

Programming Manual

Touchscreen + conditioner

Broken tool detector type 404



www.detector-france.com



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1. Introduction

After a short presentation of the system possibilities, this guide will describe all adjustments and settings of the conditioner CDT-404-2.

With regard to installation and wiring, please refer to the Electrical installation manual **INSELE-CDT-404-2**.

Do not hesitate to contact us for any additional information or in case of persistent problems, a technician will be present to answer you either by email:

commercial@detector-france.com or by phone +33 450 037 998.

The CDT-404-2 conditioner is designed to control one or two 404 broken tool detectors.

“Double direction” means that in the same cycle the detector can control by rotation in one direction and then in the other direction.

This system performs several controls during the cycle to ensure the correct functioning of the latter throughout its use.

The conditioner will make it possible to control the detectors and also to carry out controls of different positions.

The first control is:

Broken tool control (Control 1 and Control 2): This control ensures the presence of the tools at each cycle. If the tool is broken, the detector will go further than the reference position of the tool and the conditioner will then trigger a "Broken Tool" alarm and stop the machine.

The second control is :

The presence of chips (Chips): This control allows to detect any clusters of chips around the tool. If the detector can not go to the tool reference position due to the chips, the conditioner triggers a "Chip" alarm different from that of "Broken Tool".

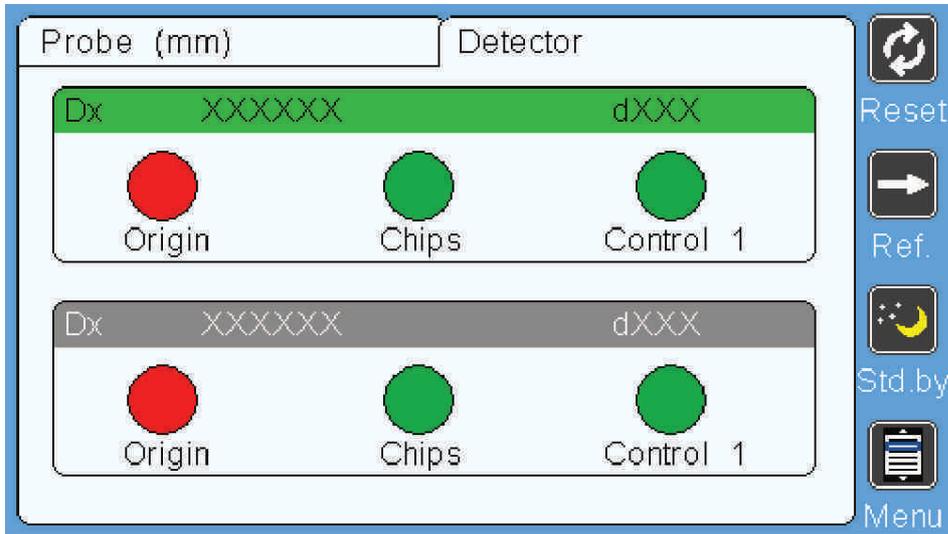
The third control is :

The return to Origin (Origin): This control consists in ensuring that the detector has returned to its starting point at the end of the cycle.

If the needle is trapped by a possible element (lubrication tube, passage of the needle behind the tool, chips etc.) which will prevent its return, an alarm "Origin" will trigger and stop the machine.

2. Identification of the conditioner

When you turn on the power for the first time, the following page appears on the touch screen:



The first Step is to identify the conditioner CDT-404-2.

Note: The blue light on the conditioner flashes: it means that it is not recognized and can not be operated.

Flashing blue light: the conditioner is not identified with the touch screen.
The detector cannot operate until the identification is made.

Fixed blue light: The conditioner is identified by the touch screen.
The detector can be operated and parameterized.

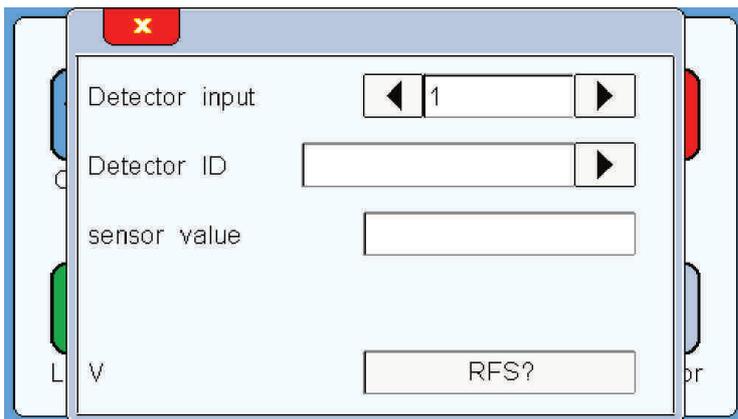




The home page appears:

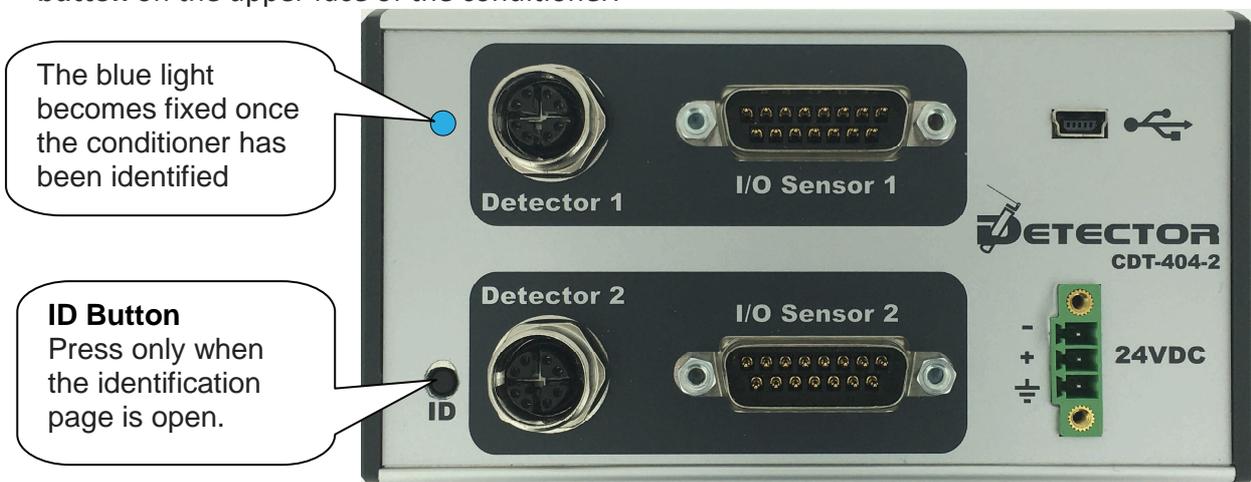


The identification page appears:

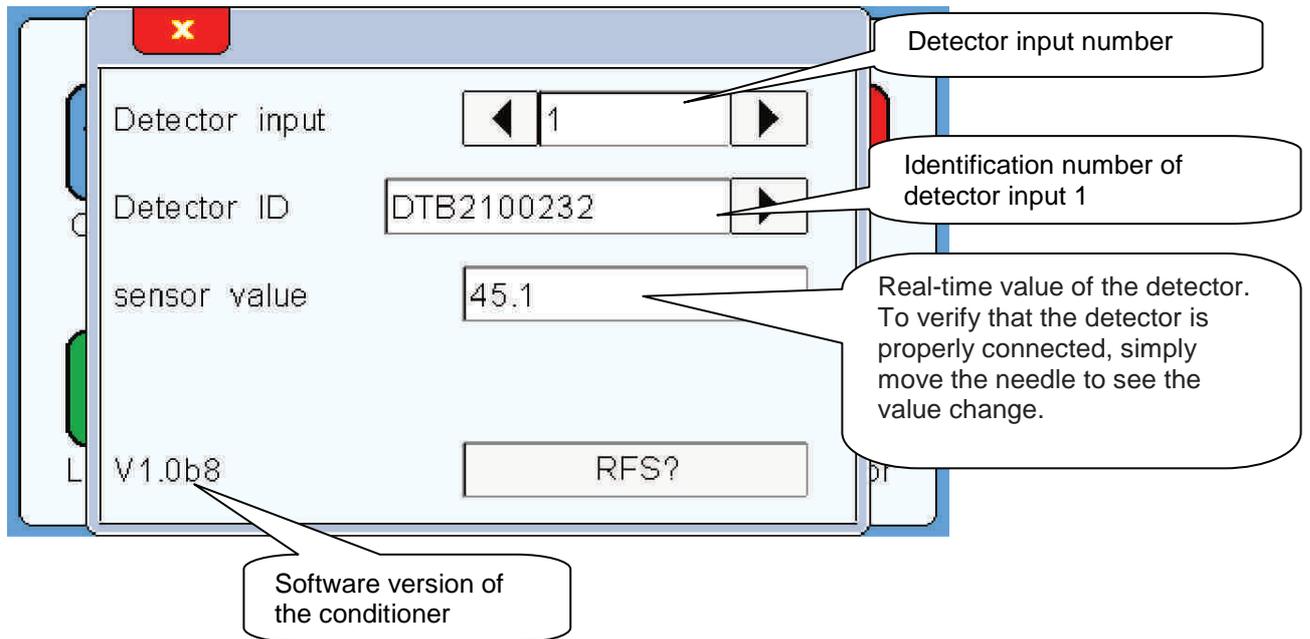


The settings on this page are empty because the identification has not yet been made.

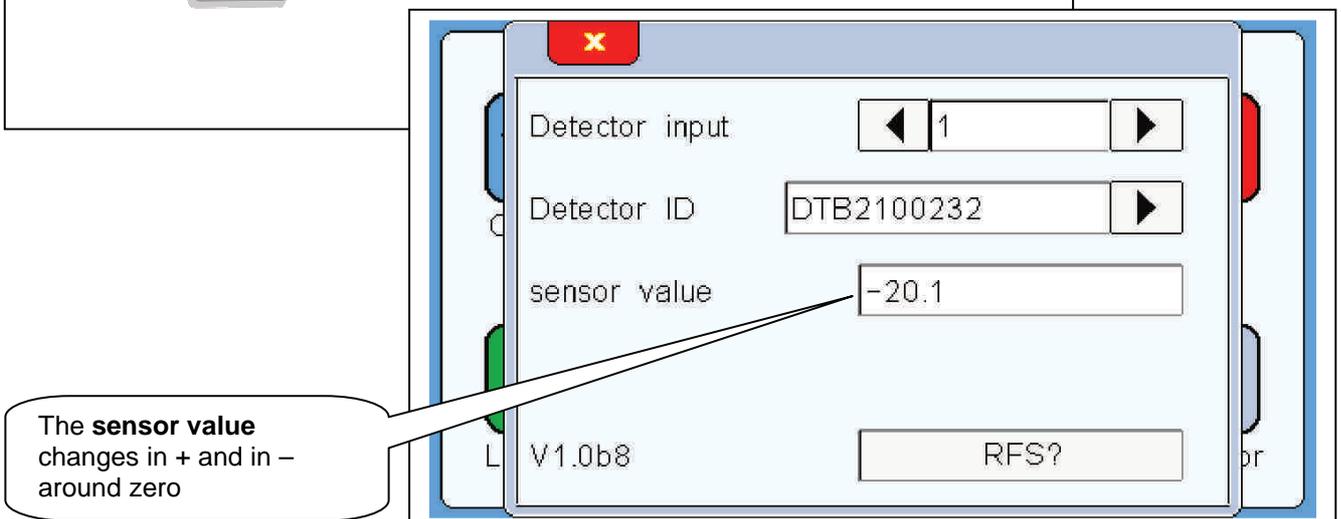
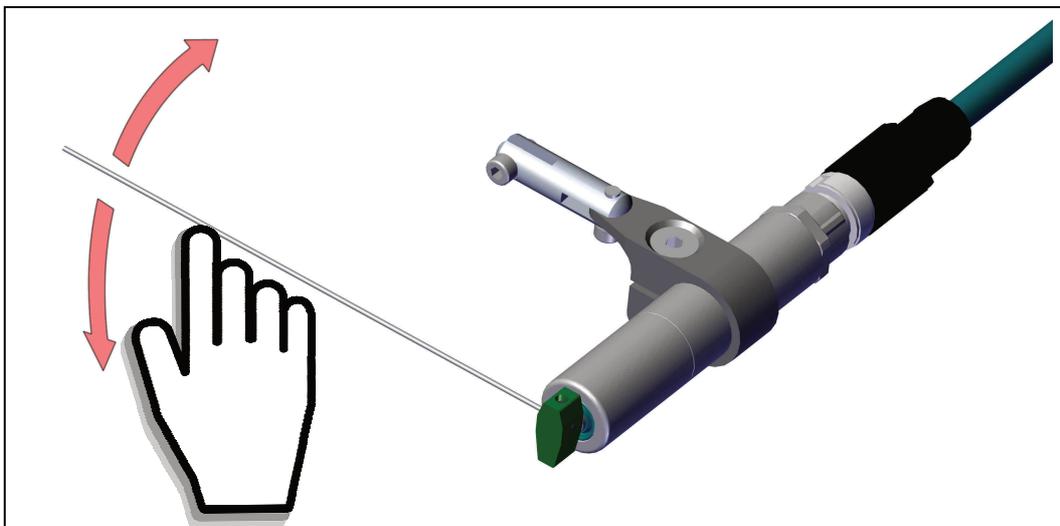
To identify the conditioner on the touch screen, simply **open this page and press the ID button** on the upper face of the conditioner.



The settings on the identification page are now filled in:



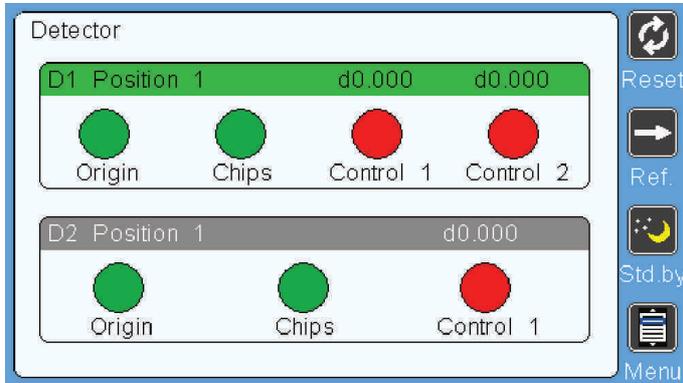
In order to verify that the detector is properly connected, the needle must be moved from side to side to see the **sensor value**.



3. Parameterization of the detector

The second step is to parameterize the detector.

After the conditioner has been identified, the control page appears as below:



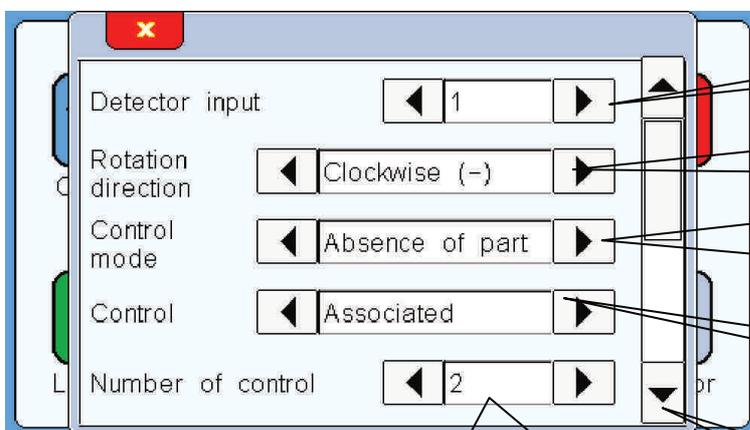
PRESS ICON Menu

The home page appears :



PRESS ICON Detecteur

Here is the setting page of the **detector - 1st Level**:



Detector input number – Each detector can be set differently. This setting is present for each level.

Direction of rotation of the first control: Clockwise or Anticlockwise

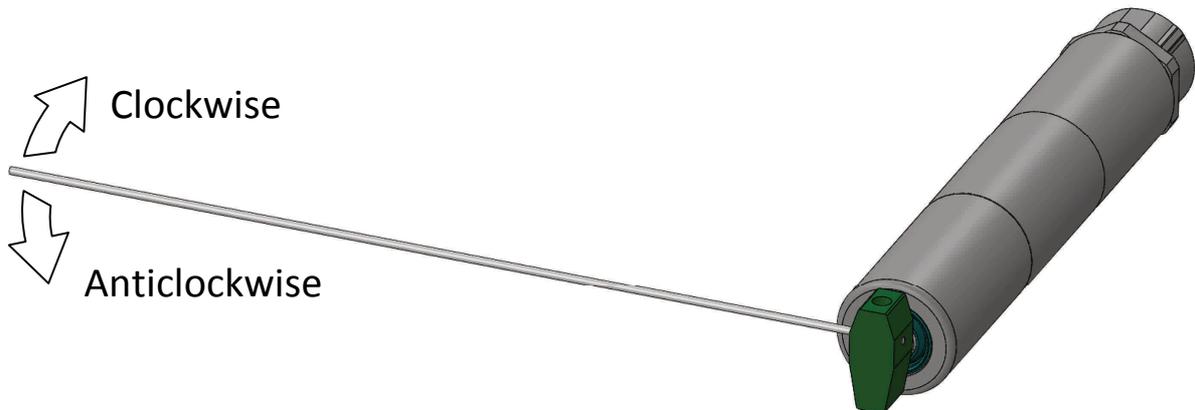
Control mode : **Presence of tool - Absence of part – Presence/Absence – Absence/Presence**

Control : **Associated ou Dissociated**

Number of control : 1 or 2

Lift allowing access to other levels of parameterization.

Direction of rotation of the detector :



The direction of rotation is defined by positioning itself in front view of the detector.

Control mode :

The system allows for 2 configurable control modes avoiding inverted wiring.

The first mode "**Presence of tool**" works as follows:

- The needle will touch the tool that is present, the **Good Control output** (NO) closes and the **Shutdown Machine output** (NC) remains closed, the next cycle continues without stopping the machine.
- The needle fails to feel the tool - the tool is broken - the **Good Control output** (NO) remains open and the **Shutdown Machine output** (NC) opens, the machine stops at the end of the cycle.

The second "**Absence of Part**" mode works as follows:

- The needle fails to feel the workpiece - the part is missing - **the Good Control output** (NO) closes and the **Shutdown Machine output** (NC) remains closed, the next cycle continues without stopping the machine.
- The needle will touch the part that is present, the **Good Control output** (NO) stays open and the **Shutdown Machine output** (NC) opens, the machine stops at the end of the cycle.

The other 2 control modes – **Presence/Absence** et **Absence/Presence** – can be used only if there are 2 controls (**2** in the parameter « **Number of control** »)

The **Presence/Absence** mode allows you combine the first 2 modes presented above, namely **Presence of tool** and **Absence of part**. This mode is used in the case where it is desired to control at the first control a tool presence; with a shutdown machine in case of broken tool; and during the second control an absence of part; with a shutdown machine in case of presence of part.

The **Absence/Presence** mode allows you combine the first 2 modes presented above, namely **Presence of tool** and **Absence of part**. This mode is used in the case where it is desired to control at the first control an absence of part; with a shutdown machine in case of part presence; and during the second control a presence of tool; with a shutdown machine in case of broken tool.

Control :

When 2 controls are set, it is possible to perform them in 2 ways : **Associated** and **Dissociated**.

The **Associated** parameter allows the controls to be continuously, one after the other, from the top control. At the top control, the detector goes to the left on the first tool and then without stopping by right on the second tool to eventually return to the origin.

The **Dissociated** parameter allows at the top control to perform the first control on the left and return to the origin to wait a second top control that will make the second control on the right with return to the origin at the end.

Note : This parameter only appears if the « **Number of control** » parameter is **2**.

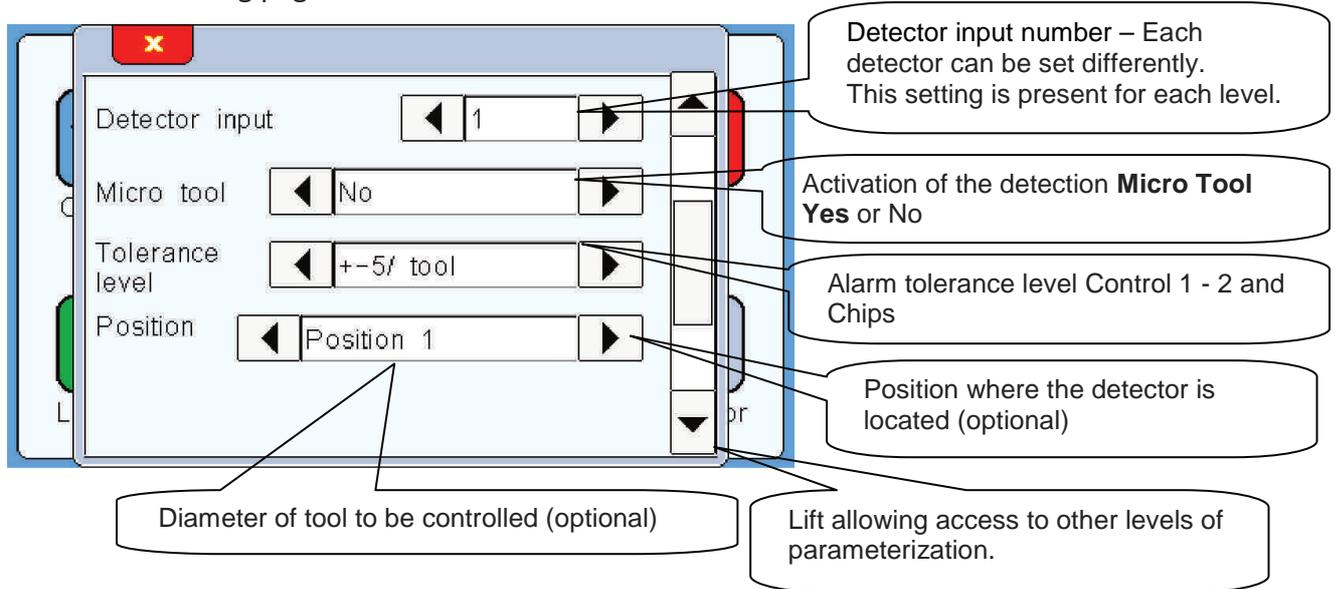
Number of control :

It is possible to position the detector between two tools which have substantially the same position (same tool exit length) and to carry out the control of the first tool in one direction and the control of the second tool in the other direction.

The choice of the number of control may be 1 or 2

Note: In the case of a parameterization of 2 controls, the "direction of rotation" to be specified in the above parameter defines the direction of the first control.

Here is the setting page of the **detector – 2nd Level**:



Micro Tool :

Micro drill mode allows you to control tools with a minimum diameter of **0.25mm**. By activating this mode by YES, the detector will reduce its speed and torque when the needle reaches the tool.

The detector set to NO can detect a tool of a minimum of **0.5mm** without breaking it

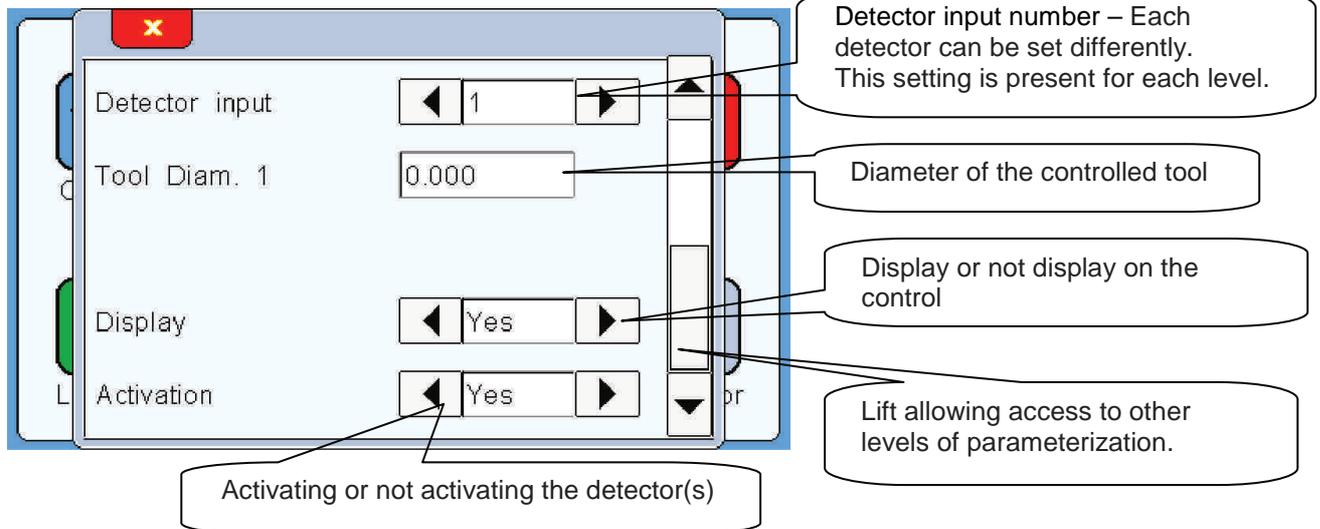
Tolerance level :

This parameter is used to adjust the degree value of the triggering of alarms. This parameter affects the **Control 1**, **Control 2** and **Chip** only alarms, but not the Origin alarm. The choice of the level is made using a drop-down list.

Position :

The drop-down list allows you to define where the detector was positioned. This position will then be repeated on the control page in order to facilitate the identification of the detector whose alarm has triggered. The information in this parameter is optional

Here is the setting page of the **detector - 3rd Level**:



Tool Diam.1 :

This setting makes it possible to inform the diameter of the tool to be controlled, always with the aim of facilitating the identification of the detector whose alarm has triggered. The information for this parameter is optional.

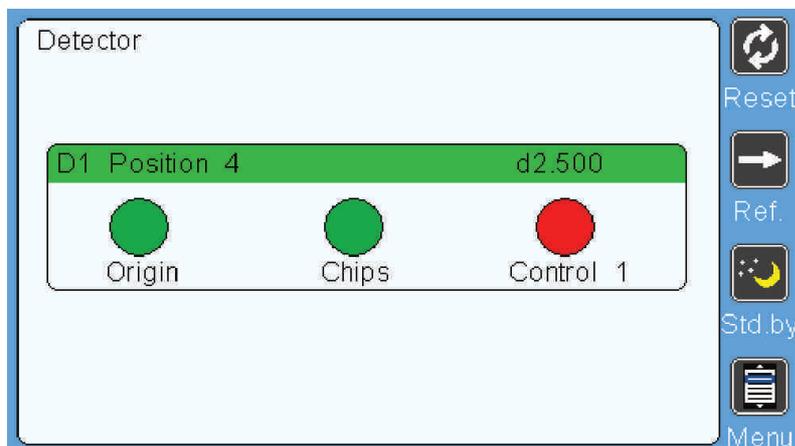
Display :

This setting is used to lighten the display when a detector is not connected.

Activation :

This parameter also makes it possible not to make appear the second detector on the control page, but in addition it will deactivate all the functions related to this detector.

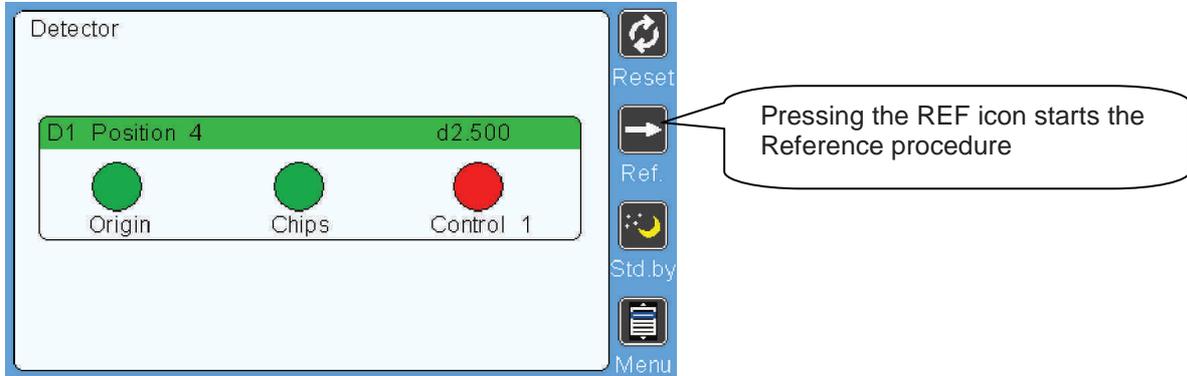
After making the parameterization of the detector, here is how the Control page appears:



4. Reference by teaching

The third step is to make a position reference.

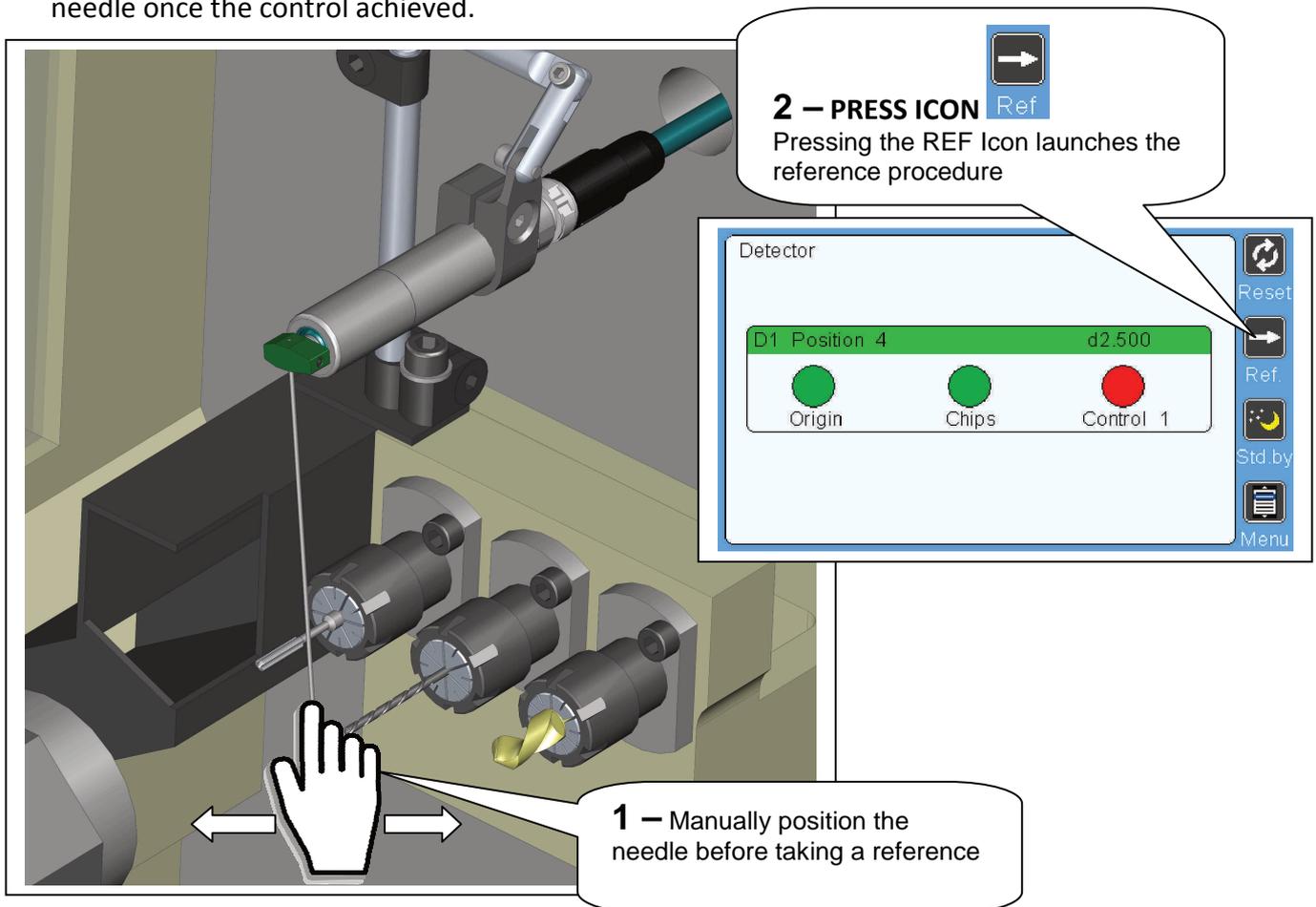
After setting the detector, the machine waits for a reference to be made in order to function. This is visible with the **control light 1** which is in **red**:

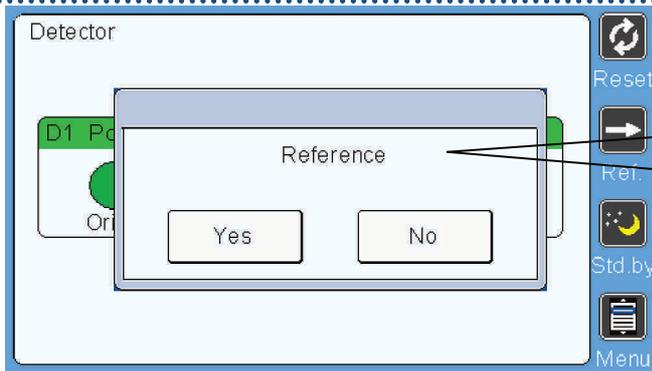


This will happen each time the power is turned off. It will then be necessary to repeat the reference procedure each time the machine is switched on again.

Note : It is possible to set the system so that it does not require a reference every time the power is restored : see paragraph **Additional settings** page 14

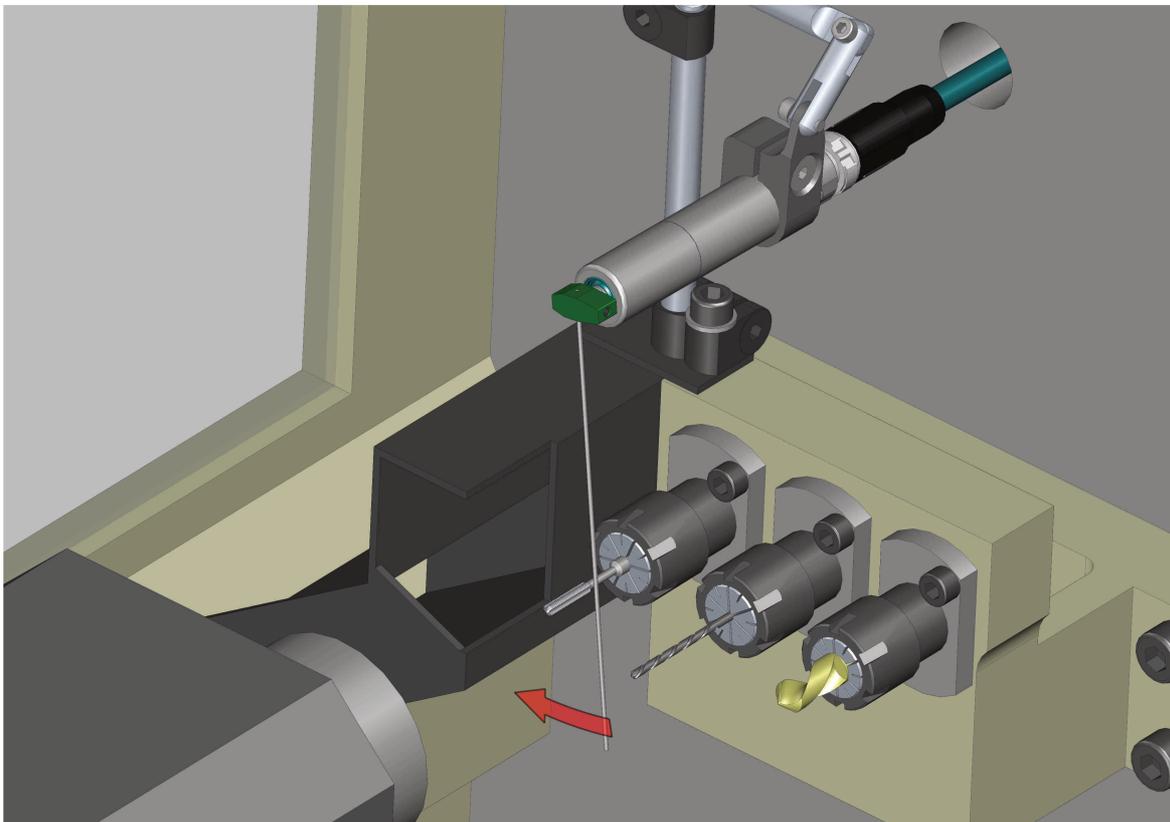
First of all, manually position your needle before taking reference. This position will correspond to the origin of the reference and therefore it is this position will return the needle once the control achieved.



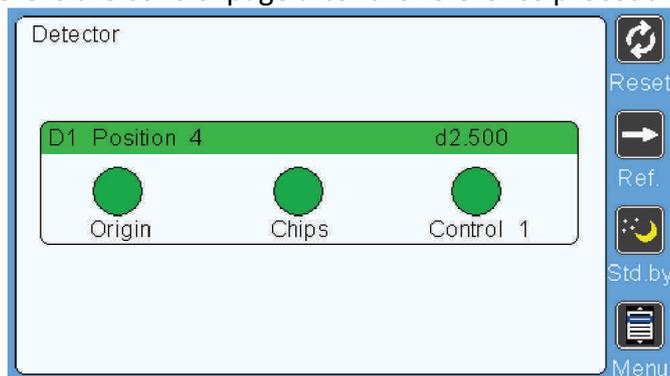


PRESS THE BUTTON

The detector then rotates at idle speed to the tool, thus enabling the system to know the angular position of the tool (tool reference). When touching the tool, the needle returns to its original position. The reference procedure is completed.



Here is the control page after the reference procedure :



5. Additional settings

Here is a description of the settings **CONFIGURATION** :



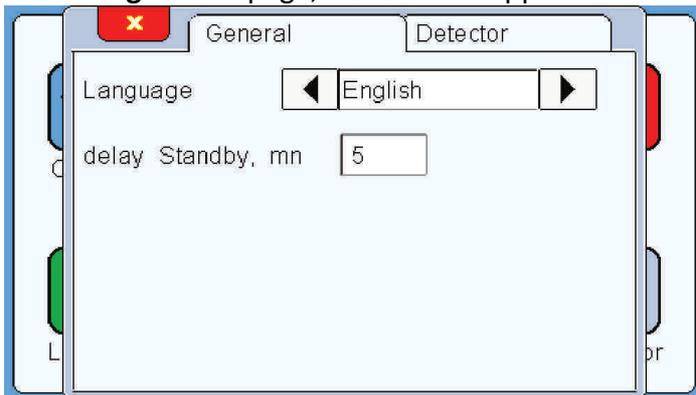
PRESS ICON Menu

The home page appears :



PRESS ICON Configuration

The **configuration** page, **General** tab appears :

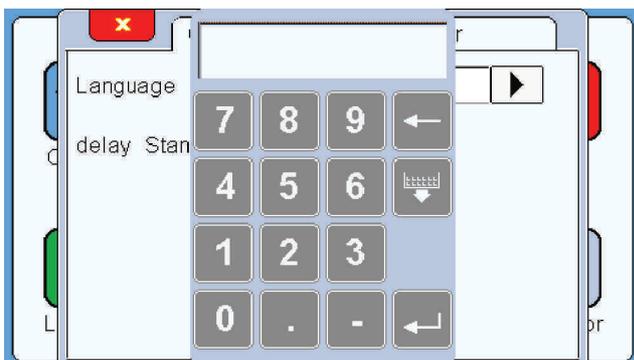


Language

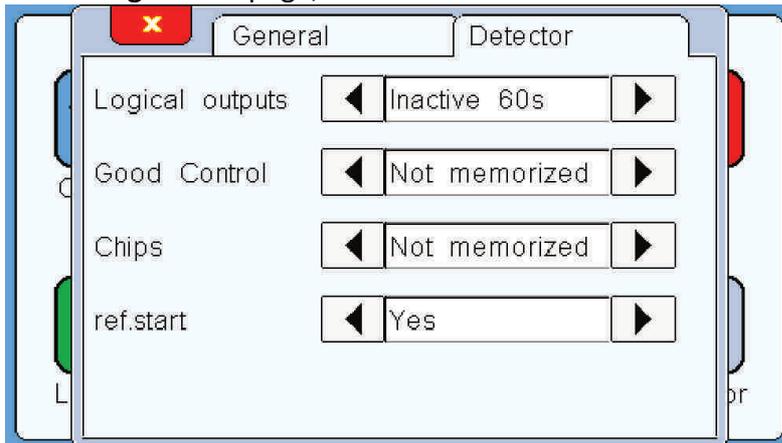
This setting is used to change the text language of the touch screen. French, English, German, Italian and Spanish

Delay Standby, mn

This parameter is used to set the time during which the standby will be active. Pressing the field opens the keypad to enter the time in minutes. Maxi 15mn.



The configuration page, General tab

**Logical outputs**

This parameter makes it possible to configure according to 4 states acting on the logic outputs when there is manipulation in the menus:

- **Inactive 60S** : The machine will not stop automatically when entering the setting mode. After 60 seconds without touching the screen, it automatically returns to measurement mode.
- **Inactive INF** : the same as for adjustment INACTIVE 60S; but without automatically return to control mode.
- **Active 60S** : The machine will stop automatically when entering the setting mode (Switching output "Shutdown Machine"). After 60 seconds without touching the screen, it automatically returns to control mode.
- **Active INF** : : the same as for adjustment ACTIVE 60S; but without automatically return to control mode.

Good Control

This parameter makes it possible to configure the state maintained or not of the output "Good control " between 2 top Control :

- **Stored** : When the control is OK, the output "Good Control" closes and remains closed until the next Control top. The output status is stored.
- **Not stored** : When the control is OK, the output "Good Control" closes for 50ms minimum and then reopens. The status of the output is not stored.

Chips

This parameter makes it possible to configure the state maintained or not of the output "Chips " between 2 top Control :

- **Stored** : When a chip is detected, the output "Chips" closes (or opens if NC) and remains closed until the next Control top. The output status is stored.
- **Not Stored** : When a chip is detected, the output "Chips" closes (or opens if NC) for 50ms and re-opens. The status of the output is not stored.

Ref. start

This parameter is used to define if Yes or No a reference on the tool must be made when the system is started. If the parameter is YES, at power-on a reference must be made before the cycle can be started. If the parameter is No, when the power is turn on , the cycle can start without a reference be made.

Here is a description of the settings **DATAS** :



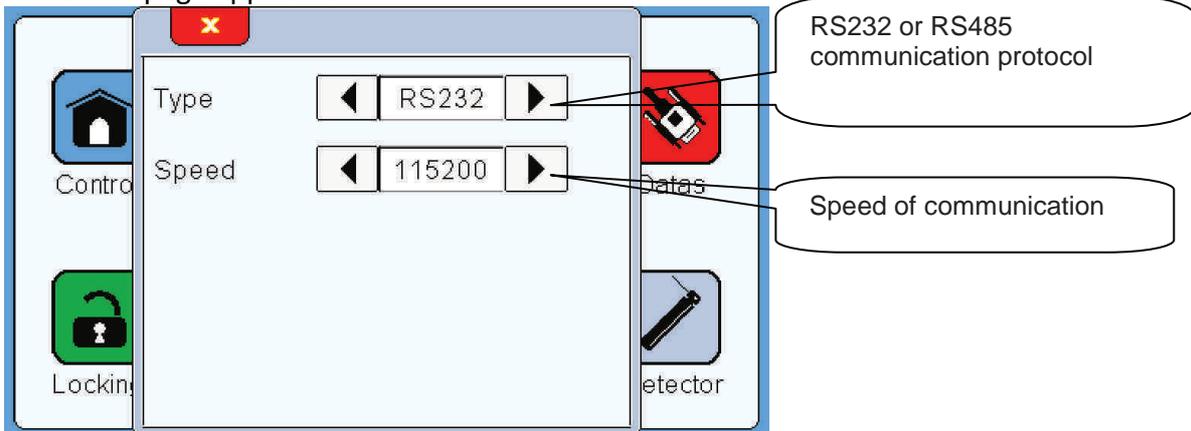
PRESS ICON Menu

The home page appears :



PRESS ICON Datas

The **Datas** page appears :



Type

This parameter defines the communication protocol with the connected element via the SUB-D9 COM on the back of the display.



Speed

This parameter is used to set the communication speed: 9600, 19200, 38400, 57600, 115200 or 256000.

Here is description of the settings **LOCKING** :



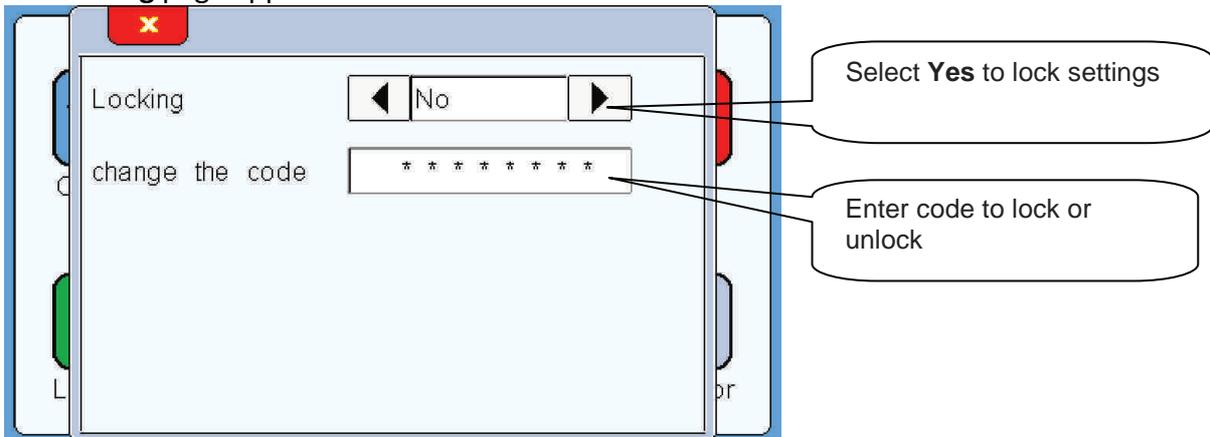
PRESS ICON Menu

The home page appears :



PRESS ICON Locking

The **locking** page appears :



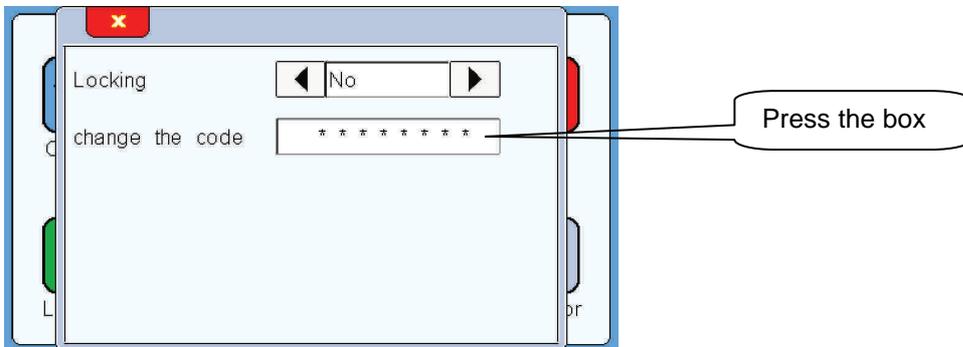
Locking

Locking limits access to all parameters. Once locked, only access to the control page is possible. Reset, REF and Standby functions remain accessible and usable.

Here is lock code change procedure :

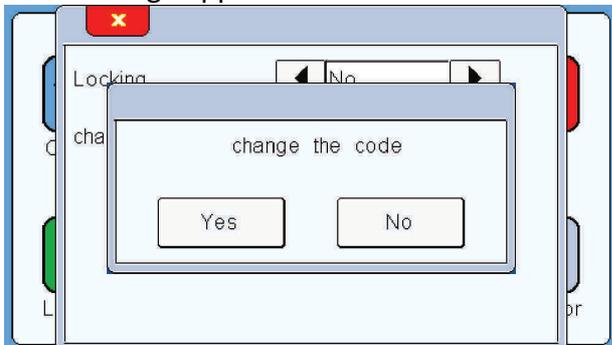


PRESS ICON Locking



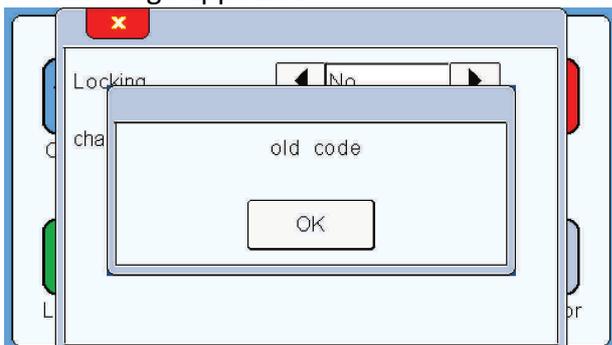
PRESS THE BOX *

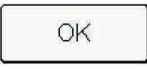
This message appears :



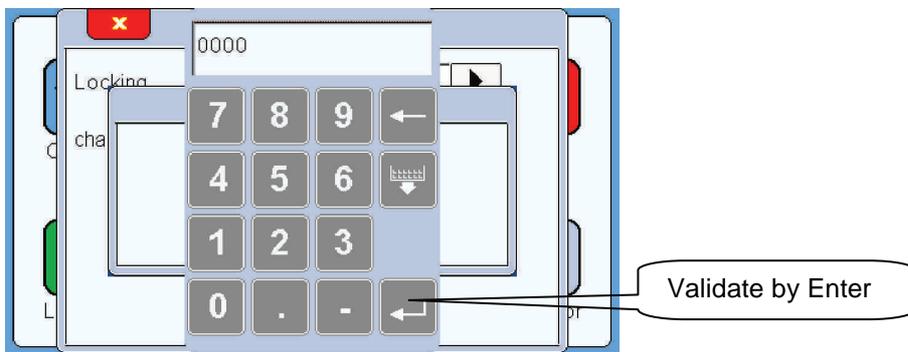
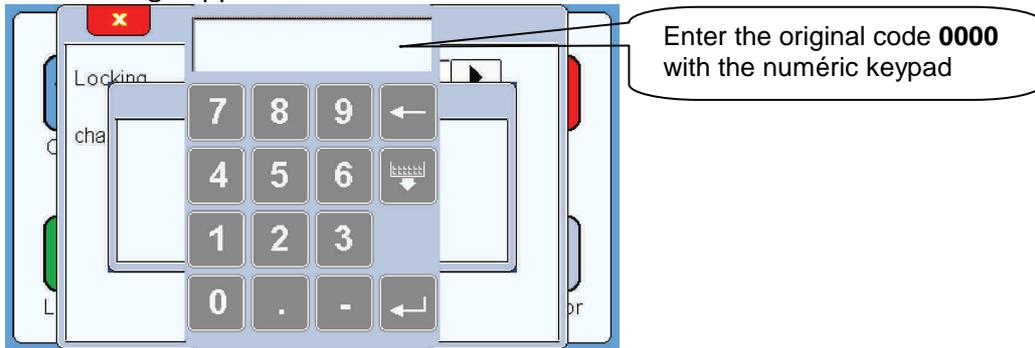
PRESS THE BUTTON Yes

This message appears :

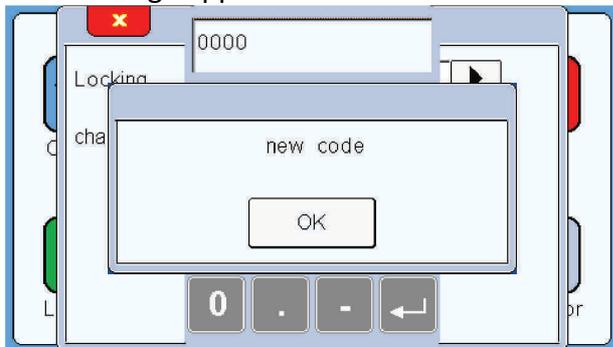


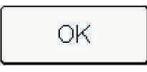
PRESS THE BUTTON 

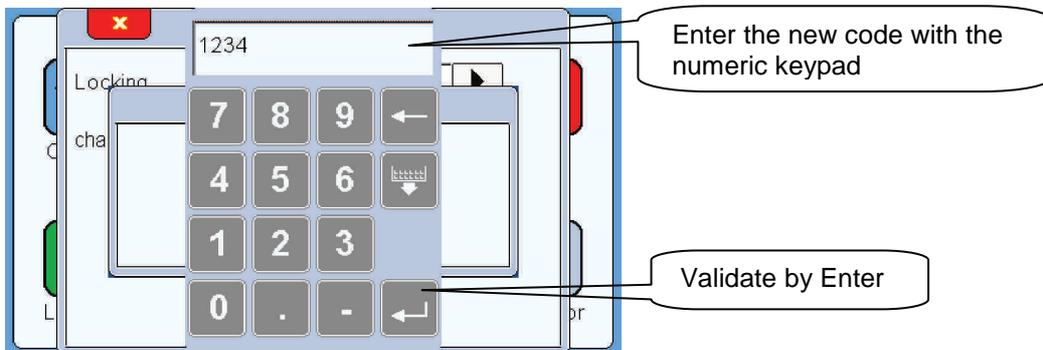
This message appears :



This message appears :

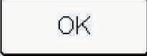


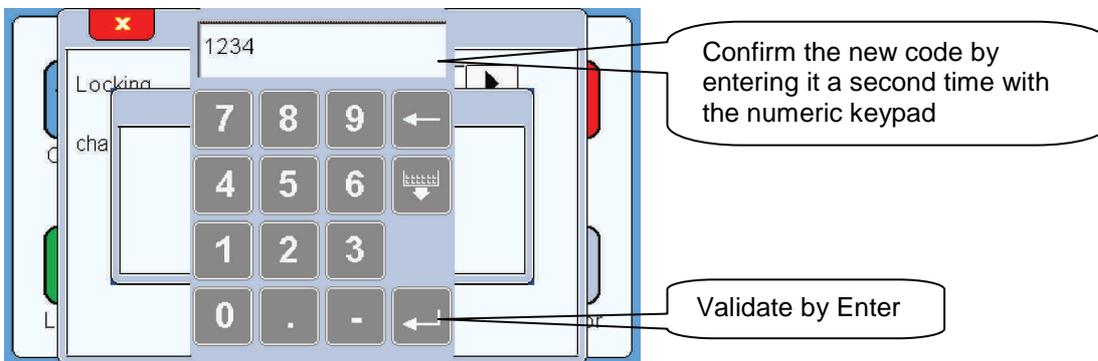
PRESS THE BUTTON 



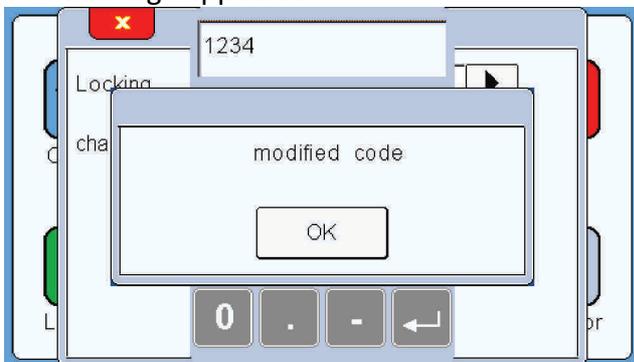
This message appears :

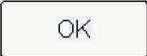


PRESS THE BUTTON 



This message appears :



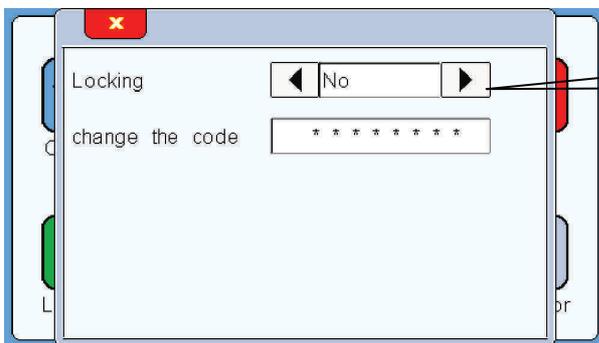
PRESS THE BUTTON 

The lock code has been changed.

Here is the lock procedure :



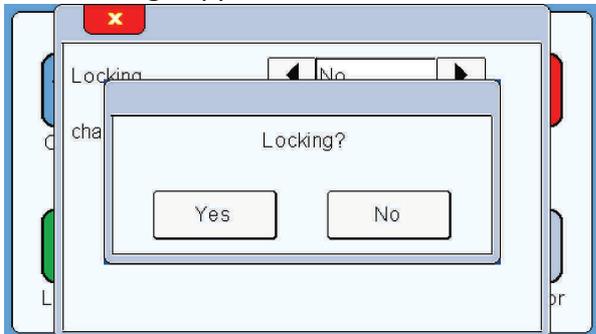
PRESS ICON Locking



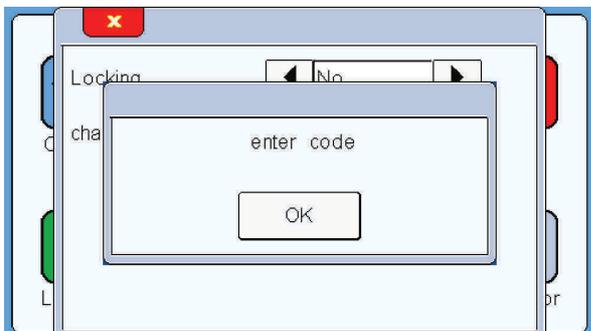
Press the lock setting box

PRESS THE BOX ◀ Non ▶

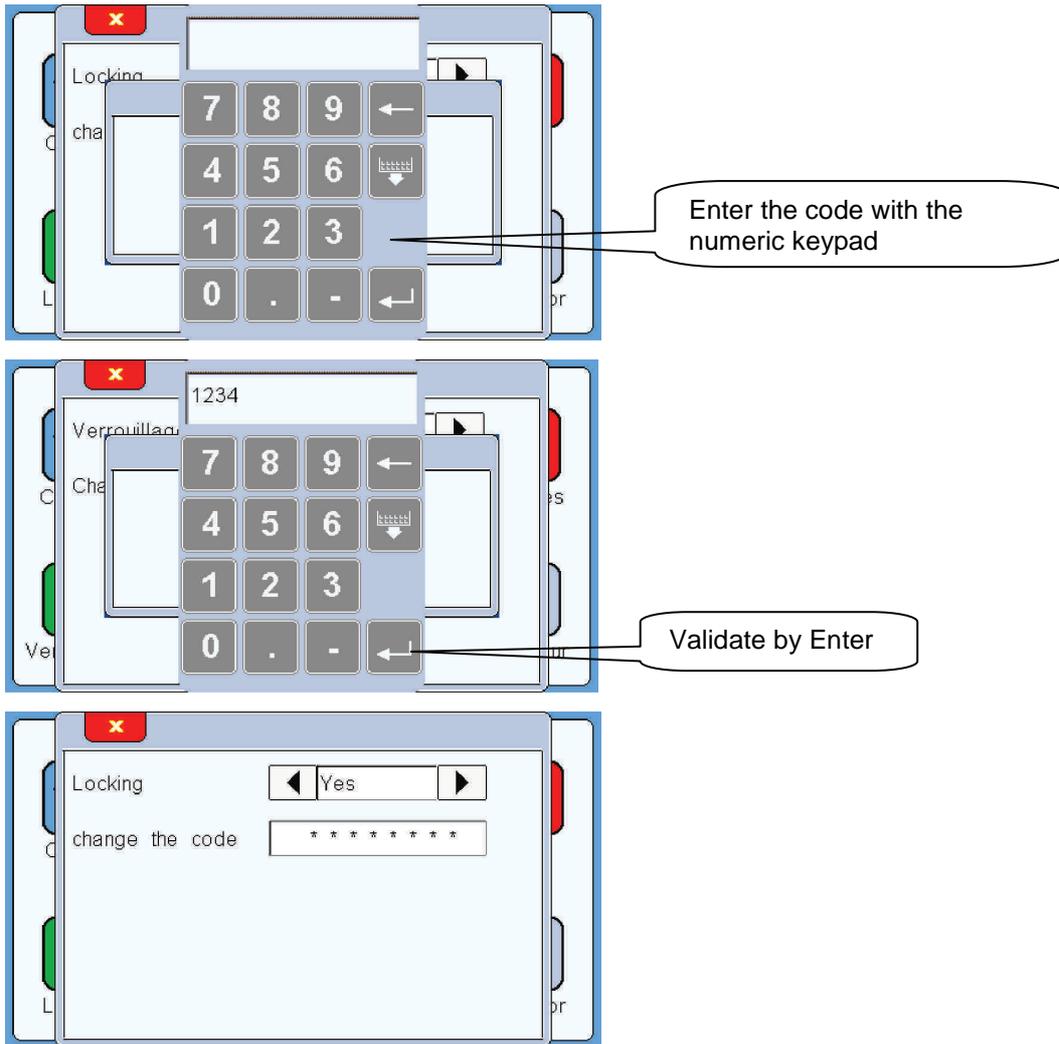
This message appears :



PRESS THE BUTTON Yes

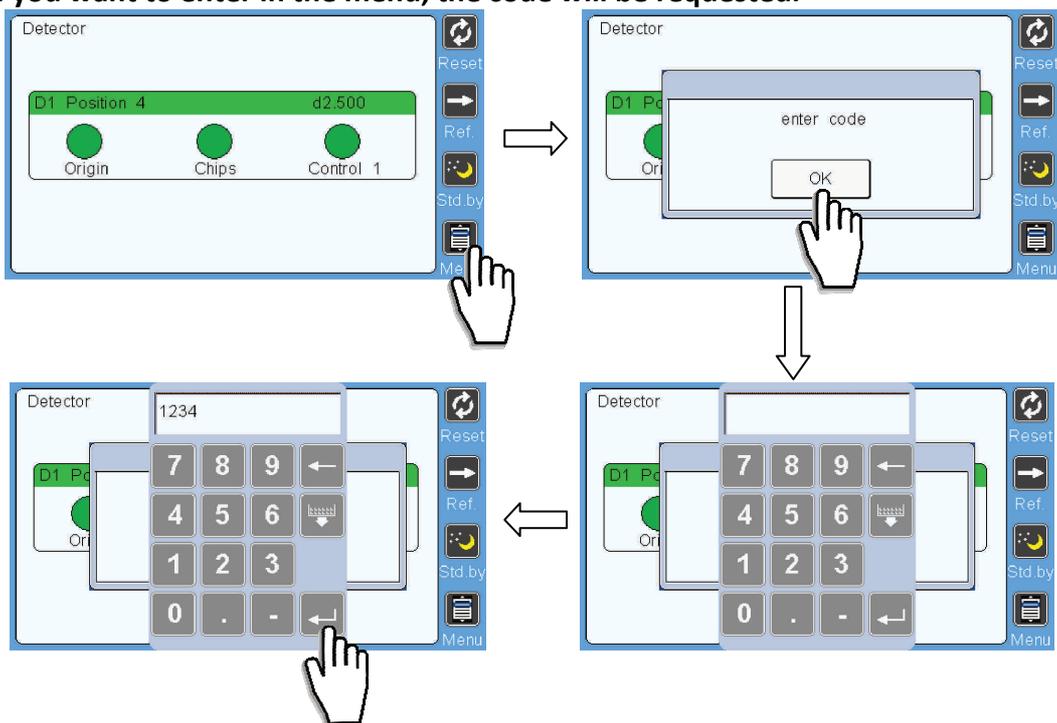


PRESS THE BUTTON OK



The screen is now locked.

When you want to enter in the menu, the code will be requested.



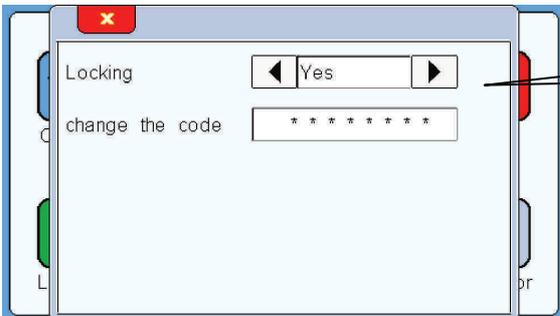
Note : In locked state, when you enter in the menu, the code is requested.

By entering the code you access the menu, but in any case you unlock the screen permanently. When you return to the control page and want to enter in the menu again, the code will be asked again.

Here is the procedure of unlocking :

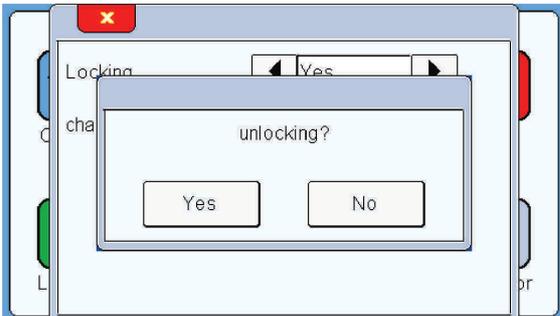


PRESS ICON Locking

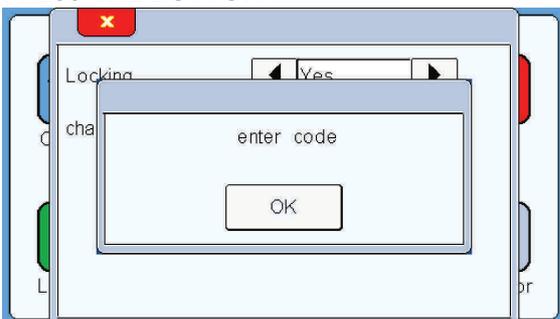


Press the lock setting box

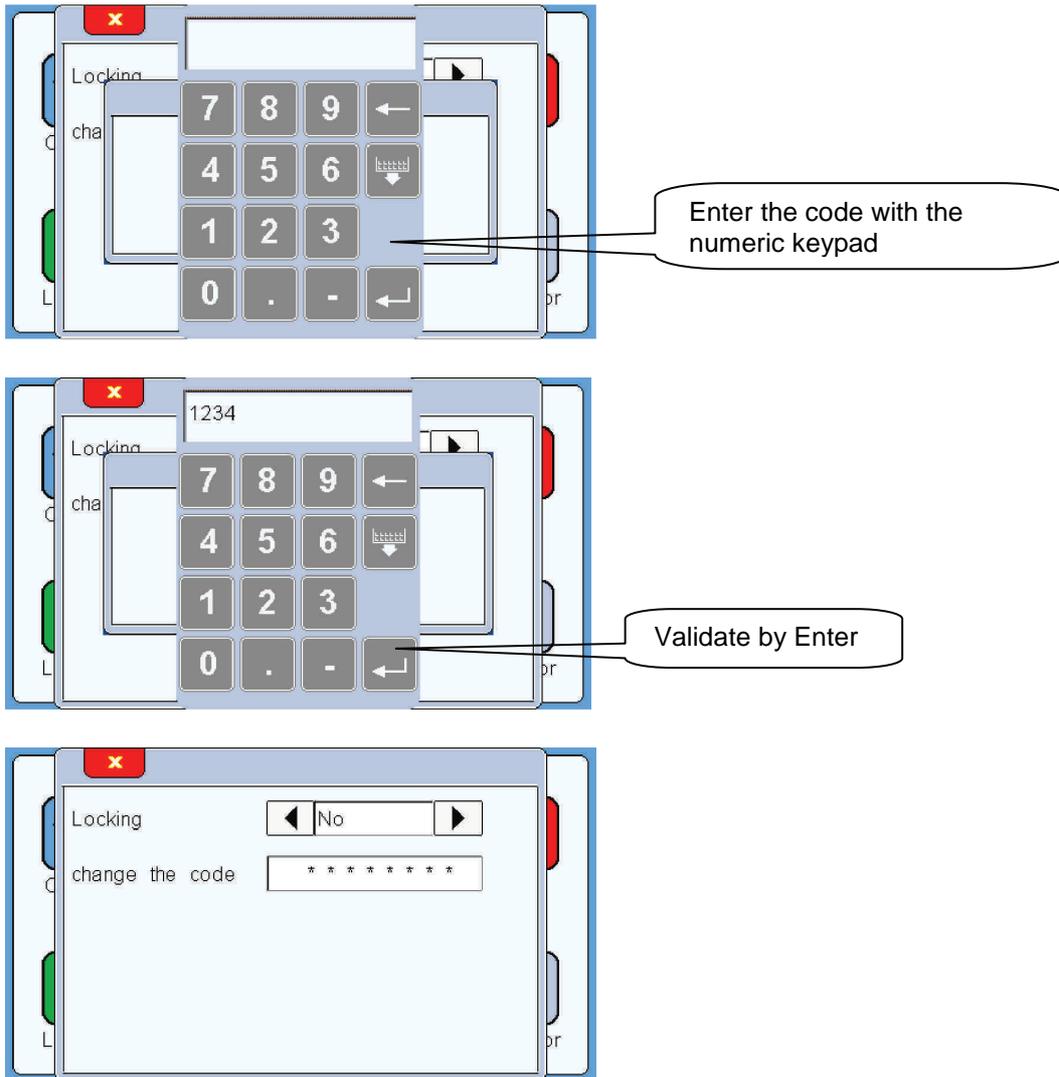
PRESS THE BOX Yes



PRESS THE BUTTON Yes



PRESS THE BUTTON OK

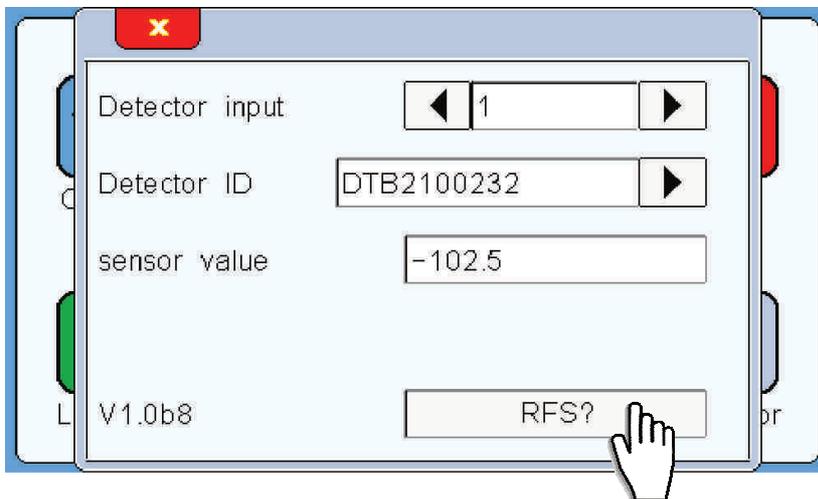


The screen is now unlocked.

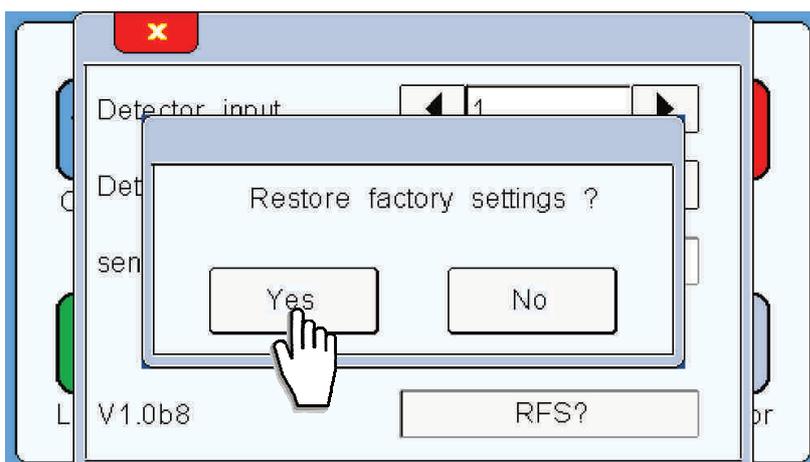
6. Reset factory settings

Here is the procedure if you want to restore the default factory.
This restore only affects the following parameters:

Detector : Rotation direction = Anticlockwise (default value)
Control Mode = Presence of tool (default value)
Number of control = 1 (default value)
Micro Tool = No (default value)
Tolerance level = +5/tool (default value)
Position = Position 1 (default value)
Tool Diam. 1 = 0.000 (default value)
Display = Yes (default value)
Activation = Yes (default value)



PRESS THE BUTTON



PRESS THE BUTTON

The factory settings are now restored.

Manufacturer

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