

LogTag[®]

TEMPERATURE RECORDER

USRIC-8

USB PDF Temperature Recorder



Product User Guide

Revision 1.6

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Safety Information

The USRIC-8 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’s standard warranty terms apply. A copy can be requested by emailing info@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 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 device is stored and operated according to LogTag Recorders’ recommendations.

Disclaimer

The USRIC-8 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.

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.

Introduction

LogTag's USRIC-8 is a fully configurable, single-use USB temperature recorder that can create temperature reports without the need to install proprietary software or hardware at the destination. The product 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 USRIC-8 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 USB PDF temperature recorder.
It is recommended that you connect all USRIC-8 devices via a permanently plugged in USB extension cable to protect your computer's USB socket.
- A computer running Windows XP, Mac OSX or Linux.
- For configuration - a PC running Windows XP SP3 or later.

Features

The USRIC-8 USB PDF temperature recorder features the familiar LogTag case layout with an additional USB plug at the bottom, enclosed by a protective cap.



Case

- Mounting lug
For secure fastening of recorder to fixtures
- USB plug with Protective Cap
Protects the 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** LED
Indicates the unit is operating without alerts being present.
- Red **ALERT** LED
Indicates an alarm condition has occurred during the trip.

Software Requirements

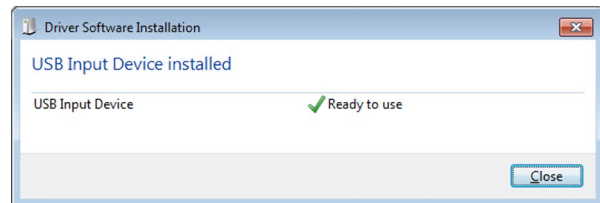
Software requirements vary depending on the type of file you want the USRIC-8 to generate when plugged into USB at the destination.

- If you wish to **configure** USRIC-8 products you will need to download the LogTag® Analyzer software from LogTag's web site at <http://www.logtagrecorders.com/software.php>. Follow the instruction to install and start the software.
- If you only plan on **evaluating data**, plug the USRIC-8 into a computer's USB socket. A PDF file will be generated¹, which you can open from the recorder's USB memory storage with Acrobat Reader 4.0 or later, or any other compatible PDF reader software of your choice.
- At the same time an LTD file will be created¹ that can be **opened** with LogTag Analyzer. Here you can not only analyse data in detail and generate report files, but also create 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

USRIC-8 recorder can be ordered pre-configured, ready to start. Different profiles are available; if none of these suit or the USRIC-8 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 into a USB port. You will receive a message that a new USB device has been found², and a generic driver will be installed.



- Once the driver is installed and the USRIC-8 is ready (indicated by the green **OK** LED blinking), it can receive configuration data. Click **LogTag - Configure**; LogTag Analyzer will scan all ports and display the configuration options for connected USRIC-8'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.

¹ Depending on the configuration, the USRIC-8 may produce any of the supported file types *.ltd, *.csv or *.pdf, or none at all if file generation is disabled when configuring the unit.

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

Standard Configuration Options

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

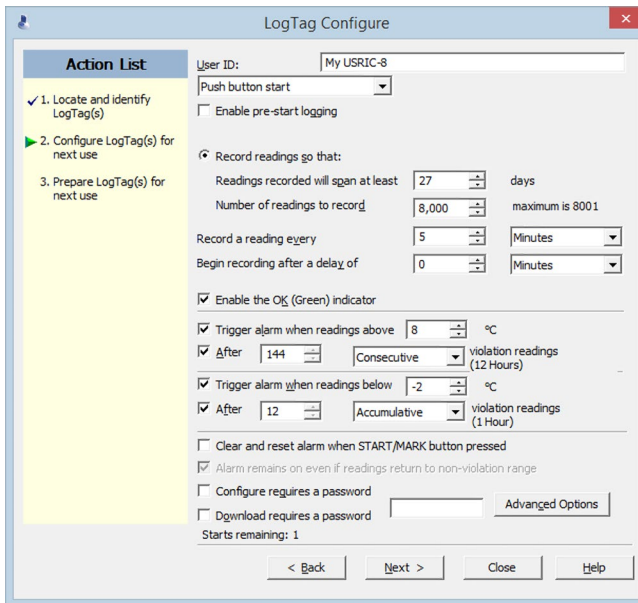
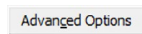


Figure 1 - USRIC-8 basic configuration screen

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

Select **Advanced Options** for additional configuration options.



These options decide which files -if any- are generated at the end of the trip, whether or not the recorder can be stopped using the **STOP** button and also determine the appearance of the PDF file.

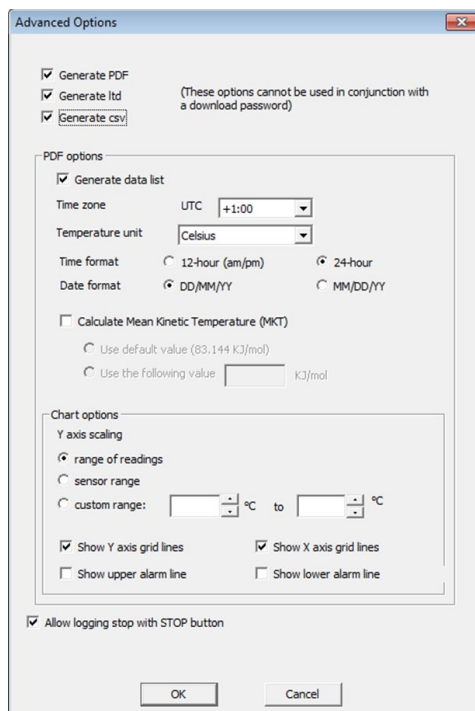


Figure 2 - USRIC-8 advanced configuration screen

Parameters that influence the appearance of the PDF file are

- creation of the data list
- setting of the temperature unit, date and time format
- Time zone and MKT
- setting scaling parameters for the chart

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

Finalising the configuration

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

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

Starting the USRIC-8

During configuration you can decide when the USRIC-8 recorder should start taking temperature readings.

- ... via **Push button start**
The recorder will start taking temperature readings immediately when you press the **START/Mark** button, or after the time period you have specified in the **Begin recording after a delay of** field.
- ... via **Push button start** with **pre-start logging** enabled
When you choose to record **pre-start readings**, the USRIC-8 starts recording as soon as it is unplugged from the USB port³. It will continue to record pre-start readings until you start the unit by pressing the **START/Mark** button. This way you do not lose readings even if you forget to start the unit. Note, however, that no alarms are processed while pre-start readings are being taken. Pre-start readings will not appear in the PDF file, and if only pre-start readings were recorded, no PDF file will be generated. In this case you will need to download the readings using LogTag Analyzer.
- ... via **Date/Time start**
When this option is selected the recorder will start taking temperature readings at the date and time you specify (local time). You cannot combine a date/time start with pre-start readings or the start delay function. If you configure the USRIC-8 for a time start, but you leave it plugged into the USB port until after the configured time has passed, the unit will start as soon as it is unplugged.

While recording...

While the USRIC-8 is recording the green **OK** LED blinks every 4 seconds if none of the configured alarm conditions have been met.⁴

Alerts

As soon as one of the alarm conditions is met, the red alert LED blinks every 4 seconds.

Depending on the alarm configuration the red LED may remain on for the rest of the trip, or the green **OK** LED 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.

³ The first pre-start reading is taken one log interval after you unplug the unit from the USB port.

⁴ The blinking of the green **OK** LED can be disabled during configuration of the unit.

Marking a reading with an inspection mark

When you press the **START/Mark** button, the next reading taken by the USRIC-8 will be identified in the downloaded data with an inspection mark. If the **Allow stopping with the Stop button** feature is configured, a mark will also be registered when you press the **STOP** button, but do not complete the process of stopping the recorder.

When does the USRIC-8 stop recording?

Automatically

The USRIC-8 stops recording temperature when the maximum number of readings specified during configuration has been reached. Your unit may also stop when inserted into a USB socket. This is a factory set option which cannot be changed during configuration of the unit with LogTag Analyzer. Your distributor can supply more information about this option.

Manually

You can set up a USRIC-8 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. You can enable stopping in the **Advanced Options** dialogue during configuration. When enabled, following sequence will stop the unit:

- Press and hold the **STOP** button. For the next 4 seconds both LED's will blink simultaneously.
- When the LED's 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 LEDs have stopped blinking. Instead of stopping, an inspection mark will be recorded against the next temperature reading taken.

Plugging the USRIC-8 into a USB port

What happens when you plug the USRIC-8 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.

- If you have configured the USRIC-8 to **Generate files**, PDF, CSV or LTD files will be created every time you plug the recorder into the USB port. This will be indicated by the green **OK** LED being permanently on. Once finished, the green **OK** LED will blink every second, twice in quick succession, to indicate these files can now be accessed.
- If you have disabled file generation, the USRIC-8's green **OK** LED will blink once every second.

As part of the process up to four drivers will be installed. These drivers are part of the Operating System and will typically not require administrator privileges for your computer.

1. Mass Storage Device

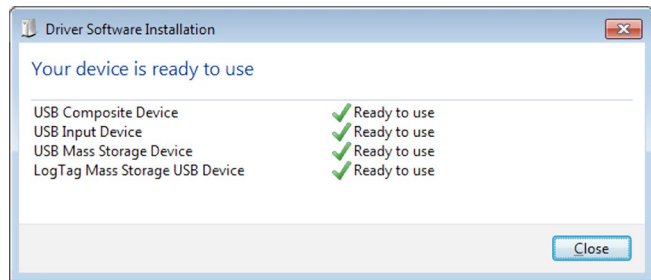
2. LogTag Mass Storage USB Device

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 USRIC-8 is configured not to generate files. not

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 PC.

4. USB Composite Device



Which of these drivers will be installed depends on the USRIC-8's configuration.

While a USRIC-8 is plugged into USB, no temperature readings are taken. The graph will display a gap and the data list will indicate "paused". This also applies when the recorder is connected to a USB power supply.

Accessing the files

If files are generated, a new storage device or mounted device will appear. The device name will be created from the serial number of the USRIC-8. 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 MS Excel™.

The file names contain information about the recorded data, which is detailed in the section about "Interpreting the data" on page 8.

If a device only has pre-start readings, PDF and CSV files will not be created.

The files created by the USRIC-8 are not automatically copied to a permanent storage volume on your computer. If you wish to retain the files you need to manually copy them to a location such as your **Documents** folder.

Unplugging

You can unplug a USRIC-8 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.

Signal	Sequence	Occurrence
Wake-up signal	Sequence of four quick alternate flashes of green-red LED's	<ul style="list-style-type: none"> displayed after configuration has been successfully applied to the USRIC-8. Not to be mixed up with...
Start signal	Sequence of ten alternate flashes of green-red LED's	<ul style="list-style-type: none"> displayed when the USRIC-8 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 and red LED's	<ul style="list-style-type: none"> 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 LED every 4 seconds (approx.)	<ul style="list-style-type: none"> indicates USRIC-8 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 LED every 8 seconds (approx.)	<ul style="list-style-type: none"> indicates USRIC-8 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 LED every 4 seconds	<ul style="list-style-type: none"> indicates USRIC-8 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 LED every 8 seconds	<ul style="list-style-type: none"> indicates USRIC-8 has finished recording and an alert condition was present during the trip.
Communication	The green LED will flash occasionally	<ul style="list-style-type: none"> during USB communication the green LED will flash occasionally; no additional information is conveyed in this.
Initiate Stop	Sequence of simultaneous flashes of green and red LED's for 4 seconds	<ul style="list-style-type: none"> 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 and red LED's for 2 seconds	<ul style="list-style-type: none"> 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 LED every second	<ul style="list-style-type: none"> The USRIC-8 is connected to a USB port and waiting for USB communication.
Ready for re-flash	The red LED is on permanently	<ul style="list-style-type: none"> A permanently lit red LED light indicates the USRIC-8 is ready to receive new firmware. Special software is required to upload new firmware to the USRIC-8.
Generating Files	The green LED is on permanently	<ul style="list-style-type: none"> A permanently lit green LED light indicates the USRIC-8 is generating files. No USB activity will be observed on the computer screen during this time.

Tips and Tricks

Configuration

When configuring a USRIC-8, allow enough time for the readings to stabilise if you have an upper alert configured. 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 from the USB socket when you have configured a 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 with the goods for recording. While recording, place the USRIC-8 so the 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.

Data evaluation

Although the files generated by the USRIC-8 are not automatically copied, the data on the unit is retained, so each time you plug it back into the computer the files are re-generated, albeit with a new file name. Once the battery is exhausted, the data can no longer be accessed.

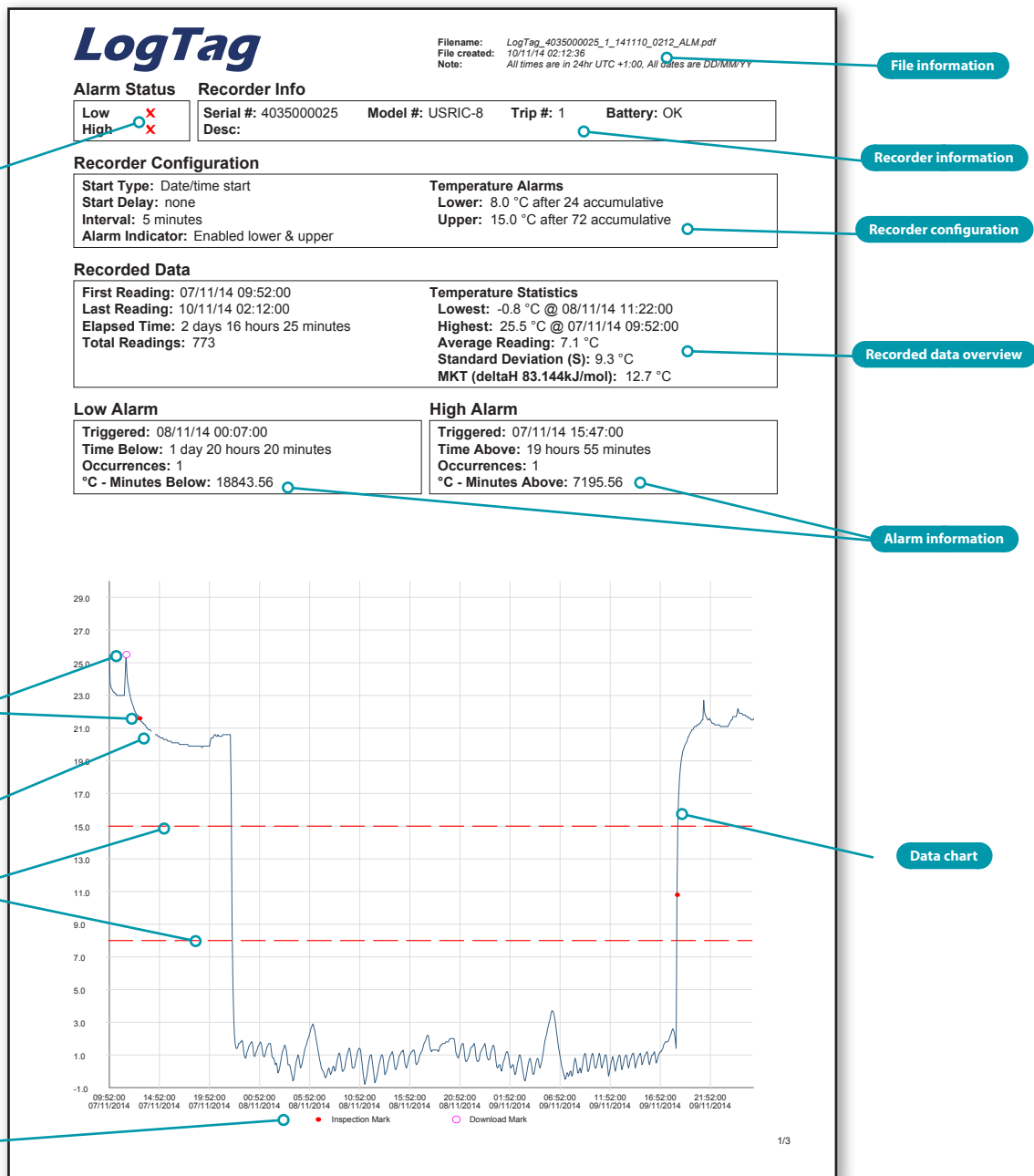


Figure 3 - Sample report page

Interpreting the data

Alarm status

This shows at a glance if the USRIC-8 recorded alarm conditions during the trip - separately for upper and lower alarm levels - with a green tick (✓) or a red cross (✗).

File information

This section shows general information about the PDF file, such as generation time, date and time formats and the file name.

The file's name 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

This section shows general information about the recorder such as serial and model numbers, trip number, battery status and description.

Recorder configuration

Here you can see the settings that were uploaded during the configuration of the USRIC-8. It shows how the recorder was started, if a start delay was active and the interval used for the readings. It also lists the conditions for which an alarm was to be reported and which of the LED indicators were activated.

Recorded data overview

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.

Alarm information

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

Data chart

The chart shows a graphical representation of the data during the trip. As part of the USRIC-8 configuration process you set the parameters that influence how the chart is presented.

Markers

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

Paused Readings

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

Alarm limits

The alarm limits are shown with red dashed lines (----) so you can see at a glance where temperatures went outside the limits.

Chart Legend

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

USRIC-8 Factory Presets

LogTag® USRIC-8 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 table below when ordering. Please note that minimum order quantities apply for USRIC-8 recorders with profiles not stocked by LogTag®.

Description		Default Profile	Range/Option	Your Requirement
Standard Options				
UserID		-	ASCII text up to 38 characters*	
Start method		Push button start	Push button start	Push button start
Record pre-start readings		enabled	enabled or disabled	
Number of readings to record		8000	1-8001	
Sampling interval		5 minutes	1 minute to 18 hours	
Start Delay		60 minutes	1 minute to 45 days, 0=no delay	
Enable Green OK indicator		enabled	enabled or disabled	
Upper Alarm	Trigger this alarm	disabled	enabled or disabled	
	Temperature limit value	-	-25°C to 60°C (-13°F to 140°F)**	
	Alarm activation	instant***	instant, accumulative or consecutive	
	Activation delay time	-	1 minute to 45 days	
Lower Alarm	Trigger this alarm	disabled	enabled or disabled	
	Temperature limit value	-	-25°C to 60°C (-13°F to 140°F)**	
	Alarm activation	instant***	instant, accumulative or consecutive	
	Activation delay time	-	1 minute to 45 days	
Reset alarm with STOP/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		yes	yes or no	
Generate LTD file		yes	yes or no	
Generate CSV file		no	yes or no	
Generate Data List		yes	yes or no	
PDF 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		no	yes or no	
Activation Energy		default	default or custom value (please specify)	
Y-axis scaling	Range	range of readings	range of readings, range of sensor or custom	
	Custom upper	-	-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	

* All units associated with a profile must have the same UserID. The text cannot be individually customised per unit.

** Upper value must be above lower value

*** instant = one temperature reading is above/below limit

consecutive = temperature readings are above/below limit for the time defined in the activation delay time without interruption (single event)

accumulative = temperature readings above/below limit for the total time defined in the activation delay time, but may not necessarily be sequential.

Technical Specifications

Product Code

USRIC-8

Recording Temperature 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

-30°C to +65°C (-22°F to +149°F)

Ambient humidity range during transport and use

0 to 95%RH

Resolution

0.1°C (0.1°F) across entire range

Accuracy

- Better than $\pm 0.5^{\circ}\text{C}$ ($\pm 0.9^{\circ}\text{F}$) for -5°C to $+30^{\circ}\text{C}$ (23°F to 86°F)
- Better than $\pm 0.8^{\circ}\text{C}$ ($\pm 1.5^{\circ}\text{F}$) for -25°C to -5°C (-13°F to 23°F)
- Better than $\pm 0.8^{\circ}\text{C}$ ($\pm 1.5^{\circ}\text{F}$) for $+30^{\circ}\text{C}$ to $+60^{\circ}\text{C}$ (86°F to 140°F)

Clock accuracy

Quartz crystal locked real time clock, rated accuracy $\pm 25\text{ppm}$ @ 25°C (equiv to 2.5 seconds/day)
Rated temperature coefficient is $-0.034 \pm 0.006\text{ppm}/^{\circ}\text{C}$ (i.e. typically ± 0.00294 seconds/day/ $^{\circ}\text{C}$)

Recording Capacity

- 8,001 real time temperature values

Memory type

Non volatile

Sampling Interval

Configurable from 1 minute to 18 hours.

Start options

Push button start with optional configurable start delay from 1 minute to 45 days
Date/time start

Sensor

Precision thermistor

Sensor Reaction time

T90 less than 7 min by method detailed in EN12830:1999

Vibration

Withstands vibration specification as detailed in EN12830:1999

Shock

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

Environmental

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

Power source

CR2032 3V non-rechargeable, non-replaceable Lithium battery-

Battery life

Shelf life of up to two years before configuration. Six months operating life from the time of configuration.

Size

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

Weight

32g

Case Material

Polycarbonate

Calibration

Calibration traceable to an ISO/IEC 17025 accredited testing laboratory

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

Alarms function & visual

- two configurable alarms
- OK LED and Alert LED, linked to alarms

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
- PDF creation typically less than 10 seconds

LogTag Analyzer features

- configure and download with version 2.5 or later

USB compatibility

USB 2.0, type A plug

Accessories

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