

# MANUAL tempmate®-C1

The ultra-low temperature datalogger



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## 1. Intended Use & Important Information

The tempmate-C1 is an easy-to-use data logger that records all relevant temperature data during its usage, especially in very low temperatures. This information can then easily be read out as comprehensive and detailed PDF- or CSV-report without requiring any special hard- or software.

The tempmate-C1 can be used for all kinds of applications where monitoring and recording temperature is required but is prominently used to directly monitor and record low temperatures on dry-ice level without the requirement of external sensors.

The data logger comes ready-to-use in a default configuration and offers further possibilities through its free configuration software tempbase-Cryo (available on [www.tempmate.com](http://www.tempmate.com))

**Quick Notes & Important Information:**

The tempmate-C1 is a semi single-use data logger with a total recording and running time of 90 days after the first start. Within this time frame the C1 can be stopped and started multiple times.

The data logger runs for up to 90 days with its default configuration and if kept under optimal storage conditions (room temperatures) before. During the activity it measures temperature between -90°C and +70°C (-130°F to 158°F) every 10 minutes.

If the C1 is used in temperatures at dry-ice level, the built-in display will freeze and can become unreadable; it will unfreeze fast and become easily readable again as soon as the temperature rises.

Condensation can occur while the device warms up and can potentially damage external systems when plugged in through USB. It is recommended to let the device dry or dry it off manually.

The user can optionally configure the tempmate-C1 through tempbase-Cryo before the logger is started. To protect the USB-port on top of the data logger, the protection cap must be kept on during usage and while the device is unfreezing.

Start, stop, activity and status are indicated by the LCD, which allows a fast and easy evaluation.

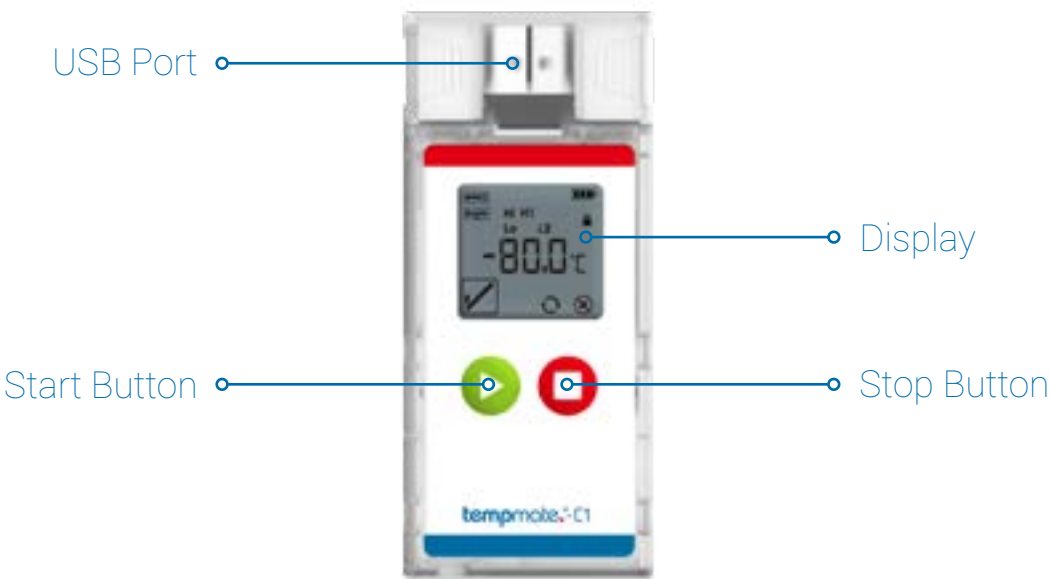
A full data report will be created once the data logger has been stopped and plugged in through USB. It is possible to create a temporary report while the data logger is active; during this, no data points are recorded.

The expiry date is printed on the back of each unit; it is recommended to use the data logger as soon as possible and only within the shelf life.

## 2. Disposal Instructions

The tempmate-C1 has a built-in and not replaceable CR2450 Lithium metal button cell next to electronic parts and raw materials, and therefore requires the data logger to be disposed of by a waste or recycling service provider.

3. Device Description



Display Indications

Display:

The built-in display (LCD) informs the user about every status and activity of the data logger and allows a fast and easy first evaluation.

A detailed diagram of the LCD display. It shows various icons and text. At the top left, there's a 'REC' icon (1) and a 'MARK' icon (2). Below these are 'Hi' and 'Lo' labels with 'H1 H2 H3' and 'L1 L2 L3' respectively. The center shows a large temperature value '-888.8' (6) with a unit symbol (7). Below the temperature are 'MAX MIN AVG' labels (8). At the bottom, there are icons for alarm status (9), start delay (10), reuse (11), and stop button invalid (12). On the right side, there are icons for battery level (3), alarm level (4), password protection (5), and measurement value (6).

1	Recording Status
2	Mark
3	Battery Level
4	Alarm Level
5	Password Protection
6	Measurement Value
7	Temperature Unit, Time Unit
8	Max. Value, Min. Value, Average Value
9	Alarm Status
10	Start Delay
11	Reuse - can be used for several campaigns
12	Stop Button Invalid

By pushing the green start button in quick succession, further information can be accessed on different pages of the display. The display changes from the current temperature display first to the maximum recorded temperature value, then to the minimum and lastly to the average value of the current recording.

The first page can be accessed immediately by pushing the green Start button again.

By pushing the red stop button , the remaining usage time of the device can be displayed. The effective recording time depends on the selected measuring interval.

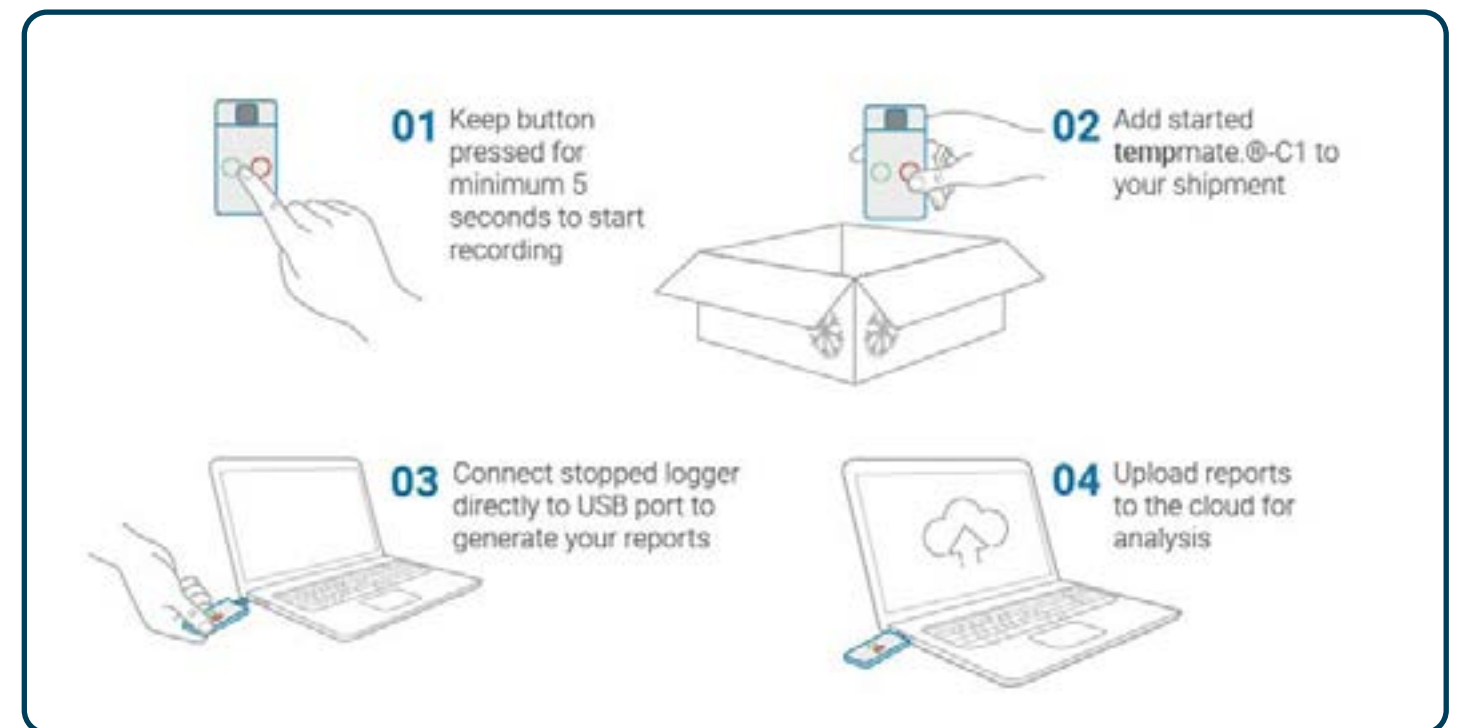
## 4. Equipment & Software



The tempmate-C1 comes ready-to-use single units, by default it has a measurement interval of 10 minutes and no alarm ranges.

Optionally, the tempmate-C1 can be configured and evaluated via the free configuration software tempbase-Cryo, which allows the user to change every setting and adapt it to their application as well as evaluate recorded data (Graph) from the device or from past measurements.

tempbase-Cryo can be downloaded free of charge on [www.tempmate.com](http://www.tempmate.com)

## 5. Quick Start Guide



1. To start, keep the green Start Button  pushed for a minimum of 5 seconds. A successful start is indicated by *bEGn* showing on the display.
2. Place the data logger and record the ambient temperature
3. To stop, keep the red Stop Button  pushed for a minimum of 5 seconds  
If frozen, wait until the device is fully unfrozen – moisture on the USB-connection must be avoided
4. Plug-in the data logger via USB and receive the full report as PDF & CSV file



## 6. Operation Instructions

### 1st STEP PREPARATION

- No further preparation is necessary, as the data logger comes ready-to-use;  
The tempmate-C1 can be kept in stock outside of room temperature conditions (~21°C / 70°F), but this can potentially have an impact on the shelf life;

We recommend conditioning the data logger only shortly before the usage

### 2nd STEP CONFIGURATION

Optionally, the user can configure the data logger through tempbase-Cryo before it is started.

Download tempbase-Cryo via <https://www.tempmate.com/de/download/>

- Install the tempbase.-Cryo software on your PC
- Remove the cap and connect the unbooted logger via USB
- Open the tempbase.-Cryo software
- In the "Summary" tab all settings can be changed to fit the necessary requirements
- Click "Save Parameter" (1) to save the new settings
- Lastly, unplug the data logger and replace the protection cap securely


The screenshot displays the 'tempbase-Cryo' software interface, specifically the 'Summary' tab. The interface is organized into several sections:

- Device Information:** Includes fields for Device ID (TC123456789), Device Model (TC1-001), Recording Type (Temperature), Sensor Type (Internal), Battery Level (90%), and Device Status (Logging).
- On/Off Setting:** Features Start Mode (Buttons), Start Delay (0h 0m), Start Time, Stop Mode (Buttons), and Repeat Start (Yes/No).
- Time Setting:** Includes Time Zone (UTC+02:00), Time Format (DD-MM-YY HH:MM:SS), Device Time (19-07-2023 17:04:03), Logging Interval (0h 0m 0s), and Logging Duration (1 Day, Max. 27 Days).
- Report Setting:** Includes Report Format (PDF & CSV), Temporary Report (Enable/Disable), PDF Password, Report Language (English), Software Password, Temperature Unit (°C/°F), and a Trip Description field.
- Statistical Information:** A summary bar showing Total Memory (2000), Current Readings (128), Logging Duration (4h 14m), First Reading (19-07-2023 09:43:18), Last Reading (19-07-2023 17:07:41), Min. Temperature (28.5°C), Max. Temperature (24.9°C), Average Temperature (24.9°C), ShortKicks Temperature (25.6°C), and First Alarm Temperature.
- Alarm Table:** A table with columns for Alarm, Alarm Threshold, Alarm Type, Alarm Delay, Over limit duration, Over limit times, and Alarm Status. It lists five alarms (F0, F1, L1, L2, L3) for Temperature, each with a threshold of 30°C, a single alarm type, and a 0h 0m 0s delay. Alarms F1, L1, L2, and L3 are currently 'OK'.

On the right side, there are buttons for 'Save Parameter', 'Save', 'Stop Recording', 'Import Template', and 'Export Template'.

### 3rd STEP START, USAGE, STOP

#### Starting the data logger

- The device display is disabled until the device has been successfully started.
- To start, keep the green Start Button  pushed for a minimum of 5 seconds.
- A successful start is indicated by *bEGn* showing on the display.
- The data logger is now activated and will record the near ambient temperature
- If no Start Delay was set, the first temperature data point will be saved after the first measurement interval is due
- If a Start Delay was set, the first data point will be recorded after the delay is due, and then follow the set-up measurement interval
- If a different signal or no signal appears during the start process, do not use the logger and contact our support via [support@tempmate.com](mailto:support@tempmate.com).

#### Usage while active

- The data logger should be placed as close as possible to the place of use; it should not be placed in-between
- If the display freezes under very low temperatures, it can become unreadable. It will become readable again when unfrozen.

#### Status Request & Menu Navigation:



During the measurement, the display will show all relevant data. It can be activated by pushing the Start or Stop button one short time.

Further information about the recorded data is shown on different pages of the display, which can be navigated by pushing the green Start button several times in quick succession.


To display the remaining usage time of the device, press the red stop button. The effective recording time depends on the selected measuring interval.

#### Setting a marked event:

To place a mark during the measurement, click the green Start Button twice.

The display will show  to indicate that the next interval will be marked.  will disappear once the event was successfully saved.

#### Stopping the data logger

- To stop the data logger, keep the red Stop Button  pushed for a minimum of 5 seconds
- The display will shut off and the data logger is now stopped

#### Important:

- The total running time of 90 days begins with the first start of the device. It can be started and stopped without limit within this time frame.
- The data logger will stop automatically if the internal memory capacity is reached.

### 4th STEP EVALUATION

#### Evaluation on device level

Per status request (see "Usage") the user can check the current temperature on the first page, and what minimum and maximum temperatures the data logger has recorded on

If alarm thresholds have been set up, they can be viewed on different pages of the display.

This gives an easy first information about the status of the whole recording.

#### Creating PDF or CSV report

- The recorded data are primarily presented as PDF-report, which lists all important information about the measurement.
- Plug-in the data logger via USB

- Once plugged in, the display will show *PdF* and *CSu* to indicate that the PDF and CSV reports are being generated.
- During this, all recorded data is processed into a readable format and depending on the number of data points, this process can take up to 2 minutes.
- Please do not unplug the data logger during this process!
- Once all data is processed, the data logger will be recognized as flash-drive and will list all available files, including the report as PDF and CSV file.
- The report(s) can be saved locally via drag & drop, or by starting tempbase-Cryo and evaluate the results there ("Graph").

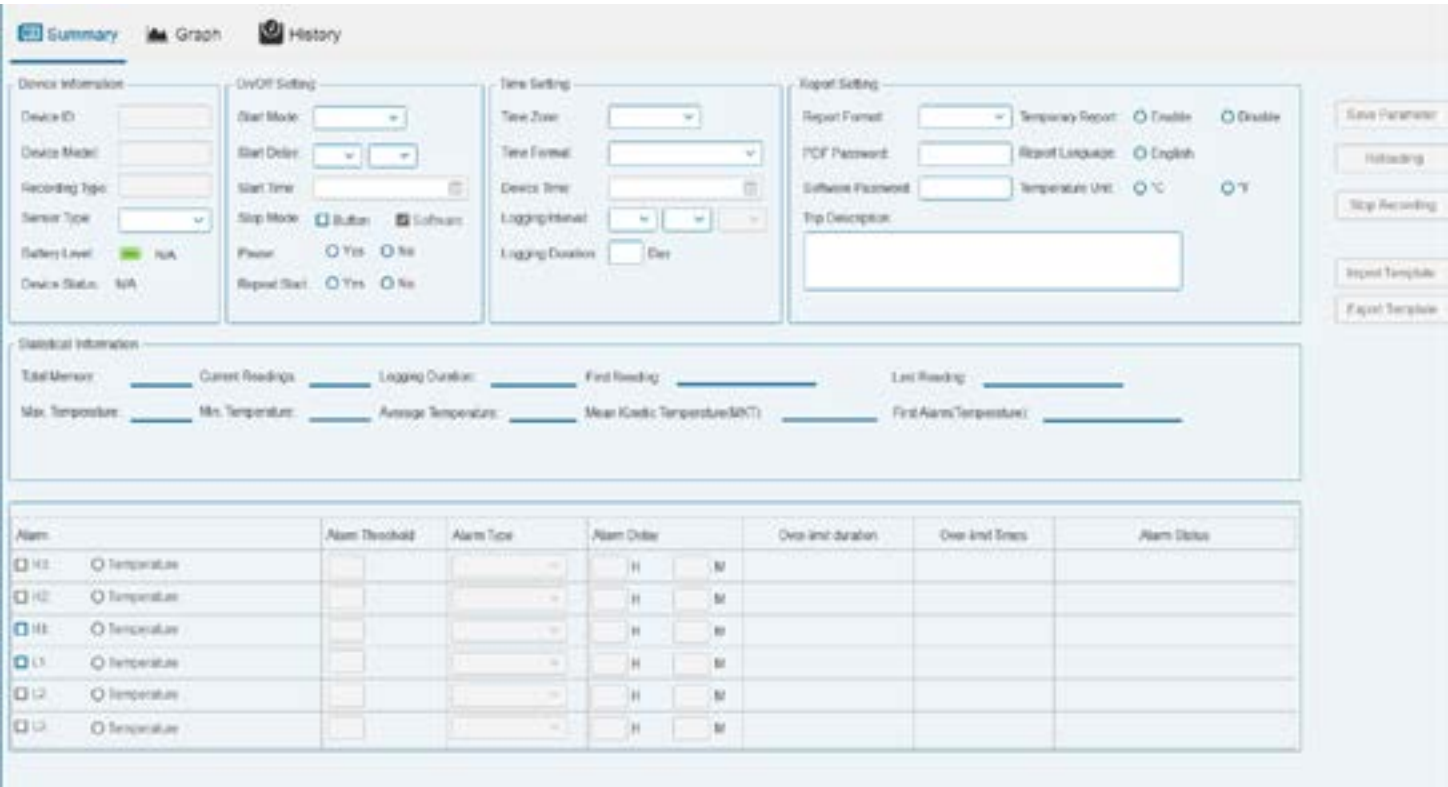
Important:

- If the data logger is not stopped, a temporary report will be created. During this, the measurement continues – It is advised to place a marked event to prevent any uncertainties in the evaluation.
- The PDF/CSV reports are only created momentarily; once the data logger is unplugged, they must be created again
- The files on the data logger cannot be deleted completely, and deletion is not recommended; if they were deleted by the user on the device, they could be re-created by plugging them in to USB again

Evaluation on software level

Optionally or additionally to the PDF report, the recorded data can also be loaded into tempbase-Cryo. This gives the user the ability to see the data of plugged-in devices and create an archive of units that were plugged in and read out via tempbase-Cryo before.

- Plug-in data logger via USB and wait until all data is processed
- Start tempbase-Cryo
- The first screen "Summary" will show all statistical information and the configuration of the plugged in device
- The second screen "Graph" will show the recorded data as graph
- The third screen "History" will list recorded measurements of all devices that were read out via tempbase-Cryo before; they can be filtered and evaluated from here



- Each data logger plugged in will automatically create an entry in the local Database and can be accessed later



## 7. FAQ – Frequently Asked Questions

**Q: How often can the C1 be used?**

A: The tempmate-C1 has a total running time of 90 days, beginning with the first start. During this time frame, the C1 can be used (started and stopped) without limitation.

**Q: Does the C1 need to be configured?**

A: The tempmate-C1 comes ready-to-use with a default configuration: a measurement interval of 10 minutes and no set up alarm thresholds or delays. With this configuration, it will record all temperatures within its limits.

It is advised to configure the C1 once before its first start, to synchronize date and time and avoid differences.

**Q: Does the C1 need an external sensor?**

A: The C1 is built especially to withstand and record temperatures at dry-ice level, down to -90°C, and does not need an external sensor.

To protect the device's USB-port, it is strongly advised to keep it protected with the included protection cap.


**Q: The expiry date is very near; when exactly is it due and can the data logger be used?**

A: The printed expiry date starts the first day of the shown month and year; a start shortly before the EXP is due does not prolong the shelf life or the guaranteed functionality.

**Q: I need the calibration certificate of this data logger, where can I receive it?**

A: As batch-calibrated device each data logger comes with a permanently stored validation certificate in PDF format, which informs about the calibration process during the production.





tempmate GmbH  
Wannenäckerstr. 41  
74078 Heilbronn, Germany

Tel. +49-7131-6354-0  
[sales@tempmate.com](mailto:sales@tempmate.com)  
[www.tempmate.com](http://www.tempmate.com)

**PLEASE,** contact us for further questions.