KIMO®
INSTRUMENTS

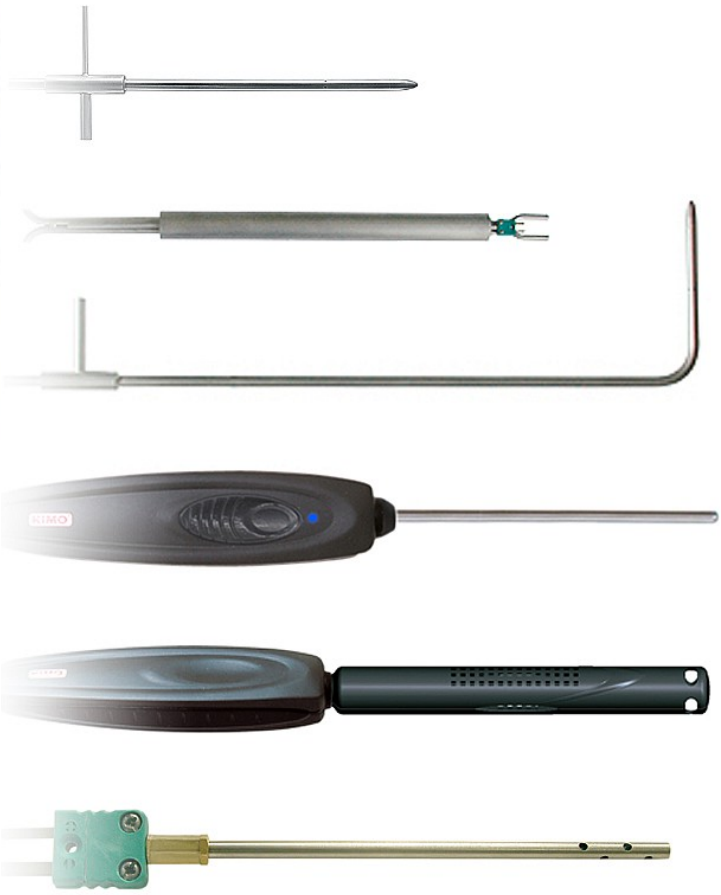
User manual

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

Supplied with Calibration certificate

CE

MP 200
Manometer



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Technical features

Pressure module

Piezoresistive sensor

Overpressure allowed ±500 Pa : 250 mbar
Overpressure allowed ±2,500 Pa : 500 mbar
Overpressure allowed ±10.000 Pa : 1,200 mbar
Overpressure allowed ±500 mBar : 2 bar
Overpressure allowed ±2,000 mBar : 6 bar

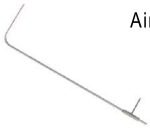
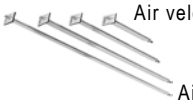
MP200 Connection (See p.6)

Display

Graphic display 128x128 pixels
Dim. 50 x 54 mm, blue blacklit,
Display of 6 measurements (including 4 simultaneously)

Housing.....ABS shock-proof IP54
Keypad.....Metal-coated, 5 keypads, 1 joystick
Conformity.....Electromagnetic compatibility (as per NF EN 61326-1)
Power supply.....4 alcalines batteries 1,5V LR6
Ambient.....Neutral gas
Operating temp......from 0 to +50°C
Storage temp......from -20 to +80°C
Auto shut-off.....adjustable from 0 to 120 min
Weight.....340g
Languages.....French, english

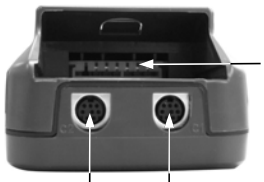
Specifications

	Measuring units	Measuring range	Accuracy*	Resolutions
PRESSURE				
	Pa, mmH_2O, In WG, mbar, hPa, mmHg, DaPa, kPa, bar, PSI	From 0 to ±500 Pa From 0 to ±2,500 Pa From 0 to ±10.000 Pa From 0 to ±500 mbar From 0 to ±2,000 mbar	± 100 Pa : ±0.2% of reading ±0.8Pa, beyond ±0.2% of reading ±1.5Pa, ±0.2% of reading ±2Pa ±0.2% of reading ±10Pa ±0.2% of reading ±0.5mbar ±0.2% of reading ±2mbar	0.1 Pa from -100 to + 100 Pa, 1 Pa beyond 1Pa 1Pa 0.1mbar 1mbar
PITOT TUBE				
 Air velocity	m/s, fpm, Km/h, mph	From 2 to 5 m/s From 5.1 to 100 m/s	±0.3 m/s ±0.5% of reading ±0.2m/s	0.1 m/s 0.1 m/s
Airflow	m^3/h, cfm, l/s, m^3/s	From 0 to 99,999m^3/h	±0.2% of reading ±1% PE	1 m^3/h
DEBIMO BLADES				
 Air velocity	m/s, fpm, Km/h, mph	Frpm 4 to 20 m/s From 21 to 100 m/s	±0.3 m/s ±1% of reading ±0.1m/s	0.1 m/s 0.1 m/s
Airflow	m^3/h, cfm, l/s, m^3/s	From 0 to 99,999m^3/h	±0.2% of reading ±1% PE	1 m^3/h
CURRENT / VOLTAGE				
	V, mA	From 0 to 2.5 V From 0 to 10 V From 0 to 4/20 mA	±2mV ±10mV ±0.01mA	0.001 V 0.01 V 0.01 mA
THERMOCOUPLE (See related datasheet)				
	°C, °F	K : From -200 to 1,300°C J : From -100 to 750°C T : From -200 to 400°C	±1.1°C or ±0.4% Reading value** ±0.8°C or ±0.4% Reading value** ±0.5°C or ±0.4% Reading value**	0.1 °C 0.1 °C 0.1 °C
CO / Temperature				
 Temp. CO	°C, °F ppm	From -20 to +80°C From 0 to 200 ppm From 200 to 500 ppm	±0.3% of reading ±0.25°C ±3 ppm ±1.5% of reading	0.1 °C 0.1 ppm
Gas leak				
	ppm %LEL %VOL	From 0 to 10 000 ppm (GPL : 0-1800) From 0 to 20%LEL From 0 to 1%VOL	±20% of full scale at 20 °C at 65 %HR ± 5 %HR	1 ppm 0,01 %LEL 0,001 %VOL

*All accuracies indicated in this document were stated in laboratory conditions and can be guaranteed for measurements carried out in the same conditions, or carried out with required compensation.
** The accuracy is expressed either by a deviation in °C or by a percentage of the value concerned. Only the bigger value is considered.

Description

Top view

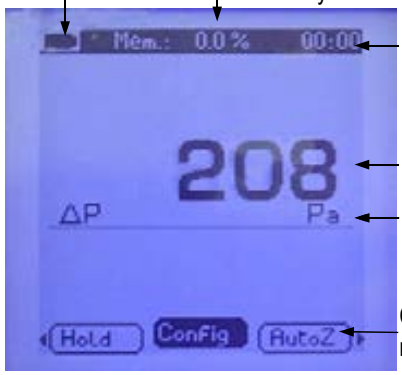


Module connection

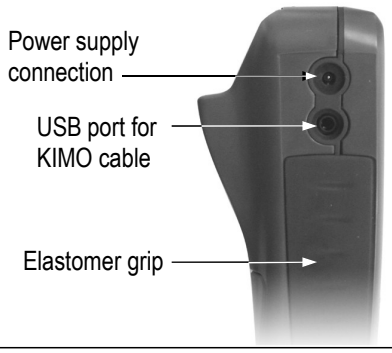
mini-Din C2 connector

mini-Din C1 connector

Graphic display



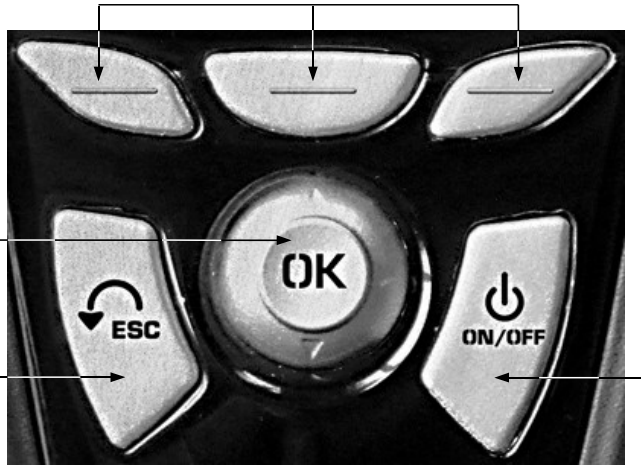
Side view



Keypad

Access keys for circular menu

Browsing joystick :
- 4 directions
- Validation



Escape key

On/Off key

Connections

Interchangeable measurement module

Interchangeable modules with Smart-plus system are automatically recognized when connected to the instrument.

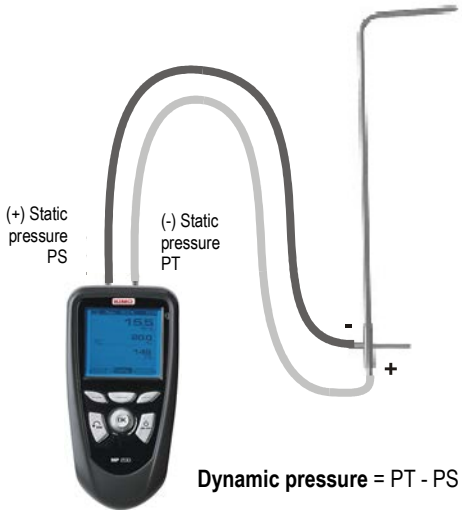
1. Current / Voltage module

It allows current or voltage measurements on **V/ A1** or **VA/2** channels with current/voltage input cables or ammeter clamps.

2. Pressure module

It allows differential pressure, air velocity or airflow measurements with **Pitot tube** or **Debimo** on two pressure inputs (**-** and **+**) and thermocouple temperature measurement on **Tc1** channel with wire thermocouple probes equipped with a miniature male connector.

3. Air velocity with Pitot tube :
Pressure module + Pitot tupe *(optionnal)*



Dynamic pressure = PT - PS

Wire probes with Smart-plus system

Wire probes with Smart-plus system are automatically recognized when connected to the instrument.

mini-Din **C2** connector

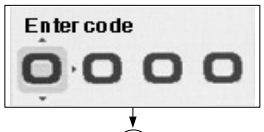
mini-Din **C1** connector

CO/temp probe is connected on min-DIN connectors **C1** and / or **C2**

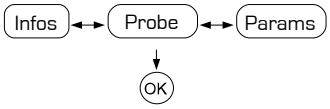
Secured Mini-Din Connector

Retractable cable lg. 450 mm, up to 2.4 m.

Power-up

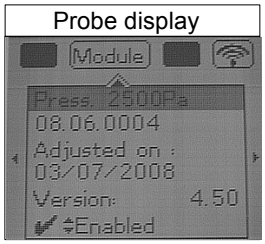


Enter key code with directional pad.
(if the locking is activated)
◀ ▶ and ▲ ▼



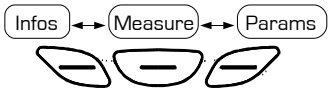
Select a sub menu with access keys
or with arrow keys ◀ ▶

Probe connection



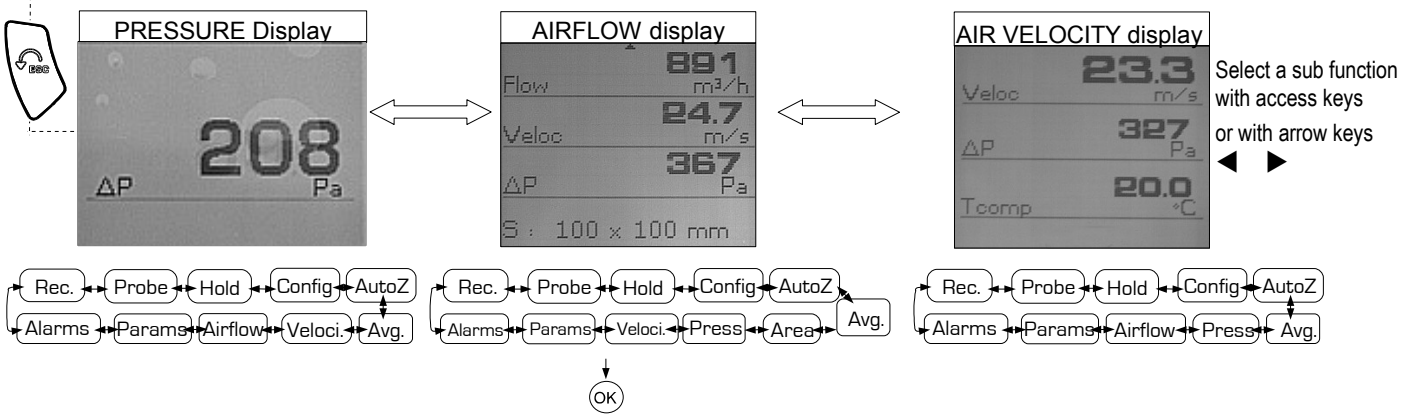
Select a connection with right and left keys ◀ ▶
Connections can be activated or deactivated with ▲ or ▼

Return to
previous screen



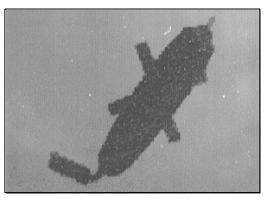
Select a sub function with access keys
or with arrow keys ◀ ▶

Measurement



Select a sub function
with access keys
or with arrow keys
◀ ▶

Communication interrupted

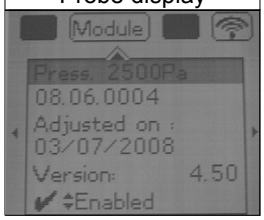


Check probes connection

Probe menu

Wire probes and modules with Smart-plus system are automatically recognized from first connection.
The "**Probe**" menu only appears when probes or module are connected. This menu allows to view probe information plugged to **C2, Module, C1** or **wireless connections**.
(See « Connections » p 6 for more information about connections).

Probe display



Infos ↔ Measure ↔ Params

Available information are :
• Sensor type, Serial number, Date of last calibration or adjustement, Probes Status (enabled ou disabled).
On enabled mode, the probe is connected, the measurement is carried out and the value is displayed.
On disabled mode, the probe is connected, the measurement is not carried out and the value is not displayed.

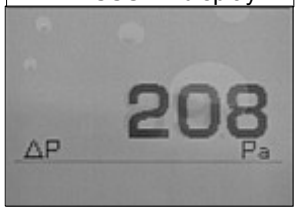
Functions

Pressure

Access **Pressure** function by means of (Pressure) key. With **Pressure** function, you can access to following sub-functions

- **Hold** - see Air velocity
- **Config.** (Configuration) - see Air velocity
- **Params** (Parameters) - see Air velocity
- **Avg.** (Average) - see Air velocity
- **Rec** (Recording) - see Air velocity

PRESSURE display



Rec. ↔ Probe ↔ Hold ↔ Config ↔ AutoZ
Alarms ↔ Params ↔ Airflow ↔ Veloci. ↔ Avg.

AutoZ

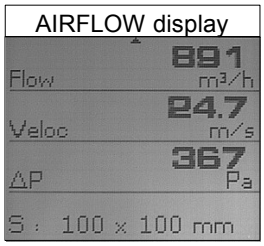
This sub-function allows to compensate for any long-term drifts of the sensing element by a manual adjustment of the zero.
For the ±500 Pa measurement module, self-calibration is performed by the solenoid valve. Once pressing **Autoz** key, the zero is readjusted.
This function can also be automatically performed by using the solenoid valve function.
For others measurement modules, self-calibration is performed by disconnecting the two pressure inlets of the sensor, then by pressing **Autoz** key.

AIRFLOW

Access **Airflow** function by means of (Airflow) key. With **Airflow** function, you can access to following sub-functions

- **Hold –** see Air velocity
- **Area**
- **Config.** (Configuration) - see Air velocity
- **Params** (Parameters) - see Air velocity
- **Avg.** (Average) - see Air velocity
- **Rec** (Recording) - see Air velocity

AIRFLOW display



Rec. ↔ Probe ↔ Hold ↔ Config ↔ AutoZ ↔ Avg.
Alarms ↔ Params ↔ Veloci. ↔ Press ↔ Area

Area

• ***Duct type***

To select vent **Type** press **OK** or ▶.
Select **Lx W** or **Diam** or **K factor** with arrow buttons ▲ and ▼. Confirm with **OK**. If K factor is selected, you must enter value. You can choose a K factor already registered by selecting with ▲ and ▼. Confirm with **OK**. This factor can be modified by selecting with ▲ and ▼, then confirm with **OK** or ▶. Select **Modify** with **OK** or ▶. Enter factor by means of arrow keys ▲ and ▼. Confirm with **OK** or ▶.

• ***Sizes***

Press ▶ or **OK** to enter into **sizes** sub function. You can choose an air vent already registered by selecting it with arrow keys ▲ and ▼. Confirm with **OK** or ▶. This air vent can be modified by selecting it with arrows keys ▲ and ▼, then Confirm with **OK** or ▶. Select **Modify** with **OK** or ▶. Enter sizes by means of arrow keys ▲ and ▼. Confirm with **OK** or ▶.

• ***K2 factor***

Press ▶ or **OK** to enter into the **K2 factor** sub function. Select respectively **ON** or **OFF** with ▲ and ▼ in order to enable or disable this function. Confirm with **OK** .

• ***Units***

To select the unit press **OK** or ▶.
Select **mm** or **in** with arrow buttons ▲ and ▼ . Confirm with **OK**.

COmax

The CO mode is available when a CO/Temperature probe is connected.
You can access this function selecting COmax with the access key [CO max]
The CO is measured on an adjustable period, the maximum value measured in this period is called **CO max** . When CO peak is selected, the period is diplayed (30 seconds by default). Press **Valid.** to launch the measurement. When the countdown is finished, the CO max is displayed.
To modify the period, press **Period** with the access key. Modify time with arrows keys ▲ and ▼.
Confirm with **OK** or ▶.

Gas

• Connect the gas leak detection probe to the the AMI310 then turn on the AMI310.

• Press [Measure] button.

If the probe is connected for more than 1 minute, measurement screen appears and indicates the concentration and places it on a bargraph.

If the probe has been just connected, the screen indicates the remaining time of warm up then the measurement screen appears, indicates the concentration and places it on a bargraph.

Several actions are possible during the measurement :

• Press [Hold] to fix the measurement. When the measurement is fixed, press [Min Max] to access to maximum and minimum values of the measurement. From this screen, press [Measure] to back to measurement.

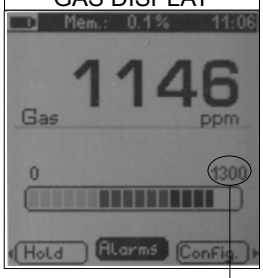
• Press [Alarms] to modify alarm threshold. Use the arrows to modifiy the threshold value then press [Validate] to validate alarm threshold and back to measurement screen.

→ Alarm threshold corresponds to the right value on the bargraph.

→ The beep repetition frequency will increase accordong to the increase of detected gas concentration, and the display will blink at the same frequency.

• During the measurement, follow the path of the gas pipe to controle placing the probe on the pipe.

GAS DISPLAY



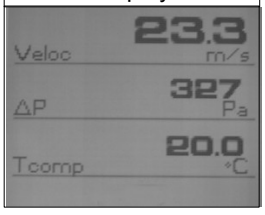
Alarm threshold

Air velocity

Access **Air velocity** function by means of [Veloci.] key. With **Air velocity** function, you can access to following sub-functions

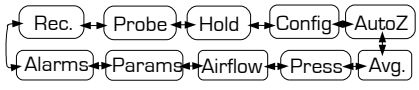
- **Hold**
- **Config.** (Configuration)
- **Params** (Parameters)
- **Avg.** (Average)
- **Rec** (Recording)

AIR VELOCITY
Display



Hold - Min./Max.

Press 1x in order to select **HOLD** function : measurement holding on display.
Press 2x in order to select **Min-Max** function : display of minimum and maximum values.
Press 3x : back to the continuous measurement.



Average

Press ▶ or **OK** to enter Average sub function. With ▲ and ▼, you can select : **point/point average, auto, point/point automatic**. Confirm with **OK** or ▶.

- ***Point / point average***

This function allows to calculate the average value of various points that you can select.
Numbers of selected points and **parameter** for which calculation is carried out, are displayed
For adding a new measuring point to this calculation, press **OK** to confirm.
If you click on **average icon**, max. and min. values, standard deviation, average of each channel and e numbers of measuring points will be displayed. If you want to see all values, select **Visu.** and scroll with ▲ and ▼.

- ***Automatic average***

This function allows to calculate an average value that the device measured in an interval chosen time.
Timer is displayed. Select **Start** with access key for launching measurement.
If you click on **average icon**, max. and min. values, standard deviation, average of each channel and time chosen will be displayed.

- ***Automatic point/point average***

This function allows to calculate the average value of various points, calculated themselves on a duration beforehand defined.
You must enter duration : click on the **Period** icon. Select **minutes** or **seconds** with arrow buttons ▲ and ▼ .
Scroll digits with▲ and ▼. Confirm with **OK**. The numbers of points is displayed. Press **Ok** for launching measurement.
If you click on **average** icon, max. and min. values, standard deviation, average of each channel and numbers of measuring points will be displayed.
You can view each measuring points if you click on **Visu.**

Configuration

If you use thermocouple probes, you must enter type into the Configuration sub-function.

Configuration sub-function allows to:

- ***Select thermocouple type***

Click on **OK** or ▶ to enter into sub function : a list of thermocouple available (K, J or T type) appears .
Select type with ▲ and ▼. Confirm with **OK**.

- ***Select display***

Use the arrow key ▶ or click on **OK** to enter into sub function. Select channel using ▲ and ▼ then confirm with **OK**. Use ▲ or ▼ to select **ON** (displayed) or **OFF** (not displayed) then confirm with **OK**.

- ***Select units***

Click on **OK** or ▶ to enter into sub function : a list of units available appears. Select unit required with ▲ and ▼. Confirm with **OK**.
Click on **Esc** to return to previous screen.

- ***Select integration***

The coefficient of integration allows to smooth the measure, to avoid variations. Click on **OK** or ▶ to enter into sub function : a list of coefficient (From 0 to 9) appears. Select coefficient required with ▲ and ▼. Confirm with **OK**.
Coefficient 0: no integration, important fluctuation in the shown measure.

Select compensation

It is possible to modify the value of the compensation in temperature. Indeed, the velocity and the airflow with Pitot's tube and with Debimo blades are calculated from a temperature of use in +20°C. It is thus necessary to enter the real temperature of use to obtain more precise results.
Click on **OK** or ▶ to enter into the sub function. Select + or – signs with ▲ and ▼ with ▲ and ▼ then pass on the first digit with ▶. Enter the first digit then move to the next one with ▶. Confirm with **OK**.

- ***Select pressure system (only available for Air velocity and Airflow functions)***

Click on **OK** or ▶ to enter into sub function : a list of pressure systems available appears (Pitot tube L, S, Debimo or Other). Select your system with ▲ and ▼. Confirm with **OK**.
If **Other** is selected, you must enter a value. Click on **OK** or ▶ to enter into sub function. With ▲ and ▼ , enter the first digit then move to the next one with ▶. Confirm with **OK**.

- ***Solenoid valve (available with the ± 500 Pa module)***

Click on **OK** or ▶ to enter into the sub function. Select respectively **ON** or **OFF** with ▲ and ▼ in order to enable or disable the solenoid valve function. Confirm wih **OK** or ▶. When the solenoid valve is enabled, it runs every minute.

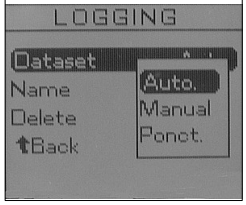
Recording

The Recording menu allows a measurement dataset. You can choose between a planned or a continuous dataset.
Memory capacity of the instrument is up to **8,000** points or **50** datasets.

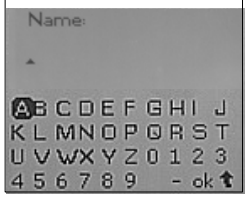
1. Create or launch a continuous dataset

A continuous dataset can be carried out using MP200 and is composed of several dated measuring points. The operator can choose an automatic or a manual dataset, with an instant value or an average. This datasets can't be set using Datalogger-10 Software.

Select dataset



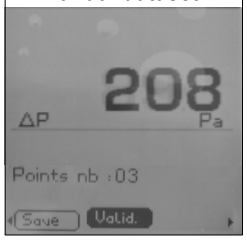
Select name



1.1 Manual dataset

A **manual dataset** is composed of measuring points selected by the operator.
a. Click on **OK** or ▶ to enter into sub function.
b. Select **Manual** with ▲ and ▼. Confirm wih **OK**.
c. Select **Name** with ▲ and ▼. Confirm wih **OK** or ▶. Enter dataset name with arrow keys ◀ ▶ and ▲ ▼. Confirm wih **OK**.
d. For measurement launching, click on **OK** with the access key. The number of points selected and the parameter are displayed.
e. To save your dataset click on **Save** with the access key.

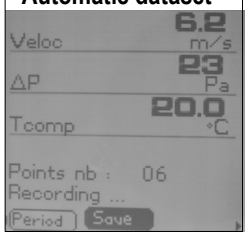
Manual dataset



1.2 Automatic dataset

An **automatic dataset** is composed of measuring points with interval of time.
a. Click on **OK** or ▶ to enter sub function.
b. Select **Auto.** with ▲ and ▼. Confirm wih **OK**.
c. Select **Name** with ▲ and ▼. Confirm wih **OK** or ▶. Enter dataset name with the arrow keys ◀ ▶ and ▲ ▼.
Confirm wih **OK**.
d. Enter dataset time and interval of time between 2 measurements by selecting **Period** with access key. Select **Duration** or **Interval** with ▲ and ▼. Confirm wih **OK**. Enter minutes and seconds with arrow keys▲ and ▼ (from 1 minutes to 24 hours for the duration and from 5 seconds to 10 minutes for the interval). Confirm with **OK**.
e. Select **Start** for dataset launching.

Automatic dataset



2. Launch a planned dataset

A planned dataset is composed of several locations. For each location, the operator can enter a theorical value and a tolerance for the parameter to be controlled. Planification must be made via the software.

a. Click on **OK** or ▶ to enter into sub function.
b. Select **Planned** with ▲ and ▼. Confirm wih **OK**.
c. Choose dataset name with ▲ and ▼. Confirm wih **OK**.
d. Select the location with ▲ and ▼. Confirm wih **OK**.

3. Preview of tables of points of datasets

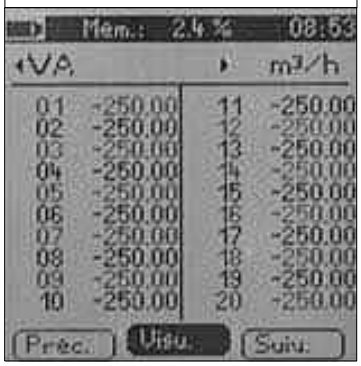
You can display tables of points of datasets performed on the device.

a. Go to **Recording** menu.
b. Select **Display**. Click on **OK** to validate.
c. Select **dataset name** with arrow keys ▲ et ▼. Click on **OK** to validate.
Summary screen of selected dataset is displayed. From this screen, you can :
• Select other dataset using arrow keys ◀ and ▶.
• Display data of other channels using arrow keys ▲ and ▼.

Dataset summary

d. Click on **Mesure** to display values table of selected dataset.
From this screen you can :
• Browse values table of points of the same channel pressing **Prev.** or **Next.**
• Change of channel with arrow keys ◀ and ▶ .
• Back to dataset summary screen pressing **Visu.**

Dataset table



4. Delete all datasets

Select **Delete** with ▲ and ▼. Confirm wih **OK**.

Parameters

- ***Language***

Click on **OK** or ▶ to enter and a list of languages available appears.
Select language with arrow keys ▲ and ▼ and Confirm wih **OK**.

- ***Date / time***

Click on **OK** or ▶ to enter into sub function. Enter the day with ▲ and ▼ then move to the next digit with ▶. Repeat this operation for the month, year, hour and minute. Confirm wih **OK**.

- ***Beep***

This sub-function allows to enable or disable the keypad beep. Click on **OK** or ▶ to enter into the sub function. Select respectively **ON** or **OFF** with ▲ and ▼ in order to enable or disable the beep.
Confirm wih **OK**.

- ***Extinction***

This sub-function allows to enable the automatic shut-off and to select the delay in minute. Click on **OK** or ▶ to enter into the sub function.
Select, with ▲ and ▼, **OFF** in order to disable the automatic shut-off or enter the delay (from 15 to 120 minutes).
Confirm wih **OK**.

- ***RF logging***

This sub-function allows to enable or disable the **RF Logging**. Click on **OK** or ▶ to enter into the sub function. Select respectively **ON** or **OFF** with ▲ and ▼ in order to enable or disable this function.
Confirm wih **OK**.

- ***Contrast***

This sub-function allows to modify the contast. Click on **OK** or ▶ to enter. Select your contrast level (from 0 to 9 or **AUTO**) with ▲ and ▼.
Confirm wih **OK**.

- ***Backlit***

This sub-function allows to modify the backlit. Click on **OK** or ▶ to enter. Select your backlit level (from 0 to 9 or **AUTO**) with ▲ and ▼.
Confirm wih **OK**.

If you select AUTO, the MP200 adjuts automatically the backlit according to the room brightness.

- ***Key locking***

This sub-function allows to enable or disable the **key lock**. Click on **OK** or ▶ to enter into sub function. Select respectively **ON** or **OFF** with ▲ and ▼ in order to enable or disable this function.
Confirm wih **OK**.
If the locking is enabled, the code menu appears

- ***Code***

This sub-function allows to enter the **security code**. Click on **OK** or ▶ and the code appears. Enter the first digit of the code with ▲ and ▼ then move to the next one with ▶**.** Confirm wih **OK**.

Downloading data

see DataLogger-10 user manual chapter **III – Read device** page 6.

V – General informations

Info menu

This menu allows to view the serial number of instrument and firmware version.

Battery

When battery indicator flashes it is recommended to change the batteries:

1. Remove the front part at the back of the instrument.
2. Remove batteries
3. Insert new batteries (AA-LR6 1,5V) in accordance with proprer polarity drew inside the housing.
4. Replace the front.

Maintenance

KIMO performs calibration, adjustment and maintenance of all your instruments to guarantee a constant level of quality of your measurements. In regards of Quality insurance norms, we recommend that the instruments are checked once a year.

Warranty

KIMO Instruments have 1-year guarantee for any manufacturing defect (return to our After-Sales Service required for appraisal).