



Pressure / Temperature / Humidity / Air velocity / Airflow / Sound level

TM 210 *Thermometer*



Table of contents

1.Presentation	5
1.1. Instrument description	5
1.2. Keys description	5
1.3. Remove battery	6
2.Connections of the TM210	
2.1. Main features	7
2.2. Connections	7
3.Information	9
4.Set the instrument	10
4.1. Set language	10
4.2. Set date and time	10
4.3. Activate or deactivate the beep key	10
4.4. Set auto-off	10
4.5. Set backlight	
4.6. Set security	
4.7. Set code	
4.8. Set printing	
5.Set the probes	
5.1. Use of the wire probes and modules	12
5.2. Use of wireless probes	
6.Channel configuration	
6.1. Delta T	
7.U Coefficient	
8.Start and record datasets	
8.1. Start and record datasets	
8.1.1 Manual dataset	
8.1.2 Automatic dataset	
8.1.3 View the recorded datasets	
8.2. Launch and save averages	
8.2.1 Point/Point average	
8.2.2 Automatic average	
8.2.3 Automatic Point/Point average	
8.3. Hold-Min./Max	
9.Setting of measurement parameters	
9.1. Thermocouple and Pt100	
9.1.1Unit	
9.1.2 Type (only for thermocouple)	
9.1.3 Alarm	
9.2. U coefficient module	
9.2.1Unit	
0 2 2 Δlarm	20

1. Presentation

1.1 Instrument description



1.2 Keys description

> Left key: allows to navigate from left to right

> Right key: allows to navigate from right to left

Up key: increments a value or a level

> **Down key**: decrements a value or a level

> OK key : validates an action

Esc key: cancels the action or backs to previous step

Presentation 5

1.3 Remove battery

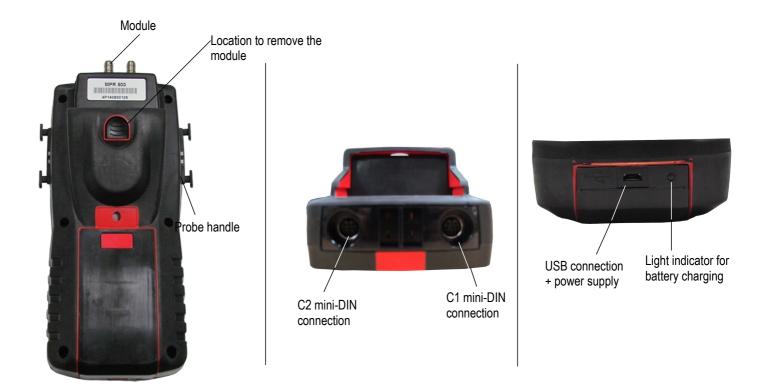
- > Turn off the instrument.
- > Turn it over.
- Press the red button while sliding down the battery.





6 Presentation

2. Connections of the TM210



2.1 Main features

Screen

120x160 pixels graphic display and backlight. Display of 6 measurements, 3 simultaneously. Size 50x67 mm.

Printer (available as option)

The paper of the instrument is a thermal paper with a 10-year guarantee. It has an easy replacement system of the paper (Easyload). In addition, printing is fast.

Battery

Rechargeable Li-ion battery inside the instrument, 16 h battery-life with a pressure module or 14 h a hotwire probe. The instrument is supplied with a 5 V, 1 A power adapter to load the internal battery. The current loading is indicated by a battery symbol on the top left of the screen. The orange led on the bottom of the instrument is also on until the full loading of the battery (the led turns green).

2.2 Connections

Interchangeable modules

The interchangeable modules have the SMART-2014 system and are automatically recognized once the connection is made on the instrument.

Module thermocouple



Allows to measure temperature on Tc1, Tc2, Tc3 and Tc4 channels with wired thermocouples K, J, T or S probes ended with a male miniature connector

Connections of the TM210 7

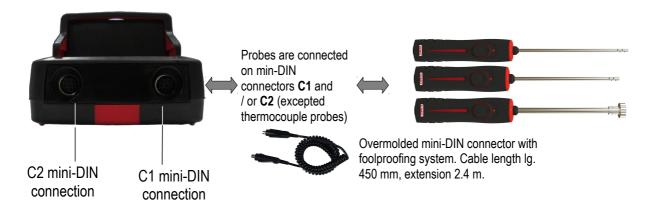
Module Coefficient U



Allows to calculate the U coefficient thanks to the average of 3 contact temperature probes, the T thermocouple ambient temperature and the measurement of external temperature (manually entered or measured by a wireless temperature probe)

Wire probes with SMART-2014 system

Wire probes with SMART 2014 system are automatically recognized when connected to the instrument.



• Wireless probe / instrument communication

Wireless communication between probe and instrument with automatic recognition after power-up.



Wireless probes shall be located near the instrument for initial recognition. Connection between HQ210 and wireless probes must be established.

8 Connections of the TM210

3. Information

"Information" menu allows to view information about the instrument, probes and module connected to the "Wireless probe", "Mini-DIN 1", "Mini-DIN 2" or "Module" connections. To enter in this menu from home screen, select the "Information" menu with the arrow keys then press OK.



Available information for probes and module is :

- Type of probes and module
- Date of the last calibration or adjustment
- Serial number
- Firmware version
- Measuring range

Available information for the instrument is :

- Type of instrument
- Serial number
- Firmware version
- > The function key "Measurement" allows to access directly to the "Measurement" menu.

Information 9

4. Set the instrument

The instrument is on.

- With the arrow keys, go to "Configuration" menu.
- > Press **OK**.

4.1 Set language

"Configuration" screen is displayed.

- > Select "Language" with the arrow keys then press **OK**. *Available languages are displayed.*
- Press Up and Down arrows to select the required language: FRA, ENG...
- > Press **OK**.

4.2 Set date and time

"Configuration" screen is displayed.

- > Select "Date/time" with the arrow keys then press OK.
 The screen of configuration for date and time is displayed.
- > Go to the "Date" format with arrow keys then press OK.
- > Select : DD/MM/YYYY, MM/DD/YYYY or YYYY/MM/DD then press **OK**.
- Go to the day then press OK.
- With Up and Down keys, set the first digit of the day then go to the following one with right arrow.
- > Press **OK** to validate.

Perform the same procedure to set the month and year.

- ➤ Go the "Time" format with arrow keys then press **OK**.
- > Select the time format : "12H" or "4H" then press OK.

If "12H" is selected, it is possible to choose between "AM" for ante meridiem or "PM" for post meridiem.

- > Press **OK**, select "**AM**" or "**PM**" then press **OK** to validate.
- Go the time then press OK.
- With Up and Down keys set the first digit of the day then go to the following one with right arrow.
- Press **OK** to validate.
 - Perform the same procedure to set minutes and seconds.
- > Press function key "Validate" to leave the screen and to save modifications or press Esc to cancel.

4.3 Activate or deactivate the beep key

"Configuration" screen is displayed.

- > Select "**Key beep**" with arrow keys.
- Press OK to activate or deactivate the beep key.

The box is ticked if the beep is activated and unticked when the beep is deactivated.

OS/OS/15 10x94 OF Settings Language ENG Date/Time Key beep Auto-off 15 min Backlight 7 Security Factory

4.4 Set auto-off

The auto-off function turns off the instrument after a moment of unused.

It is possible to set the auto-off of the instrument at 15 / 30 / 45 / 60 / 75 / 90 / 105 or 120 minutes or to deactivate it.

"Configuration" screen is displayed.

- Select "Auto-off" with arrow keys then press OK.
- > Select the required duration or OFF to deactivate it with Up and Down keys.
- > Press **OK** to validate.



Date: DD/MM/YYYY

2015

24H



10 Set the instrument

4.5 Set backlight

"Configuration" screen is displayed.

- Select "Backlight" with arrow keys then press OK.
- > Select the backlight level between 1 and 9 or "Auto" with Up and Down keys.
- > Press **OK** to validate



4.6 Set security

This part allows to activate or deactivate a security code. This code will be asked when starting the instrument.

"Configuration" screen is displayed.

- > Select "Security" with arrow keys.
- Press **OK** to activate or deactivated the security.
 If the security is activated, please create a security code.



4.7 Set code

If the security is activated, the selected code will be asked when starting the instrument. "Configuration" screen is displayed and the security is activated.

- Go to "Code" then press OK.
- ➤ With arrow keys, set each digit then press OK when the last digit is set.

 Modifications are validated, the instrument backs to "Configuration" screen.



4.8 Set printing

"Configuration" screen is displayed.

- Select "Printing" with arrow keys then press OK.
- > Go to "Format" then press **OK**.
- Select the ticket format : long or short then press OK.

Long ticket format : prints the measurement results + header (operator name, date and time of the intervention, type of instrument and its serial number)

Short ticket format : prints only the measurement results and the serial number of the instrument

- ➤ Go to "Logo" then press **OK** to activate or deactivate it.

 The box is ticked when the logo is activated and unticked when the logo is deactivated.
- ➤ Go to "Operator" to enter an operator name then press OK. Keypad is displayed on the bottom of the screen.
- > Select the letters with arrow keys then press **OK**.

To go from the lower case keypad to the upper case keypad then to the numeric keypad : press the function key : **aA1** To delete a letter press the function key "**Delete**".

- Press the function key "Validate" to validate the name.
- Go to "Header 1" to enter the header name then press OK. Keypad is displayed on the bottom of the screen.
- > Select the letters with arrow keys then press **OK**.
- > Press the function key "Validate" to validate the header 1.
- Perform the same procedure to enter a name for the "Header 2", "Header 3" and "Header 4".
- > Press **ESC** to back to the "**Configuration**" screen and to validate the modifications.



Set the instrument 11

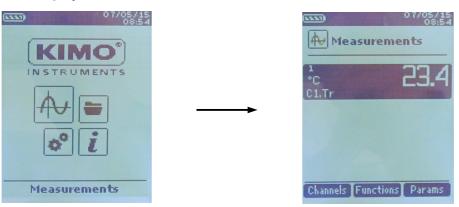
5. Set the probes

5.1 Use of the wire probes and modules

- Connect a probe
 - ➤ Connect the mini-DIN cable on the mini-DIN connection of the probe.
 - Connect the mini-DIN cable with the probe on the instrument. A beep indicates that the operation has been correctly performed.



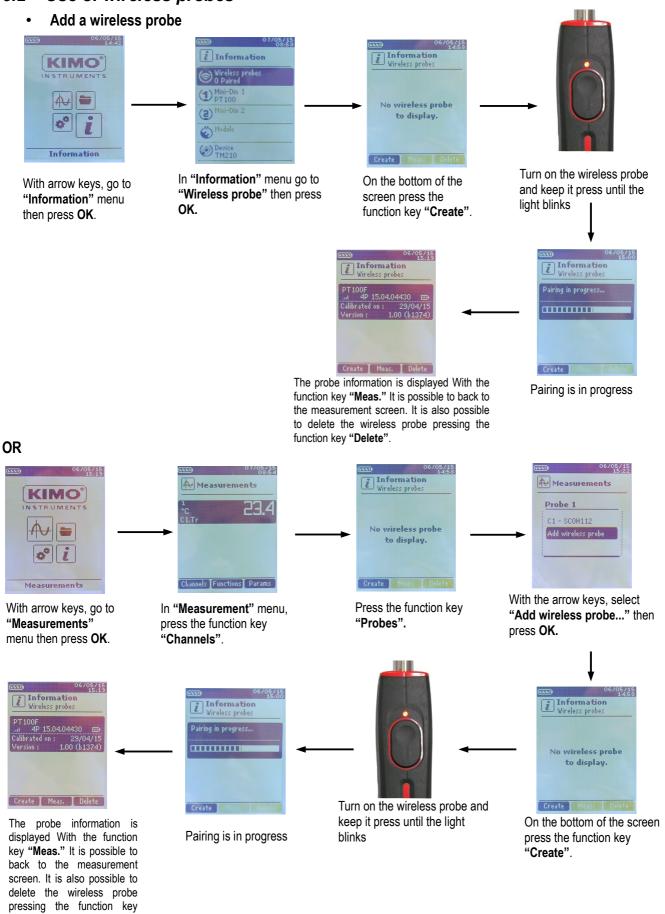
- > Go to "Measurement" menu from the home screen.
- Press OK Measurement are displayed.



12 Set the probes

5.2 Use of wireless probes

"Delete".



Set the probes 13

6. Channel configuration

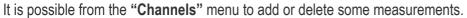
The channel configuration allows to modify the displaying of the measured parameters.

The instrument is on.

With the arrow keys, go to "Measurement".



- > Press **OK**.
- > Press the function key "Channels". The different functions of the probe are displayed.



- > Press the function key "Delete" in order to delete the selected measurement.
- > Press the function key "Add" to display the selected measurement.
- > Press "Add" to add a measurement on the screen (the default measurement displayed on the screen are the primary measurements).

It is possible from the "Channels" menu to choose the displaying order of the measurement on the screen.

- With arrow keys, select the measurement to modify and press **OK**.
- > Go to the line "Channel num." then press OK.
- > Select the channel number and press **OK**.

6.1 Delta T

- Connect the thermocouple module then the probes.
 - In the "Channels" menu:
- Select with arrow keys the sub-menu "Delta T" then press OK.
- Select "Channel number" and press OK.
- > Select a channel number and press **OK**.
- > Select the channels in which Delta T will be calculated.
- Go to "Channel A" with arrow keys and press OK.
- Select the channel T1, T2, T3 or T4 and press OK.
- ➤ Go to "Channel B" with arrow keys and press OK.
- > Select the channel T1, T2, T3 or T4 and press **OK**.
- > Press the key "Measurement".

The instrument displays the measurements.



7. U Coefficient

The thermal transmission coefficient of a wall is called "U" and characterizes the amount of heat which crosses a wall in permanent regime, by time unit, surface unit and temperature difference unit between the ambiance located on both sides of the wall. The thermal transmission coefficient is expressed in W/m²K and is the opposite of the total thermal resistance of the wall. More the value is low, more the building is insulated.

- Connect the U coefficient module on the TM210.
- Fix the temperature cables of the wire probe on the internal wall of the room or on the internal wall of the window in order to obtain the surface temperature as indicated below.



Fixation of the wire probe on the wall

- Select the "Measurement" tab with the navigation arrows.
- > Press "OK".

The device displays the surface temperature and the ambient temperature.

- > Press the "Functions" key, select "U coef." and press "OK".
- ➤ Use the radiofrequency probe to obtain the external temperature. Put the Pt100 probe on the outside to obtain the external temperature (see page for the pairing of the RF probe 13).

The device displays the U coefficient, the surface temperature, the ambient temperature and the external temperature.



For the measurements record, see chapter "Start and record datasets" page 16.



If you do not have a RF probe, you can enter manually the external temperature value : go to "Functions", select "U coef." and press "OK". Go to "Parameters" and set the temperature value with the navigation arrows, press "OK" to validate.

U Coefficient 15

8. Start and record datasets

The instrument in on.

Select with arrows keys "Measurement" menu.



- > Press **OK**.
- > Select with arrows keys the measurement in which the dataset will be performed.
- Press "Functions" key then select "Dataset" with arrow keys and press OK. Dataset menu is displayed.
- Go to line "Name" with arrow keys and press OK. A keypad is displayed on the bottom of the screen.
- Select the letters with arrow keys then press **OK**.

 To go from the lower case keypad to the upper case keypad then to the numeric keypad: press the function key:

To delete a letter press the function key "Delete".

> Press the function "Validate" to validate the name of the dataset.

A dataset is composed of several dated measuring points. You can choose between an automatic dataset or a manual dataset.

- > Go to "Type" with arrow keys then press OK.
- > Select "Manu." for manual or "Auto." for automatic.
- Go to "Start" then press OK.

8.1 Start and record datasets

8.1.1 Manual dataset

A **manual dataset** is composed of measuring points selected by the operator.

Manual mode is selected, measurements are displayed.

- Press OK to validate a measuring point.
- Press OK as many time as the required number of points.
- > Press the function key "Save".

The instrument displays the measuring dataset: type of dataset, number of points, date, minimum, maximum, average and standard deviation.

The dataset is automatically recorded.

- > Press **OK** to display the graph of the results.
- > Press the function key "Zoom+" to display the detail of the calculated points.
- > Press **Esc** key to back to the dataset screen.
- Press the function key "Print" to print the dataset. Printing mode is displayed.
- ➤ Go to the line "Channels info" and press OK to print the channels on the printing ticket.
- ➤ Go to the line "**Details**" and press **OK** to print details of the dataset on the printing ticket.
- Press the function key "Validate" to print.
 The instrument backs to the dataset display.
- > Press **Esc** to back to "measurement" menu.

8.1.2 Automatic dataset

An **automatic dataset** is composed of measuring points with interval of time.

Automatic mode is selected, measurements are displayed.

- > Press the function key "**Duration**" to set the dataset duration.
- > Press **OK** on the line "**Duration**".
- ➢ Go to "Hour" with the arrow keys then press OK, set the duration with arrow keys then press OK.
- Perform the same procedure for the minutes and seconds.











- Press the function key "Validate" when the duration is set.
- > Press **OK** on the line "Interval".
- > Go to "min" with the arrow keys then press **OK**, set the duration with arrow keys then press **OK**.
- > Perform the same procedure for the seconds.
- Press the function key "Validate" when the interval is set.
- > Press **Esc** to back to measuring dataset.
- Press the function key "Start" to launch the measuring dataset.

The countdown starts.

- It is possible to stop the measuring dataset by pressing the function key "Stop".
- Press "**Start**" to restart the dataset.
- Press "Duration" to modify the duration.
- Press "Save" to save the dataset.

The instrument displays the measuring dataset: type of dataset, number of points, date, minimum, maximum, average and standard deviation.

The dataset is automatically recorded.

- > Press **OK** to display the graph of the results.
- > Press the function key "Zoom+" to display the detail of the calculated points.
- Press Esc key to back to the dataset screen.
- Press the function key "Print" to print the dataset. Printing mode is displayed.
- > Go to the line "Channels info" and press OK to print the channels on the printing ticket.
- Go to the line "Details" and press OK to print details of the dataset on the printing ticket.
- Press the function key "Validate" to print.
 The instrument backs to the dataset display.
- > Press **Esc** to back to "**Measurement**" menu.

8.1.3 View the recorded datasets

Go to the "Dataset" menu with the arrow keys from the home screen.

The different measuring datasets are displayed. They are listed by date.

- > To delete all the datasets : press the function key "**Del all**".
- > To delete just one dataset: go to the dataset to delete with the arrow keys and press the function key "Delete".
- A confirmation window opens: select **YES** to confirm the deletion or **NO** to cancel.

8.2 Launch and save averages

The instrument is on.



- > Go to "Measurement" with the arrow keys.
- > Press **OK**.
- Press the function key "Functions" then select "Averages" then press OK. "Average" menu is displayed.

8.2.1 Point/Point average

This function allows to calculate the average value of various points that you can select.

- Go to "Point/Point" line in the "Averages" menu and press OK.
- Press OK to add measuring points.
 - The instrument displays the type of dataset, number of points, date, minimum, maximum, average and standard deviation.
- Press the function key "Details" to get details for each point.
- > Press the function key "Save" to save the Point/Point average.
 - A keypad is displayed on the bottom of the screen.
- > Select the letters with arrow keys then press **OK**.

To go from the lower case keypad to the upper case keypad then to the numeric keypad : press the function key : **aA1** To delete a letter press the function key "**Delete**".



Start and record datasets 17

- > Press the function key "Validate" to validate the name.
 - The recap of the Point/Point average is displayed.
- Press OK to display the graph.
- > Press the function key "Zoom+" to display the detail of the calculated points.
- Press Esc key to back to the dataset screen.
- Press the function key "Print" to print the dataset. Printing mode is displayed.
- Go to the line "Channels info" and press OK to print the channels on the printing ticket.
- ➤ Go to the line "**Details**" and press **OK** to print details of the dataset on the printing ticket.
- Press the function key "Validate" to print.
 The instrument backs to the Point/point average display.
- > Press **Esc** to back to "**Measurement**" menu.

8.2.2 Automatic average

This function allows to calculate an average value that the device measured in an interval chosen time.

- Go to "Automatic" line in the "Averages" menu and press OK.
- Press the function key "Start" to start the measurement. Duration is displayed.
- Press the function key "Stop" to stop the measurements.
 Measurements, average, minimum and maximum values, standard deviation and duration are displayed.
- Press the function key "Start" to launch a new automatic average.
- Press the function key "Save" to save the results.
 A keypad is displayed on the bottom of the screen.
- Select the letters with arrow keys then press **OK**.
 To go from the lower case keypad to the upper case keypad then to the numeric keypad :
- press the function key:

 To delete a letter press the function key "Delete".
- > Press the function key "Validate" to validate the name.
 - The recap of the automatic average is displayed..
- Press OK to display the graph.
- > Press the function key "Zoom+" to display the detail of the calculated points.
- Press Esc key to back to the dataset screen.
- Press the function key "Print" to print the dataset. Printing mode is displayed.
- > Go to the line "Channels info" and press **OK** to print the channels on the printing ticket.
- > Go to the line "Details" and press OK to print details of the dataset on the printing ticket.
- Press the function key "Validate" to print.
 The instrument backs to the automatic average display.
- Press Esc to back to "Measurement" menu.

8.2.3 Automatic Point/Point average

This function allows to calculate the average value of various points, calculated themselves on a duration beforehand defined.

- ➤ Go to "Auto Pt/Pt" line in the "Averages" menu and press OK. A duration is displayed on the bottom right of the screen.
- > Press the function key "**Duration**" to modify the duration if necessary.
- Go to "min" with the arrow keys then press OK, set the duration with arrow keys then press OK.
- Perform the same procedure for the seconds.
- Press the function key "Validate" when the interval is set.
- Press **OK** to start the measurement.









18 Start and record datasets

A the end of the measuring dataset, measurements, average, minimum and maximum values, standard deviation and duration are displayed.

> Press **OK** to add a new measuring point to the calculation.

The countdown starts.

- Press the function key "Details" to get details of the results.
- > Press the function key "Save" to save the results of the automatic average.

A keypad is displayed on the bottom of the screen.

> Select the letters with arrow keys then press **OK**.

To go from the lower case keypad to the upper case keypad then to the numeric keypad:

press the function key: aA1

To delete a letter press the function key "Delete".

> Press the function key "Validate" to validate the name.

The recap of the dataset is displayed.

- > Press **OK** to display the graph.
- > Press the function key "Zoom+" to display the detail of the calculated points.
- > Press **Esc** key to back to the dataset screen.
- > Press the function key "**Print**" to print the dataset.
- Printing mode is displayed.
 Go to the line "Channels info" and press OK to print the channels on the printing ticket.
- > Go to the line "Details" and press OK to print details of the dataset on the printing ticket.
- > Press the function key "Validate" to print.

The instrument backs to the automatic point/point average display.

> Press **Esc** to back to "**Measurement**" menu.

8.3 Hold-Min./Max.

Go to "Measurement" menu with the arrow keys and press OK. Measurements are displayed.

Press OK.

Measurements are frozen on the screen and the minimum and maximum values are displayed.



Start and record datasets 19

9. Setting of measurement parameters

The instrument is on.

➤ Go to "Measurement" menu with the arrow keys and press OK.



- > Select the measurement to set with the arrow keys.
- > Press the function key "Params". The different parameters are displayed.
- For all probes and modules, it is possible to modify the channel number.
- > Select "Channels" with the arrow keys and press OK.
- > Select "Channel num." and press OK. Select a channel number for the parameter, and press **OK**. This number defines the order display of the parameters.



9.1 Thermocouple and Pt100

9.1.1 Unit

- > Go to the line "Temperature" and press **OK**.
- > Select the required unit : °C or °F
- > Press OK to validate the unit selection.

9.1.2 Type (only for thermocouple)

- ➤ Go to the line "Type Tc" and press OK.« ».
- > Select the type of thermocouple: K, T, J and S
- Press OK to validate.

9.1.3 Alarm

- Go to the line "Temp.alarm" and press OK.
- > Select "High alarm" and/or "Low alarm" by pressing OK. It is possible to set the high and low thresholds.
- > Go to the line "High threshold" and press OK.
- > Set the threshold with the arrow keys between -9999.9 and 9999.9 °C then press **OK**.
- > Go to the line "Low threshold" and press OK.
- > Set the threshold with the arrow keys between -9999.9 and 9999.9 °C then press **OK**.

9.2 U coefficient module

9.2.1 Unit

- ➤ Go to the line "Temperature" and press OK.
- > Select the required unit : °C or °F
- > Press OK to validate the unit selection.

9.2.2 Alarm

- ➤ Go to the line "Temp.alarm" and press OK.
- > Select "High alarm" and/or "Low alarm" by pressing OK. It is possible to set the high and low thresholds.
- > Go to the line "High threshold" and press OK.
- > Set the threshold with the arrow keys between -9999.9 and 9999.9 °C then press **OK**.
- > Go to the line "Low threshold" and press OK.
- > Set the threshold with the arrow keys between -9999.9 and 9999.9 °C then press **OK**



Once returned to KIMO, required waste collection will be assured in the respect of the environment in accordance to guidelines relating to WEEE.

www.kimo.fr

EXPORT DEPARTMENT

Boulevard de Beaubourg - Emerainville - BP 48 77312 MARNE LA VALLEE CEDEX 2 Tel: + 33.1.60.06.69.25 - Fax: + 33.1.60.06.69.29

