



**Sefram**

Data Acquisition Solution

DAS 30 - 50 - 60

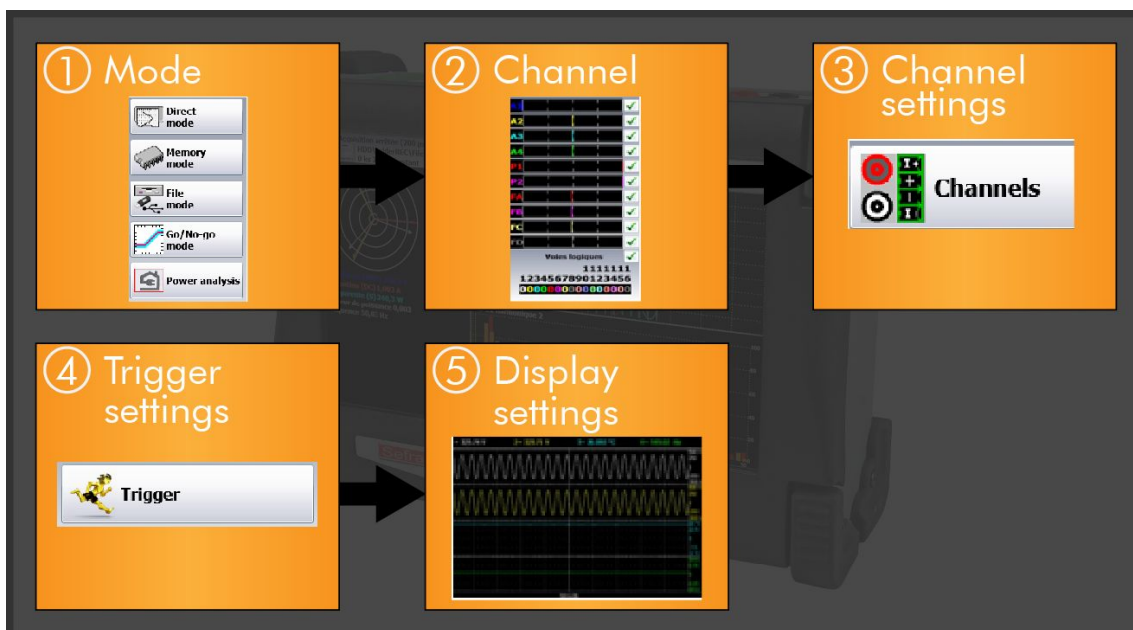
Quickstart guide

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## Instrument functions

The Sefram's Data Acquisition Solution make the display and the recording of signals possible. Below is a synoptic which summarize the step to follow in order to make a good recording. Those steps are described along the guide.



## Main menu

During the first start of your DAS 30, 50 or 60, the main menu is displayed. From here it's possible to access to the different instrument functions as well as their parameters.



Display of the actual recording mode

Channel display, they can be activated via the checkboxes

Display of bits values from the logic channel

Device setup menu

Trigger settings menu

Display of the logic channels values

XY display

F(t) display

Digital display

Channel settings

Channel and function activation

Immediately launch a recording

Read a record stored in the memory

Q' X'Uhgpaf`Yeb` %Q' gp`% TeX'hfXVlgp`V[ bbfX'j [ Xe'g' X'eXVbeVNaZ TeX'f'gpeXWTaWfj Xr eXVbeVNaZ` bVX'r

Paper recording mode (only for the devices with a printer)

Device RAM recording mode

Device internal memory recording mode

Go/No-go mode

Power analysis mode

Startup screen

Battery level

(A) Take a screenshot

(B) Time and current recording mode

## Setup menu

Before the first use, please set the standard settings such as time and date. This menu contains in addition, the basic settings, the managing of setup, alarms and network.



Language selection

Delay until the screen shut off

Time and date setting

Bargraph maximum position setting

Additional options, (luminosity, calibration, ...)

Software update with USB key

Default setup

Load a configuration saved on the internal storage or on a USB key

Save the actual configuration on the internal storage or on a USB key

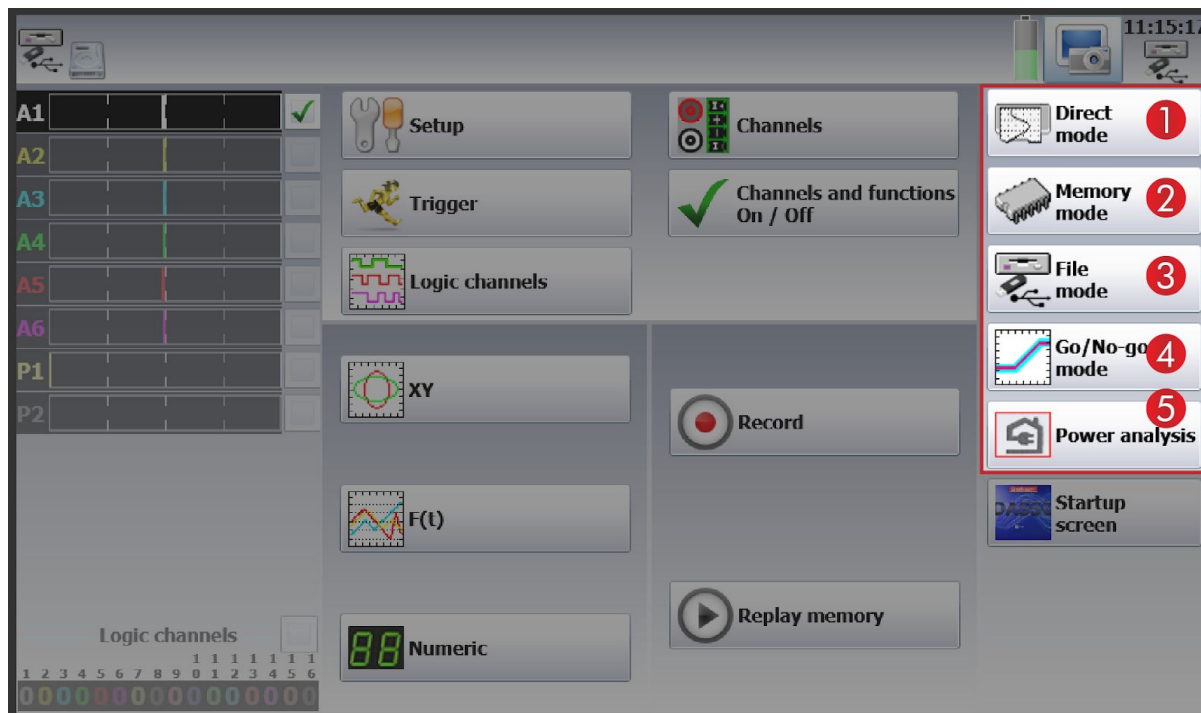
Save the actual configuration on the internal storage or on a USB key as a .txt file

Network setting

Alarm setting, see the manual for more details

## Recording modes

To make the first recording, you have to choose in which mode the device will work. This mode is chosen in the main menu.



Mode	Description	Acquisition type
(1) Direct	Paper plot of the signals measured in real time <sup>1</sup>	Recording on paper, recording on internal memory is possible
(2) Memory	Fast acquisition of measured signals in the RAM	Fast and short-lived (transient)
(3) File	Fast acquisition in internal memory <sup>2</sup> of measured signals	Fast and long-lasting (limited by the capacity of the storage support)
(4) Go/No-go	Fast internal acquisition of measured signals	Fast and short-lived for capturing non-repetitive events
(5) Power Analysis	Single-phase or three-phase network analysis	

<sup>1</sup> For devices with a printer (optional).

<sup>2</sup> Capacity : 32 Gb for the DAS 30 et 50, 64 Gb for theDAS 60.



## Direct mode

Choice of print type, signal pattern or digital values in a table

Print speed

Plot configurations, such as reticle size, annotations, ...

Setting of the recording's trigger condition

Setting of the recording's stop condition

Action to perform at the end of the recording. "Stop" prohibits the automatic restart of the acquisition, "Rearm" allows it

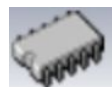
Activation of the real-time measurement backup via the check box and choice of the location where the measurement will be recorded

Setting of the maximum number of samples

Name of the backup file

Setting of the sampling rate

r



## Memory mode

Number of blocks to which the memory must be divided, in power of two

Erase blocks

Setting of the sampling rate

Setting of the recording's trigger condition

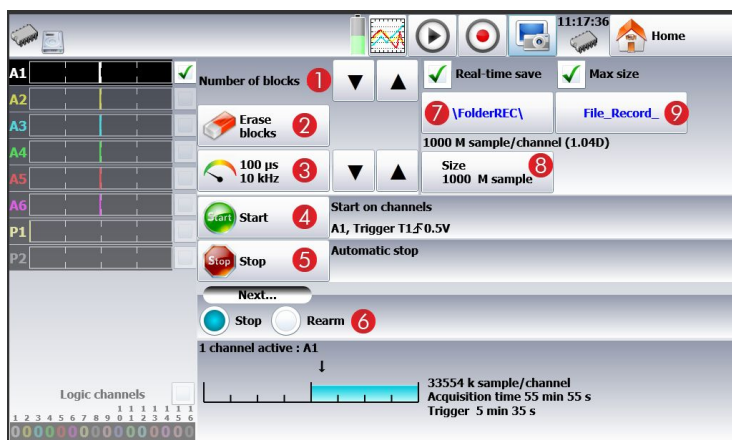
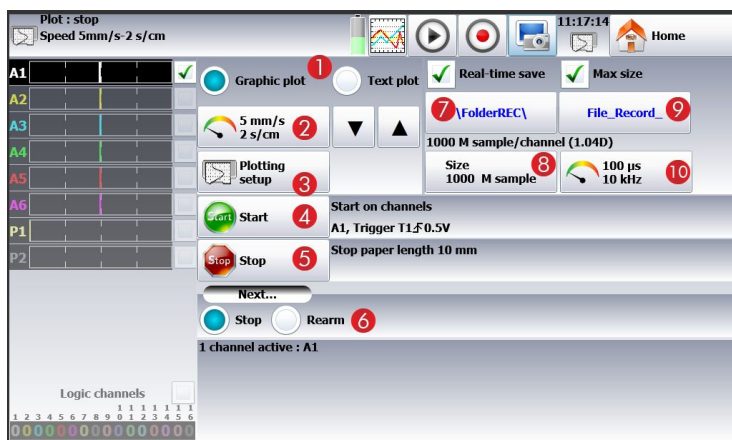
Setting of the recording's stop condition

Action to perform at the end of the recording. "Stop" prohibits the automatic restart of the acquisition, "Rearm" allows it

Activation of the real-time measurement backup via the check box and choice of the location where the measurement will be recorded

Setting of the maximum number of samples

Name of the backup file





File mode  
*DhW^ TVdhVgba`ar  
 agkaT\_` X` bdr  
 r*

Backup file location

Name of the backup file

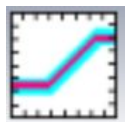
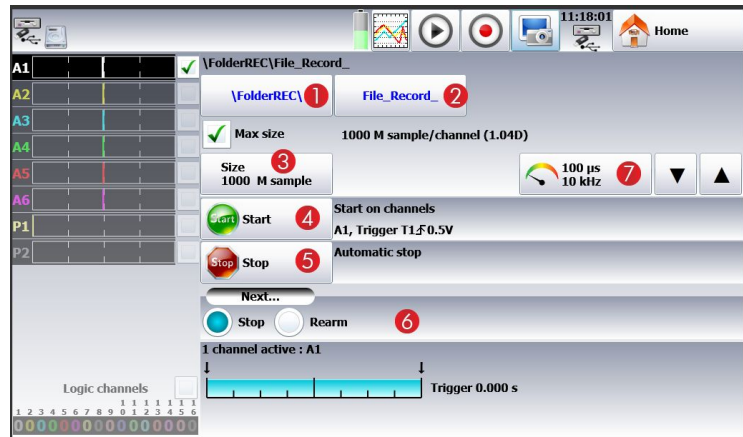
Selection of the number of samples to generate, the check box "Max size" allows to sample at the maximum of the available storage capacity

Setting of the recording's trigger condition

Setting of the recording's stop condition

Action to perform at the end of the recording. "Stop" prohibits the automatic restart of the acquisition, "Rearm" allows it

Setting of the sampling rate



Go/No-go mode  
*DhW^ TVdhVgba`ar  
 agkaT\_` X` bd`be`abar  
 cXebVWfZaTr*

Number of blocks to which the memory must be divided, in power of two

Erase blocks

Setting of the sampling rate

Setting of the recording's trigger condition

Choice of channels to compare with the template

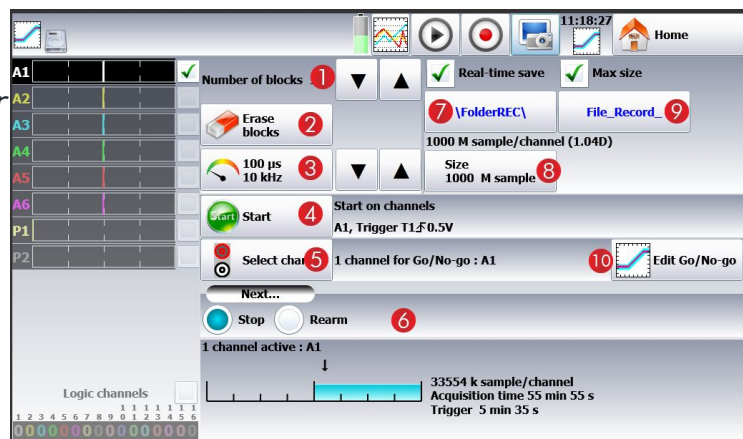
Action to perform at the end of the recording. "Stop" prohibits the automatic restart of the acquisition, "Rearm" allows it

Activation of the real-time measurement backup via the check box and choice of the location where the measurement will be recorded

Setting of the maximum number of samples

Activation of a record size limit via the check box and choice of the location where the measurement will be recorded

Choice of template, for more information see the manual

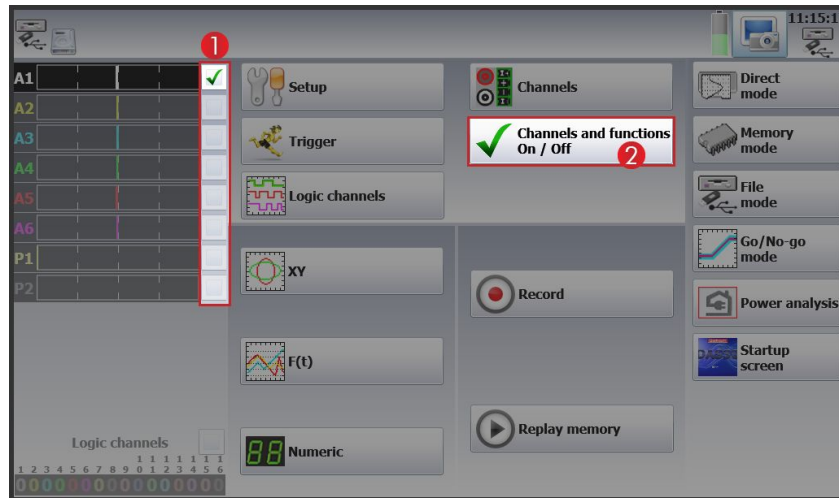


Power analysis

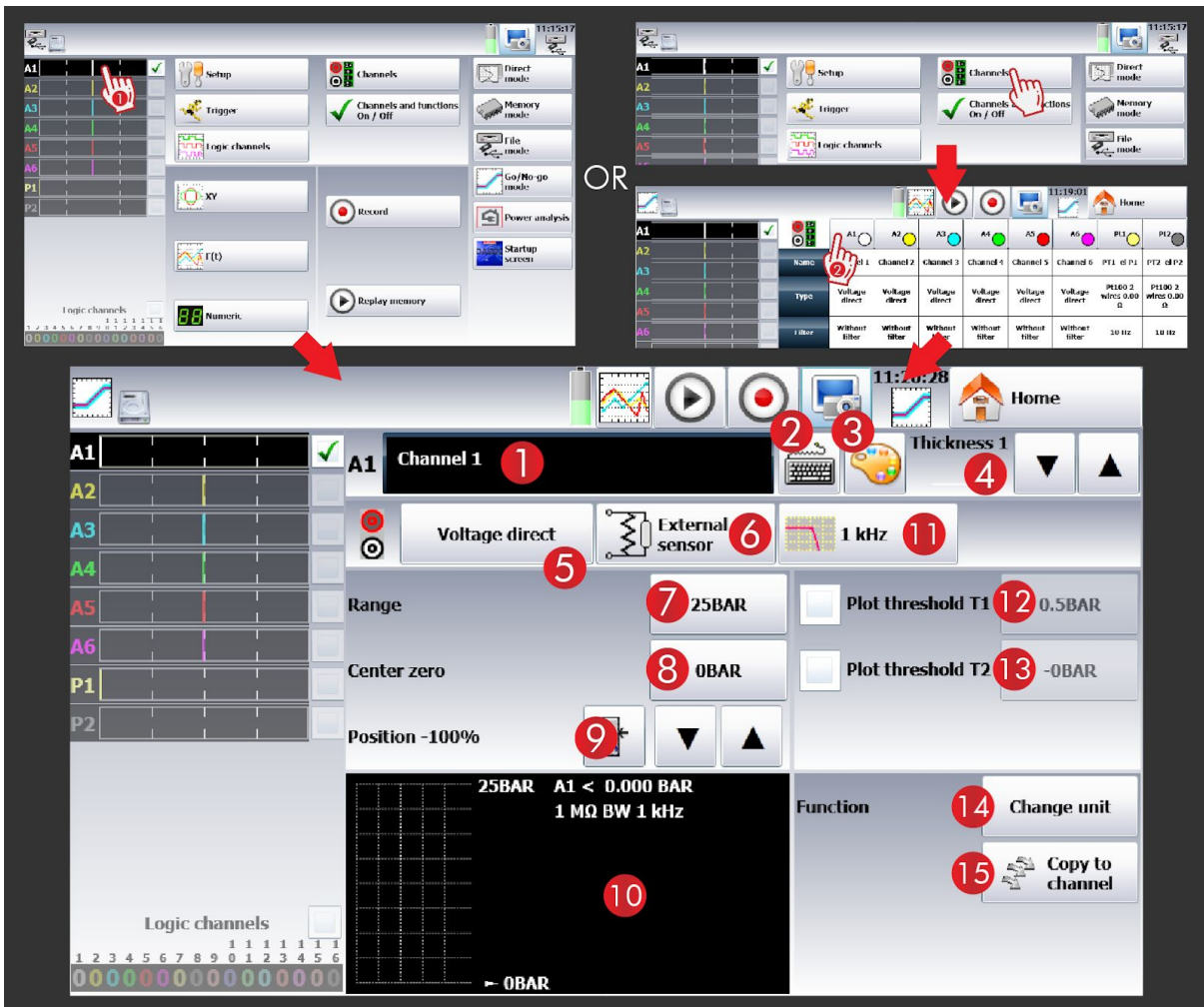
See more detailed description page 15.

## Channel settings

Firstly, the activation or deactivation of the channels can be carried out either by ticking or not the following boxes (1). They can also be triggered by the button "Channels and functions On / Off" of the main menu (2), which also allows to activate the functions (see complete manual).



Then, the setting of a channel is done either by directly pressing the channel (1), or by going through the menu "Channels" then pressing the channel concerned (2).



Current name of the channel

Rename the channel

Setting the color of the curve corresponding to the channel

Setting of the thickness of the curve

Measured value type

In the case of using an external sensor, setting its type

Track's range setting

Track's center zero adjustment

Position of the thresholds of the channel, for instance with a range of 25 BAR and a position set to "center", the acquisition is made from 12,5 BAR to -12,5 BAR

Summary of settings and ranges

Setting of the input low-pass filter, if necessary

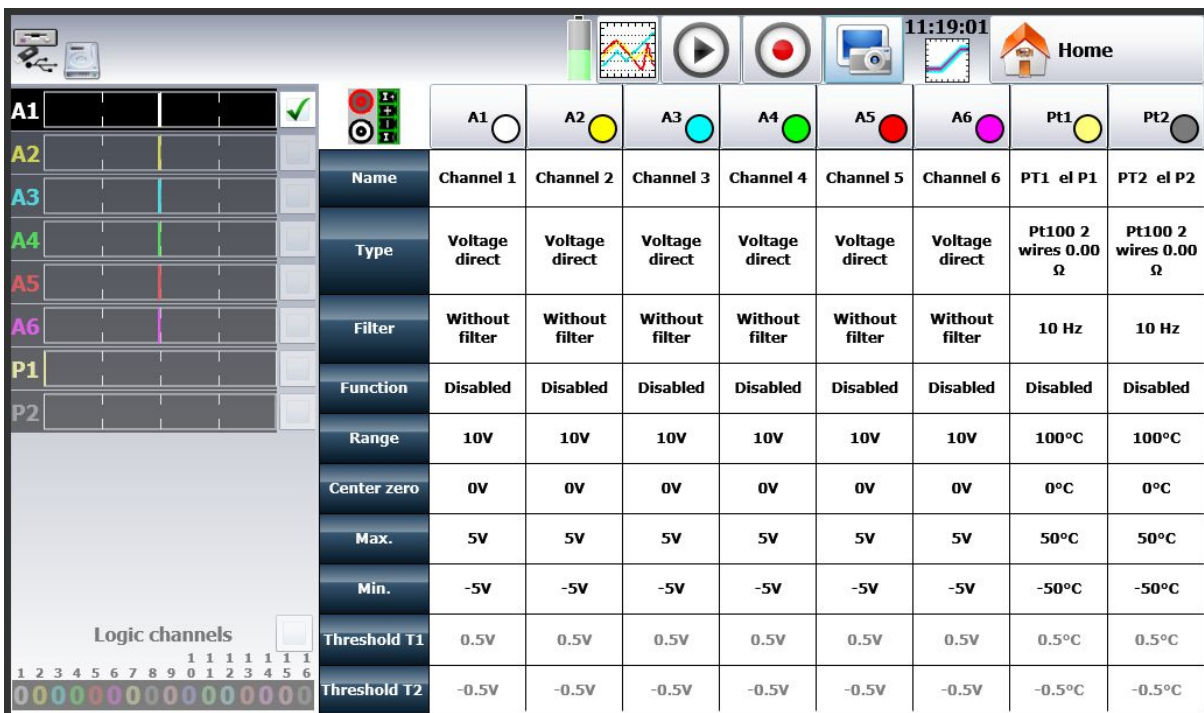
Setting of plot threshold T1

Setting of plot threshold T2

Changing the unit of measurement to match the measured value

Copy the current channel settings to another channel

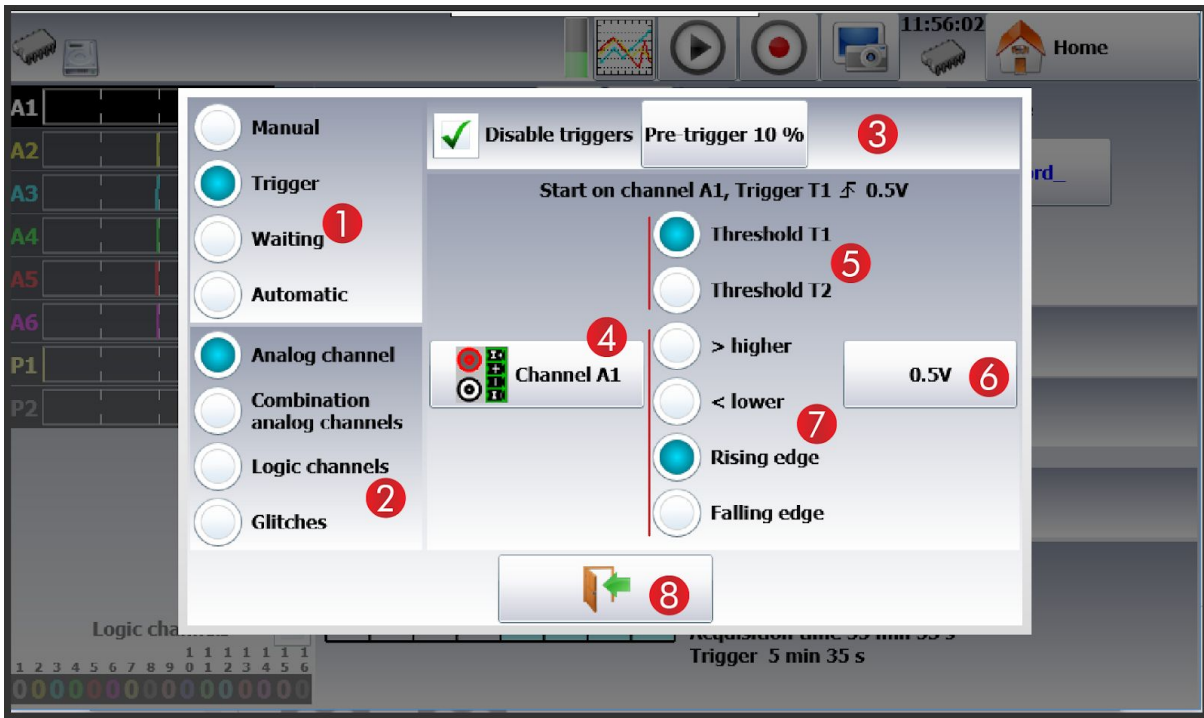
Note that the settings for all channels can be viewed simultaneously in the "Channels" tab.



	A1	A2	A3	A4	A5	A6	Pt1	Pt2
Name	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6	Pt1 el P1	Pt2 el P2
Type	Voltage direct	Voltage direct	Voltage direct	Voltage direct	Voltage direct	Voltage direct	Pt100 2 wires 0.00 Ω	Pt100 2 wires 0.00 Ω
Filter	Without filter	Without filter	Without filter	Without filter	Without filter	Without filter	10 Hz	10 Hz
Function	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled
Range	10V	10V	10V	10V	10V	10V	100°C	100°C
Center zero	0V	0V	0V	0V	0V	0V	0°C	0°C
Max.	5V	5V	5V	5V	5V	5V	50°C	50°C
Min.	-5V	-5V	-5V	-5V	-5V	-5V	-50°C	-50°C
Threshold T1	0.5V	0.5V	0.5V	0.5V	0.5V	0.5V	0.5°C	0.5°C
Threshold T2	-0.5V	-0.5V	-0.5V	-0.5V	-0.5V	-0.5V	-0.5°C	-0.5°C

## Triggers settings

Once the channels are correctly configured, the triggers must be set. Regardless of the recording mode except network analysis, this setting is the same. First of all, it is necessary to choose the type of trigger and the channel on which the measurement is made for triggering :



Choice of trigger type :

- Manual : only the user can trigger the recording using the buttons presented at the bottom of this page
- Trigger : triggering from a certain configurable threshold
- Waiting : triggering from a delay or date
- Automatic : immediate triggering until the memory block is saturated, causing the recording to stop automatically

Choice of the type of channel on which the measurement is made for triggering

Set a pre-trigger, see manual for further explanations

In "Trigger" and "Analog channel" mode :

Choosing the channel to record

Choice of the threshold on which to trigger, two thresholds are configurables, which makes it possible to have one for the trigger and the other for the stop

Setting the trigger threshold value

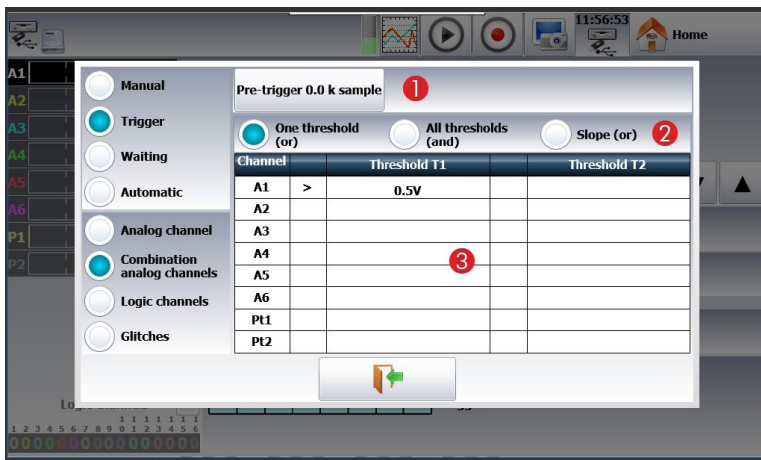
Choice of threshold type

Leave this setup menu

It is possible, at any time, to force the beginning of the acquisition with the button (2) and to visualize the old recordings using the button (1) of the upper tab.



"Trigger" and "Analog channel combination" modes :



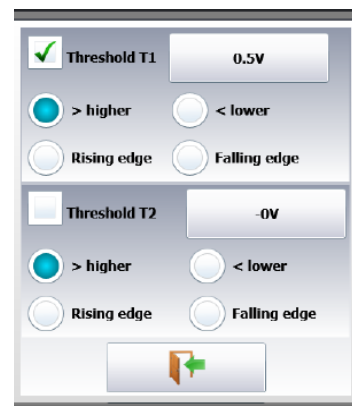
This mode allows, unlike the "Analog Channel" mode, to take into account several analog channels simultaneously.

Pre-trigger settings

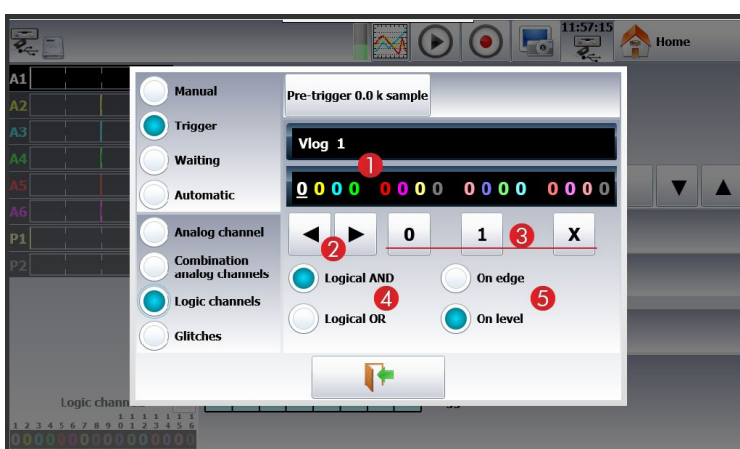
Choice of trigger conditions :

- "One of the thresholds" : triggers if one of the thresholds is validated
- "All thresholds" : triggers if all thresholds are validated
- "Slope" : triggers on slope of the signals and when one of the thresholds is validated

Each channel can be set independently by pressing its corresponding line, the following menu appears and allows the setting of the thresholds, in the same way as in "Analog Channel" mode.



"Trigger" and "Logic channels" mode :



This mode is used to triggers according to the values of the logical channels.

Visualization of the template word to trigger

Choice of the bit to set

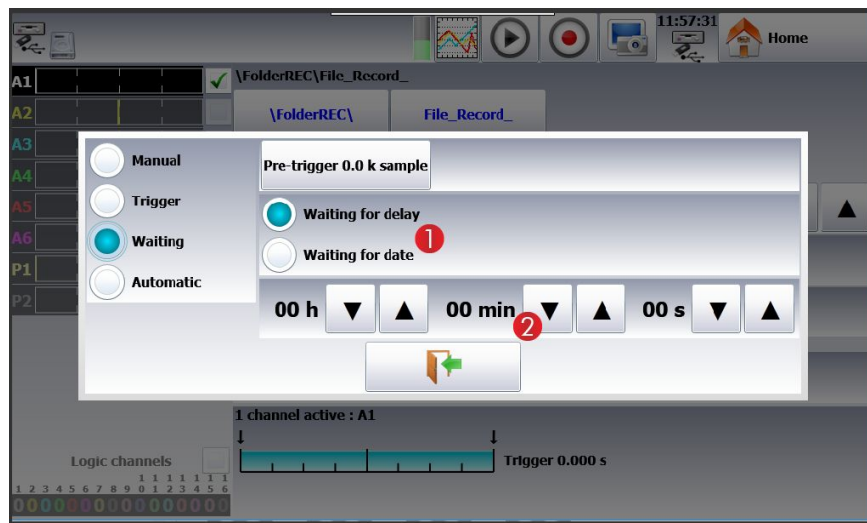
Assigning a value to the selected bit, X means that the value should not be taken into account

Choice of the logical operation to be performed between the template word and the measured one to start the trigger

Choice of when the comparison should be made

### “Waiting” mode :

This mode allows triggering after a certain delay or date.



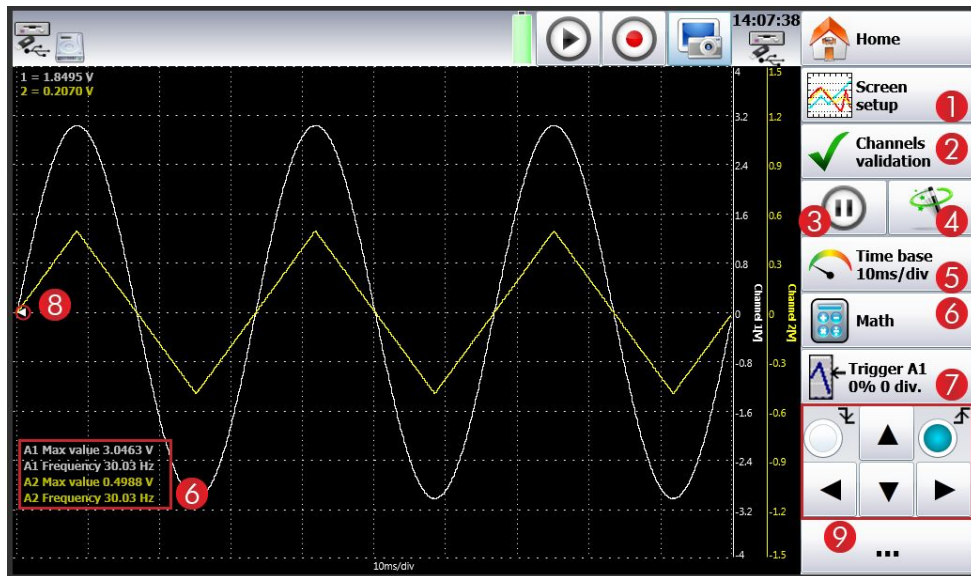
Choice of the type of waiting

[Related settings](#)

In any mode, the signal type "glitches" make it triggers on a glitch of a periodic signal of 50Hz, that is to say when the signal's shape changes radically.

## F(t) display

In all recording modes except network analysis, it is possible to observe signals as a conventional oscilloscope.



Setting of the display, colors, full screen, toggle between F(t) and XY mode

Setting of the active channels

Pause the viewing, make pauses lets you use cursors

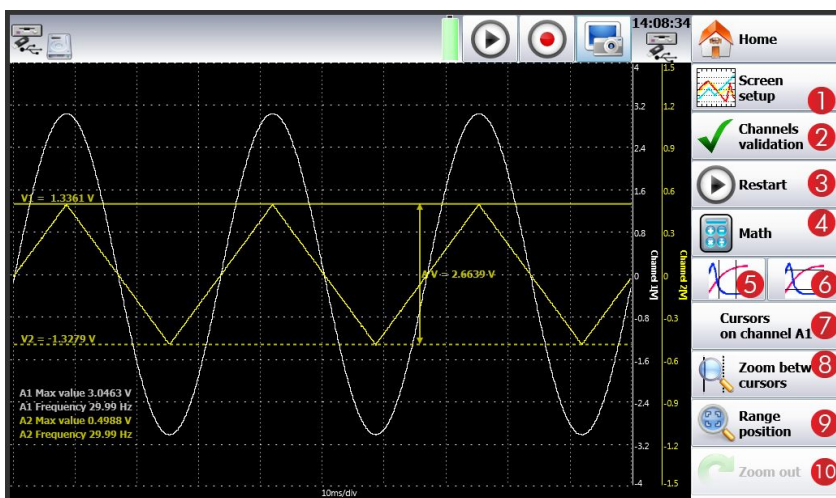
Automatic adjustment (autoset)

Setting of the time base

Setting of the measurements displayed on the bottom left

Setting of the trigger, the position of the trigger is symbolized by the cursor (8). It can be moved with the arrows and set on rising/falling edge (9). Its position can also be directly moved by touching it on the touch screen.

When the visualization is paused (button (3)), the interface is updated:



- 1 Screen setup
- 2 Channels validation
- 3 Restart
- 4 Math
- 5 Cursors on channel A1
- 6 Zoom between cursors
- 7 Range position
- 8 Zoom out
- 9
- 10

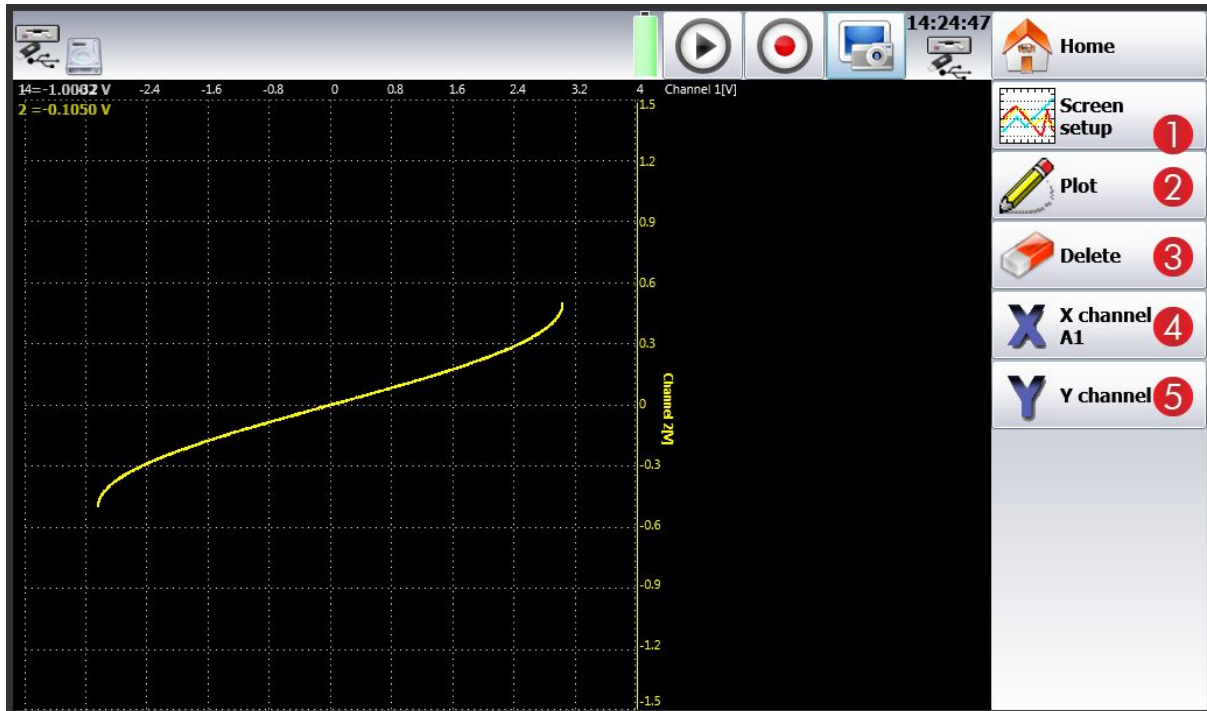
*Ba | Yoe [berbagj\_ vhefbef :r*

Choice of the channel measured by the sliders  
Zoom in between the two cursors

Set the channel parameters  
Return to the original view

## XY display

XY mode draws a signal relative to another.



Setting of the display, colors, dot or vector display and toggle between F(t) and XY mode

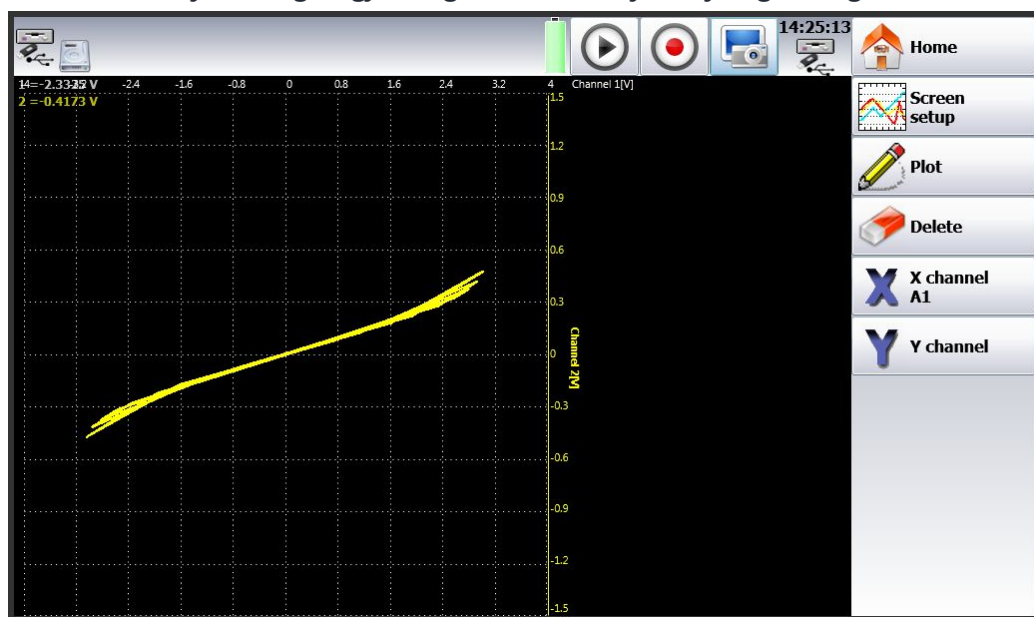
Enabling point/vector tracing

Clear points / vectors drawn

Selection of the track placed on the x-axis

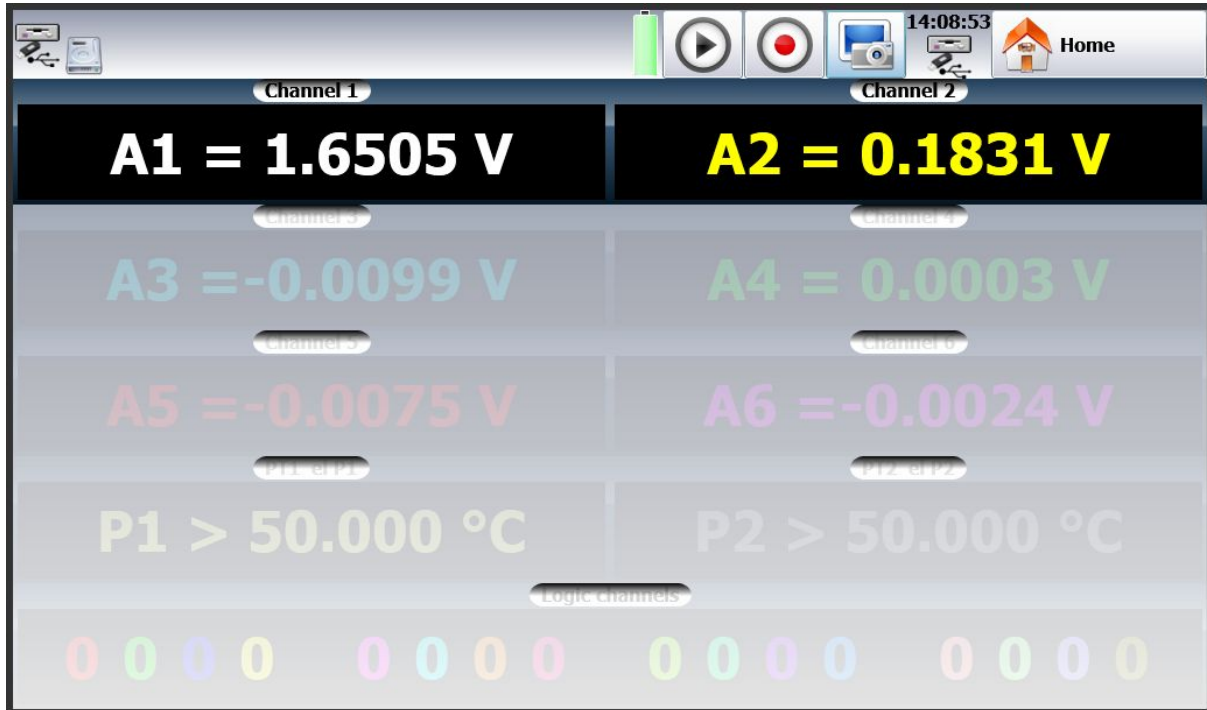
Selection of the track placed on the y-axis

*G[X\ TZXTUbi X'f[ bj f T Vb\_jc\_bj [ \X'g X\ TZXUX\_bj 'f[ bj f `g'a i XVpfe''*



## Digital display

This mode displays the measured values of the measured signals like a multimeter. The setting of each channels can be accessed by simply pressing the value corresponding to the channel.



r

r

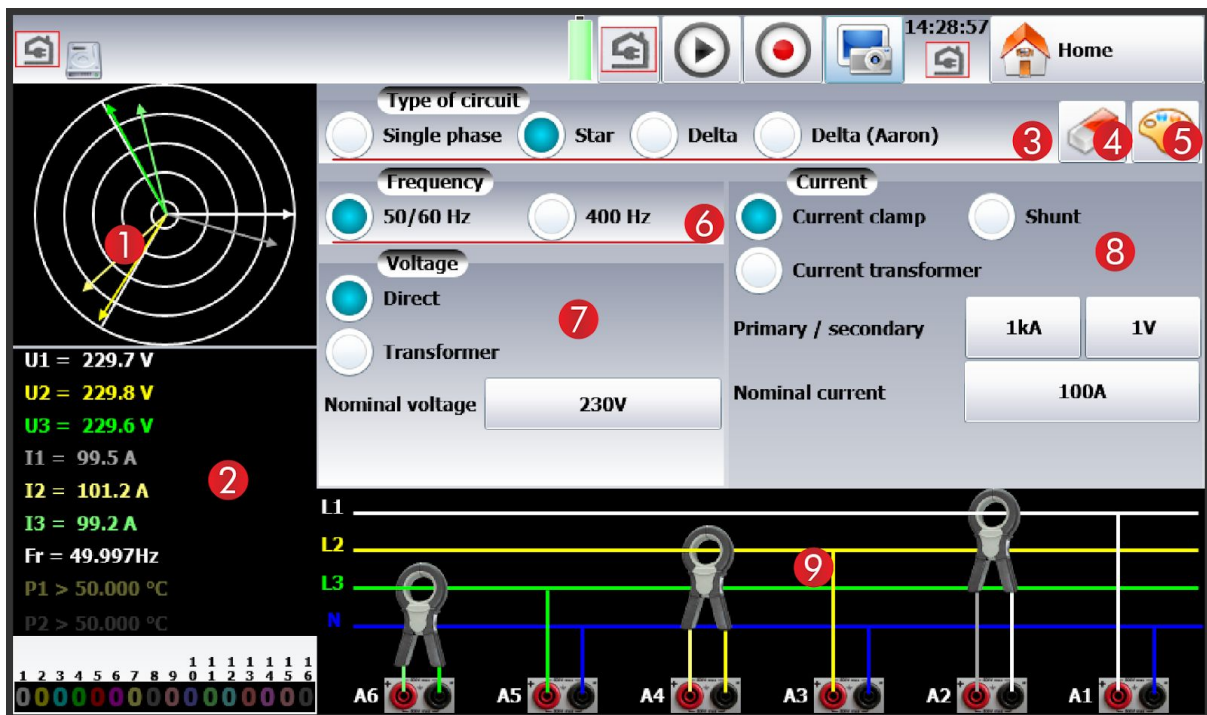
## Power analysis mode

This mode is used to analyze single or three-phase electrical network.

It is activated with the "Power analysis" button in the main menu.



The first screen that appears includes the settings of the measurement :



Fresnel diagram

Display of digital values of signal amplitudes

Choice of network type

Delete the current configuration

Customization of the display's colours

Network frequency settings

Choice of the voltage source and parameters accordingly

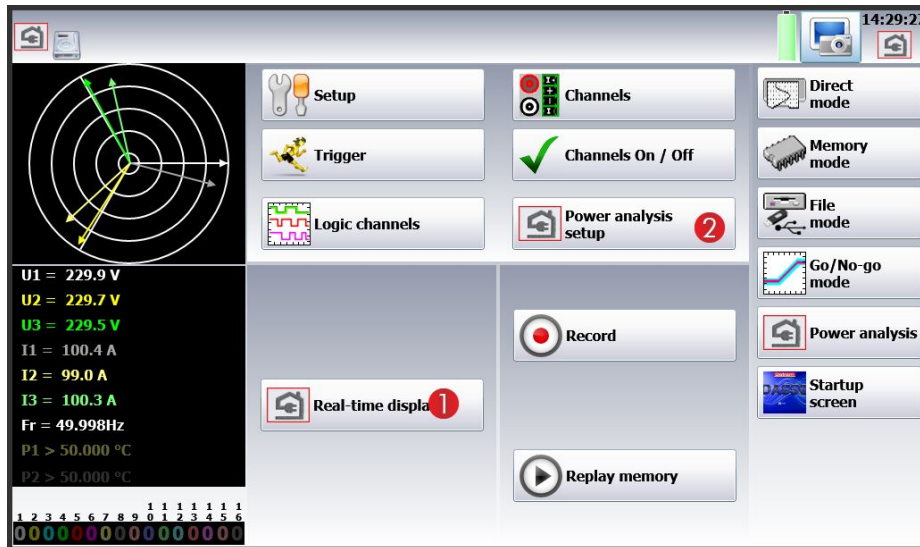
Choice of the current source and parameters accordingly

Reminder of cabling and instruments that should be used

r

r

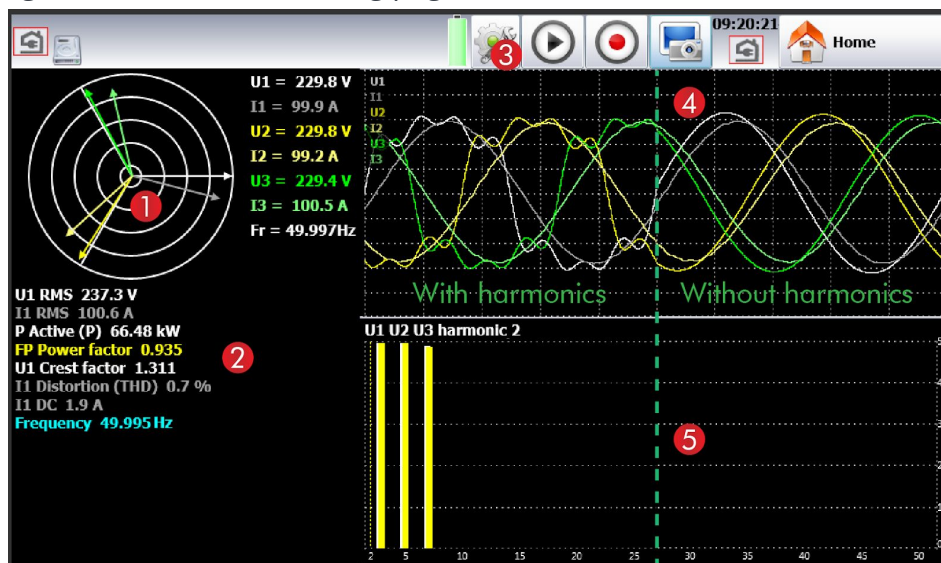
In power analysis, two new buttons appear on the main menu, note that in this mode all channels are used except those for PT100 and PT1000 temperature probes.



Timechart visualization of signals

Setting of the measurements and the calculations to perform

Button (1) gives access to the viewing page :



Fresnel diagram

Display of the numerical values of the measurements and calculations configured on the screen accessible with the button (2)

Configuration of the display of the signals, harmonics, number of screens, ...

Chronograms of measured signals

Decomposition in Fourier series, with frequencies on x-axis and amplitudes on y-axis

The button (2) gives access to the configuration page of the measurements and calculations performed. They are displayed on the left of the screen, below the Fresnel diagram :

	Measurement	Min.	Max.		Measurement	Min.	Max.	
<input checked="" type="radio"/>	U1 RMS	0	400 V	<input checked="" type="checkbox"/>	Frequency	0	100	<input checked="" type="checkbox"/>
<input type="radio"/>	I1 RMS	0	200 A	<input checked="" type="checkbox"/>	U1 RMS	0	400 V	<input type="checkbox"/>
<input type="radio"/>	P Active (P)	-100	100 kW	<input checked="" type="checkbox"/>	U1 RMS	0	400 V	<input type="checkbox"/>
<input checked="" type="radio"/>	FP Power factor	-1	1	<input checked="" type="checkbox"/>	U1 RMS	0	400 V	<input type="checkbox"/>
<input type="radio"/>	U1 Crest factor	0	10	<input checked="" type="checkbox"/>	U1 RMS	0	400 V	<input type="checkbox"/>
<input type="radio"/>	I1 Distortion (THD)	0	600 %	<input checked="" type="checkbox"/>	U1 RMS	0	400 V	<input type="checkbox"/>
<input type="radio"/>	I1 DC	-20	20 A	<input checked="" type="checkbox"/>	U1 RMS	0	400 V	<input type="checkbox"/>

Each measurement or calculation is configured in this table, each line refer to the adjusting of a measurement.

Setting of the measurement display colour

Setting of the type of measurement or calculation to perform

Range adjustment, minimum value

Range adjustment, maximum value

*MbaXf &ž' TaW( bcXa d' XfT` X` Xah T\_bj VaZ d' XfXgaZ bYd' X'ceXi bhf\_l Xkc\_TVaXW  
cTeT` XgXef*

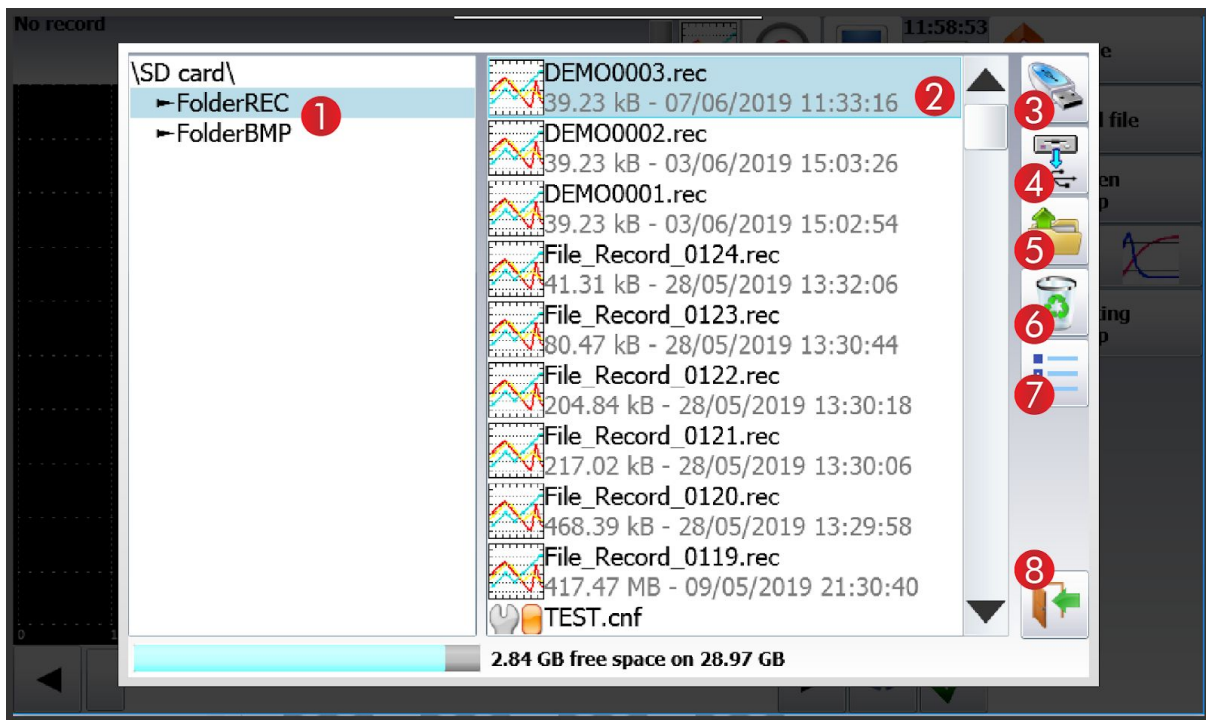
Enable the display of this measurement/calculation

## Recordings reads and exports

Once the recordings are made, it is possible to directly read them on the Data Acquisition System. The handling is the same for any mode of operation. To do this, go to the main menu, click on "Replay memory" and then "Read file".



A list of recordings stored on the device is shown. The recordings are in .rec format, simply press the desired one to select it.



Folder selection

List of files in the selected folder

View the contents of the USB key, if connected to the device

Transfer the selected file to the USB key

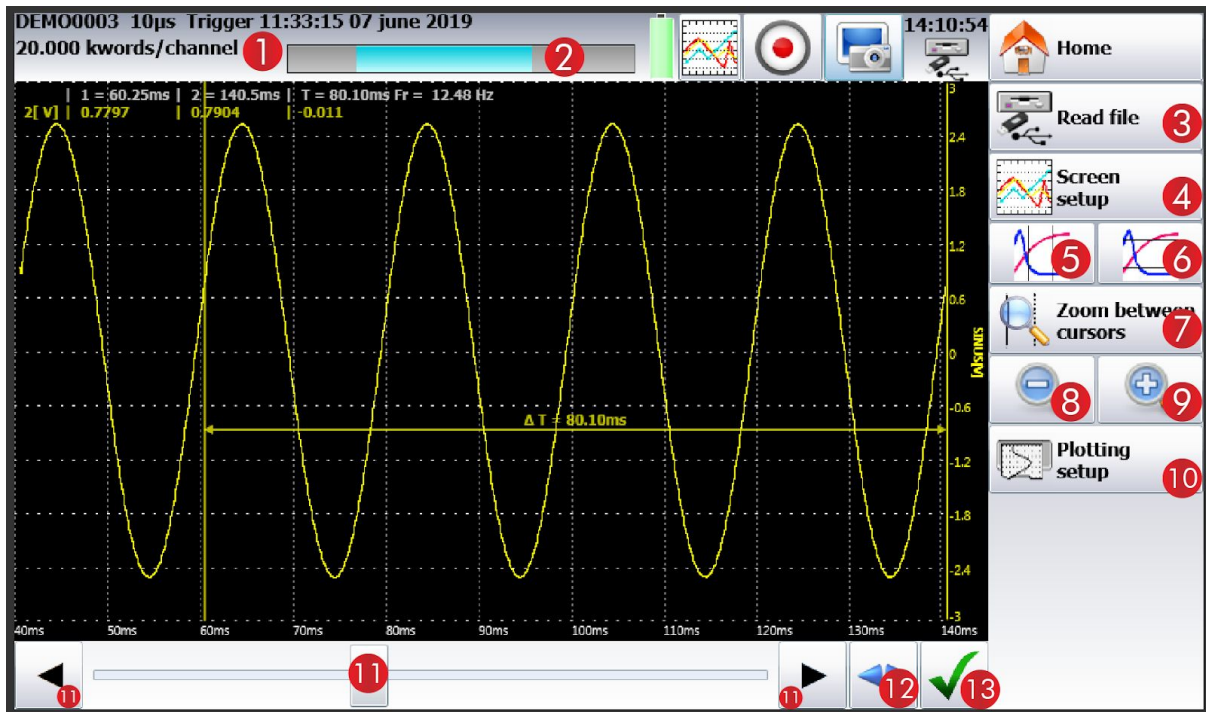
Read the selected file

Delete the selected file

Switch between single or multiple selection mode

Exit

The interface for reading a file is as follows:



Informations about the recording

Visible area (blue) relative to the total acquisition (gray area)

Open the files list

Configure the screen, colours, clock type, toggle between F (t) and XY mode, ...

Show vertical cursors

Show horizontal cursors

*Ba\_ Ybei XegVT\_Vhfbefžnbb` `a TaVhbb` bhgVhaVgbaf TeX'ba\_ Ti T\TU\_Xj [Xa g'XFxR  
Vhfbef TeXVWf\_c\_Tl XW*

Zoom in between cursors

Zoom in

Zoom out

Configure the plot (for devices with a printer)

Navigate in the recording

Display the entire acquisition ( automatically zoom out if necessary)

Select the channels and the functions to display, in case of the recording includes several channels simultaneously

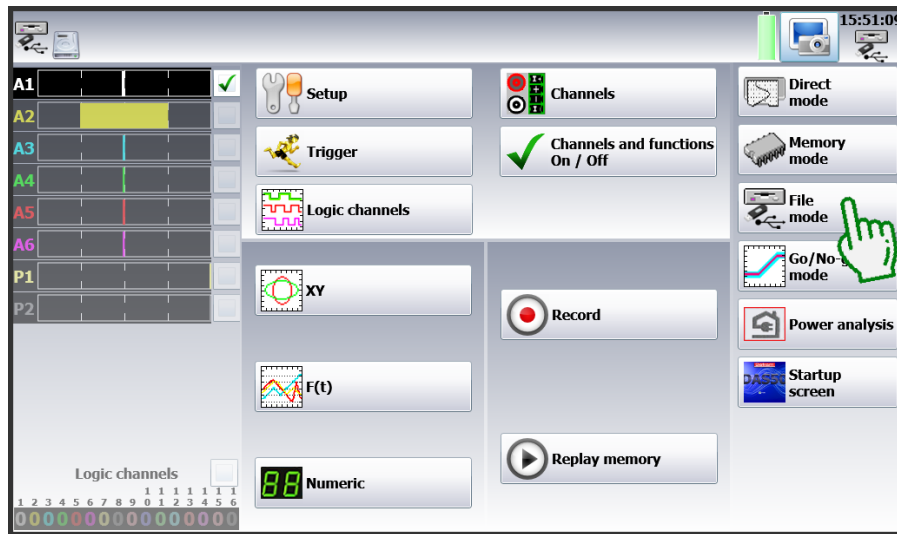
## Workshop

The device is in the factory configuration, the goal is to measure and record a sinusoidal signal with an amplitude of 5V and a frequency of 50Hz.

To do this, you must follow the steps described at the beginning of the guide.

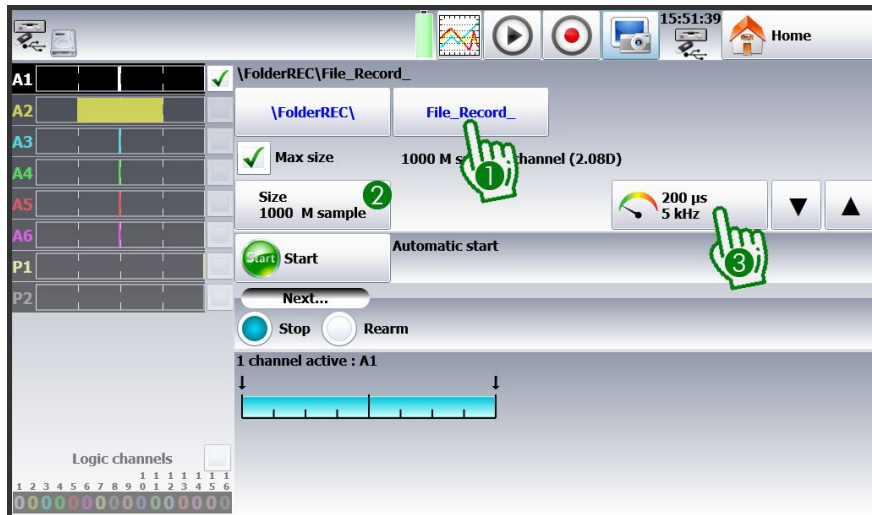
### 1/ Choice of the mode

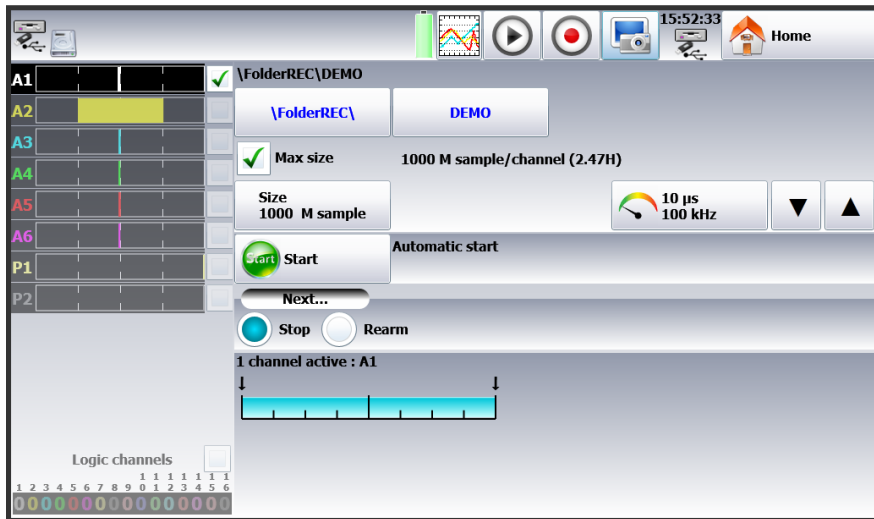
It is desired to record the signal for a reasonable duration, such as a decade periods. The "file mode" is therefore adapted to our needs.



First, rename the file that will be generated after the recording. To do this click on "File\_record\_" (1), then on the keyboard icon and rename the file, in our case, "DEMO". The save location isn't changed.

The maximum size (2) is left on the default setting because the stop recording will be set later. The sampling rate (3) is set to 100kHz because it is desired to have a high precision recording.

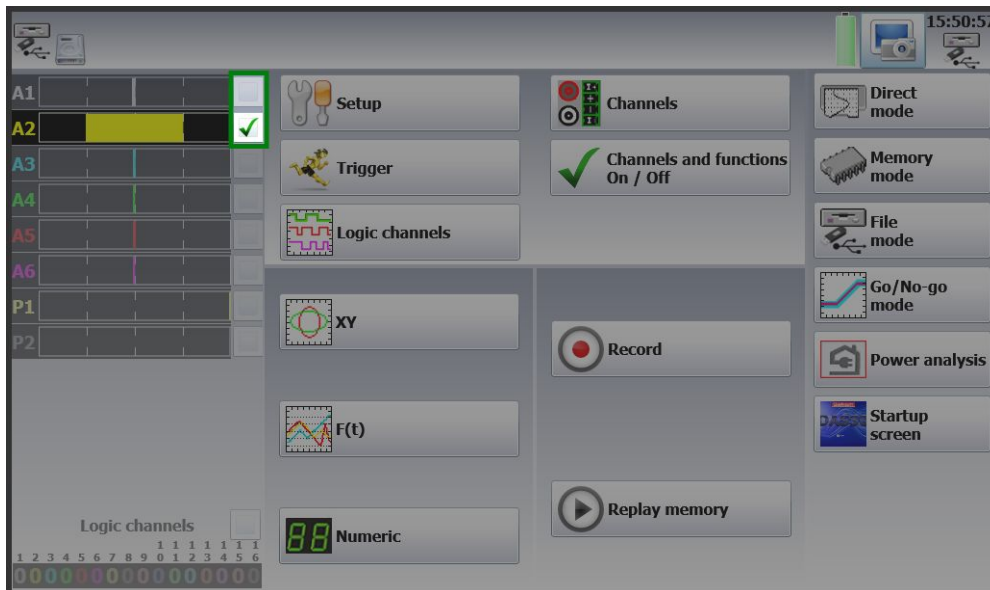




"Next..." is left on "stop" because no further recording will be done after our one.

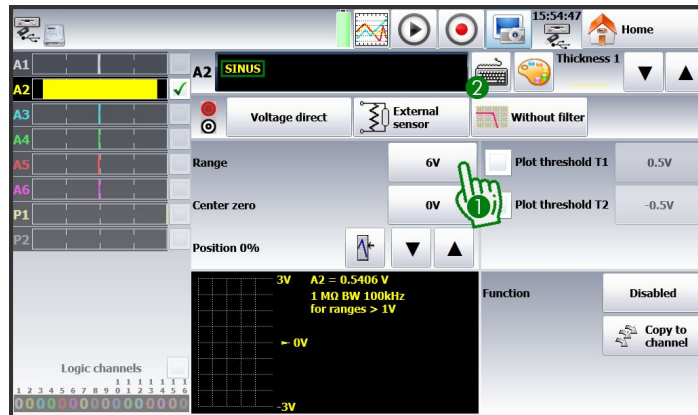
## 2/ Choice of channels

The signal is connected to the second channel of the Data Acquisition System, channel A1 is thus deactivated and channel A2 is activated.

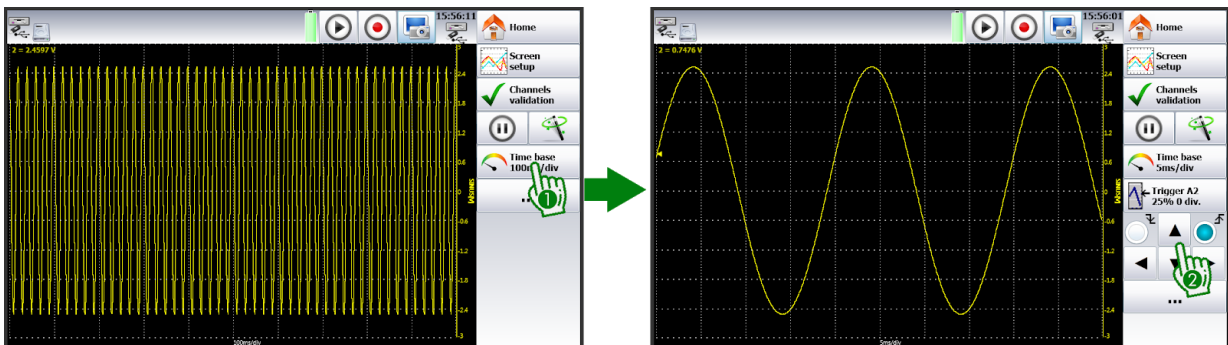


### 3/ Channel configuration

We access the channel settings by directly touching the corresponding bargraph. The default settings are already fine for our signal, we just need to set the range (1) in order to have a correctly displayed signal. We also rename the channel to "SINUS" by clicking on the keyboard (2).

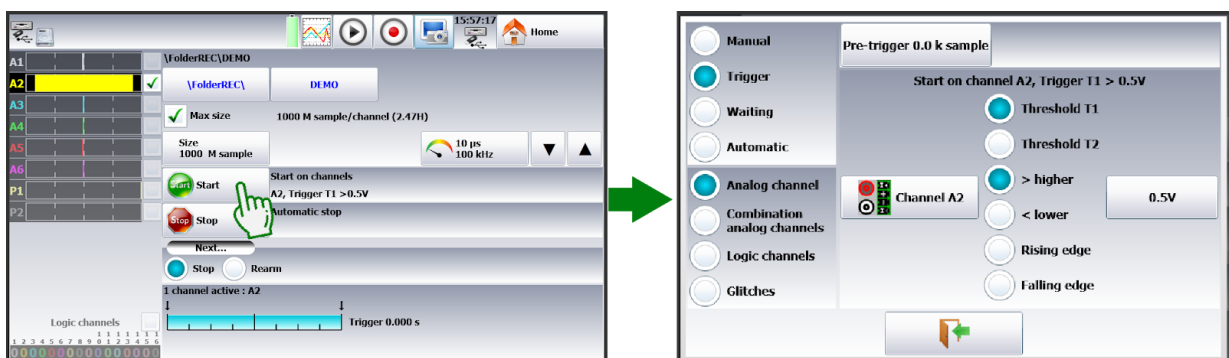


This is the current shape of the signal displayed using the "F(t)" button on the main menu. We take the opportunity to set the time base (1) and trigger (2) to view at least two periods.

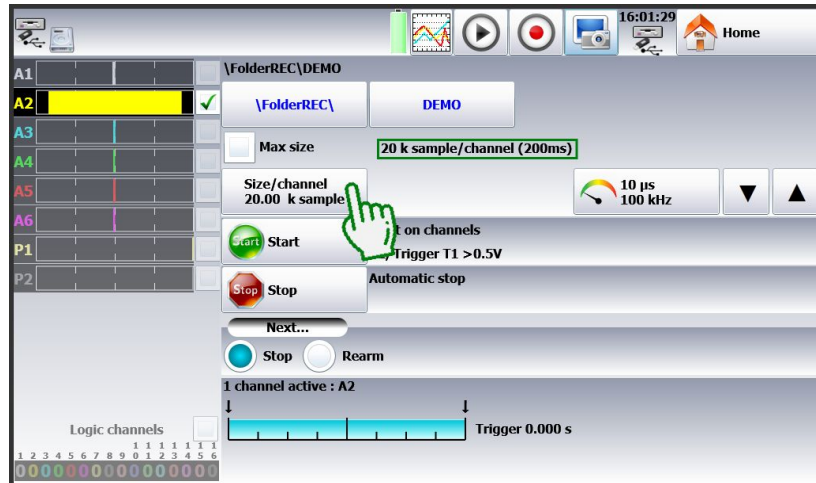


### 4/ Trigger configuration

The goal is to record a ten periods of the signal. For this, we return to the "Trigger" menu, then "Start" and "Trigger". The channel to measure is A2. The threshold S1 which triggers the recording is left on 0.5V.



To record ten periods, knowing that a period lasts 20ms, a recording lasting 200ms is required. For that, we set the number of samples to 20k because the sample rate is set to 100kHz (so a period of 10 $\mu$ s and 10 $\mu$ s x 20k = 200ms). The stop is left on "automatic".

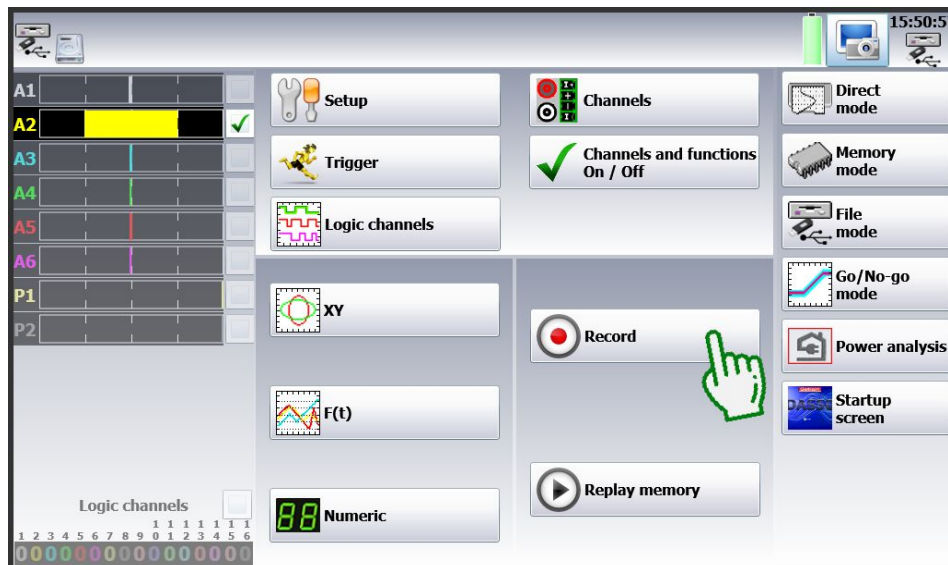


### 5/ Display configuration

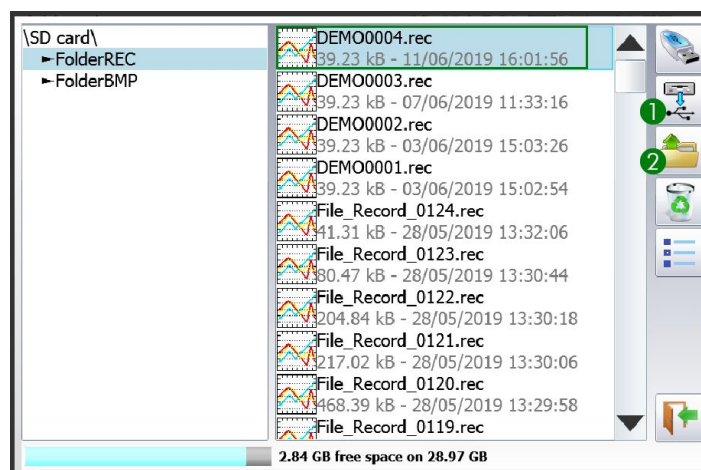
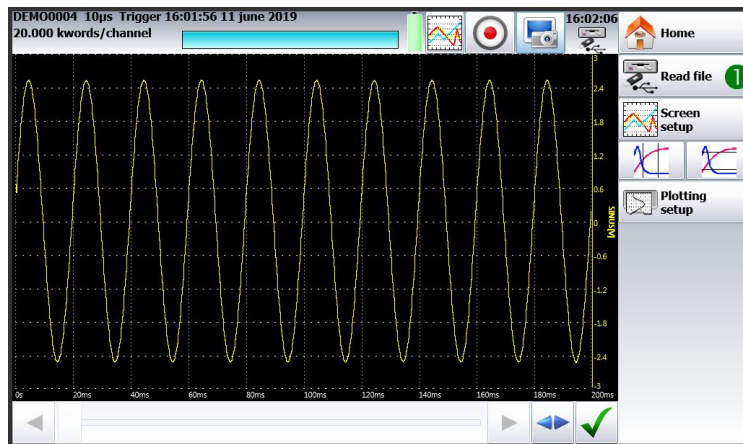
This part consists of making the final adjustments of the signal display screen. Having already done so before and the signal has not been changed, no further adjustment is required.

### 6/ Signal recording

To start the recording, press the "Record" button in the main menu.



The recording starts and stops automatically after 200ms. The result is immediately posted and the ten periods are found there. The acquisition is automatically saved to the location previously specified and named "DEMO" followed by a number that is incremented at each new record. In our case, it is "DEMO0002.rec". This list is accessible via the file button (1).



Then, the newly created file can be sent to a USB key (1) or opened on the Data Acquisition System (2) for viewing.