Coollogger

TEMPERATURE RECORDER

OPERATING MANUAL

http://www.coollogger.com

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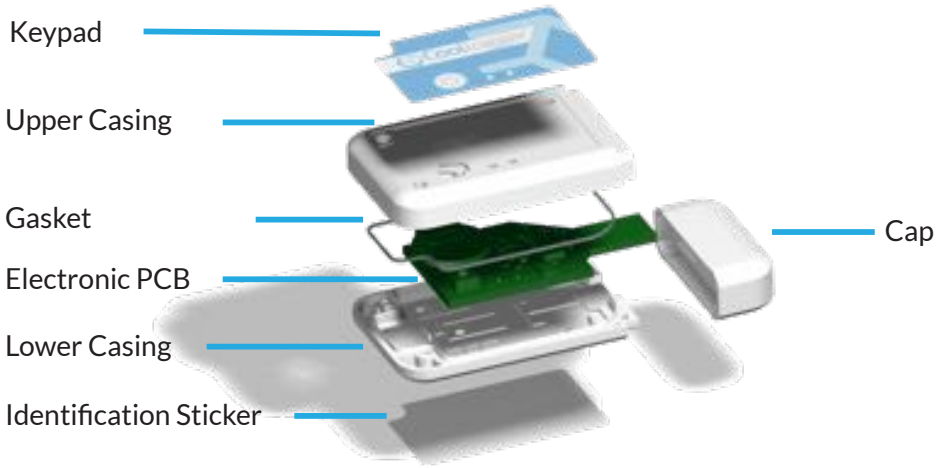
1. PRODUCT DESCRIPTION

The Coollogger electronic system has been specially designed to record and manage temperature fluctuations in freight and transport containers of perishable products using integrated sensors. The aim of the product is to generate information to control the cold chain.

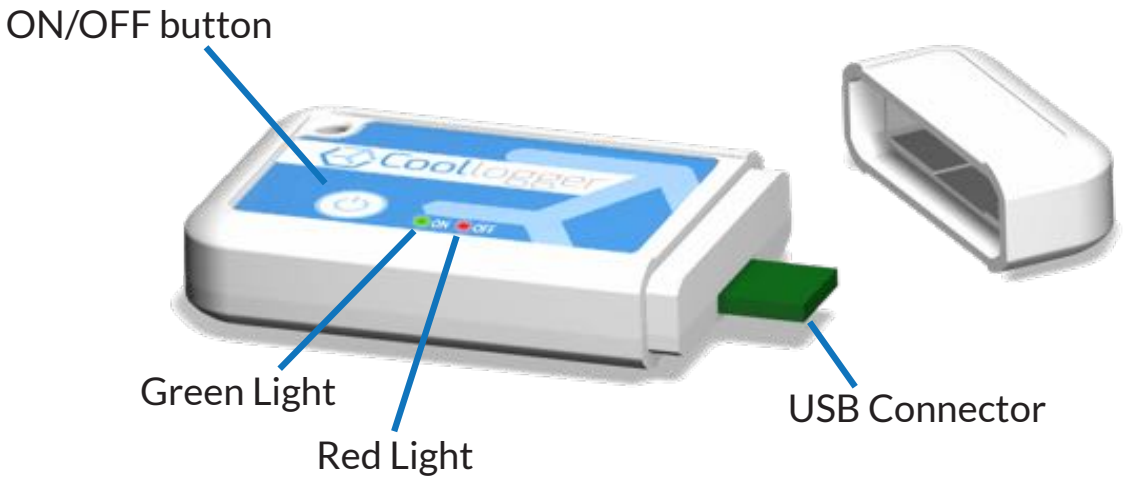
The product has several models of temperature recorder and computer system control centre (Android application, software for PC and Web) in order to display and monitor the values recorded by the device.

2. COMPONENTS AND INDICATORS OF THE TEMPERATURE RECORDER

A casing including a sealing gasket, a cap, a keypad and an ID sticker protects the electronic equipment of the Coollogger temperature recorder.



The temperature recorder has a single on/off button and two LEDs which will show the present status of the device.



3. TEMPERATURE RECORDER OPERATING MANUAL

WARNING: Read the instructions before operating the device to avoid incorrect use.

The Coollogger product range offers 3 different models to meet the specific needs of each user:

v.1.0

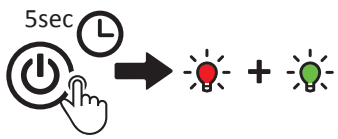
v.1.1

v.2.0

CONFIGURABLE	REUSABLE
✓	
✓	✓

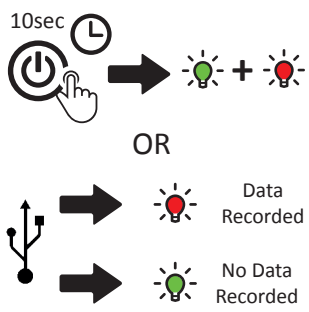
3.1 Coollogger V.1.0

3.1.1 Switching on and operating the recording



- Press the ON button for 5 seconds. The device is switched on when the red light goes off and the green light starts flashing.
- The flickering will continue for the FIRST 30 MINUTES during which the device WILL NOT RECORD. During the 30 minutes of start-up, the device can be stopped connecting it to a USB PORT and it can be reused if you repeat the previous steps.
- From then on, the device will record the temperature at 12 minute intervals.

3.1.2 Stopping the recording



- OPTION 1: Press the ON button for 10 seconds, during which the green light will be turned on. Then a red light will go on to inform that the recording has stopped.
- OPTION 2: Connect the device to a USB port. The temperature recorder will have recorded data when the red light goes on. But if the green light goes on, the temperature recorder will have no recorded data.
- Once the recording is stopped, it cannot be resumed.

3.1.3 Checking the status of the device

To check the status of the device at any given time, press the ON button briefly:

- Green light = Device recording.
- Green light flashing = Initial start-up time (before recording)
- Red light = Device idle, proceed to switch on
- Green + red lights = Recording completed (due to full memory or manual stop)

3.1.4 Maximum recording time

- 90 days

3.1.5 Minimum recording time

There must be a period of at least 4 hours of recording to manually stop the recording by pressing the button. If you have to stop the recording before this period of time, you should connect the device to a USB port.

3.1.6 Storage and transport before use

The devices are sold in boxes of 10 and 50 units. Keep the device in its original packaging until the time of its use to prevent unwanted activations, impacts, etc.

3.1.7 Location of the temperature recorder in the container

The Coollogger device has been designed with an extra protection system against moisture so that the electronic equipment can easily endure the environmental conditions to which it is exposed. For this reason, it can be located both on the inside of the boxes containing the goods or secured on the outside of these boxes or in any other place inside the container.

3.1.8. Technical data

- Battery: Non-rechargeable. 3V and 240mA
- Register Temperature Range: -30ºC/+70ºC
- Limit temperature Range of the device: -40ºC/+85ºC
- Memory capacity: 10,800 readings
- Internal response time of the sensor: 90 secs
- Accuracy of the sensor: 0.5ºC
- Usual battery life: 2 years (check QR code)
- Protection rating: IP65
- Dimensions: 78mm x 43.7mm x 14mm
- Weight: 32g

3.1.9 Regulation

The device fulfils the following regulatory standards:

- RoHS
- EN12832

3.1.10 Recycling Instructions

Follow local regulations for disposing and recycling the device's components

3.1.11 Warranty

The manufacturer offers a 1 year warranty from the date of purchase for cases of manufacturing defects, provided that the device has been handled following the instructions for use.

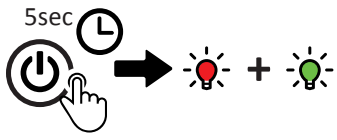
3.1.12 Device expiry date

The life span of the device is linked to the life span of the internal single-use battery. To check the expiry date, CONSULT THE QR CODE on the temperature recorder's identification sticker.

3.2 Coollogger V.1.1: Configurable

The V.1.1 model can be configured in the Android application and in the PC software.

3.2.1 Switching on and operating the recording

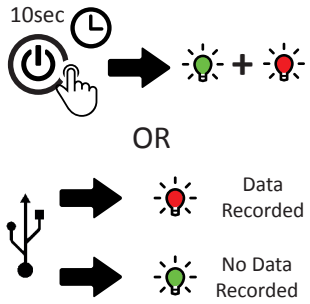


• Press the ON button for 5 seconds. The device is switched on when the red light goes off and the green light starts flashing for a minute.

• During the start-up time the device WILL NOT RECORD. The duration of this period is configured in the Android application or PC software. During the start-up time, the device can be stopped connecting it to a USB PORT and it can be reused by if you repeat the previous steps. The start-up time can vary from 1 to 1,440 minutes. In order to know if the device is in start-up time, when pressing the ON button the green light will flash 3 times.

• From that moment, the device will record the temperature at configurable intervals (which can be set from 1 to 1,440 minutes) in the Android application or in the PC software.

3.2.2 Stopping the recording



- OPTION 1: Press the ON button for 10 seconds, during which the green light will be turned on. Then a red light will go on to inform that the recording has stopped.
- OPTION 2: Connect the device to a USB port. The temperature recorder will have recorded data when the red light goes on. But if the green light goes on, the temperature recorder will have no recorded data.
- Once the recording is stopped, it cannot be resumed.

3.2.3 Checking the status of the device

To check the status of the device at any given time, press the ON button briefly:

- Green light = Device recording.
- Green light flashing = Initial start-up time (before recording)
- Red light = Device idle, proceed to switch on
- Green + red lights = Recording completed (due to full memory or manual stop)

3.2.4 Maximum recording time

- According to the settings configured for recording (interval between captures, waiting time, etc.).

3.2.5 Minimum recording time

There must be a period of at least 4 hours of recording to manually stop the recording by pressing the button. If you have to stop the recording before this period of time, you should connect the device to a USB port.

3.2.6 Storage and transport before use

The devices are sold in boxes of 10 and 50 units. Keep the device in its original packaging until the time of its use to prevent unwanted activations, impacts, etc.

3.2.7 Location of the temperature recorder in the container

The Coollogger device has been designed with an extra protection system against moisture so that the electronic equipment can easily endure the environmental conditions to which it is exposed. For this reason, it can be located both on the inside of the boxes containing the goods or secured on the outside of these boxes or in any other place inside the container.

3.2.8. Technical data

- Battery: Non-rechargeable. 3V and 240mA
- Register Temperature Range: -30ºC/+70ºC
- Limit temperature Range of the device: -40ºC/+85ºC
- Memory capacity: 10,800 readings
- Internal response time of the sensor: 90 secs
- Accuracy of the sensor: 0.5ºC
- Usual battery life: According to parameter settings
- Protection rating: IP65
- Dimensions: 78mm x 43.7mm x 14mm
- Weight: 32g

3.2.9 Regulation

The device fulfils the following regulatory standards:

- RoHS
- EN12832

3.2.10 Recycling Instructions

Follow local regulations for disposing and recycling the device's components

3.2.11 Warranty

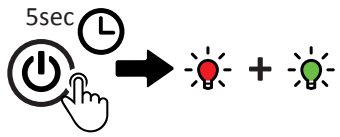
The manufacturer offers a 1 year warranty from the date of purchase for cases of manufacturing defects, provided that the device has been handled following the instructions for use.

3.2.12 Device expiry date

The lifespan of the device is linked to the lifespan of the internal single use battery and the settings of usage parameters. The V.1.1 Coollogger has a lifespan of 10,800 readings: A shorter interval of temperature capture will mean a shorter lifespan of the device.

3.3 Coollogger V.2.0 Configurable and Reusable

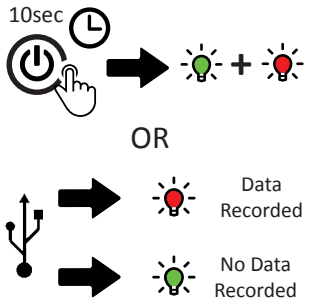
3.3.1 Switching on and operating the recording



- Press the ON button for 5 seconds. The device is switched on when the red light goes off and the green light starts flashing for a minute.
- During the start-up time the device WILL NOT RECORD. The duration of this period is configured in the Android application or PC software. During the start-up time, the device can be stopped connecting it to a USB PORT and it can be reused by if you repeat the previous steps. The start-up time can vary from 1 to 1,440 minutes. In order to know if the device is in start-up time, when pressing the ON button the green light will flash 3 times.

• From that moment, the device will record the temperature at configurable intervals (which can be set from 1 to 1,440 minutes) in the Android application or in the PC software.

3.3.2 Stopping the recording



• OPTION 1: Press the ON button for 10 seconds, during which the green light will be turned on. Then a red light will go on to inform that the recording has stopped.

• OPTION 2: Connect the device to a USB port. The temperature recorder will have recorded data when the red light goes on. But if the green light goes on, the temperature recorder will have no recorded data.

• Once the recording is stopped, it cannot be resumed.

3.3.3 Checking the status of the device

To check the status of the device at any given time, press the ON button briefly:

- Green light = Device recording.
- Green light flashing = Initial start-up time (before recording)
- Red light = Device idle, proceed to switch on
- Green + red lights = Recording completed (due to full memory or manual stop)

3.3.4 Maximum recording time

- According to the settings configured for recording (interval between captures, waiting time, etc.).

3.3.5 Minimum recording time

There must be a period of at least 4 hours of recording to manually stop the recording by pressing the button. If you have to stop the recording before this period of time, you should connect the device to a USB port.

3.3.6 Reactivation of the device

The V.2.0 Coollogger is reusable, which means that you can delete the data stored in its memory in order to have it operational again.

- With the PC application, once the data has been transferred to the server correctly, the data is automatically deleted from the device's memory. Once the data is deleted, when removing the V.2.0 Coollogger from the USB port, a time of deletion and reconfiguration must be expected (approx. 1 minute) during which the device will not be operational and the red and green LEDs will be switched on.

- Once the LEDs go off, the device is ready for its next use.
- If the settings are not changed, the previous setting will be operational in the next recording.

3.3.7 Storage and transport before use

The devices are sold in boxes of 10 and 50 units. Keep the device in its original packaging until the time of its use to prevent unwanted activations, impacts, etc.

3.3.8 Location of the temperature recorder in the container

The Coollogger device has been designed with an extra protection system against moisture so that the electronic equipment can easily endure the environmental conditions to which it is exposed. For this reason, it can be located both on the inside of the boxes containing the goods or secured on the outside of these boxes or in any other place inside the container.

3.3.9. Technical data

- Battery: Non-rechargeable. 3V and 240mA
- Register Temperature Range: -30ºC/+70ºC
- Limit temperature Range of the device: -40ºC/+85ºC
- Memory capacity by recording: 10,800 readings
- Total memory capacity: 20000 readings
- Internal response time of the sensor: 90 secs
- Accuracy of the sensor: 0.5ºC
- Usual battery life: According to parameter settings
- Protection rating: IP65
- Dimensions: 78mm x 43.7mm x 14mm
- Weight: 32g

3.3.10 Regulation

The device fulfils the following regulatory standards:

- RoHS
- EN12832

3.3.11 Recycling Instructions

Follow local regulations for disposing and recycling the device's components

3.3.12 Warranty

The manufacturer offers a 1 year warranty from the date of purchase for cases of manufacturing defects, provided that the device has been handled following the instructions for use.

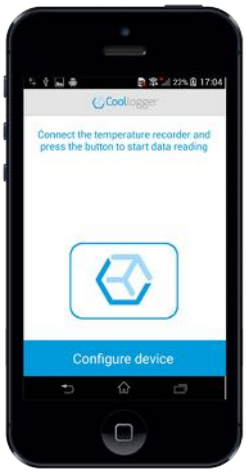
3.3.13 Device expiry date

The lifespan of the device is linked to the lifespan of the internal single use battery and the settings of usage parameters. The V.2.0. Coollogger has a total lifespan of 20,000 readings, 10,800 being the maximum possible readings in a single recording. A lower temperature capture interval will mean a shorter lifespan of the device.

4. OPERATING MANUAL OF THE ANDROID APPLICATION

The application is used to display the data and upload it to the web, where you can access the control centre which shows detailed information of the record.

- Download the Coollogger application from the PlayStore
- Run the application

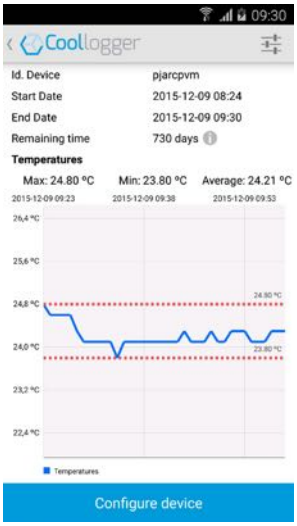


- Connect the temperature recorder to a USB port on the device.

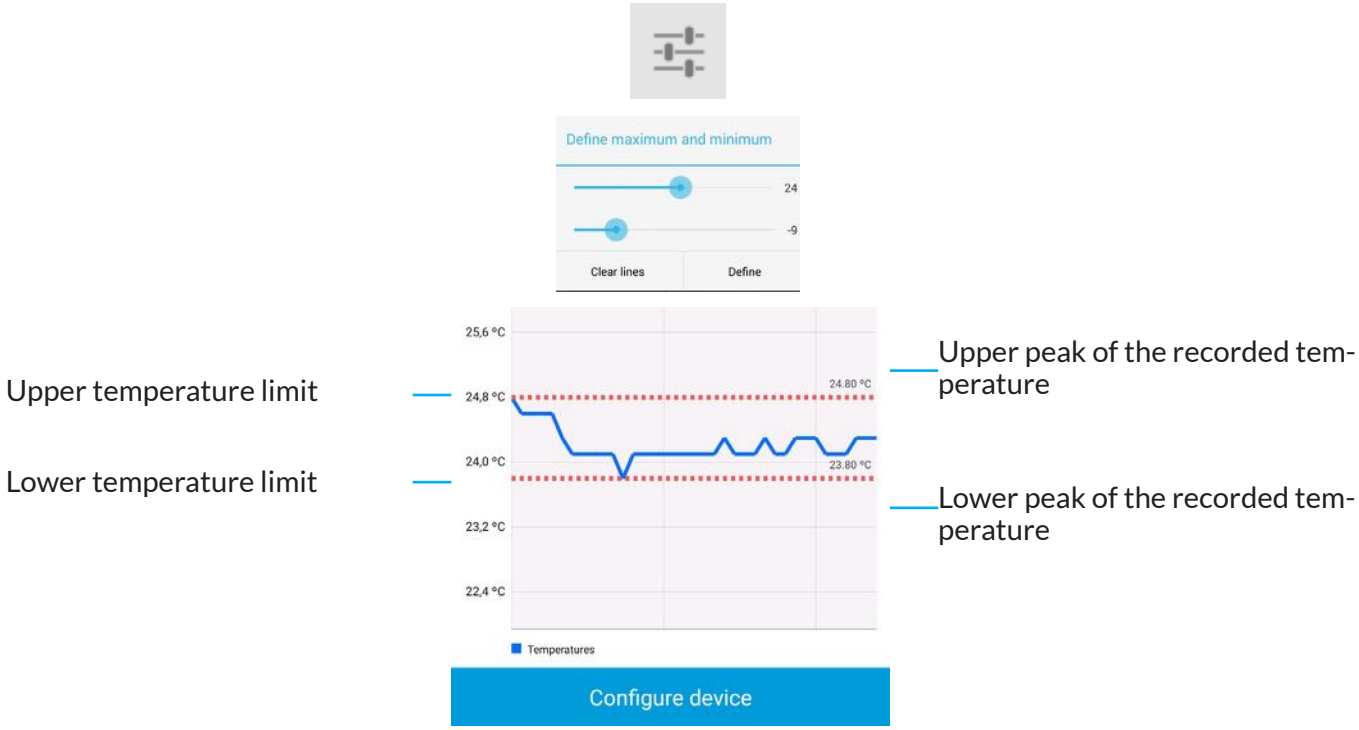
4.1 Data display

- Press the logo shaped button to start reading the data

- The screen will show a summary of the data collected and a chart with the records.



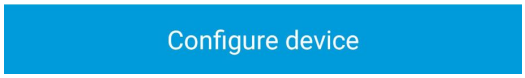
- The recorded data will be automatically uploaded onto https://data.coollogger.com (if there is no internet connection, the data will be uploaded once the connection is re-established).
- You can set a temperature range by clicking on TEMPERATURE LIMITS to get a better data display. The temperature range will be highlighted in order to easily view whether the temperature recorded is outside the limits range.



4.2 Configuring the device

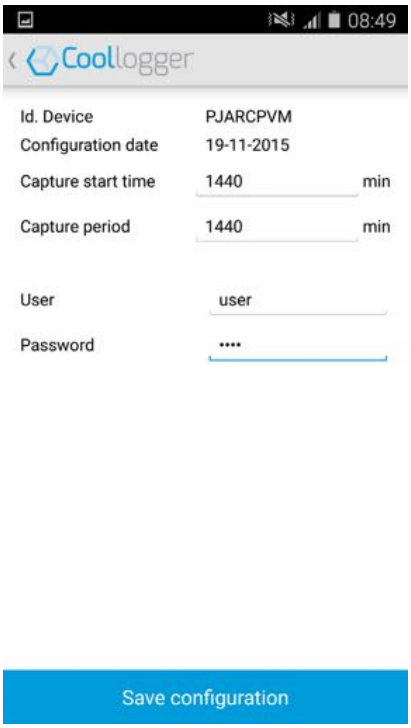
Models v.1.1 and V.2.0 have several parameters that can be configured to adapt the device to the user's needs

- Having connected the device, click on the CONFIGURE DEVICE button.

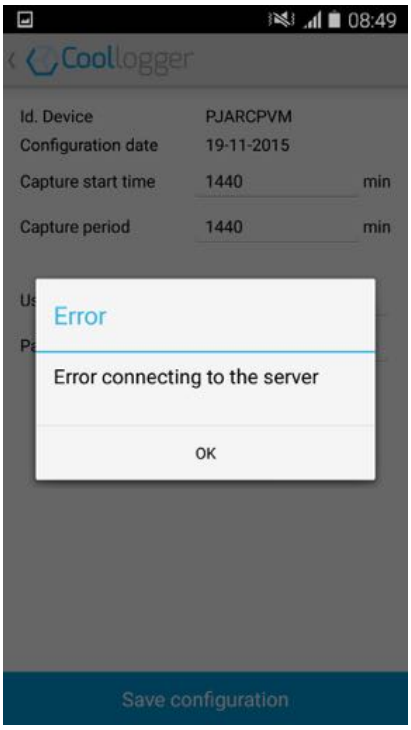


- In the new screen it is possible to change several parameters:
- START-UP TIME: This is the time that the device takes to start capturing temperatures from the moment that the ON button (see sections 3.1.1, 3.2.1 and 3.3.1) is pressed. The start-up time can vary from 1 to 1,440 minutes.
- SAMPLING PERIOD: This is the interval of time between entries. Please note that the device has a maximum number of entries that define its lifespan: The shorter the sampling period, the lower the time of the device lifespan will be.

- In order to save a new setting on the device, users must enter their username and password.



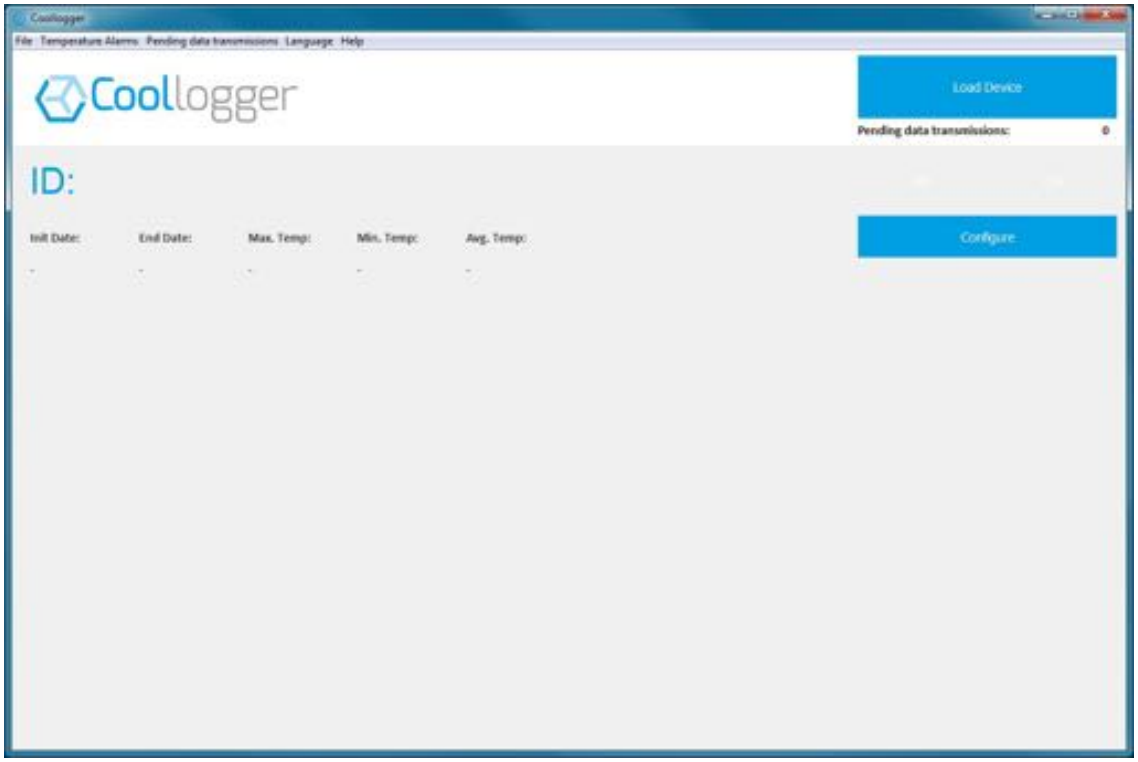
- SAVE CONFIGURATION: Save the changes to the device settings. In order to save the changes, there must be communication with the server (internet connection). In the event of connection error, try again after the connection has been re-established.



5. OPERATING MANUAL OF THE APPLICATION FOR PC

The application is used to display the data and upload it to the web, where you can access the control centre which shows detailed information of the record.

- Download the Coollogger for PC application from the web page http://www.coollogger.com
- Install the application on the PC
- Run the application



5.1 Data display

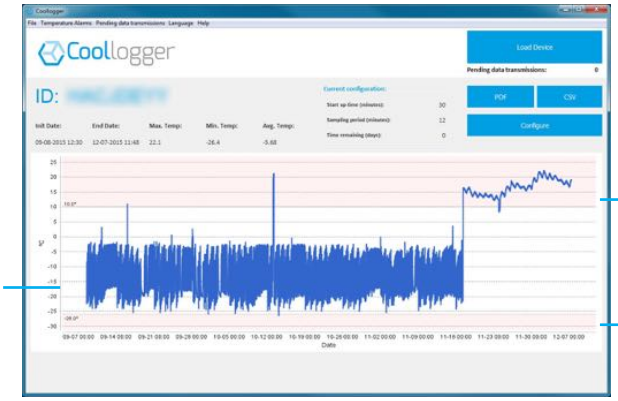
- There are two options to view the recorded record:
    1. Click FILE and access a .bin file that has been saved by a temperature recorder on the PC with the device ID name
    2. Connect the temperature recorder to a USB port on the PC, wait for the device to be recognised and click “LOAD DEVICE”. It will automatically load the .bin file containing the temperature recorder.

3. The recorded data will be automatically uploaded onto https://data.coollogger.com (if there is no internet connection, the data will be uploaded once the connection is re-established).

- The record will be displayed on screen, with a summary of the data and a chart of the temperatures.

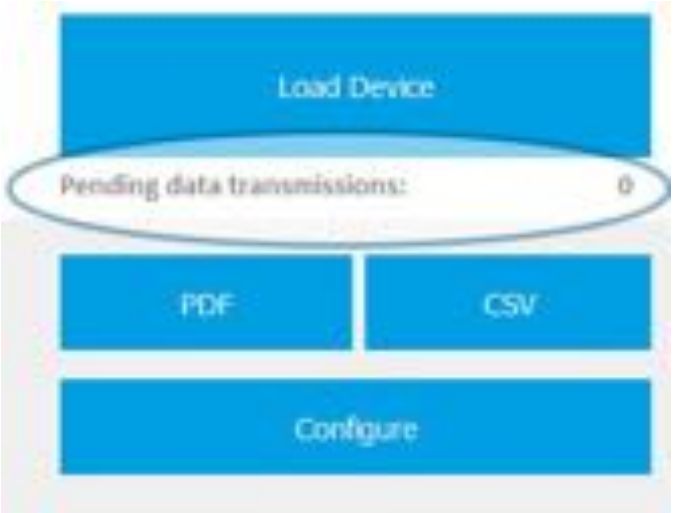
- You can set a temperature range by clicking on TEMPERATURE ALARMS to get a better data display.

- The temperature range will be highlighted in order to easily view whether the temperature recorded is outside the limits range.



5.2 Pending data transmission

- On the right side of the main screen of the application, an indicator displays the number of devices whose data has not been transmitted due to lack of connection to the server. The data will be transmitted once the connection is re-established.



- To find out which devices have not transferred their data to the server, click the PENDING DATA TRANSMISSIONS tab to display a window with a list of IDs.

Pending data transmissions

5.3 Data export

- It is possible to CREATE A PDF file with the charts or EXPORT TO A CSV FILE with the recorded data.

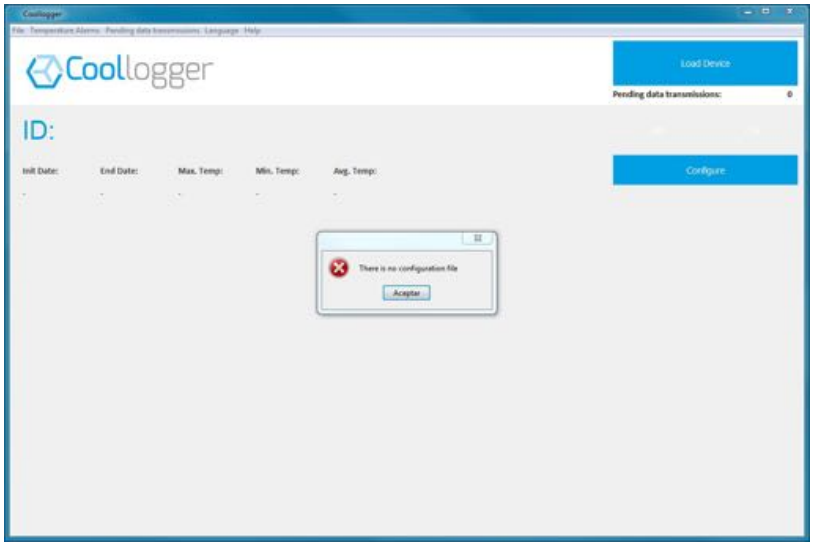
Create PDF

Export to CSV

5.4 Setting the device

Models v.1.1 and V.2.0 have several parameters that can be configured to adapt the device to the user's needs.

- If a V.1.0 device is connected, clicking the CONFIGURE option will return an error message: Coollogger V.1.0 is not configurable.



- With the device connected, click the CONFIGURE button and a new window will be displayed.

Settings configured on the device

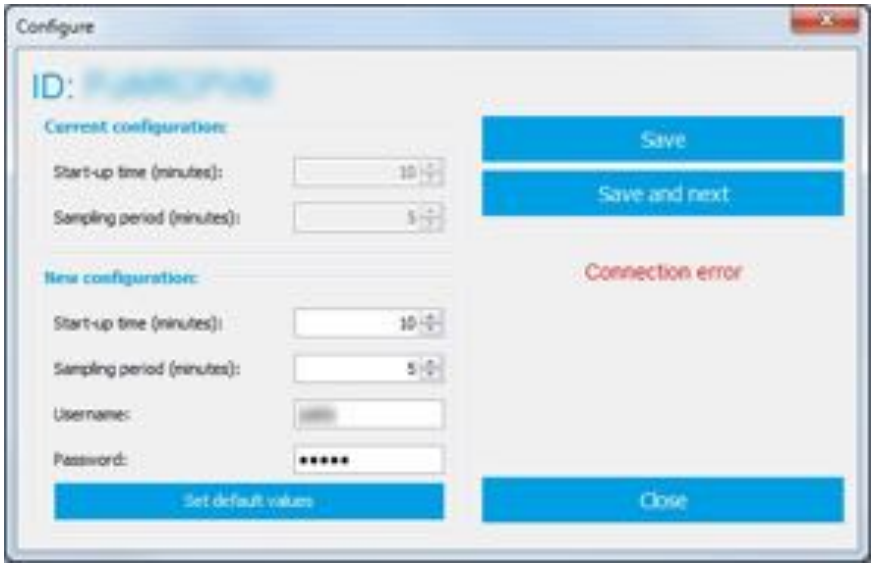
New device settings

Set default values

- START-UP TIME: This is the time that the device takes to start capturing temperatures from the moment that the ON button (see sections 3.1.1, 3.2.1 and 3.3.1) is pressed. The start-up time can vary from 1 to 1,440 minutes.
- SAMPLING PERIOD: This is the interval of time between entries. Please note that the device has a maximum number of entries that define its lifespan: The shorter the sampling period, the lower

the time of the device lifespan will be.

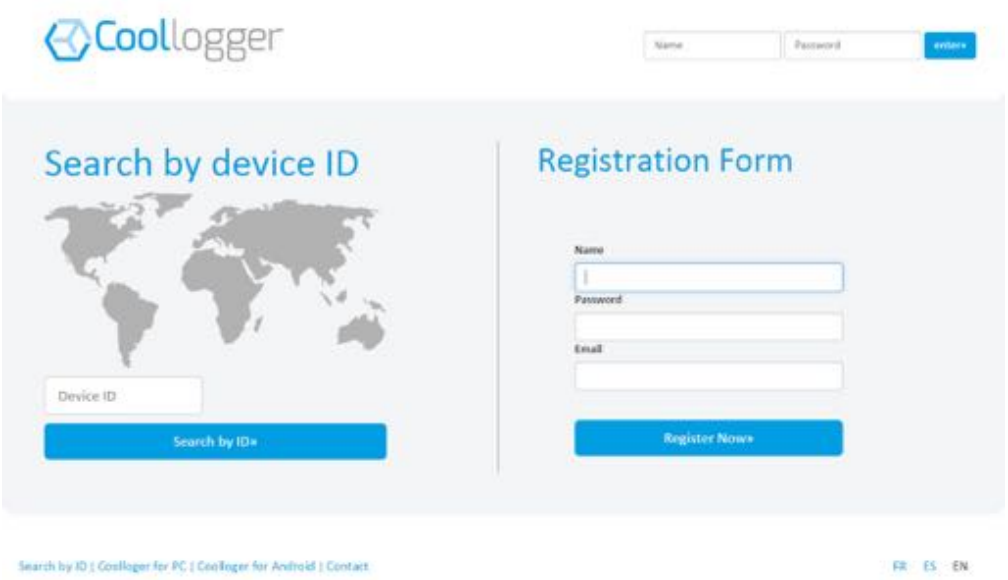
- In order to save a new setting on the device, users must enter their username and password.
- SET DEFAULT VALUES: The new settings are saved as default for the following devices to be connected.
- SAVE: Save the changes to the device settings. In order to save the changes, there must be communication with the server (internet connection). In the event of connection error, try again after the connection has been re-established.



- SAVE AND NEXT: Saves the changes to the device settings. If you disconnect the device, you will be able to connect another one and load its data automatically to configure it.

6. OPERATING MANUAL OF THE WEB

The Coollogger web page works as a Control Centre: it lets you monitor the devices, unit by unit or by accessing a user account to record all relevant devices: https://data.coollogger.com



6.1 Device search engine

- Without needing to register, input the identifier (ID) of the device and click "Search by ID".

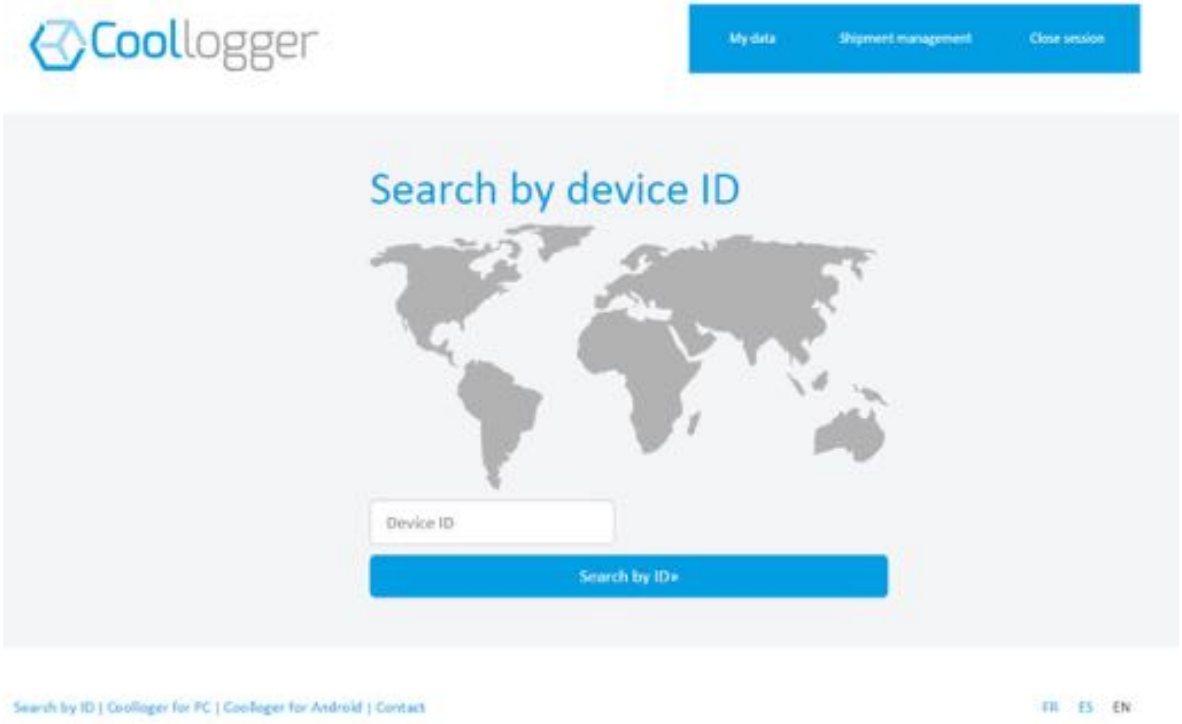
- The main information of the device will be displayed: Max. Temp., Min. Temp., Average Temp., and a chart displaying the thermal evolution recorded by the temperature recorder.

6.2 Registered users area

6.2.1 User registration

- A registered user on the website can check and see all the information about the relevant devices
- To create a user, fill out the NAME, PASSWORD and E-MAIL fields, request to register and you will receive an e-mail to verify the user account.

- Once the account is verified, you can access the USER AREA.

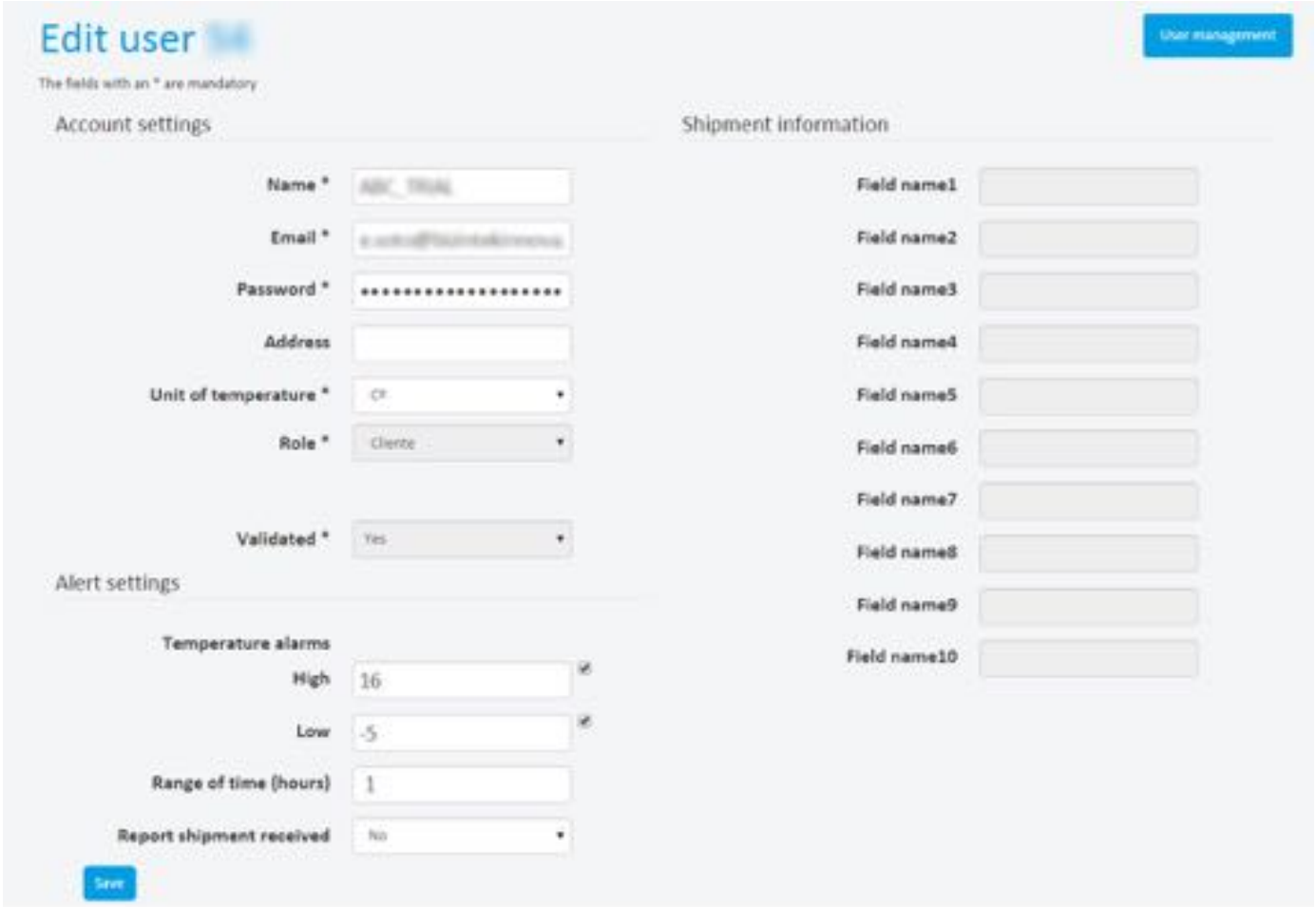


- There are three tabs in the user area:

6.2.2 My data

- The user data is accessed through the MY DATA tab.

- It is possible to EDIT the account data in order to modify the account data, the data of the alerts you wish to receive and the shipment data.

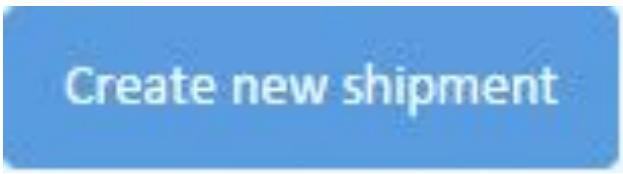


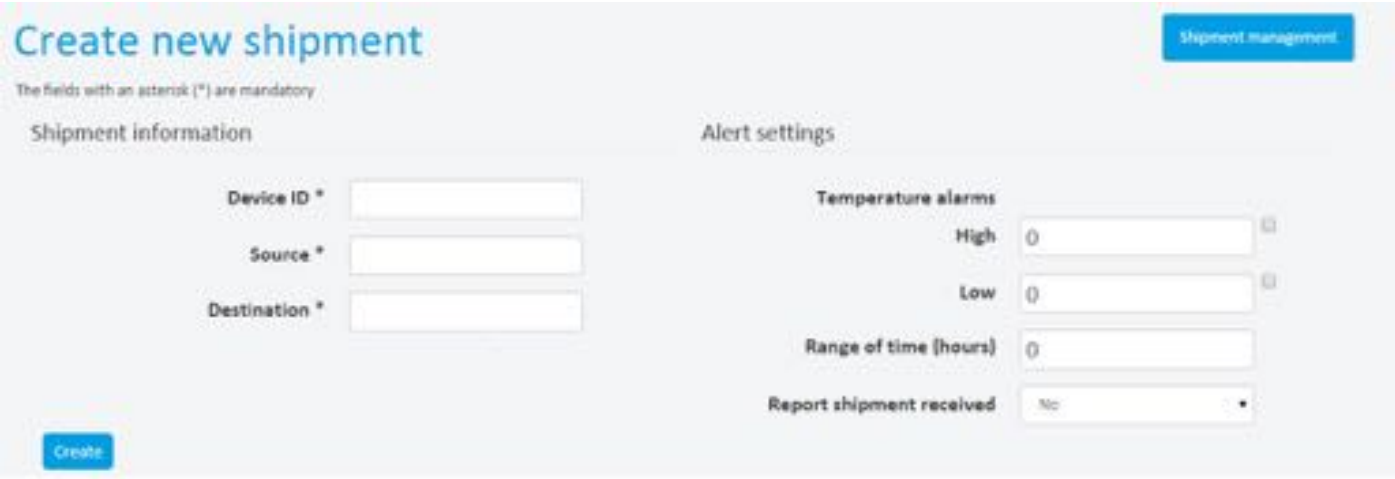
- ALERT SETTINGS: A number of alarms can be set up (check section 6.3 for more information).
- SHIPMENT INFORMATION: A number of additional fields with important information about the shipments can be set up (e.g. Exporter, Importer, Goods).
- SAVE the changes.

6.2.3 Shipment management

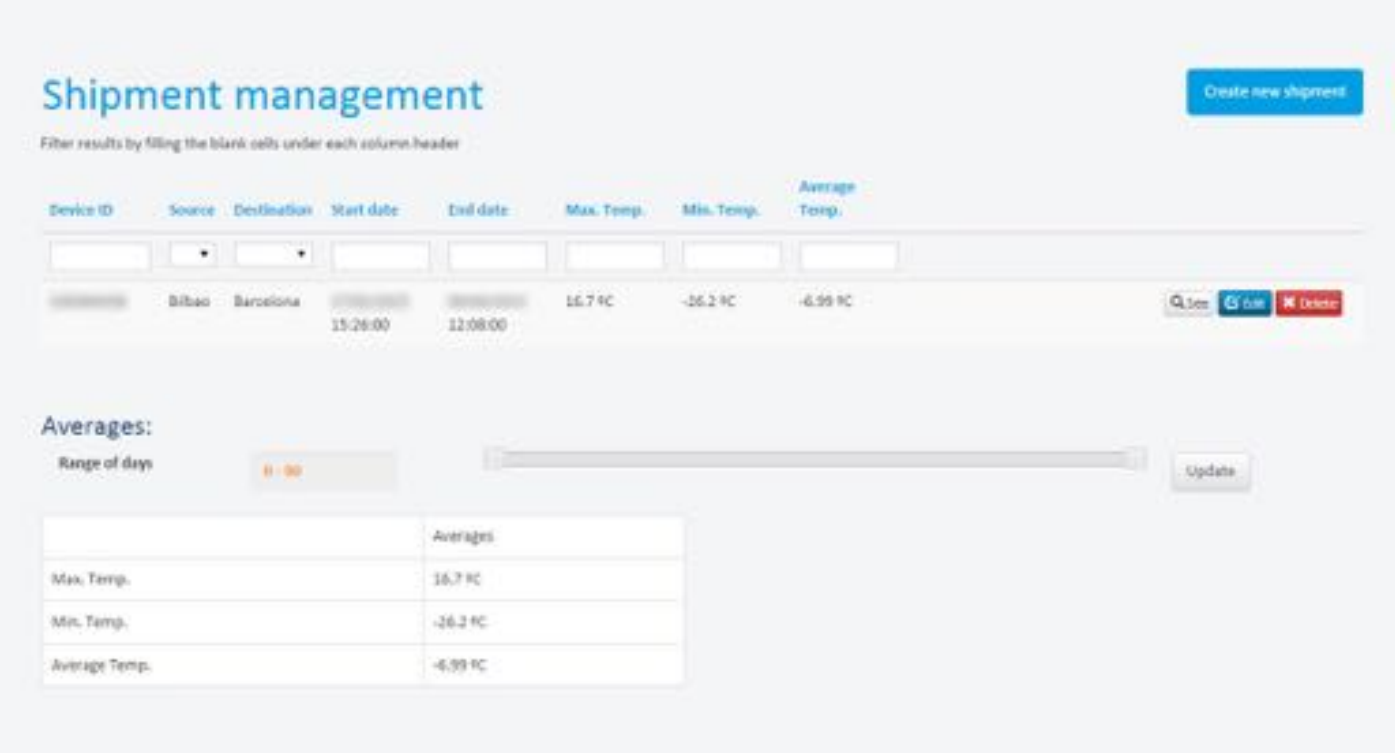
- The first time you access the SHIPMENT MANAGEMENT area it will be empty.

- When clicking on "CREATE NEW SHIPMENT" a new record is generated for each device. The fields DEVICE ID, SOURCE and DESTINATION are compulsory. The DATA FOR ALERTS or for the fields with SHIPMENT INFORMATION that have been set up in the user account are optional.

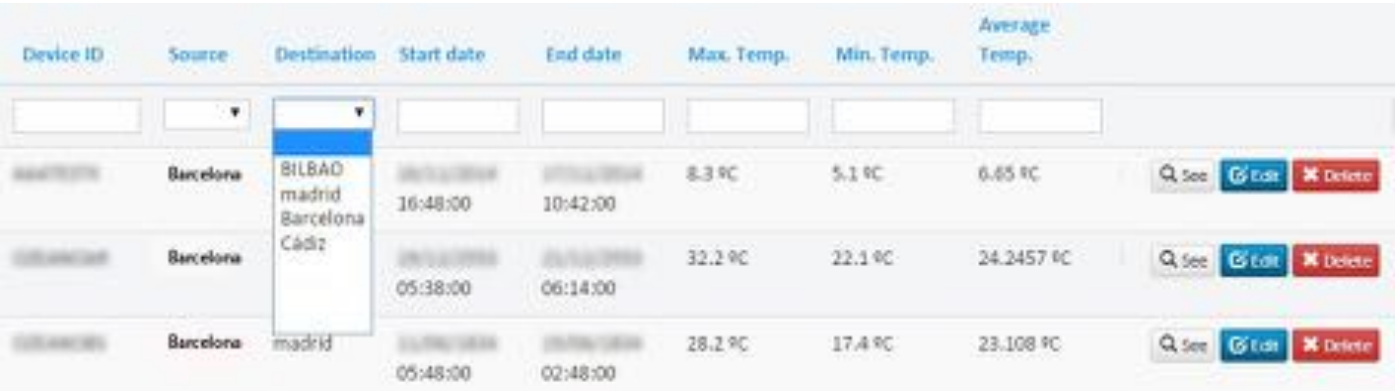




- Once the shipment is created, a new record with the data will be displayed when returning to the tab SHIPMENT MANAGEMENT.

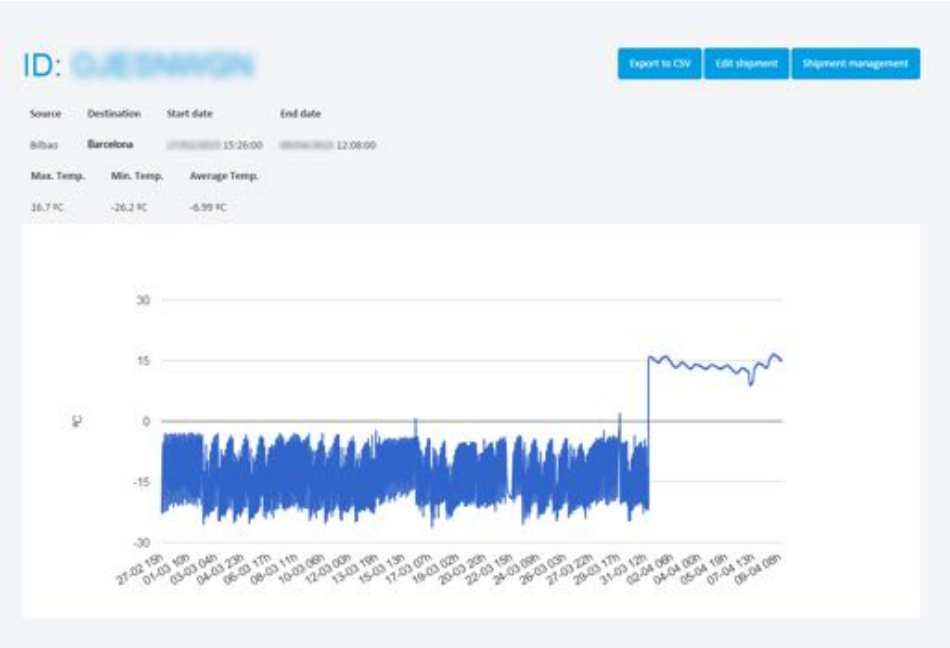


- In order to manage the shipments more easily, display filters can be applied (e.g. check the shipments only with a specific starting date or the shipments with source in a specific port).



- On this screen you can also SEE, EDIT or DELETE the shipments.

- When accessing the user account, the option to SEE the temperature recorder data provides the option to EXPORT TO a CSV file with the recorded data.



- Sign out to leave the user area.

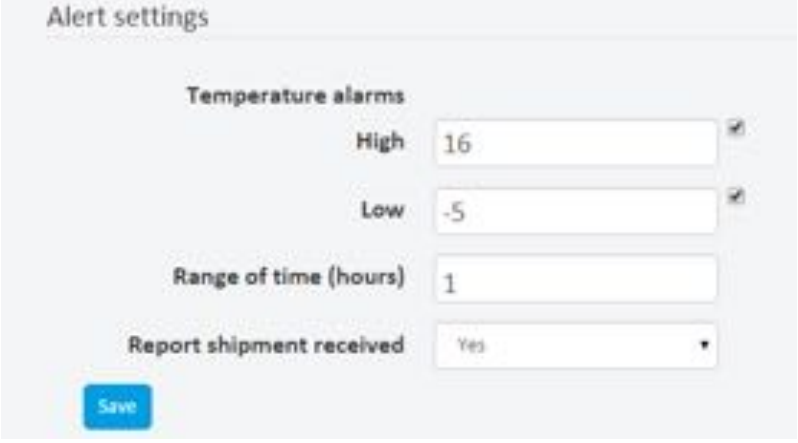
6.3 Using alarms

The control centre can optionally warn the user when the records of one of his devices is out of the range of certain previously defined temperature limits. All the alerts will be sent to the e-mail address associated to the account. There are two ways to set up those limits:

6.3.1 Standard alarms

When creating his profile, the registered user can set up a number of alarms that **will be applied by default to all his shipments.** To receive these alarms, the device will have to be associated to the user account before the data of the temperature recorder is uploaded to the database.

To create/edit these parameters, go to MY DATA>EDIT USER.



- Temperature limits alarm: The intended temperature range is set up and the limits for which the user wishes to receive the alarm are activated (with a check mark). Mark the TIME RANGE option if you wish to receive an alarm only if out of range temperatures have been recorded for at least the time indicated in the box (in hours). The records are taken in 12 minute intervals: For example, if a time of 1 hour is set, it will be sufficient to take 5 out of range temperature readings to receive the alarm.
- Shipment received alarm: If you wish to receive a notification e-mail, leave this option marked.

6.3.2 Customised alarms by shipment

The registered user can optionally set up a number of specific alarms **for a specific shipment.** To receive these alarms, the device will have to be associated to the user account before the data of the temperature recorder is uploaded to the database.

To create/edit these parameters, go to CREATE NEW SHIPMENT or EDIT an already existing one.

The alarms customised by shipment are programmed in the same way as the standard alarms (check previous section).

7. CONTACT

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