



## USRID-16

Single-use USB PDF  
Temperature  
Recorder with  
Display

### Product User Guide

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 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, an alarm marker will be shown on the display.

The ▲ symbol will be shown when the most recent temperature recorded is above the upper alarm threshold, the ▼ symbol when it is below the 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. If an alarm marker is shown, but the display still shows a tick, a delayed alarm is configured.

In this example, the most recently recorded temperature is above the upper alarm threshold and no alarm was triggered:



### An alarm was triggered

If an alarm event occurred, the alarm indicator ✕ is displayed in the upper left corner of the display.



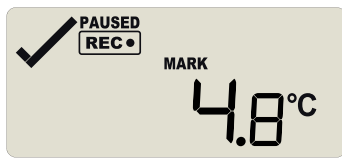
### Marking a reading with an inspection mark

When you press the **START/Mark** button while the USRID-16 is recording, the next reading taken will be identified in the downloaded data and on the PDF report with an inspection mark.

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.



### Reviewing Min/Max values

At any time you can review the recorded minimum and maximum temperatures by briefly pressing the **STOP/Review** button. You can do this while the logger 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 the **STOP/Review** button, the next review screen is shown.

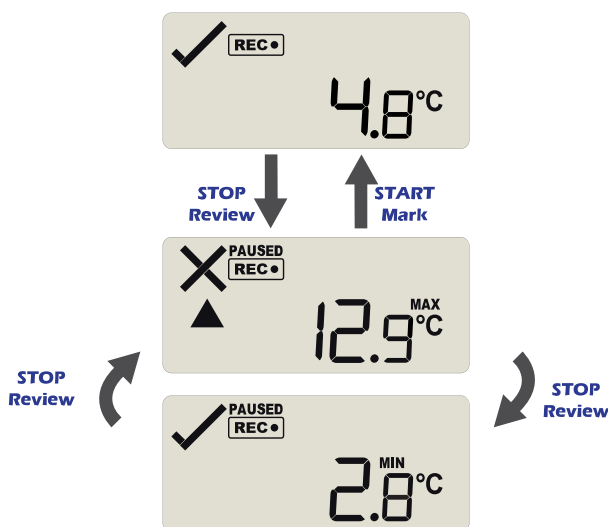


Figure 2: Review cycle

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

The standard recording screen will be shown.

After the first button press, the highest recorded temperature during the trip so far is shown, indicated by **MAX**. If this temperature was above or below one of the alarm thresholds, the corresponding alarm threshold arrow is also shown.



The cross is shown if this caused an alarm.

The example screen shows:

- The highest recorded temperature was 12.9 °C, which was above the allowed threshold, shown by the upper alarm threshold arrow.
- The duration above the threshold was longer than the allowed time, so an alarm was generated as a result, indicated by the cross.


Pressing **STOP/Review** for a second time will show the lowest recorded temperature during the trip so far, indicated by **MIN**. If this temperature was above or below one of the alarm thresholds, the corresponding alarm threshold arrow is also shown.



The cross is shown if this caused an alarm.

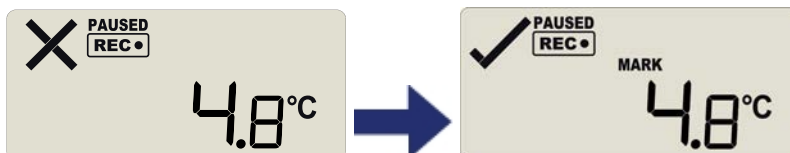
The example screen shows:

- The minimum temperature recorded was 2.8 °C, which was within the allowed thresholds.
- No alarm threshold arrow or duration are shown.
- The tick is shown, as no alarm was triggered.


 The highest temperature value shown can still be below the lower alarm threshold. Thus, a lower alarm threshold arrow can still show for the highest temperature. Similarly, this applies in reverse to the lowest temperature.

### Clearing an Alarm

A USRID-16 can be configured so you can clear an alarm from the display. To do this, press and hold the **STOP/Review** button.



After 2 seconds the alarm will be cleared and the **X** will change to a **✓**. If you keep holding the button for a further 2 seconds, the **X** will show again and the alarm will not be cleared. An inspection mark will be recorded against the next temperature reading taken, whether you clear the alarm or not.

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

### Paused Readings

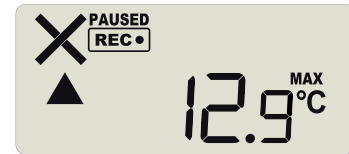
During configuration of the USRID-16 you can set the option to ignore up to 15 readings for alarm and statistics calculations after either button is pressed. The readings are still shown on the graph and in the data listing, but they are labelled as **paused**, and their value is ignored when determining alarm trigger conditions, minimum/maximum values and other statistical calculations.

It allows the logger to acclimatize to the environment again, before further readings are processed.

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

The option is set in the [Advanced Settings tab](#) during configuration with LogTag<sup>®</sup> Analyzer and is expressed in number of readings after the last button press.

Paused readings are specially marked in the graph and data listings.



How long **PAUSED** is displayed depends on when between readings you press the button. It will show longer, if the button is pressed just after the logger takes a reading, but shorter if you press the button just before. For example, if you configure a logging interval of 10 minutes and 2 paused readings, the time **PAUSED** is shown could be as short as 10 minutes, but as long as 20 minutes.

### Power Save


When Power Save is enabled, the display will automatically switch off if none of the buttons have been pressed for 30 seconds.

This function is appropriate in applications where you don't need to look at the display frequently, such as in transit monitoring applications, as the logger uses less battery power when the display is not turned on.

Pressing any button will re-activate the display.

Power save is enabled or disabled when configuring the USRID-16 via LogTag<sup>®</sup> Analyzer in the [Advanced Settings](#) tab.

### Battery Low while recording

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



## Stopping the USRID-16

### Automatically

The USRID-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<sup>®</sup> Analyzer. Your distributor can supply more information about this option.

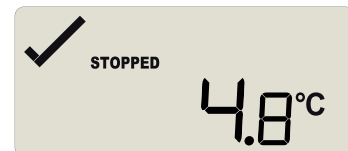
### Manually

You can configure a USRID-16 so it can be stopped with the **STOP/Review** button. This feature is useful when you take the logger 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. The **STOPPED** symbol shows in addition to for 2 seconds.



The symbol turns off after 2 seconds. If you release the button during this time, the logger stops taking temperature readings.



If the button is released while **REC** is still on, or you wait until it **STOPPED** disappears, the display shows **REC** again, and the logger continues to record 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](#).

 Unlike many other LogTag<sup>®</sup> products with display, the alarm does **not** have to be cleared before the logger can be stopped.

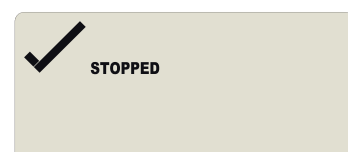
### Logger has stopped

Once the logger has stopped, the display will show:

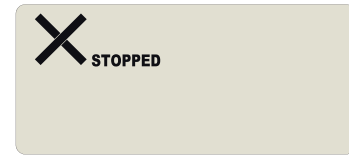
- The **STOPPED** symbol
- The OK indicator (✓) if no alarm was recorded
- The alarm indicator (✗) if an alarm was recorded during the trip that has not been cleared
- The battery low symbol (✗), if the battery is low.

The logger does not show a temperature reading.

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

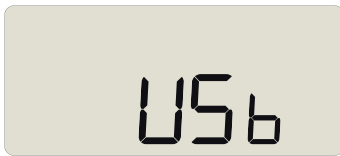


Here, the logger has stopped, and an upper alarm was recorded during the trip.



## Plugging the USRID-16 into a USB port

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



During the file generation a small dot will also blink.

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

### Microsoft Windows

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

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

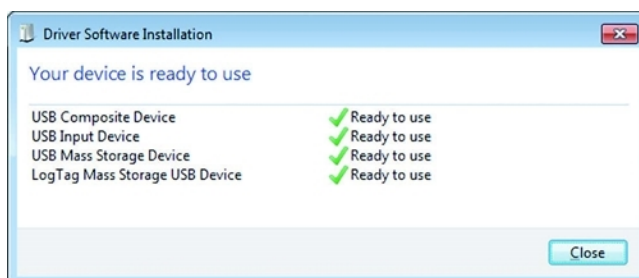
1. Mass Storage Device
2. LogTag Mass Storage USB Device

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 USRID-16 does not generate files.

3. USB Input Device (HID)


This device is used for communication to LogTag<sup>®</sup> Analyzer and its driver will always be installed, even if LogTag<sup>®</sup> Analyzer is not present on the computer.

4. USB Composite Device



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


Once finished, **USB** will blink every second to indicate these files can now be accessed.

 While a USRID-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.

## Accessing the files

If the logger was configured to generate files, a new drive letter or mounted device will appear. The device name will be created from the serial number of the USRID-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<sup>®</sup> Analyzer software. CSV files can be opened with a text editor, or imported into a spreadsheet program such as Microsoft<sup>®</sup> Excel.

 If a logger has only taken pre-start readings, PDF and CSV files will not be available.

 To retain the logger-generated files please copy them to a permanent storage location on your computer, such as the Documents folder (they are not automatically copied).  
The data on the logger are retained, so each time you plug the USRID-16 back into the computer the files are re-generated. Once the battery is exhausted, the real time clock on the unit stops and dates and times for the retained data may no longer be accurate.



## Interpreting the Data

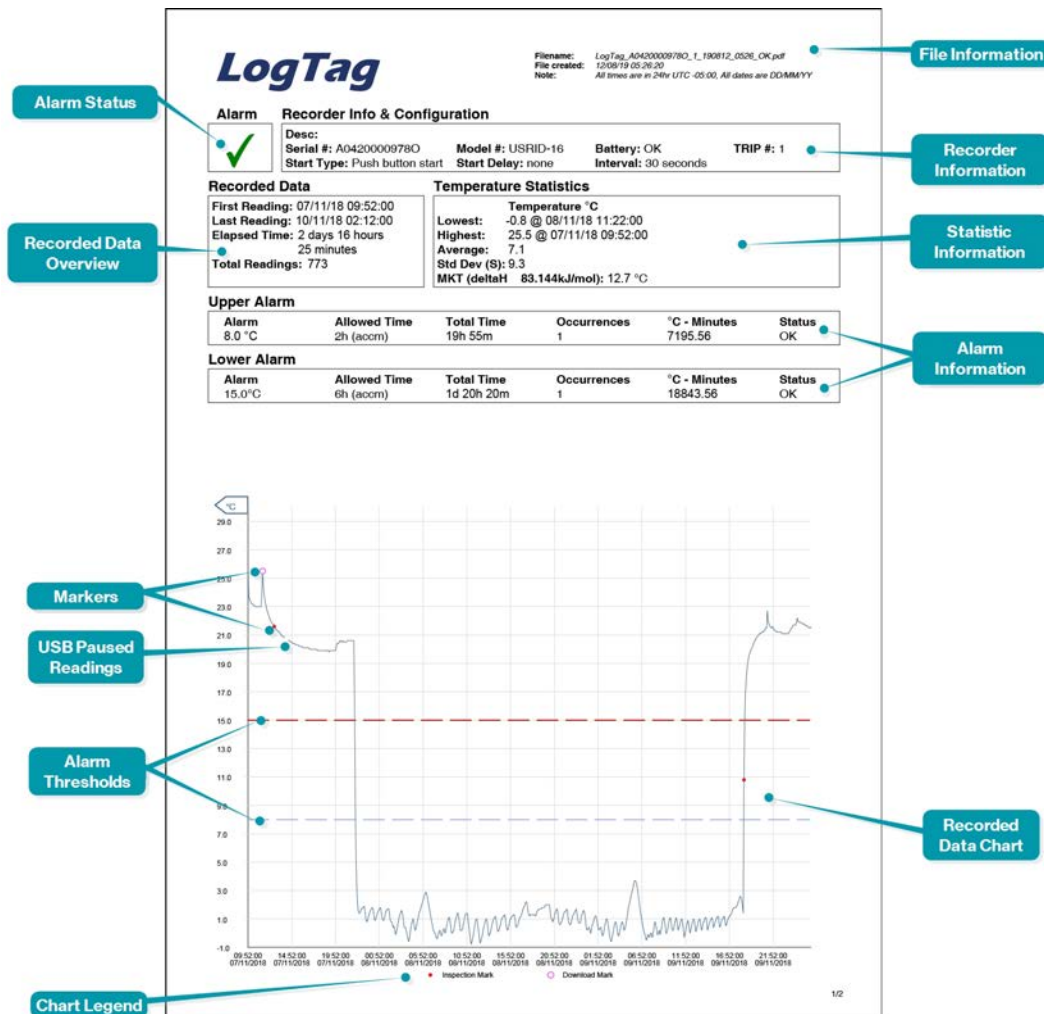


Figure 3: Sample report page

## Data Evaluation - Report

### Alarm Status

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

### Recorded Data Overview

This section shows at what time the logger started to record data, when it finished, how many readings were recorded and how long that took.

### Markers

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

## USB Paused Readings

USB loggers cannot take a reading while plugged into a USB port. A gap is shown in the graph or list where the USRID-16 was plugged in at the time it would otherwise have taken a reading.

## Legend

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

## Logger Statistics Overview

This sections gives a brief overview of the temperature data collected during the trip. It shows minimum and maximum values, when these occurred and also shows average, standard deviation and MKT values.

## Recorded Data Chart

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

## File Information

This section shows general information about the PDF file, such as generation time, date and time formats used in the chart and the data list as well as 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].pdf***

Other files that may be generated have the extensions \*.csv and \*.ltd.

## Logger Information and Configuration

This sections shows general information such as serial and model numbers, trip number, battery status and description. It shows how the logger was started, if a start delay was active and the interval used for taking readings.

## Temperature Alarms

This section summarizes the alarm trigger conditions and occurrences during the trip, including:

- direction (whether it is an upper or lower alarm)
- alarm threshold temperature value
- any delay value for consecutive or accumulative alarms
- the total time above or below a threshold
- how often an alarm occurred
- whether or not an alarm was generated for this alarm trigger

Up to 2 alarms will be shown here, as configured with LogTag<sup>®</sup> Analyzer.

### 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.



## Marked readings

In the data list readings are marked after the temperature value:

- with a + symbol where the USRID-16 has been downloaded with LogTag<sup>®</sup> Analyzer
- with a \* symbol where an inspection mark has been placed with the **START/Mark** button
- with a \$ symbol where readings were paused as a result of a button press
- with a # symbol where the logger was plugged into a USB port at the time it would otherwise have taken a reading

## USB Paused Readings

USB loggers cannot take a reading while plugged into a USB port. A gap is shown in the graph or list where the USRID-16 was plugged in at the time it would otherwise have taken a reading.

## Legend

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

## Tips and Tricks

### Configuration

When configuring a USB logger, 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 USRID-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 USRID-16 with the goods. While recording, make sure the USRID-16's USB plug points downward. 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.

# Technical Specifications

<b>Model Number</b>	USRID-16
<b>Temperature Sensor Measurement Range</b>	-30 °C to +60 °C (-22 °F to +140 °F)
<b>Operating Temperature Range</b>	-30 °C to +65 °C (-22 °F to +149 °F)
<b>Storage Temperature Range</b>	0 °C to +40 °C (32 °F to +104 °F)
<b>Ambient humidity range during transport and use</b>	0 to 95%RH
<b>Rated Temperature Resolution</b>	0.1 °C (0.1 °F) across entire range
<b>Rated Temperature Accuracy</b>	<ul style="list-style-type: none"> <li>Better than ±0.5 °C (±0.9 °F) for -20 °C to +40 °C (-4 °F to 104 °F)</li> <li>Better than ±0.7 °C (±1.3 °F) for -30 °C to -20 °C (-22 °F to -4 °F)</li> <li>Better than ±0.7 °C (±1.3 °F) for +40 °C to +60 °C (104 °F to 140 °F)</li> </ul>
<b>Sensor Type</b>	Precision thermistor
<b>Sensor Reaction Time</b>	Typically less than 7 minutes (T90) in moving air (1m/s), method as detailed in EN12830:2018.
<b>Clock accuracy</b>	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)
<b>Recording Capacity</b>	16,129 real time temperature values, giving <ul style="list-style-type: none"> <li>112 days @ 10min logging or</li> <li>168 days @ 15min logging.</li> </ul>
<b>Statistics memory</b>	Statistics memory for displaying trip Max/Min values
<b>Memory type</b>	Non volatile
<b>Sampling Interval</b>	Configurable from 30 seconds to 18 hours.
<b>Start options</b>	<ul style="list-style-type: none"> <li>Push button start with optional configurable start delay from 1 minute to 72 hours</li> <li>Date/time start</li> </ul>
<b>Alarm functions</b>	<ul style="list-style-type: none"> <li>one configurable upper alarms</li> <li>one configurable lower alarms</li> <li>OK tick and Alarm cross on display, linked to alarms</li> </ul>
<b>Vibration</b>	Withstands vibration specification as detailed in EN12830:2018
<b>Shock</b>	<ul style="list-style-type: none"> <li>Withstands shock specification as detailed in EN12830:2018</li> <li>Withstands 5 drops from 1m onto smooth concrete floor without loss of function or calibration</li> </ul>
<b>EMC compliance</b>	<ul style="list-style-type: none"> <li>EC EMC directives (EN 61000-6-1:2005 &amp; EN 61000-6-3:2006)</li> <li>Includes electrostatic discharge as prescribed in EN 61000-4-2</li> <li>Complies with FCC Part 15 Subparts A and B</li> </ul>
<b>Environmental</b>	IEC 60529: IP64 with USB cap fitted Fits into IP67 Protective Enclosure 200-000020
<b>Case Material</b>	Polycarbonate
<b>Power source</b>	CR2032 3V Li-MnO <sub>2</sub> coin cell, non-rechargeable
<b>Battery life</b>	Typically 6 months 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.
<b>Size</b>	93mm(H) x 54.5mm (W) x 8.6mm (T) including USB cap
<b>Weight</b>	39g
<b>Calibration</b>	Factory calibration using instruments traceable to an ISO/IEC 17025 accredited testing laboratory
<b>PDF features</b>	<ul style="list-style-type: none"> <li>compliant with standard 1.6 and later</li> <li>Single page report with trip and alarm summary</li> <li>Multi page report with list of readings including date/time</li> </ul>
<b>Download time</b>	<ul style="list-style-type: none"> <li>Typically with full memory (16,129 readings) less than 30 seconds from time of insertion to availability of PDF report.</li> <li>Typically less than 10 seconds from time of insertion to availability of LTD file in LogTag<sup>®</sup> Analyzer (if configured)</li> </ul>
<b>Software requirements</b>	<ul style="list-style-type: none"> <li>LogTag<sup>®</sup> Analyzer version 3.1r7 or later to configure and download</li> <li>PDF reader software to access onboard PDF files</li> </ul>
<b>USB compatibility</b>	USB 2.0, type A plug
<b>Accessories</b>	<ul style="list-style-type: none"> <li>Wall holder 200-000010</li> <li>IP67 Protective Enclosure 200-000020</li> <li>Replacement protective cap 200-000425</li> </ul>