles ready to start, or configured using LogTag® Analyzer, 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® USRIC-8(M) temperature recorder. It is recommended that you connect each USB PDF Temperature Recorder 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 USRIC-8(M) 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** button; can be used to stop the unit.

Indicator LEDs

- Green **OK** indicator
  Blinks if the unit is operating without alerts being present.
- Red **ALERT** indicator
  Blinks if an alarm condition has occurred during the trip.

Software Requirements

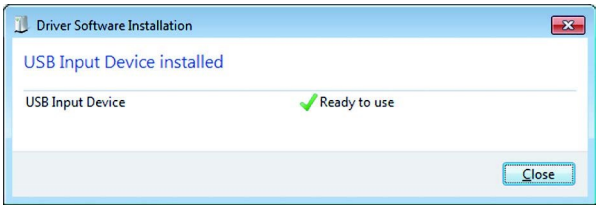
Software requirements vary depending on the type of file you want the USRIC-8(M) to generate when plugged into a USB port.

- If you wish to ***configure*** USRIC-8(M) 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 USRIC-8(M) 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 USRIC-8(M)

USRIC-8(M) products can be ordered pre-configured, ready to start. Different profiles are available; if none of these suit or the USRIC-8(M) 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 USRIC-8(M) 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 USRIC-8(M) is ready (shown by the green **OK** indicator blinking), it can receive configuration

[1] Depending on the configuration, the USRIC-8(M) 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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data. Click **LogTag - Configure**; LogTag® Analyzer will scan all USB ports and display the configuration options for connected USRIC-8(M)'s. Although you can configure many devices 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.

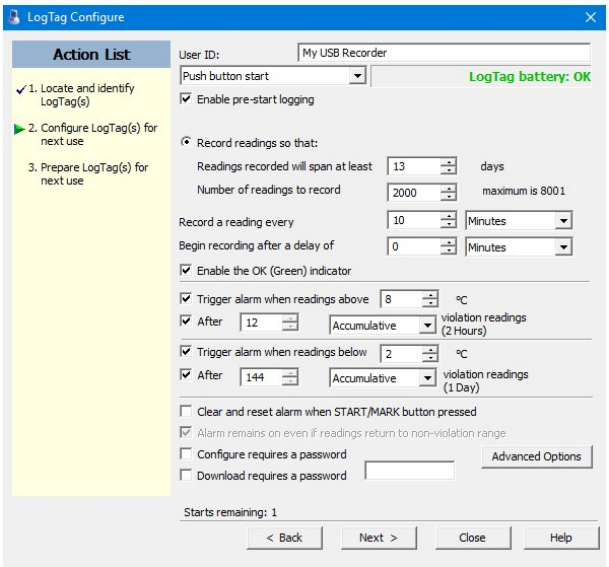

Figure 1: USRIC-8(M) Standard Configuration Options

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.

Advanced Configuration Options

Ckick **Advanced 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.

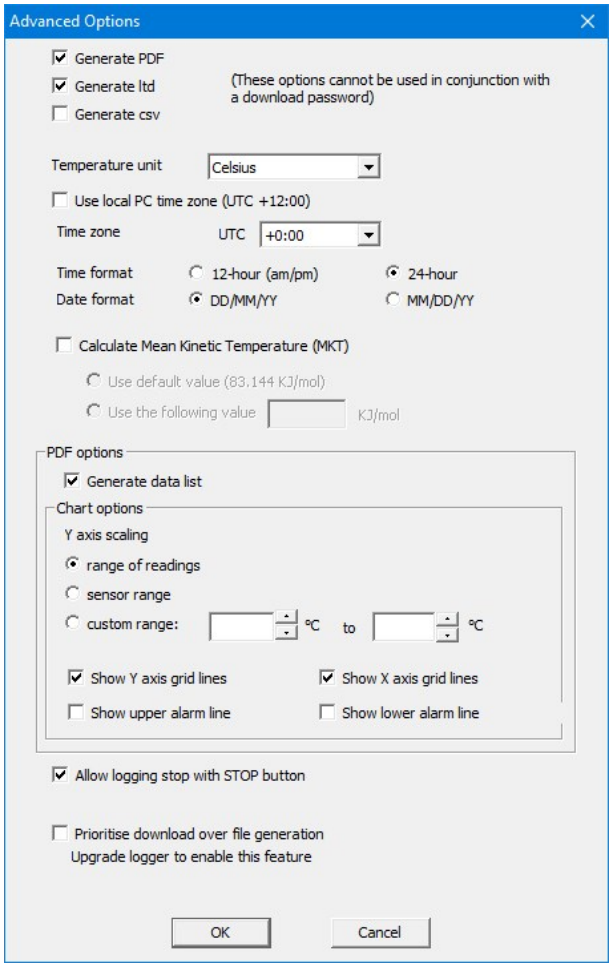

Figure 2: USRIC-8(M) advanced configuration screen

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** 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.

Configuring Multiple Alarms

LogTag® Analyzer allows up to 6 different alarm trigger conditions when configuring a USRIC-8(M) for recording, depending on the model.

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Each alarm trigger condition consists of a threshold temperature value, an activation type (which can be instant, consecutive or accumulative3) 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 USRIC-8 has a primary upper and a primary lower alarm.
The USRIC-8M allows four freely configurable alarms in addition to the primary upper and lower alarms.

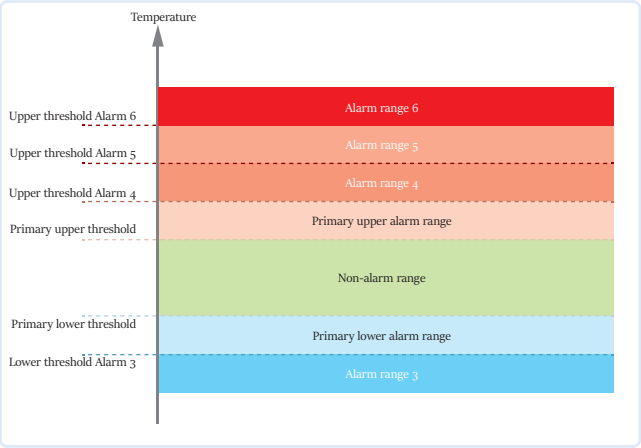

Figure 3: *Alarm ranges and thresholds example*

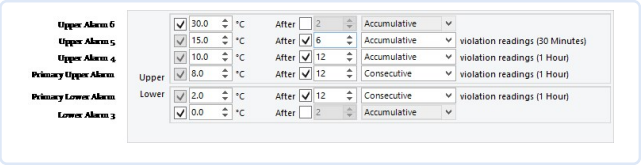

Figure 4: *Representation in LogTag® Analyzer*

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

- A primary upper alarm must be entered before more upper alarms can be entered.
- A primary lower alarm must be entered before more lower alarms can be entered.
- Any additional upper alarms must have higher threshold values than any previously entered alarm.
- Any additional lower alarms must have lower threshold values than any previously entered alarm.
- You can enter a different number of upper and lower conditions, or only upper, or only lower conditions, or none at all. You can, however, not make all alarms upper alarms, and you cannot make all alarms lower alarms either.
- Threshold values for adjacent alarms can be equal and combined with different alarm types and delay time values. For example, you can enter a primary upper alarm with an 8°C threshold and 10 accumulative readings, plus an alarm with an 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 and in the software.

Finalising the configuration

- Click **Next** to upload the configuration data to the USRIC-8(M).
- When the configuration is complete, unplug the USRIC-8(M) from the USB socket and replace the protective cap.

If you wish to configure more USRIC-8(M) 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 USRIC-8(M) recorder as often as required, however once started the unit cannot be configured again.

USRIC-8(M) Start Options

During configuration with LogTag® Analyzer you can decide when the USRIC-8(M) starts taking temperature readings.

- ... via **Push button start**: The recorder will start taking temperature readings as soon as you have pressed the **START/Mark** button.
- ... 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 USRIC-8(M) starts recording as soon as it is unplugged from the USB port4 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 USRIC-8(M) 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.

While Recording...

While the USRIC-8(M) is recording the green **OK** indicator blinks every 4 seconds if none of the configured alarm conditions have been met5.

Alerts

As soon as one of the alarm trigger conditions is met, the red **ALERT** indicator blinks every 4 seconds. Depending on the alarm

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.

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

5 The blinking of the green **OK** indicator can be disabled during configuration of the unit.

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configuration the red indicator may remain on for the rest of the trip, or the green **OK** indicator may blink again once conditions return back inside the limits.

If configured, you can reset an alert by pressing the **START/Mark** button. Alerts which are a result of accumulative alarms cannot be cleared.

Marking a reading with an inspection mark

When you press the **START/Mark** button, the next reading taken by the USRIC-8(M) will be identified in the downloaded data with an inspection mark.

If the **Allow stopping with the Stop button** feature is enabled, a mark will also be registered when you press the **STOP** button, but do not complete the process of stopping the recorder.

Stopping the USRIC-8(M)

Automatically

The USRIC-8(M) 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 USRIC-8(M) 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. When enabled, following will stop the unit:

- Press and hold the **STOP** button. For the next 4 seconds both indicators blink simultaneously.
- When the indicators start blinking more rapidly release the button. The recorder will now stop taking readings and cannot be re-started.
- If you change your mind half way during the process, simply keep holding the button until all indicators have stopped blinking. Instead of stopping, an inspection mark will be recorded against the next temperature reading taken.

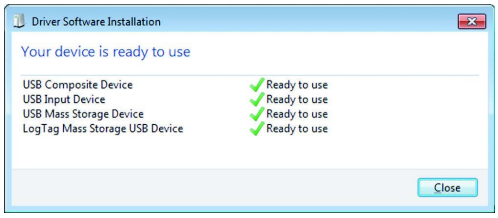
Plugging the USRIC-8(M) into a USB port

What happens when you plug your USRIC-8(M) into a USB port 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 USRIC-8 (M)'s configuration.

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



1. **Mass Storage Device Driver**
2. **LogTag Mass Storage USB Device Driver**
   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 USRIC-8(M) does not generate files.
3. **USB Input Device (HID) Driver**
   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 Driver**
   This driver signals that multiple devices are involved when plugging in a USRIC-8(M).

If you have configured the USRIC-8(M) to **generate files**, these will be created every time you plug the recorder into the USB port. While the file creation takes place, the green **OK** indicator is permanently on.

Once finished, the green OK indicator starts blinking every second, twice in quick succession, 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 USRIC-8(M).

configuration.

If you have disabled file generation, the USRIC-8(M)'s green OK indicator will blink once every second.

While a USRIC-8(M) 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.

OSX and Linux

Typically in these operating systems a new drive will be mounted, from which you can open the PDF file. You will not be able to configure the USRIC-8(M) using either of these operating systems, unless you use virtualization software such as Fusion or Virtualbox to create a hosted Windows environment. You need to discuss these options with your network administrator.

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 USRIC-8(M). 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

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detailed in the section about Interpreting the Data on page 10. 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 USRIC-8(M) 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.

Unplugging

You can unplug a USRIC-8(M) at any time; there is no need to stop the device via the shortcut menu in the notification area on the taskbar. If you plug a unit into a USB port during a start delay, the delay period will re-start when the unit is unplugged. You will see the start and delay signals indicated by the LED's. The delay will also be restarted if you press the **START/Mark** button during the delay period.
You may see the start signal if you have configured a time start, but have left the unit plugged in beyond the start time of the USRIC-8 (M).

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Light Patterns on USB Recorders

Signal	Sequence	Occurrence
Wake-up signal	Sequence of four quick alternate flashes of green **OK** and red **ALERT** indicators	• displayed after configuration has been successfully applied to the USRIC-8(M). Not to be mixed up with...
Start signal	Sequence of ten alternate flashes of green **OK** and red **ALERT** indicators	• displayed when the USRIC-8(M) starts its recording cycle. • The delay timer is re-started (followed by Delay Signal).
Mark signal Delay Signal	Sequence of five simultaneous flashes of green **OK** and red **ALERT** indicators	• displayed when pressing **START/Mark** button while recording to indicate an inspection mark in the software. • displayed directly after the start-up signal following a push button start where a recording delay has been configured. In this instance the start-up signal is repeated when the actual recording begins.
Logging active, no alert present	Single flash of green **OK** indicator every 4 seconds (approx.)	• indicates USRIC-8(M) is recording. This is not displayed when pre-start is active and the main logging cycle has not yet started. It is also not displayed when the green LED has been turned off in the configuration screen.
Logging finished, no alert present	Single flash of green **OK** indicator every 8 seconds (approx.)	• indicates USRIC-8(M) has finished recording. This is not displayed when the green LED has been turned off in the configuration screen.
Logging active, alert condition present	Single flash of red **ALERT** indicator every 4 seconds	• Indicates USRIC-8(M) is recording, an alert condition has occurred. This is not displayed when pre-start recording has been configured and the recorder has not yet been started.
Logging finished, alert condition present	Single flash of red **ALERT** indicator every 8 seconds	• indicates USRIC-8(M) has finished recording and an alert condition was present during the trip.
Communication	The green **OK** indicator will flash occasionally	• during USB communication the green LED will flash occasionally; no additional information is conveyed in this.
Initiate Stop	Sequence of simultaneous flashes of green **OK** and red **ALERT** indicators for 4 seconds	• This LED sequence appears when the stop sequence is initiated and requires that the **STOP** button is enabled.
Stopping	Sequence of very quick simultaneous flashes of green **OK** and red **ALERT** indicators for 2 seconds	• When this LED sequence starts, the **STOP** button must be released for the recorder to stop.
Ready for USB	Two quick flashes of the green **OK** indicator every second	• The USRIC-8(M) is connected to a USB port and waiting for USB communication.
Generating Files	The green **OK** indicator is on permanently	• The USRIC-8(M) is generating files. No USB activity will be observed on the computer screen during this time.
Ready for re-flash	The red **ALERT** indicator is on permanently	• The USRIC-8(M) is ready to receive new firmware. Special software is required to upload new firmware to the USRIC-8(M).

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 USRIC-8(M) 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 USRIC-8(M) with the goods. While recording, make sure the USRIC-8(M)'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.

Getting help

If after studying this Product User Guide and the relevant Quick Start Guide you still need further information, please visit the support section of the LogTag® Recorders website at http://www.logtagrecorders.com/support/support.html .

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Interpreting the Data

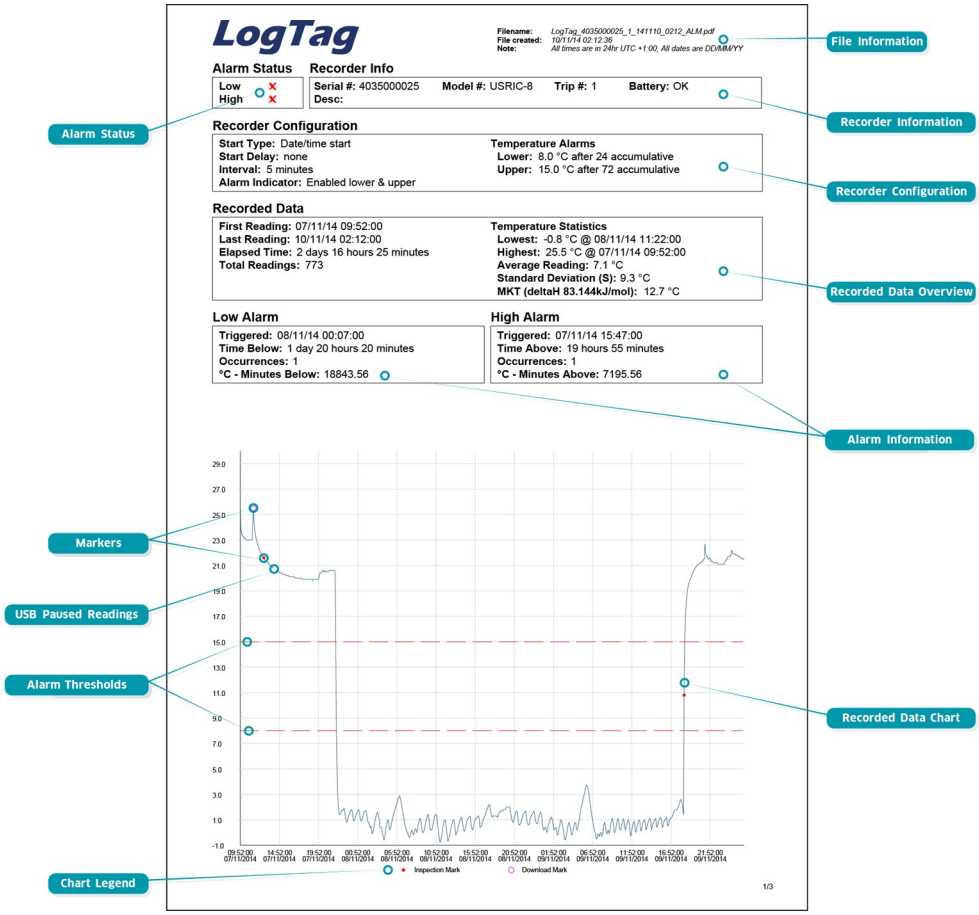

Figure 5: *Sample report page*

Data Evaluation - Report

Alarm Status

This shows at a glance if the USRIC-8(M) 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

These sections show general information about the recorder 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.

Recorded Data Information

This block contains information about the data recorded during the trip. It shows the time covered by the recording and statistical data of the trip. You can see the conditions for which each alarm was to be triggered, and how often such a condition occured.

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 USRIC-8(M) configuration process you set the parameters that influence how the chart is presented.

Markers

The chart will show marks where the USRIC-8(M) has been downloaded (o) or where an inspection mark has been placed with the **START/Mark** or **STOP** button (•).

USB Paused Readings

A gap is shown in the graph where the USRIC-8(M) was plugged into a USB port at the time it would otherwise have taken a reading.

Alarm Thresholds

The alarm thresholds are shown with red and blue dashed lines (---- for upper, ---- for lower) so you can see at a glance where temperatures went outside these limits.

Chart Legend

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

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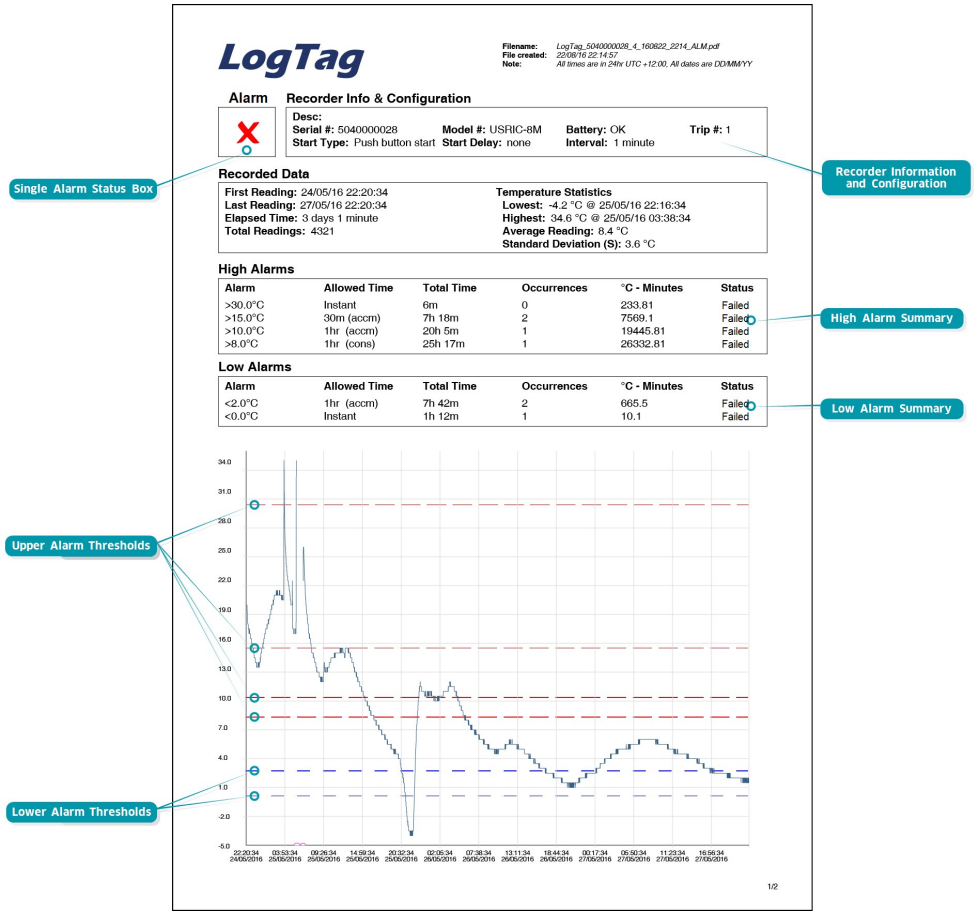

Figure 6: *Sample report page with Multiple Alarm Thresholds*

Data Evaluation - Report with multiple alarms

A USRIC-8M shows a different report summary page to accommodate the extra alarms. Most of the elements are the same, with these exceptions:

Alarm Status Box

This shows at a glance if the USRIC-8(M) recorded alarm conditions during the trip (showing a red ✗) or if no alarms were recorded (green ✓). Instead of an upper and a lower status, this box shows a single pass or fail.

Upper Threshold values

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

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.

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.

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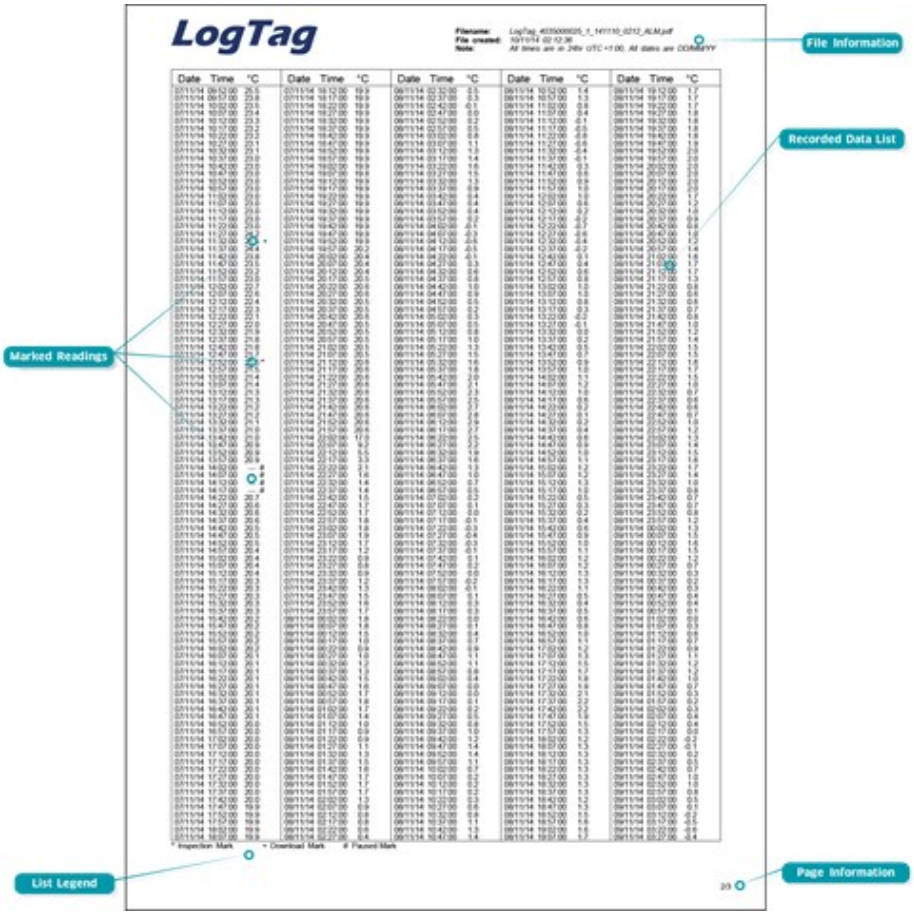

Figure 7: *Sample Data List*

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 USRIC-8(M) has been downloaded with LogTag® Analyzer.
- ...with a * symbol where an inspection mark has been placed with the **START/Mark** or **STOP** button.
- ...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** and **USB paused** readings if they appear in the data.

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

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USRIC-8(M) Factory Presets

LogTag® USRIC-8(M) 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 USRIC-8(M) 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	1-8,001	
Sampling interval		5 minutes	1 minute to 18 hours	
Start Delay		60 minutes	1 minute to 72 hours, 0=no delay	
Enable Green OK indicator		enabled	enabled or disabled	
Reset alarm with **START/Mark** button		disabled	enabled or disabled	
Alarm remains active when readings return to spec		enabled	enabled or disabled	
Configure requires password		disabled	enabled or disabled	
Download requires password		disabled	enabled or disabled	
Password		-	Up to 6 ASCII characters	
Advanced 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** 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	

For rules regarding setting up multiple alarms please see Alarm Configuration Options on page 1.

[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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Technical Specifications

Model Numbers
USRIC-8 - Single Trip PDF Temperature Recorder with dual alarms
USRIC-8M - Single Trip PDF Temperature Recorder with 6 alarms

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

Sensor Type
Precision thermistor

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

Rated Temperature Accuracy
- Better than ±0.5°C (±0.9°F) for -5°C to +30°C (-23°F to 86°F)
- Better than ±0.7°C (±1.5°F) for -25°C to -5°C (-13°F to 23°F)
- Better than ±0.7°C (±1.5°F) for +40°C to +60°C (86°F to 140°F)

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
8,001 real time temperature values, giving
- 55 days @ 10min logging or
- 83 days @ 15min logging.

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
- one configurable upper alarm
- one configurable lower alarm
- four additional, freely configurable alarms (USRIC-8M only)
- Flashing OK and Alert indicators, 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 – non user-replaceable, non-rechargeable

Battery life
Shelf life of up to two years before configuration.
Typically 6 months of operation with normal use (6 minute logging, download data monthly).

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 (8,001 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

Software requirements
- LogTag® Analyzer version 2.5 or later to configure and download (2.8 or later for USRIC-8M)
- 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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