

LCC-S

Configuration software for transmitters



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1. Introduction

The LCC-S software, available as option with the classes 110, 210, 310 and monostats transmitters allows to configure the transmitter, to view data in real time and to apply an offset.

2. Software installation

2.1. Minimum system requirement

For the proper operating of the software, the following configuration is strongly required :

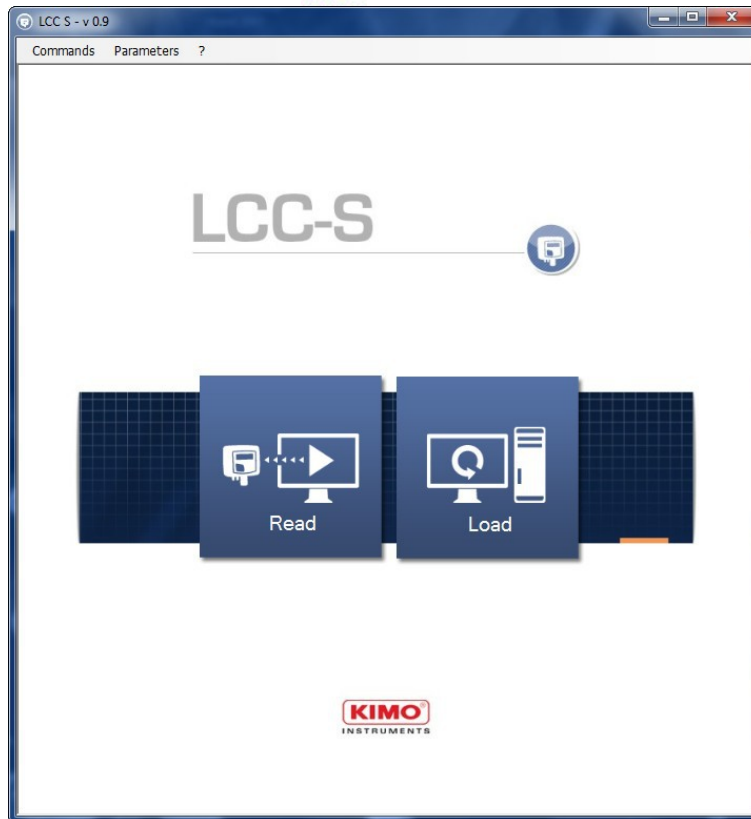
- **Minimum configuration:** Windows, XP, VISTA, 7
- **Communication port :** USB 2.0
- **DVD driver**
- **RAM memory :** 1 GO
- **Available free disk :** 1 GO

2.2. Installing the software

- Put the DVD into the computer driver.
The installation starts automatically. If not, go to “Computer”, double-click on the DVD driver then on the “SetupLCC-S” icon.
- Follow the indications on the screen.

3. Start with the software

After double-clicking on the icon of software launching  on the desktop, the homepage of the software opens :



3.1. Meaning and function of the menus bar

➤ Commands

- **Read configuration** : allows to read the configuration of the transmitter connected to the computer.
- **Write configuration** : allows to send the configuration to the transmitter.
- **Load configuration** : allows to recover a configuration previously saved on the computer.
- **Save configuration** : allows to save the configuration of the transmitter on the computer.
- **Correction** : allows to apply a correction (or offset) to the transmitter.
- **Bootloader** : allows to change the firmware version of the transmitter.
- **Exit** : allows to quit the LCC-S software.

➤ Parameters

- **Communication** : allows to select the communication port.
- **Languages** : allows to select the software language : French or English

➤ ? :

- **User manual** : allows to open the user manual
- **About** : shows the version software and the version database.

3.2. **Meaning and function of the “Read” and “Load” buttons**



This button allows to read the transmitter connected to the computer.



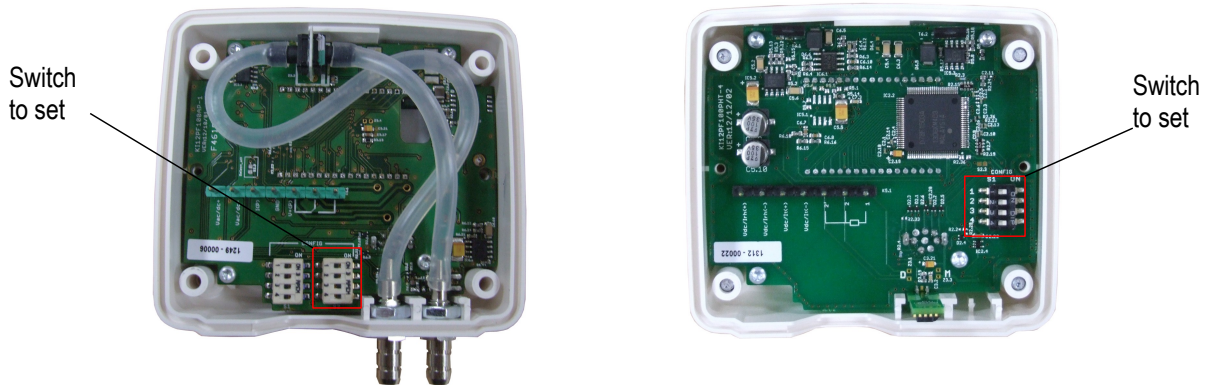
This buttons allows to load a configuration previously load on the computer.


4. Read the transmitter

4.1. Class 110 and monostats transmitters

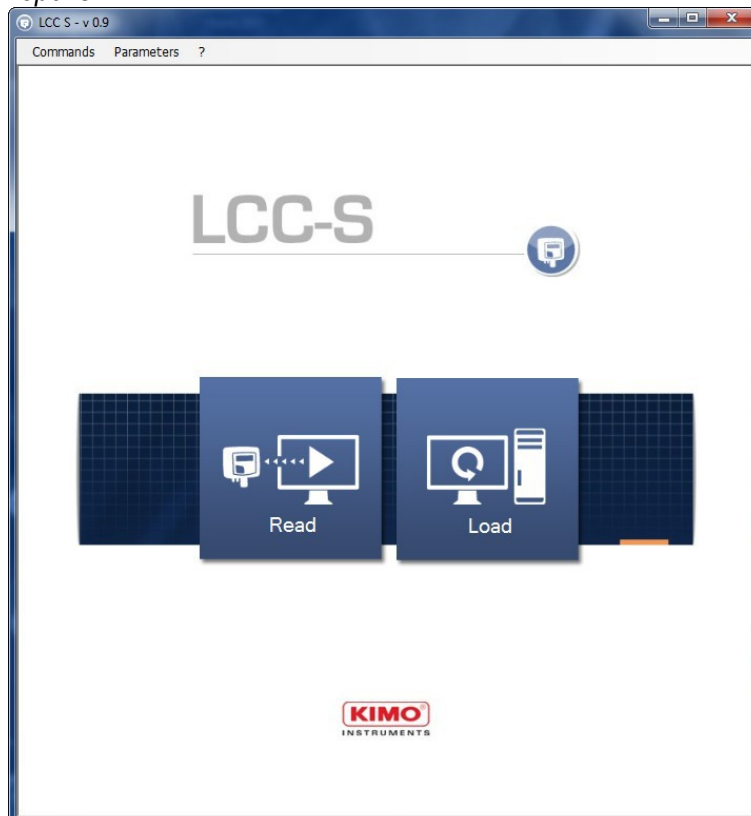
In order to the LCC-S software can correctly read a class 100 or a monostat transmitter, DIP switches of the transmitter must be positioned as follow :

- If only one switch is on the electronic board, set the 4 DIP-switches on “ON” position, it means on the right.
- If two switches are on the electronic board, set the 4 DIP-switches of the **right switch** on “ON” position it means on the right.

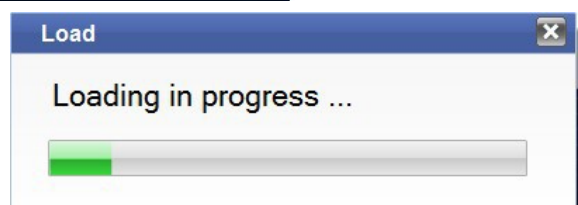


 The transmitter must be powered on.

- Connect the mini-DIN connection of the cable on the front face of the transmitter.
- Connect the other end of the cable on the USB connection of the computer.
- Double-click on the software icon on the desktop to launch the LCC-S.
The following window opens.



- Click on “Read” button.
The loading window opens :



At the end of the loading, the software opens “General” panel.



This window presents the type of connected transmitter, the transmitter version, its possible options and the switches configuration.

4.2. Class 210 transmitters

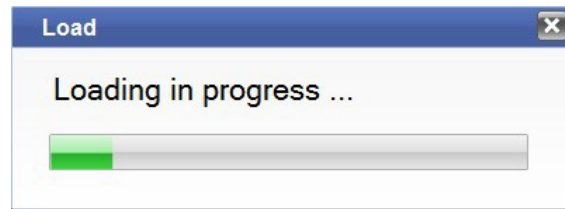
For this type of transmitters, there is no switch configuration needed.

- Open the transmitter and connect the mini-DIN connection on the transmitter (see technical datasheet).
- Connect the other end of the cable on the USB connection of the computer.
- Double-click on the software icon on the desktop to launch the LCC-S.

The following window opens.



- Click on “**Read**” button.
The loading window opens :



At the end of the loading, the software opens “**General**” panel.



This window presents the type of connected transmitter, the transmitter version, its possible options, its display (if there is one), the “**On**” or “**Off**” mode of the keypad and the type of output of the transmitter.

5. Configure the display and the keypad (class 210)

5.1. Configure the display

On “**General**” panel, for class 210 transmitters with display, it is possible to set the backlight duration, the brightness and the contrast of the screen

- Set the backlight : select the required duration between Off, 10 s, 30 s, 60 s, and permanent.
- Set the brightness between 0 and 10.
- Set the contrast between 0 and 5.
- Click on “**Write configuration**” button on the bottom of the window to send the modifications to the transmitter.

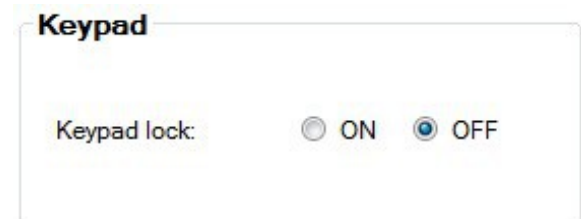


The screenshot shows a configuration window titled "Display". It contains three settings: "Backlight" is set to "Off" in a dropdown menu; "Brightness" is set to "0" in a numeric input field with up and down arrows; "Contrast" is set to "4" in a numeric input field with up and down arrows.

5.2. Activate or deactivate the keypad

For more safety and avoid any operating error, it is possible to hold the keys of the transmitter.

- Select “**ON**” to deactivate the keys or “**OFF**” to activate them.
- Click on “**Write configuration**” button on the bottom of the window to send the modifications to the transmitter.



The screenshot shows a configuration window titled "Keypad". It contains a "Keypad lock" setting with two radio buttons: "ON" and "OFF". The "OFF" radio button is selected.

6. Set the units of measurement

- Click on “**Channel**” button.
The following window opens.



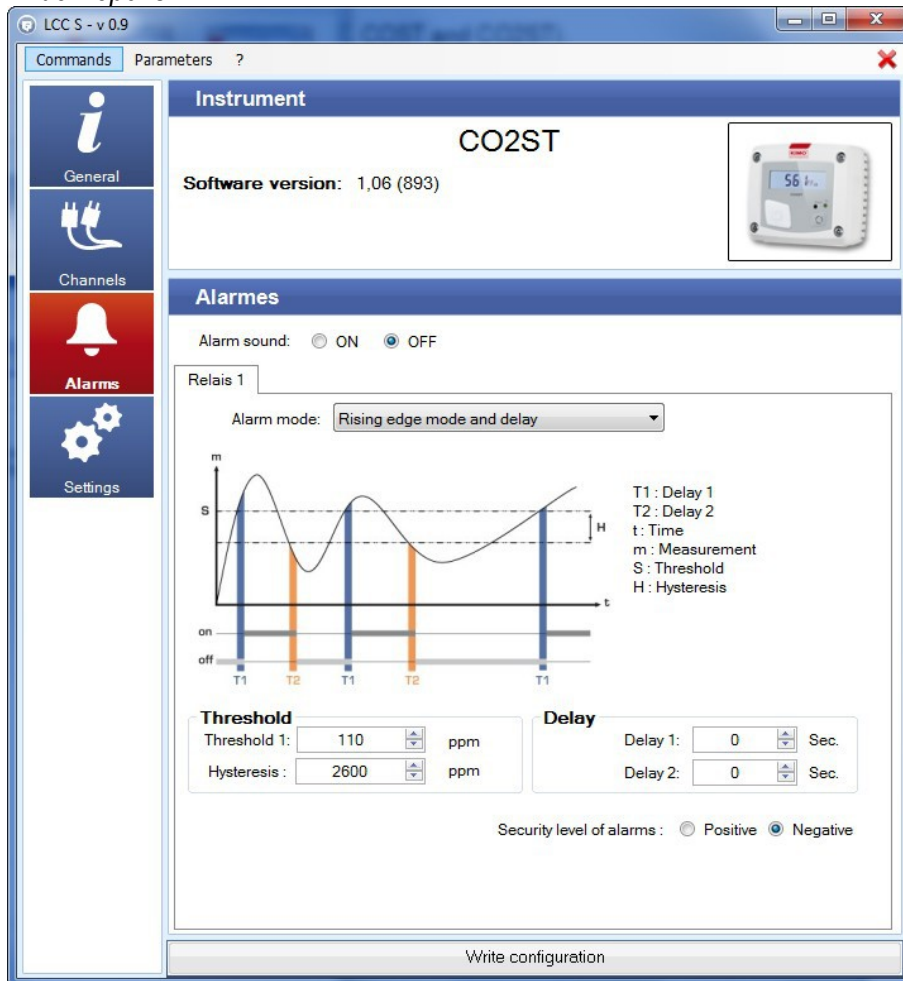
This part has two tabs :

- “**Configuration**” tab
 - “**Measure**” tab (see page 20)
- Click on “**Configuration**” tab.
 - Select in the drop-down list the unit of measurement for the channel 1.
If the transmitter has several measurement channels, the others channels will be displayed with the units available for these channels.
 - Click on “**Write configuration**” button on the bottom of the window to send the modifications to the transmitter.

7. Set the alarms (monostats)

This part is for the monostats only (PST, HST, TST, COST and CO2ST).

- Click on **“Alarm”** button.
The following window opens.



It is possible to activate or deactivate an alarm sound during an alarm condition :

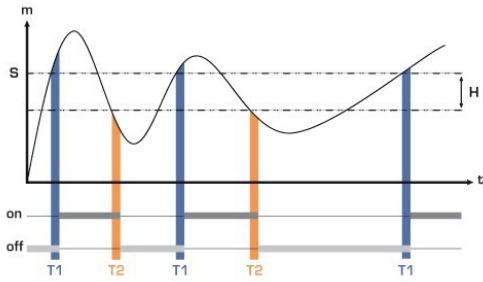
- Select **“ON”** to activate the alarm sound or **“OFF”** to deactivate it in front of **“Alarm sound”**.
- Select in the drop-down list the alarm mode between :
 - **no alarm**
 - **“Rising edge mode and delay”**
 - **“Falling edge mode and delay”**
 - **“Control (threshold 1, threshold 2 and delay)”**
- Set the values for the threshold 1, the hysteresis and delays 1 and 2 for the **“Rising edge and delay”** and **“Falling edge and delay”** modes.

OR

- Set the thresholds 1 and 2 and the delays 1 and 2 for the **“Control (threshold 1, threshold 2 and delay)”** mode.
- Click on **“Write configuration”** button on the bottom of the window to send the modifications to the transmitter.

Details of the alarm modes :

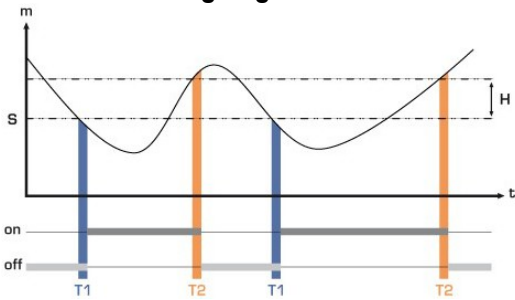
Rising edge



Measurement (m) > Threshold (S) during the time-delay $T1$ → alarm activation.

Measurement (m) < Threshold (S) - Hysteresis (H) during the time-delay $T2$ → Alarm deactivation

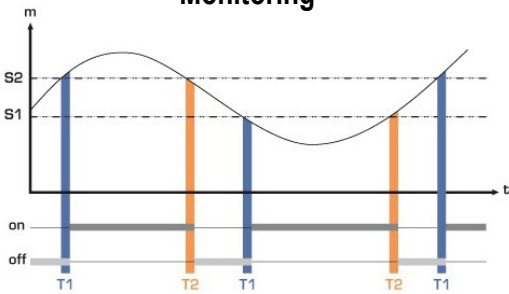
Falling edge



Measurement (m) < Threshold (S) during time-delay $T1$ → Alarm activation

Measurement (m) > Threshold (S) + Hysteresis (H) during time-delay $T2$ → Alarm deactivation

Monitoring



The alarm goes off when the measurement is outside the low and high thresholds.

8. Set the inputs and outputs (classes 110 and 210)

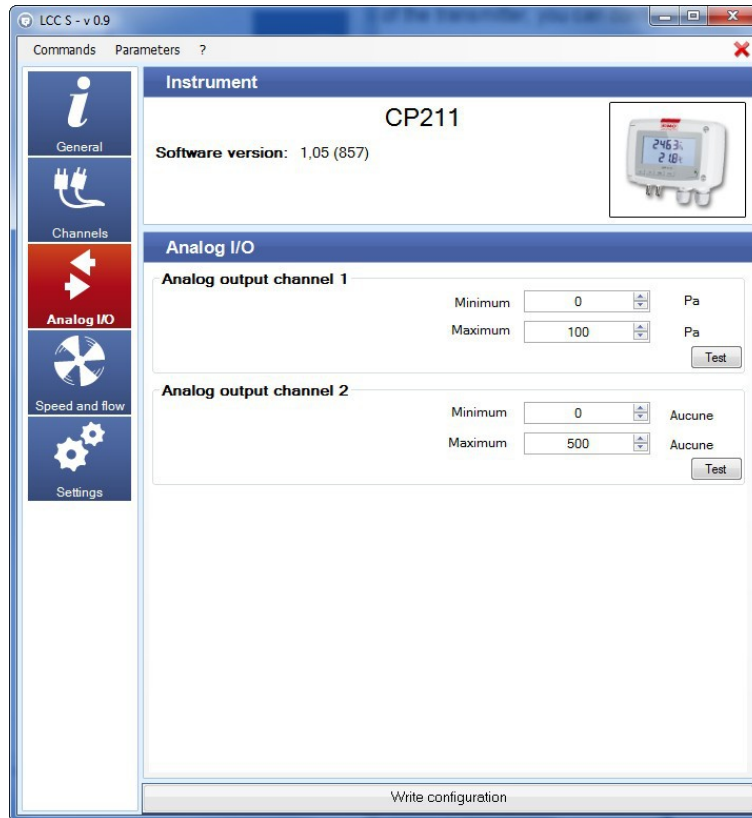
With this function, it is possible to modify the outputs ranges of the transmitter, you can configure your own intermediary ranges.



The configuration of the inputs and outputs is for classes 110 and 210 transmitters only.

8.1. Set inputs and outputs

- Click on “**Analog I/O**” button.
The following window opens.



- Enter the minimum and the maximum for each analogue output.
- Click on “**Write configuration**” button on the bottom of the window to send the modifications to the transmitter.

8.2. Test the analogue outputs (class 210)

Once the configuration of outputs and inputs has been performed, it is possible to test them with an external measurement device.



This test is available for the class 210 transmitters only.

This test allows to check on a multimeter, a regulator or an automate, the proper functioning of the outputs. The transmitter will generate a voltage (between 0 and 10 V) or a current (between 0 and 20 mA) according the setting of the electronic board switch.

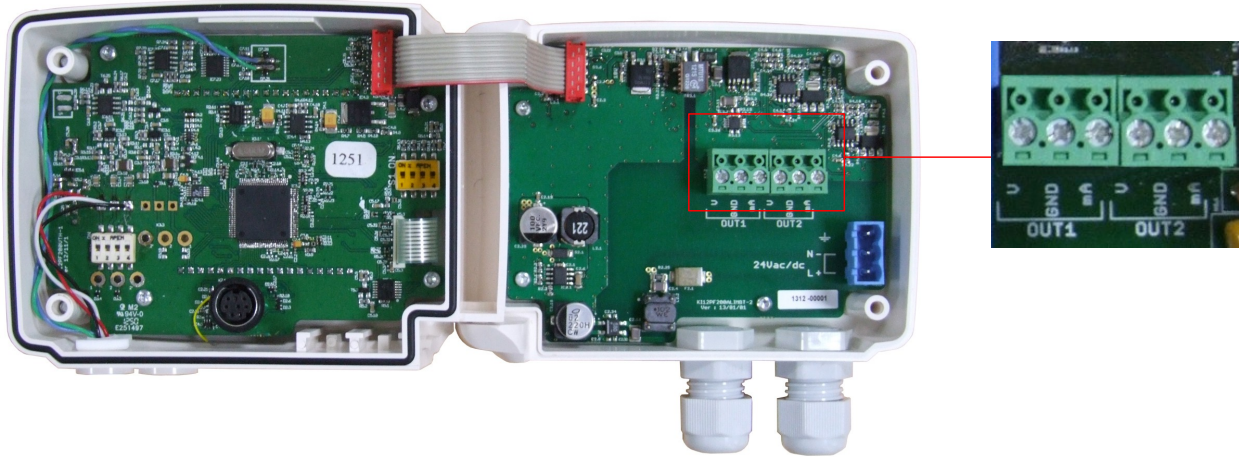
- For a 0-10 V output signal, the transmitter will generate 0 – 5 or 10 V.
- For a 0-5 V output signal, the transmitter will generate 0 – 2.5 or 5 V.
- For a 4-20 mA output signal, the transmitter will generate 4 – 12 or 20 mA.
- For a 0-20 mA output signal, the transmitter will generate 0 – 10 or 20 mA.



Before trying to perform an outputs diagnostic, check that connections and configurations of the transmitter are operational to avoid any damage on the transmitter and on the external device.

- Select a channel for the outputs diagnostic.

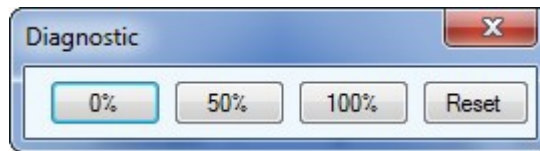
OUT1 or OUT2, indicated on the electronic board above the terminal blocks (see photos above).



- Connect a measurement device on the channel 1 or 2.

Once the connection is done, it is possible to diagnose the analogue outputs on several checkpoints :

- Click on “Test” button of the “Analog I/O” window.
The following window opens.



- Click on 0 %, 50 %, 100 % or Reset.

Diagnostic button	Generation according to the output signal			
	0-10 V	0-5 V	0-20 mA	4-20 mA
Reset	Back to measurement mode			
0 %	0 V	0 V	0 mA	4 mA
50 %	5 V	2.5 V	10 mA	12 mA
100 %	10 V	5 V	20 mA	20 mA

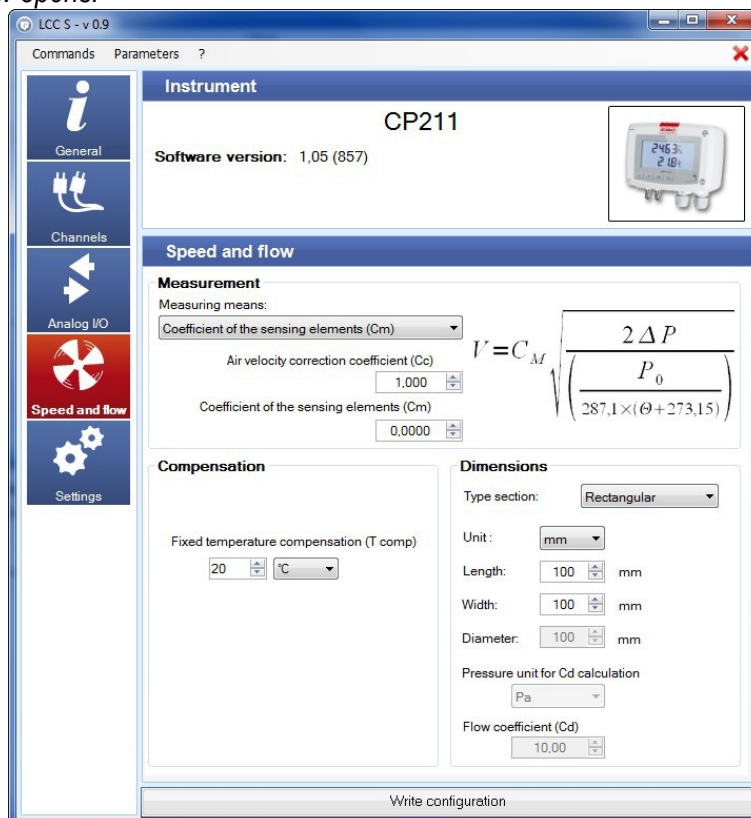
9. Set the measurement in air velocity and airflow (CP210 and CTV210)

This setting is for the CP210 and CTV210 transmitters only.

9.1. Select the measuring means (CP210 with SQR option)


The calculation of air velocity being calculated from the pressure (for a CP 210 transmitter) and from a differential pressure element, the used differential pressure element must be selected to perform the measurements. The coefficient of this element and the air velocity correction coefficient must be then entered.

- Press “**Speed and flow**” button.
The following window opens.



In “**Measurement**” part :

- Select the measuring means between :
 - Pitot L
 - Pitot S
 - Debimo
 - Coefficient of the sensing element (Cm)
- Enter the air velocity correction coefficient (Cc) if needed.
This coefficient must be between 0.0000 and 9.9999.
- If “**Coefficient of the sensing element (Cm)**” has been selected as measuring means, enter its coefficient.

 According to the selected type of section, the air velocity calculation formula is indicated in “Measurement” part. Scroll your mouse over it to have more information about the formula.

9.2. Set the temperature compensation (CP210)

It is possible to modify the temperature compensation value. Indeed, the air velocity and the airflow measured with a Pitot tube and/or Debimo blades (or with any other differential probe) depends on the operating temperature. Therefore, it is necessary to enter the operating temperature in order to get more coherent results.

In “**Compensation**” part :

- Select the unit (°C or °F)
- Enter the temperature compensation value.

9.3. Set the type of section (CP210 and CTV210)

In “Dimensions” part of the “Speed and flow” panel :

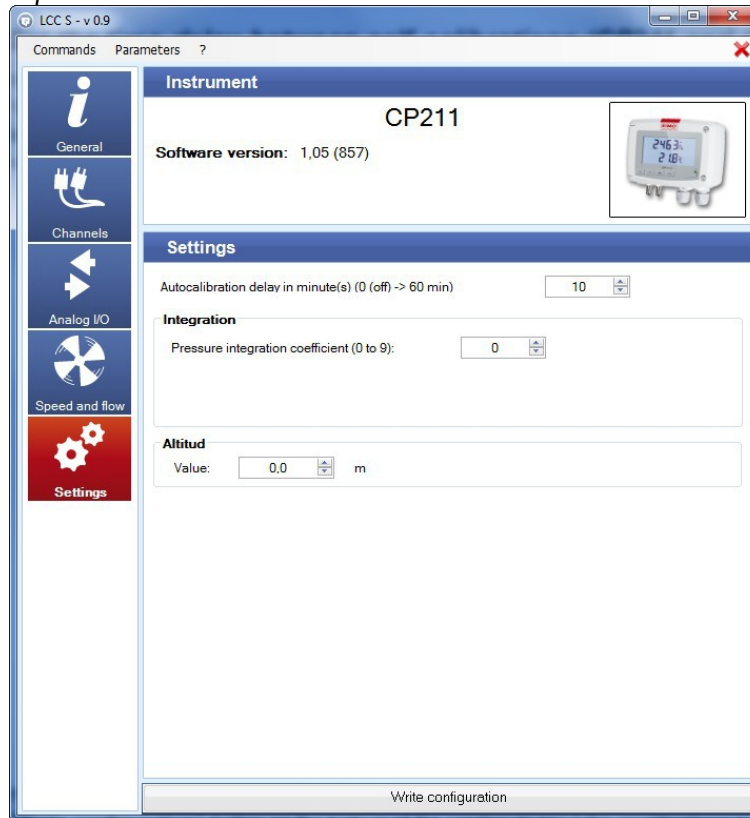
- Select the type of section : circular, rectangular or flow coefficient.
 - Select the unit for a rectangular section : mm or inch
 - Enter the dimensions :
 - Length and width for a rectangular section.
 - Diameter for a circular section.
- OR
- Enter the Cd value for a flow coefficient.
 - Click on “**Write configuration**” button on the bottom of the window to send the modifications to the transmitter.

10. Others settings

10.1. Set the time-delay between self-calibrations (CP211 and CP212)

For pressure transmitters having a self-calibration solenoid valve (CP 211 and CP 212), it is possible to set an interval between two self-calibrations.

- Press “**Settings**” button.
The following window opens.



- Set the time-delay in minute from 0 (off, no time-delay) to 60 minutes.
- Click on “**Write configuration**” button on the bottom of the window to send the modifications to the transmitter.

10.2. Pressure measurement integration (CP210 and CTV210)

The pressure measurement element is very sensitive and reacts to pressure changes. When making measurements in unstable air movement conditions, the pressure measurement may fluctuate. The integration coefficient (from 0 to 9) makes an average of the measurements ; this helps to avoid any excessive variations and guarantees a stable measurement.

New displayed value = $(((10 - \text{Coef.}) \times \text{New value}) + (\text{Coef.} \times \text{Old value})) / 10$

Example : CP212 (0-1000 Pa) – First measurement : 120 Pa – New measurement : 125 Pa

The pressure source is stable, the user applies a low integration. Integration : 1, maximum variation allowed ± 10 Pa. The variation is less than 10 Pa, we apply the integration calculation formula.

Next measurement displayed : $((9 \times 125) + (1 \times 120)) / 10 = 124.5$ i.e 124 Pa. If the new value had been 131 Pa, the next displayed value would have been 100% of the new value, i.e 131 Pa.

Still in the “**Settings**” panel :

- Set the integration value between 0 and 9 with :
 - **Coefficient 0** : no integration, important fluctuation of the displayed measurement, fast response time.
 - **Coefficient 9** : maximum integration, more stable reading, slowest response time.
- Click on “**Write configuration**” button on the bottom of the window to send the modifications to the transmitter.

11. Read the measurements in real time

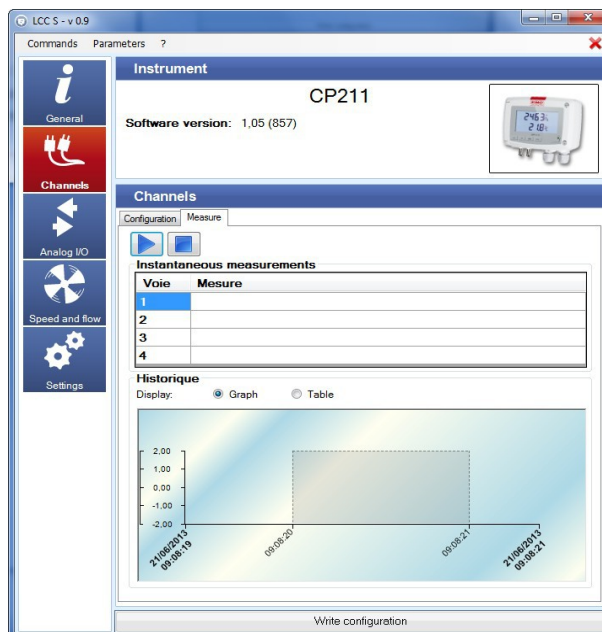
- Click on “**Channel**” button.
The following window opens.




This part has two tabs :

- “**Configuration**” tab
- “**Measure**” tab

- Click on “**Measure**” tab.
The following window opens.




- Click on “**Play**” button . *Measured values are displayed in front of the channel number.*
- Click on “**Graph**” or “**Table**” bullet in “**History**” part to select the visualization mode of the values.

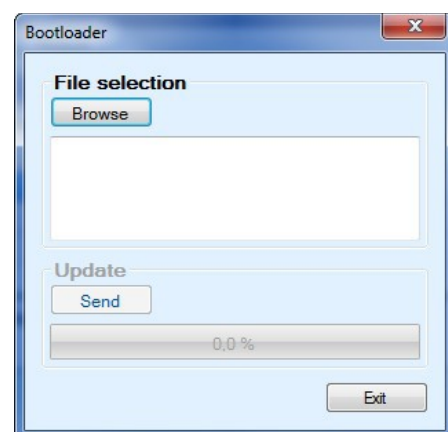
12. Update the software

It is possible to update the firmware of the transmitter, it means the internal software that allows to the transmitter to work properly.

The transmitter is connected to the computer

- Click on “**Commands**”.
- Click on “**Bootloader**”.
- The “**Bootloader**” window opens.*
- Click on “**Browse**” button.
- Go to the location where the update file is.

 This file is supplied by the after-sales service of Kimo.



13. Save and load a configuration

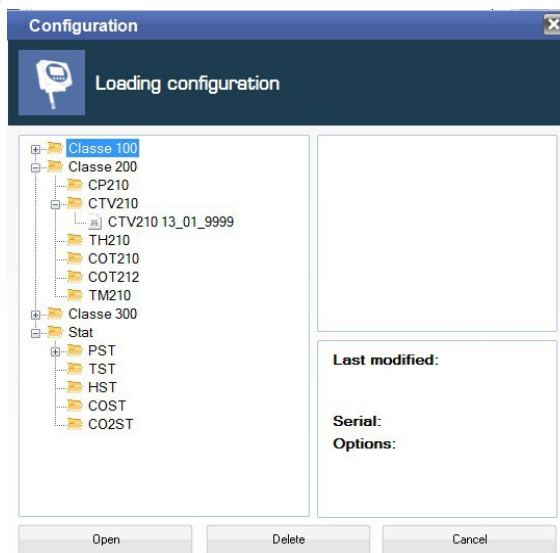
When a transmitter has been configured according to the desired criterion, it is possible to save this configuration and then apply it to another transmitter.

13.1. Save the configuration


- Click on “**Commands**” menu.
- Click on “**Save configuration**”.

13.2. Load a configuration

- Click on “**Commands**” menu.
- Click on “**Load configuration**”.
- The following window opens.*



- Click on “+” sign of the directory where the desired configuration is saved.
- Click on the configuration to load on the transmitter.
- Click on “**Open**” button.
- A loading window opens with a progress bar opens and disappears when the configuration has been completely loaded on the transmitter.*

 Configuration files are saved in the computer in the following location :
C:\Users\Public\Documents\KIMO Instruments\LCC S\Configuration Appareil

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