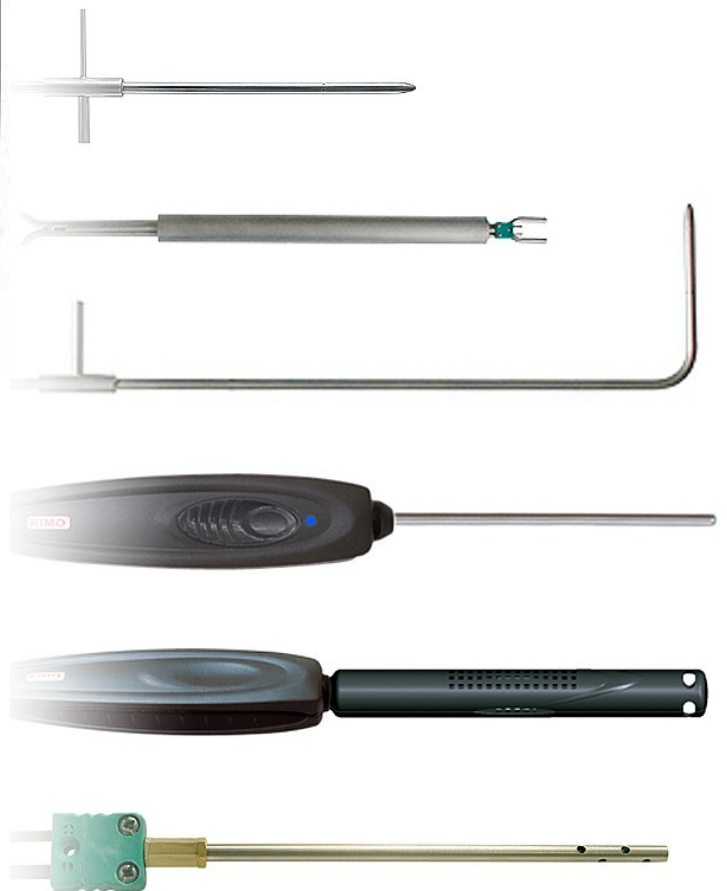




# MP 200 Manometer





<b>I – Technical specifications</b>	<b>4</b>
<b>Technical features</b>	<b>4</b>
<b>Specifications</b>	<b>4</b>
<b>II – Introduction</b>	<b>5</b>
<b>Description</b>	<b>5</b>
<b>Connections</b>	<b>6</b>
<b>III – Browsing</b>	<b>7</b>
<b>IV –Menus</b>	<b>8</b>
<b>Probe menu</b>	<b>8</b>
<b>Functions</b>	<b>8</b>
<b>Pressure</b>	<b>8</b>
<b>Airflow</b>	<b>8</b>
<b>Area</b>	<b>8</b>
<b>Duct type</b>	<b>8</b>
<b>Sizes</b>	<b>8</b>
<b>K2 Factor</b>	<b>9</b>
<b>Units</b>	<b>9</b>
<b>Air velocity</b>	<b>9</b>
<b>Hold - Min/Max</b>	<b>9</b>
<b>Calculation</b>	<b>9</b>
<b>Point / point average</b>	<b>9</b>
<b>Automatic average</b>	<b>9</b>
<b>Automatic point / point average</b>	<b>10</b>
<b>Configuration</b>	<b>10</b>
<b>Thermocouple type</b>	<b>10</b>
<b>Display</b>	<b>10</b>
<b>Units</b>	<b>10</b>
<b>Integration</b>	<b>10</b>
<b>Compensation</b>	<b>10</b>
<b>Pressure system</b>	<b>10</b>
<b>Solenoid valve</b>	<b>10</b>
<b>Recording</b>	<b>11</b>
<b>Parameters</b>	<b>12</b>
<b>Language</b>	<b>12</b>
<b>Date / Time</b>	<b>12</b>
<b>Beep</b>	<b>12</b>
<b>Extinction</b>	<b>12</b>
<b>RF logging</b>	<b>13</b>
<b>Contrast</b>	<b>13</b>
<b>Backlit</b>	<b>13</b>

# I – Technical specifications

4

## Technical features

### Pressure module

#### Piezoresistive sensor

Overpressure allowed  $\pm 500$  Pa : 250 mbar  
 Overpressure allowed  $\pm 2,500$  Pa : 500 mbar  
 Overpressure allowed  $\pm 10,000$  Pa : 1,200 mbar  
 Overpressure allowed  $\pm 500$  mBar : 2 bar  
 Overpressure allowed  $\pm 2,000$  mBar : 6 bar

### MP200 Connection (See p.6)

### Display

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

### Housing

ABS shock-proof  
 IP54

### Keypad Conformity

Metal-coated, 5 keypads, 1 joystick  
 Electromagnetic compatibility  
 (as per NF EN 61326-1)

### Power supply Ambient

4 alcalines batteries 1,5V LR6  
 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



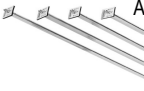


### Weight

340g

### Languages

English, French

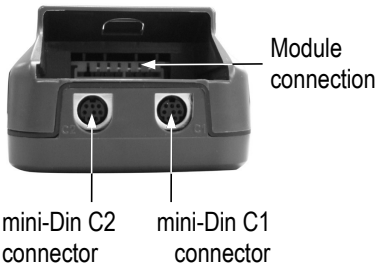
## Specification

	Measuring units	Measuring range	Accuracy*	Resolutions
<b>PRESSURE</b>				
	Pa, mmH <sub>2</sub> O, In WG, mbar, hPa, mmHg, DaPa, kPa, bar, PSI	From 0 to $\pm 500$ Pa From 0 to $\pm 2,500$ Pa From 0 to $\pm 10,000$ Pa From 0 to $\pm 500$ mbar From 0 to $\pm 2,000$ mbar	$\pm 100$ Pa : $\pm 0.2\%$ of reading $\pm 0.8$ Pa, beyond $\pm 0.2\%$ of reading $\pm 1.5$ Pa, $\pm 0.2\%$ of reading $\pm 2$ Pa $\pm 0.2\%$ of reading $\pm 10$ Pa $\pm 0.2\%$ of reading $\pm 0.5$ mbar $\pm 0.2\%$ of reading $\pm 2$ mbar	0.1 Pa from -100 to +100 Pa, 1 Pa beyond 1Pa 1Pa 0.1mbar 1mbar
<b>PITOT TUBE</b>				
	Air velocity m/s, fpm, Km/h, mph Airflow m <sup>3</sup> /h, cfm, l/s, m <sup>3</sup> /s	From 2 to 5 m/s From 5.1 to 100 m/s From 0 to 99,999m <sup>3</sup> /h	$\pm 0.3$ m/s $\pm 0.5\%$ of reading $\pm 0.2$ m/s $\pm 0.2\%$ of reading $\pm 1\%$ PE	0.1 m/s 0.1 m/s 1 m <sup>3</sup> /h
<b>DEBIMO BLADES</b>				
	Air velocity m/s, fpm, Km/h, mph Airflow m <sup>3</sup> /h, cfm, l/s, m <sup>3</sup> /s	From 4 to 20 m/s From 21 to 100 m/s From 0 to 99,999m <sup>3</sup> /h	$\pm 0.3$ m/s $\pm 1\%$ of reading $\pm 0.1$ m/s $\pm 0.2\%$ of reading $\pm 1\%$ PE	0.1 m/s 0.1 m/s 1 m <sup>3</sup> /h
<b>CURRENT / VOLTAGE</b>				
	V, mA	From 0 to 2.5 V From 0 to 10 V From 0 to 4/20 mA	$\pm 2$ mV $\pm 10$ mV $\pm 0.01$ mA	0.001 V 0.01 V 0.01 mA
<b>THERMOCOUPLE (See related datasheet)</b>				
	°C, °F	K: From -200 to 1,300°C J: From -100 to 750°C T: From -200 to 400°C	$\pm 1.1$ °C or $\pm 0.4\%$ Reading value** $\pm 0.8$ °C or $\pm 0.4\%$ Reading value** $\pm 0.5$ °C or $\pm 0.4\%$ Reading value**	0.1 °C 0.1 °C 0.1 °C

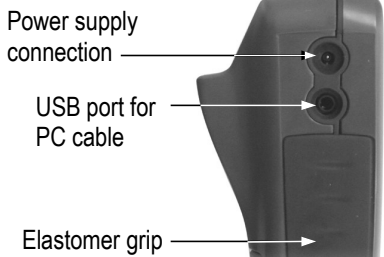
\*All accuracies indicated in this document were stated in laboratory conditions and can be guaranteed for measurements carried out in the same conditions, or carried out with required compensation.  
 \*\* The accuracy is expressed either by a deviation in °C or by a percentage of the value concerned.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

## Descriptio

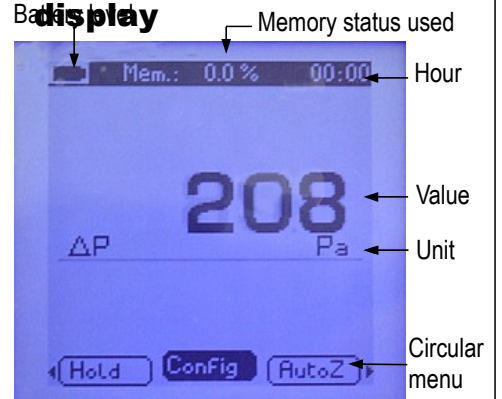
### Top view



### Side view



### Graphic display



### Keypad

**Browsing joystick :**

- 4 directions
- Validation



Escape key



On/Off key

## Connection



### Interchangeable measurement module

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

#### 1. Current / Voltage module



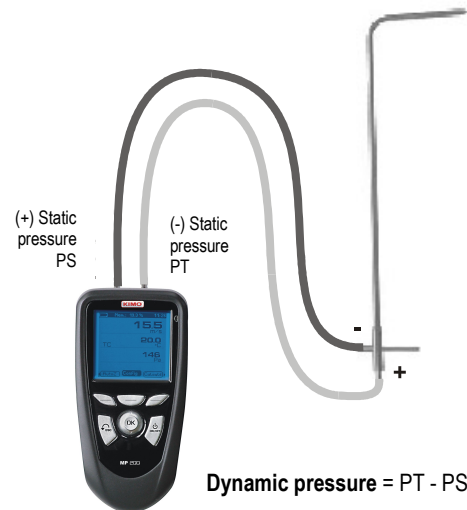
It allows current or voltage measurements on **VA/1** or **VA/2** channels with current/voltage input cables or ammeter clamps.

#### 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 tube (optional)



### 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**

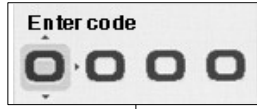


Secured Mini-Din Connector



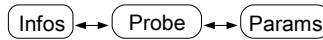
Retractable cable lg. 450 mm, up to 2.4 m.

## Power-up



Enter key code with directional pad.  
(if the locking is activated)

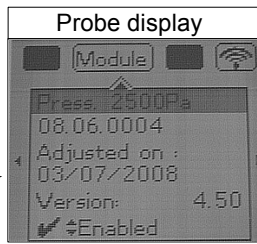
◀ ▶ and ▲ ▼



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



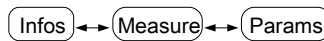
## Probe connection



Select a connection with right and left keys ◀ ▶

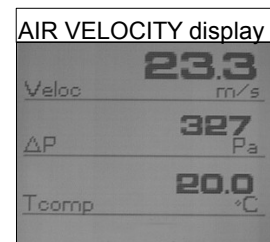
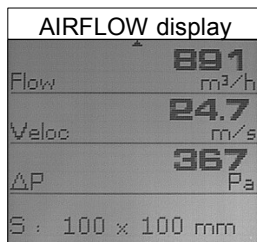
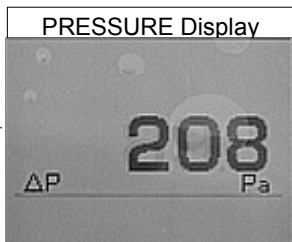
Connections can be activated or deactivated with ▲ or ▼

Return to previous screen

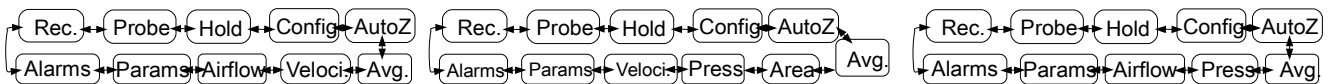


Select a sub function with access keys  
or with arrow keys ◀ ▶

## Measurement



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



## Communication interrupted



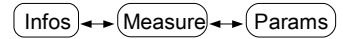
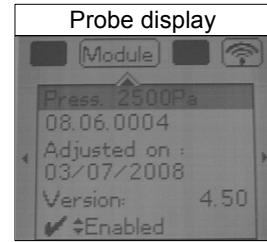
Check probes connection

## 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).

**Available information are :**

- Sensor type, Serial number, Date of last calibration or adjustment, 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.

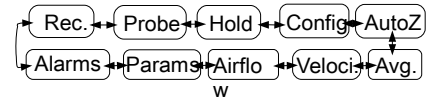
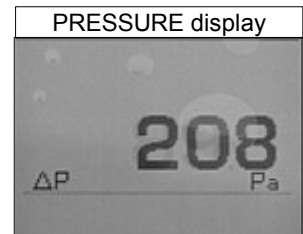


## Functions

### 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



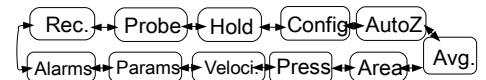
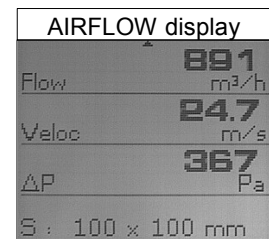
### AutoZ

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. 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



### 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**.

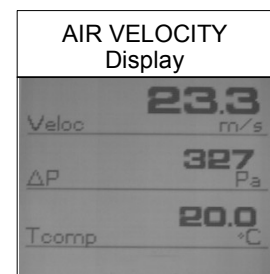
- **Units**

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

## Air velocity

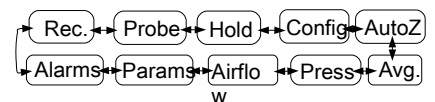
Access **Air velocity** function by means of **Veloci.** key. With **Air velocity** function, you can access to following sub-functions

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



### 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 with **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.

#### 1.1 Manual dataset

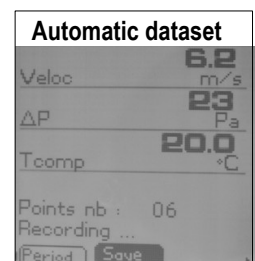
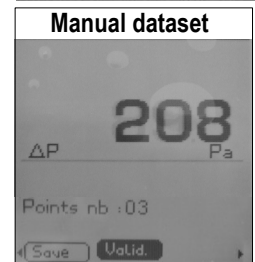
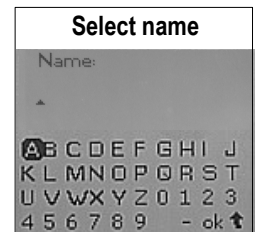
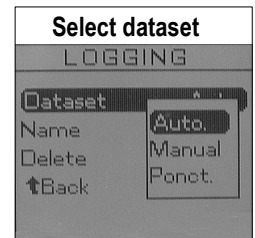
A **manual dataset** is composed of measuring points selected by the operator.

- Click on **OK** or **▶** to enter into sub function.
- Select **Manual** with **▲** and **▼**. Confirm with **OK**.
- Select **Name** with **▲** and **▼**. Confirm with **OK** or **▶**. Enter dataset name with arrow keys **◀ ▶** and **▲ ▼**. Confirm with **OK**.
- For measurement launching, click on **OK** with the access key. The number of points selected and the parameter are displayed.
- To save your dataset click on **Save** with the access key.

#### 1.2 Automatic dataset

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

- Click on **OK** or **▶** to enter sub function.
- Select **Auto.** with **▲** and **▼**. Confirm with **OK**.
- Select **Name** with **▲** and **▼**. Confirm with **OK** or **▶**. Enter dataset name with the arrow keys **◀ ▶** and **▲ ▼**. Confirm with **OK**.
- Enter dataset time and interval of time between 2 measurements by selecting **Period** with access key. Select **Duration** or **Interval** with **▲** and **▼**. Confirm with **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**.
- Select **Start** for dataset launching.



### 2. Launch a planned dataset

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

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

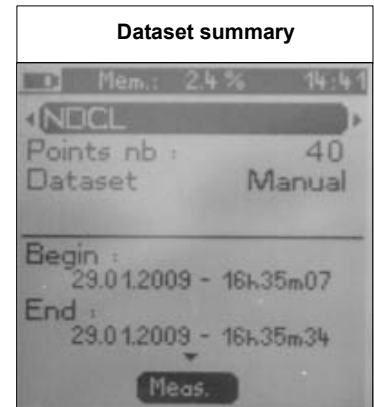
## 3. Preview of tables of points of datasets

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

- Go to **Recording** menu.
- Select **Display**. Click on **OK** to validate.
- 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 ▼.



- Click on **Measure** 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**.

V/A	m³/h
0.1	-250.00
0.2	-250.00
0.3	-250.00
0.4	-250.00
0.5	-250.00
0.6	-250.00
0.7	-250.00
0.8	-250.00
0.9	-250.00
1.0	-250.00

## 4. Delete all datasets

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

### Parameters

#### • Language

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

### • *Contrast*

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

If you select **AUTO**, the MP200 adjusts 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 with **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 with **OK**.

## Downloading

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 proper polarity drew inside the housing.
4. Replace the front.



### Maintenance

E Instruments 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

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



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