

# Diris A-200: How to configure and visualize Waveform

When **energy** matters



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## INTRODUCTION

The visualization of waveforms allows the user to see and check in real-time his current and voltage curves state. Indeed the current waveform can be impact by the presence of harmonics and the voltage waveform depends directly on the customer energy supplier.

Thanks to the waveform analyze, the customer can put in place several actions to increase his network quality like:

- The installation of harmonics filter in case of bad current waveform
- The installation of an inverter in case of bad voltage waveform

With the Diris A-200 you can also capture and save waveforms after a quality events in the aim to determine his cause (bad voltage supply, current peak, etc...)

The goal of this technical document is to explain how to configure the waveform capture on Diris A-200 product and where to visualize them.

**Note:** This feature is only available for Diris A-200, not for Diris A-100.

## GENERAL CHARACTERISTICS

The Diris A-200 allow visualizing and capturing waveform relating to:

- Phase current ( $I_a$ ,  $I_b$ ,  $I_c$  and  $I_n$ )
- Single phase voltage ( $V_a$ ,  $V_b$  and  $V_c$ )
- Three-phases voltages ( $V_{ab}$ ,  $V_{bc}$  and  $V_{ca}$ )

The waveform capture can be start following the below electrical events:

- Swell
- Dips
- Interruption
- Inrush
- Power failure

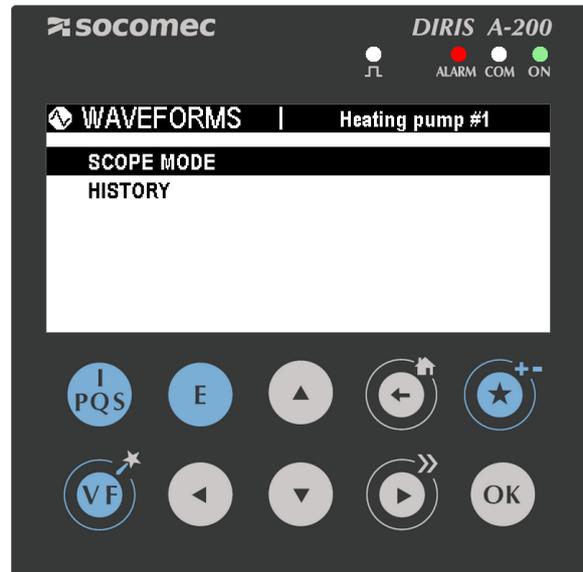
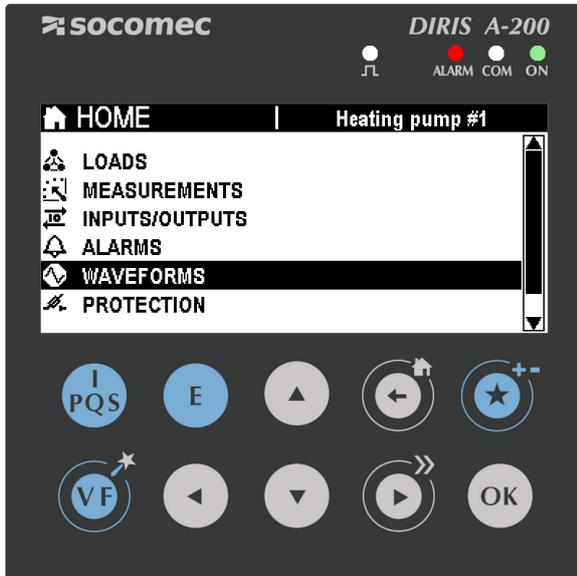
The captured curves are stored in 2 buffers of 960 samples each, except when it's due to a power failure. In this case there is only 1 buffer of 480 samples.

Regarding the recording capacity, you can stored up to 100 captures, 10 captures when it's related to a power failure.

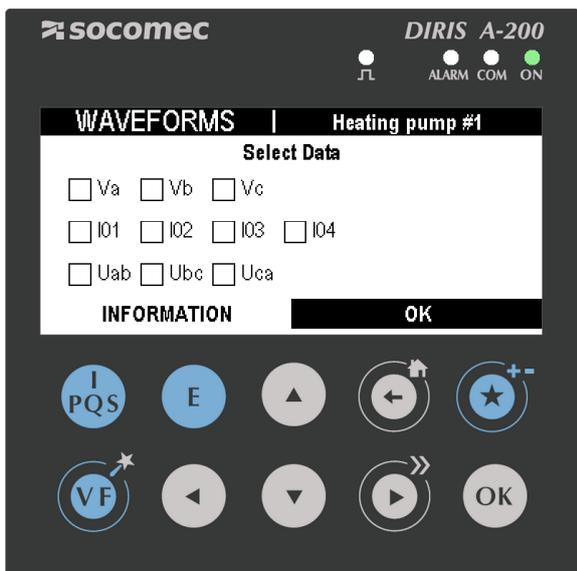
## HOW TO VISUALIZE THE REAL-TIME WAVEFORM

On display

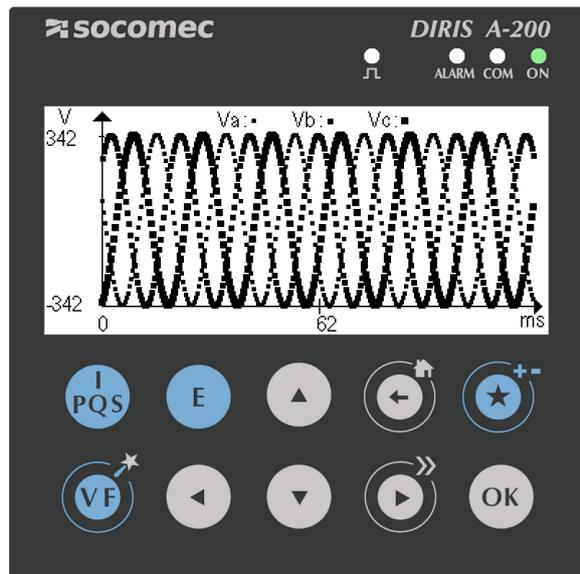
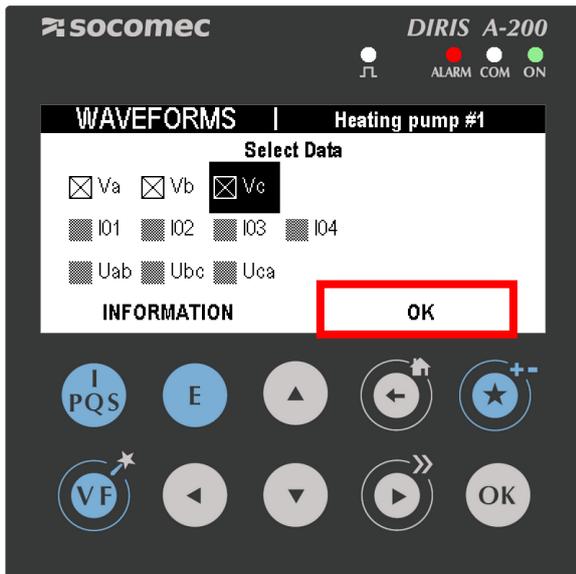
Step 1: Go in the “waveforms” menu and select “scope mode”



Step 2: Select the waveform you want to display. Be aware that you can only display up to 3 curves and they have to be of same type (simple voltage or three phase voltage or phase current)

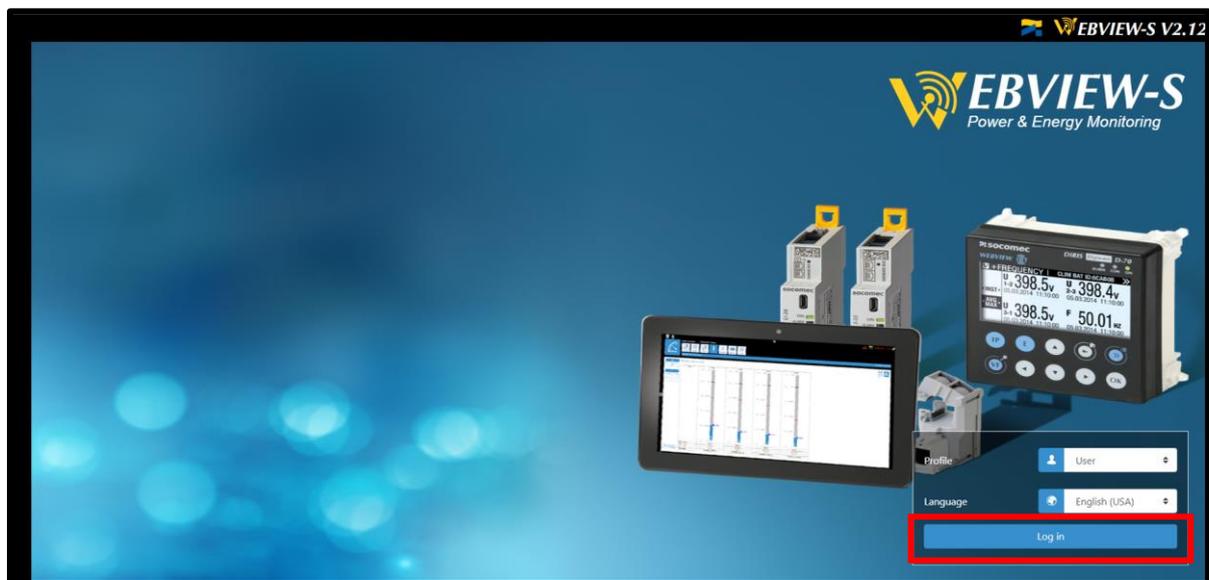


Step 3: Click on “OK” to visualize the curves

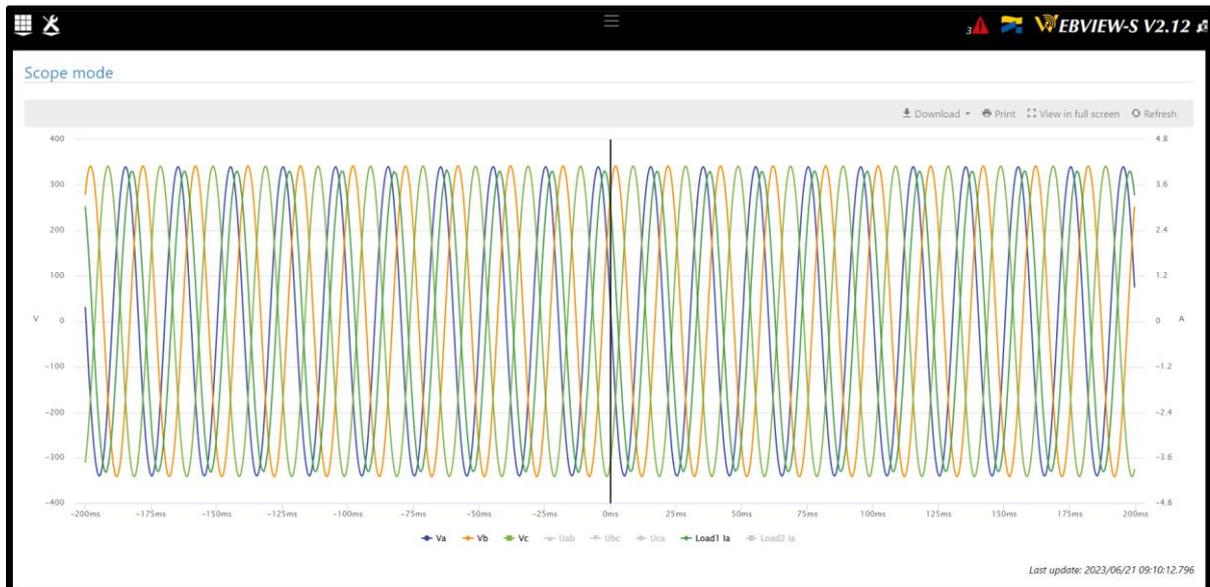


## On the Webserver Webview-S

Step 1: Connect on the Webview-S webserver by clicking on “log in”. You can use any profile you want.



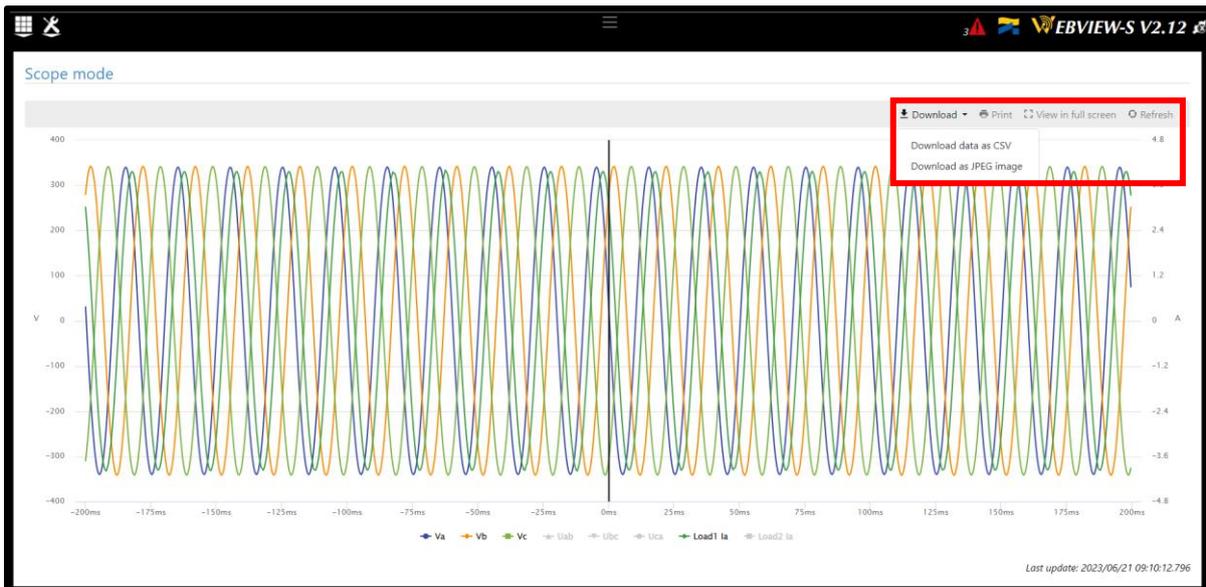
Step 2: Click on “scope mode” to access the waveforms menu. There is no limitation of curves to be displayed and you can mix voltage waveform with current waveform



To hide a curve, click on one of the label below the graph. When the label is in gray, the curve does not appear.



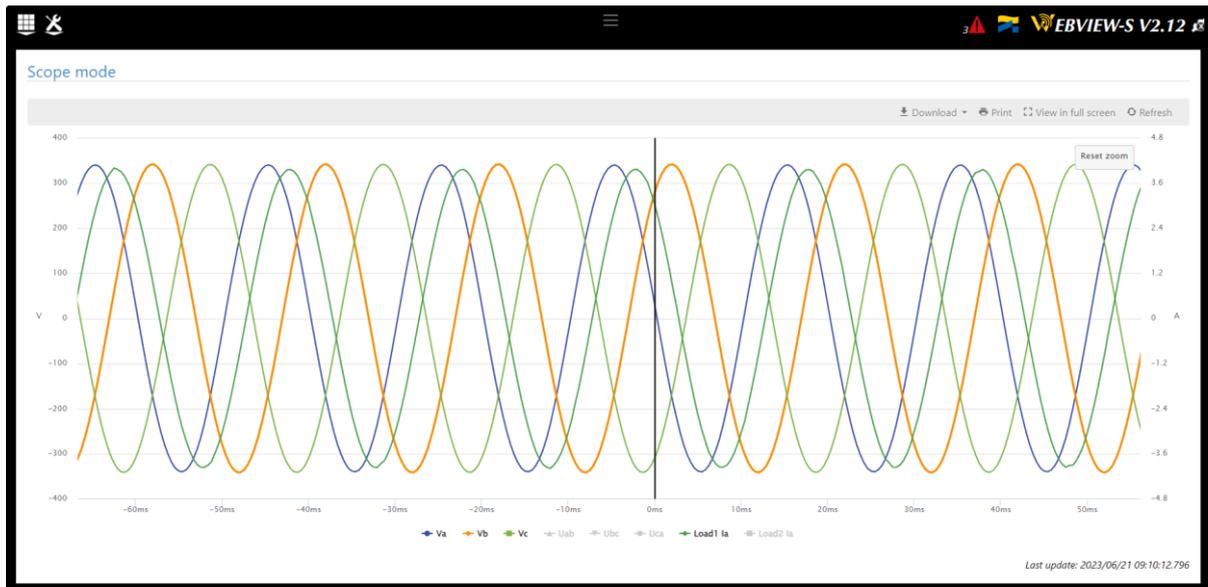
You also have the possibility to download the curve in a CSV file or as a JPEG image by clicking on "download". On the same level, you can choose to print or view in full screen the waveforms



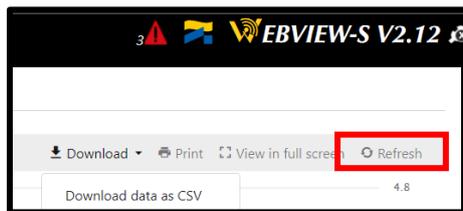
To zoom in, select the target period with your cursor.

Click on "reset zoom" to cancel the zoom.

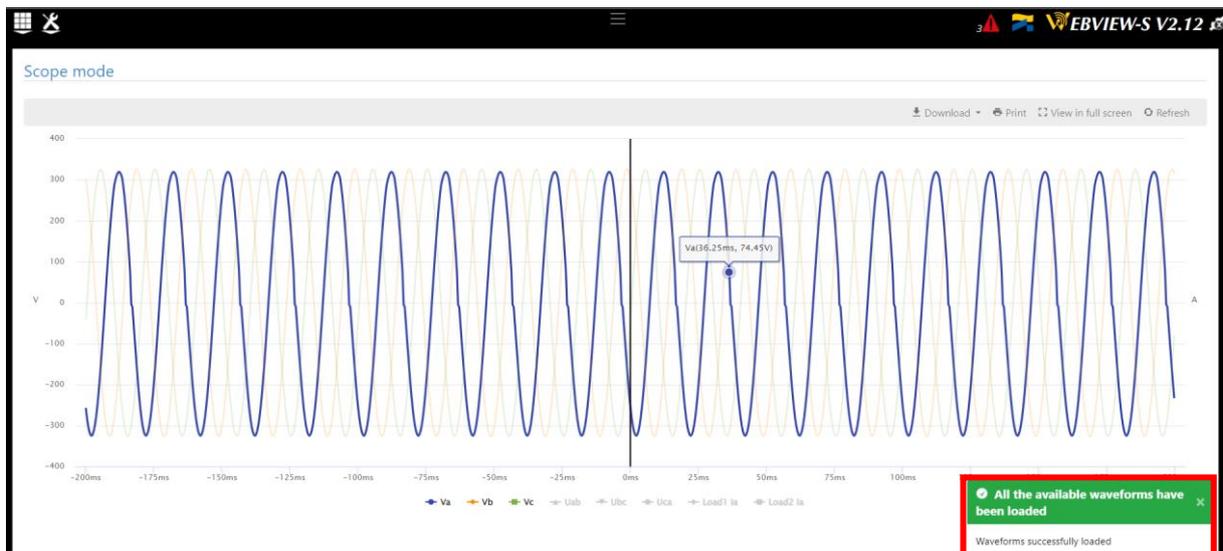




**Note:** To refresh the waveform, click on “refresh” on the top right.



It will take a few seconds to reload the entire curve. A message will appear when it has been done.

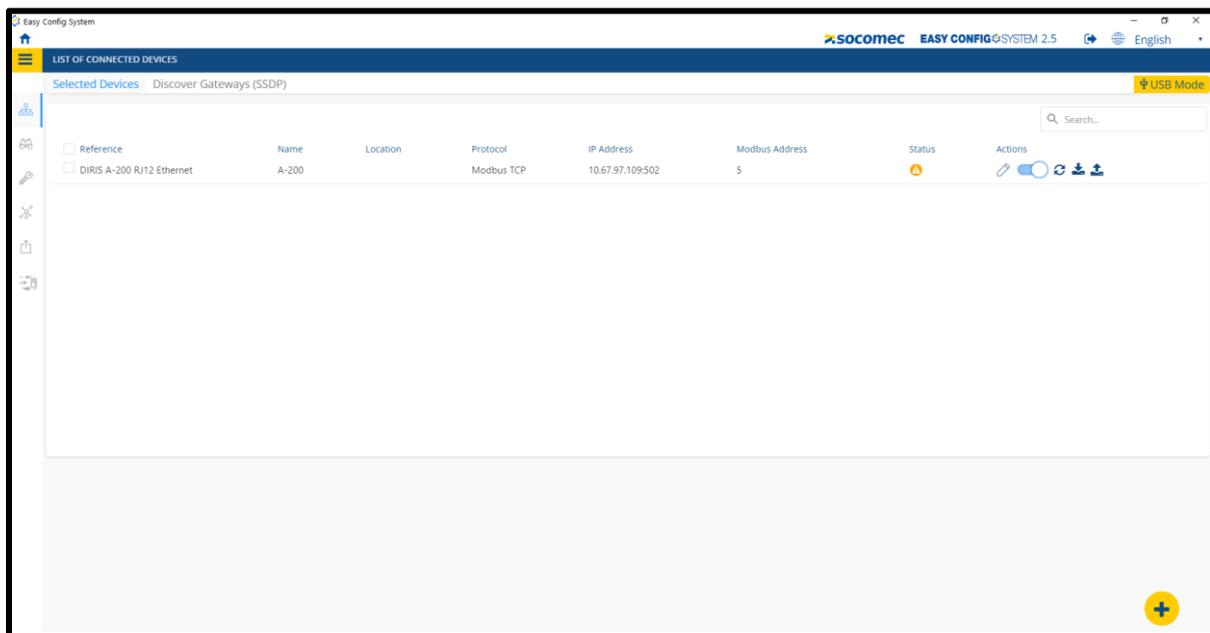


## HOW TO CONFIGURE THE WAVEFORM CAPTURE

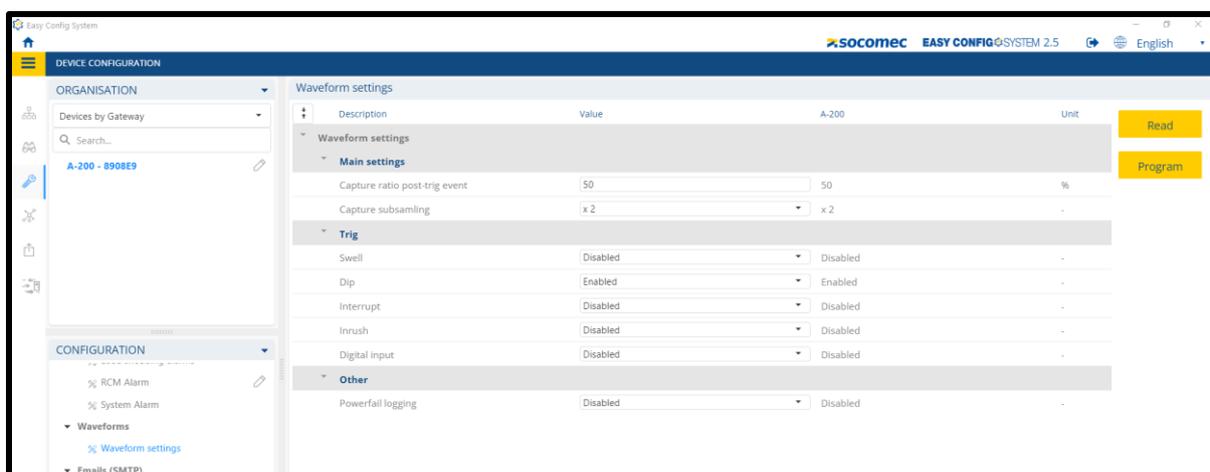
Before starting the configuration, it is necessary to download our configuration Software [Easy Config System](#) and install it being in **Windows administrator mode**.

**Step 1:** Start Easy Config software and log in “Admin” profile. After having created a configuration, connect on Diris A-200 via USB or Ethernet.

**Note:** For more information about how to connect on a product with Easy Config System take a look on the [operating manual](#)



**Step 2:** Click on “device configuration” and then on “Waveform settings”

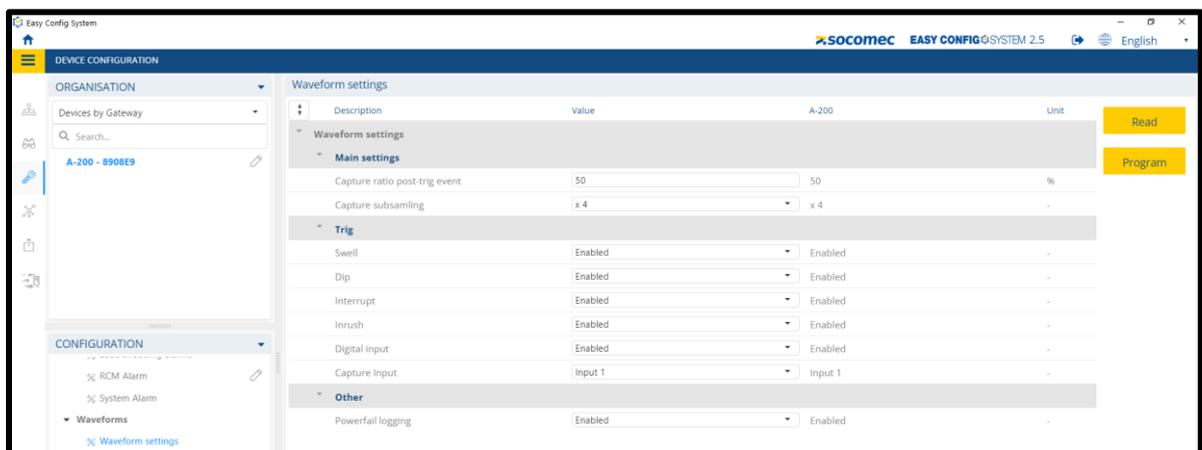
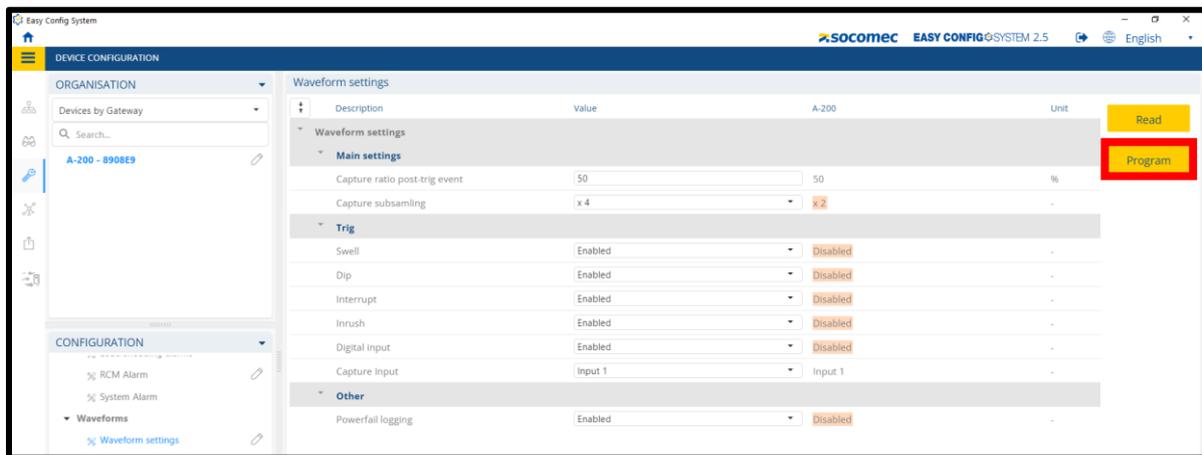


**Step 3:** In the “main settings” configure the ratio regarding the post-trig event and the subsampling. For more information about these settings go to page 14

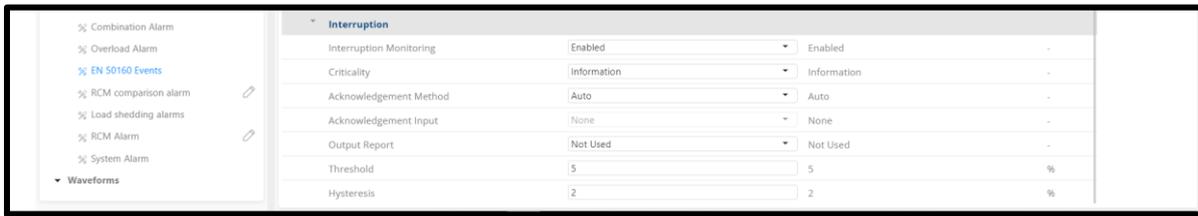
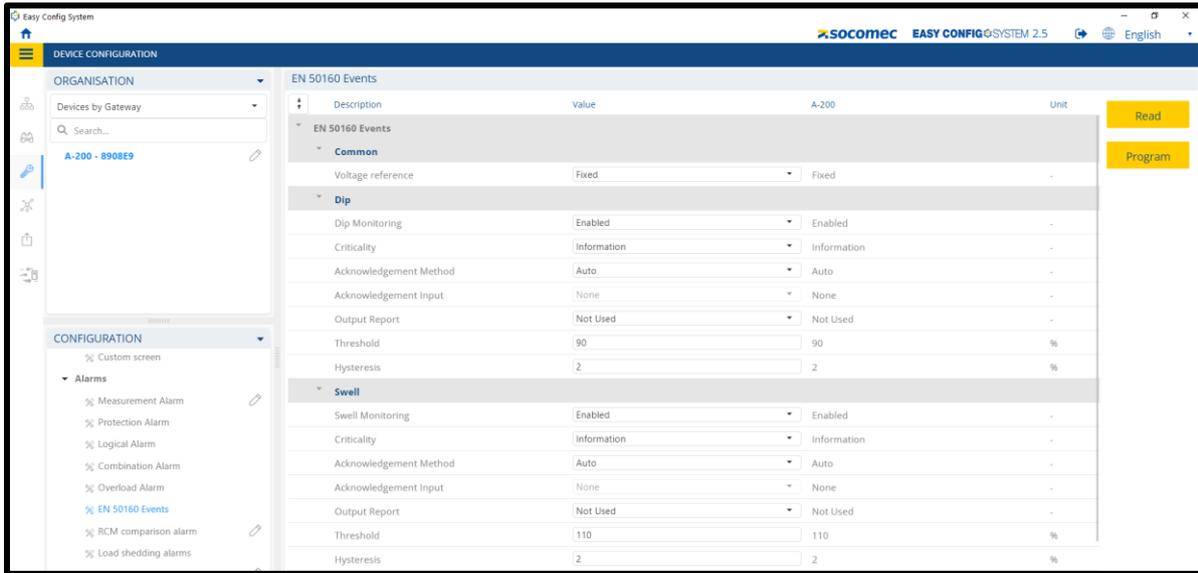
In “Trig” settings, choose which events (Swell, Dip, Interruption, Inrush or digital input) will start the waveform capture. If no event type is enabled for waveforms, the events will still be recorded but no the associated waveforms

In “other” part, you can activate the waveform recording following a power failure. The Diris A-200 has an internal capacitor allowing it to record a voltage sag or interruption event before it shuts off due to a power fail.

Click on “program” to upload all the settings in the product



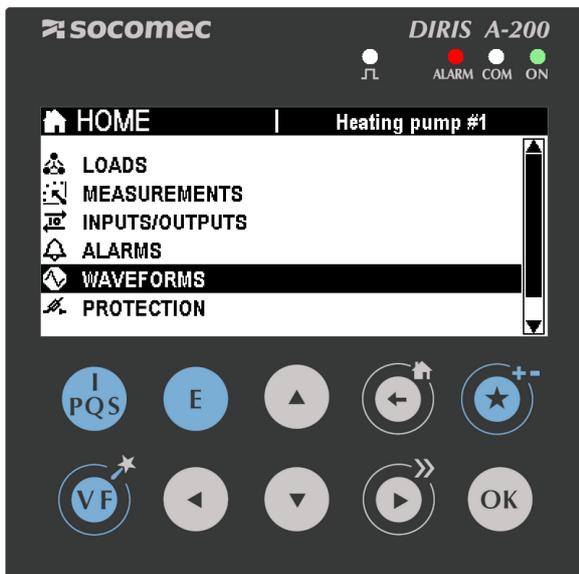
**Note:** The Event Threshold can be configured in the menu “Alarms”, “EN 50160 Events”



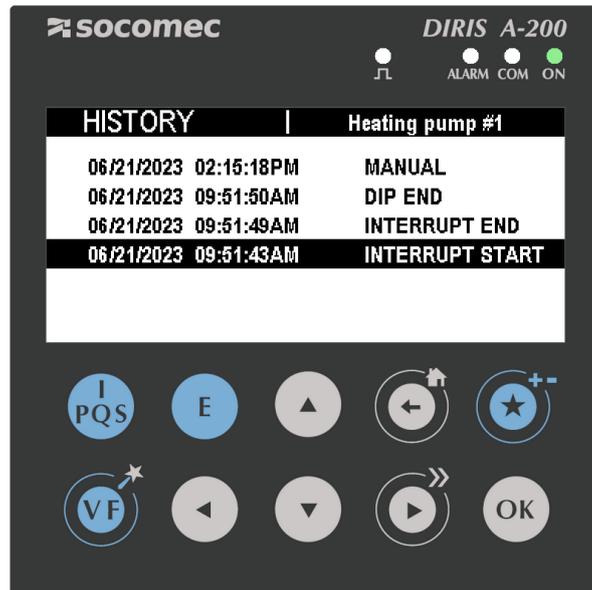
## HOW TO VISUALIZE THE WAVEFORM CAPTURE

On display

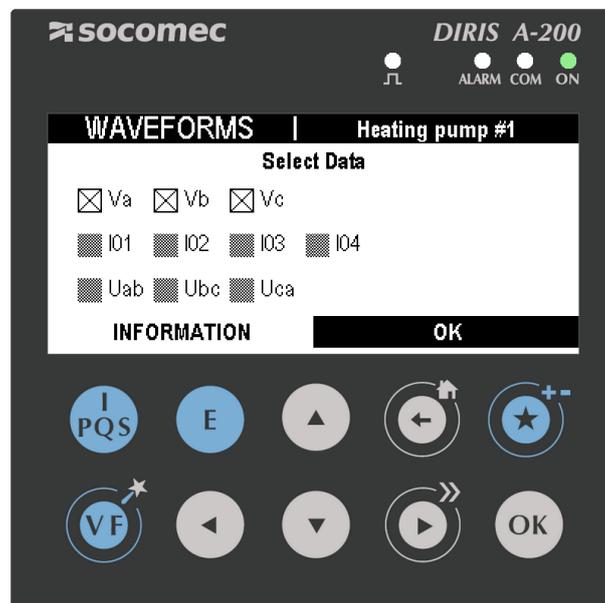
Step 1: Go in the “waveforms” menu and select “History”



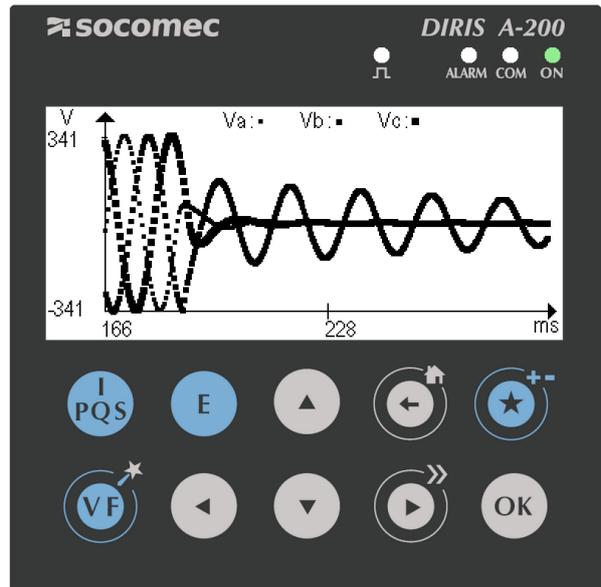
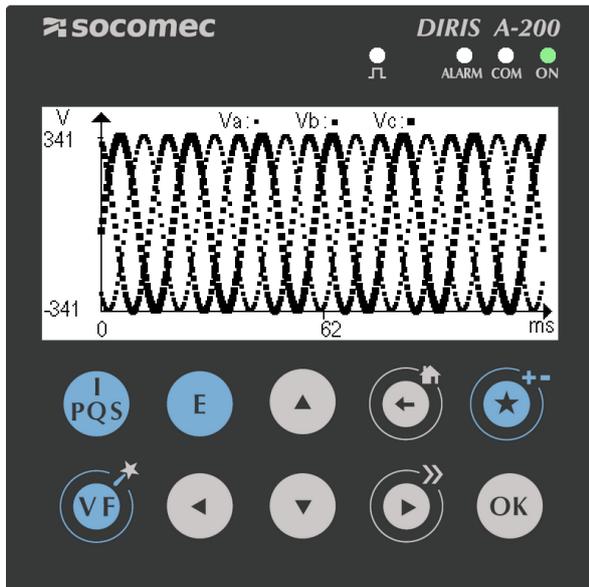
Step 2: Select the capture you want to display in the list



Step 3: Select the curve you want to display. Be aware that you can only display up to 3 curves and they have to be of same type (phase-neutral or phase-phase voltage or phase currents)

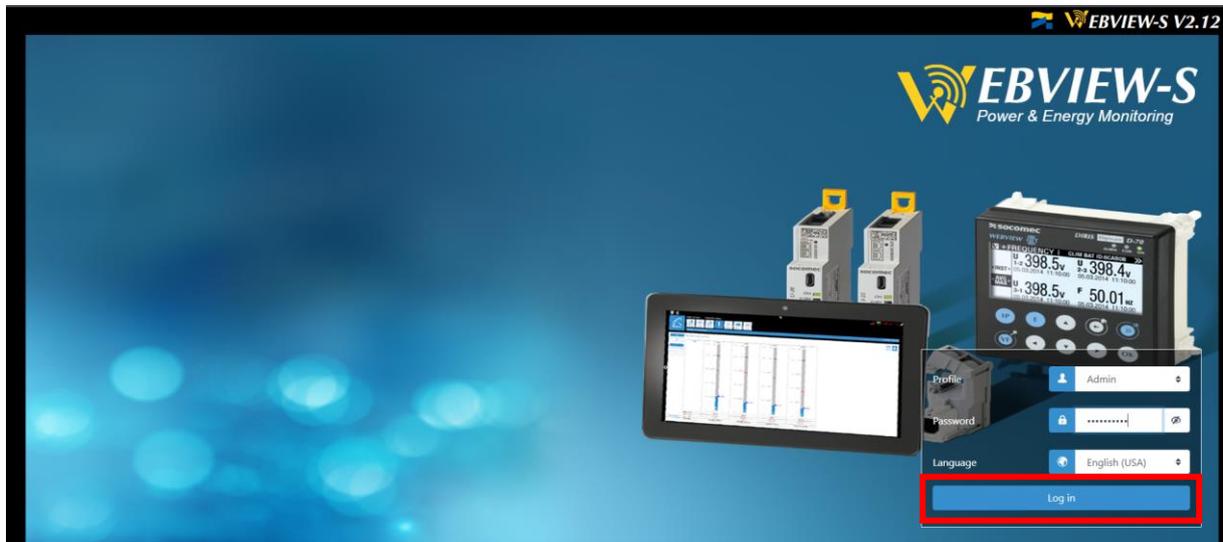


Step 4: Click on "OK" to display the waveform. Click on the right arrow to move forward in time. Click on the left arrow to move back in time

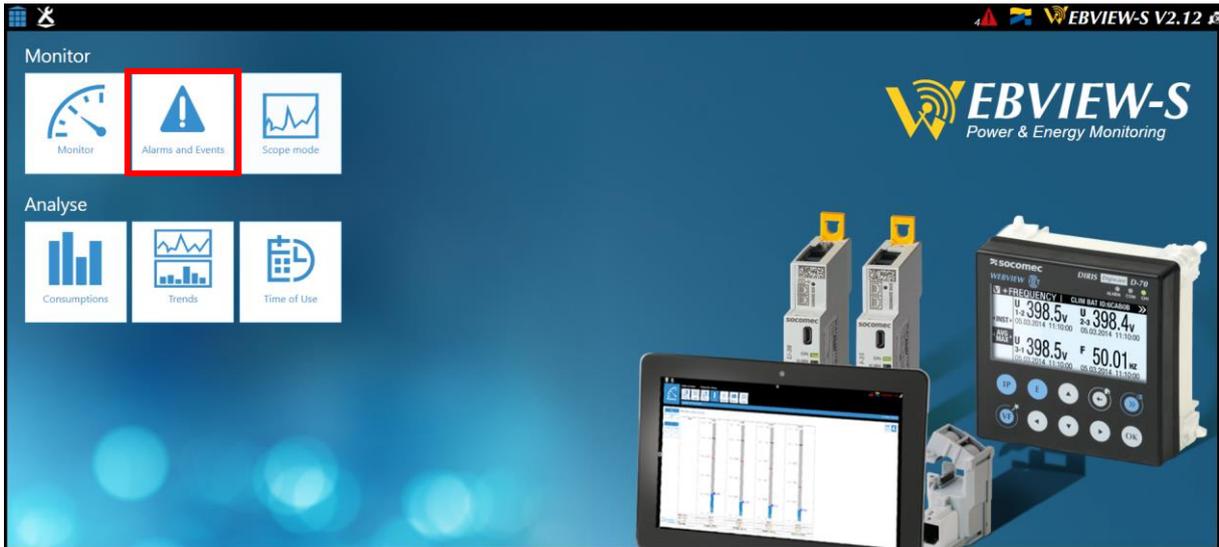


### On the Webserver Webview-S

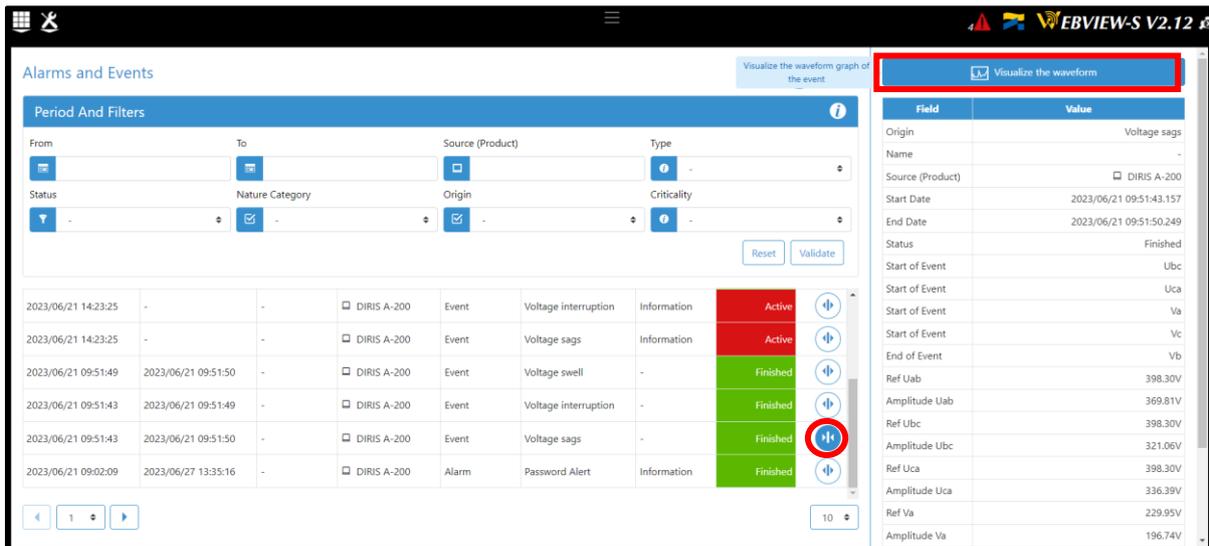
Step 1: Connect on Webview-S and log in Admin Profile



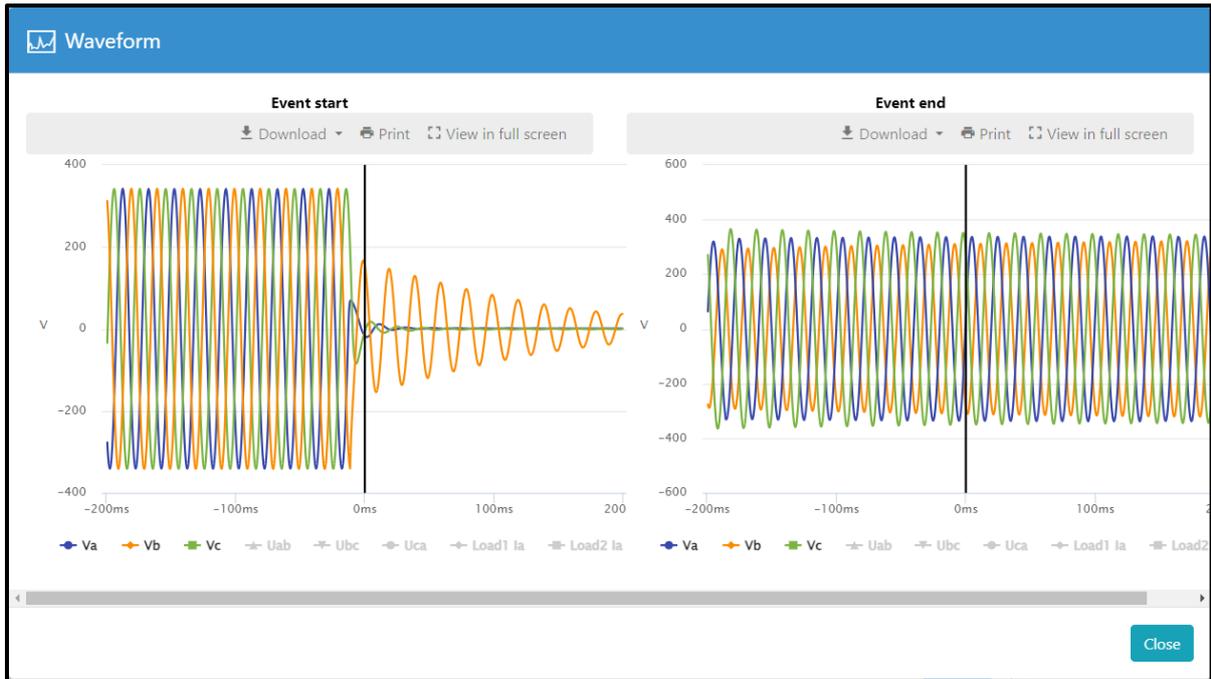
Step 2: Click on “Alarms and Events” to display active and finished alarms or events



**Step 3:** Click on the Event for which you want to display the waveform. Then click on “Visualize the waveform”. If this button is not present, it is because the waveform has not been configured yet

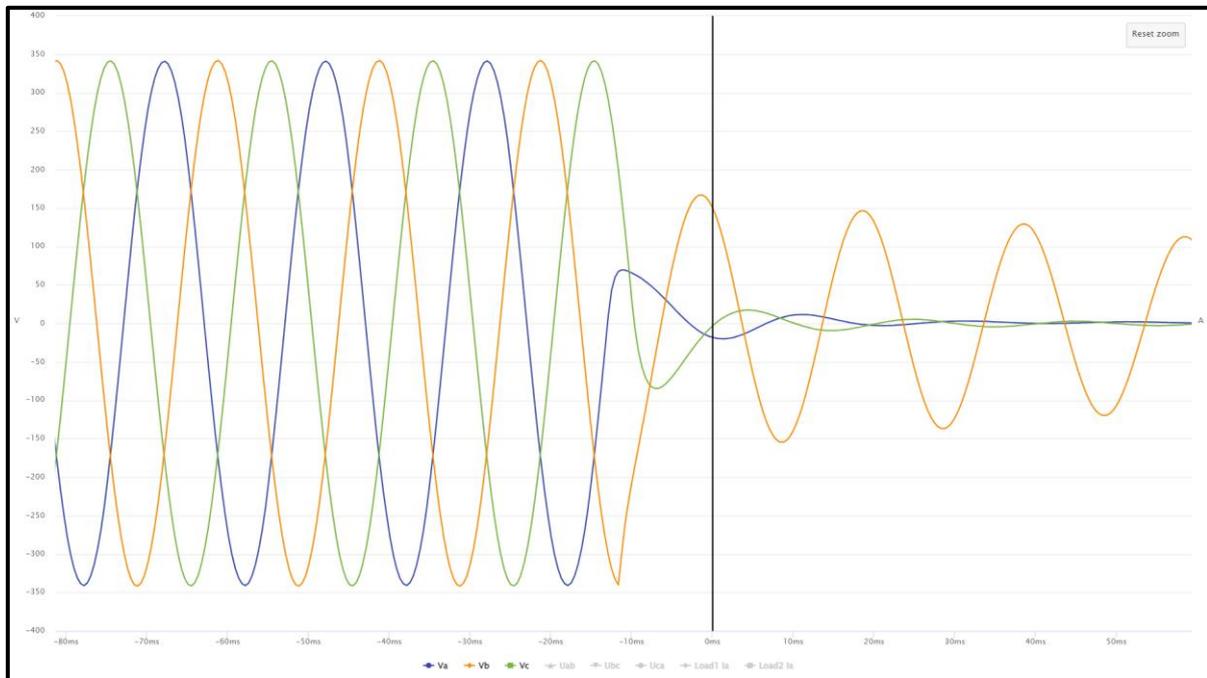


An event can be composed of either 1 or 2 sets of associated waveforms, depending of its duration, how is the post buffer configured and which subsampling is defined. In case of 2 sets of waveforms, you can click on “View in full screen” on either set of waveforms to see them in fullscreen.



To zoom in, select the target period with your cursor.

Click on “reset zoom” to cancel the zoom.



## TECHNICAL VOCABULARY

### Subsampling ratio

The subsampling ratio determine the number of point per period that you can have. Consequently, it give you the number of period per capture that you can record. This setting is configured in the waveform menu settings. Go back to page 8 for more information

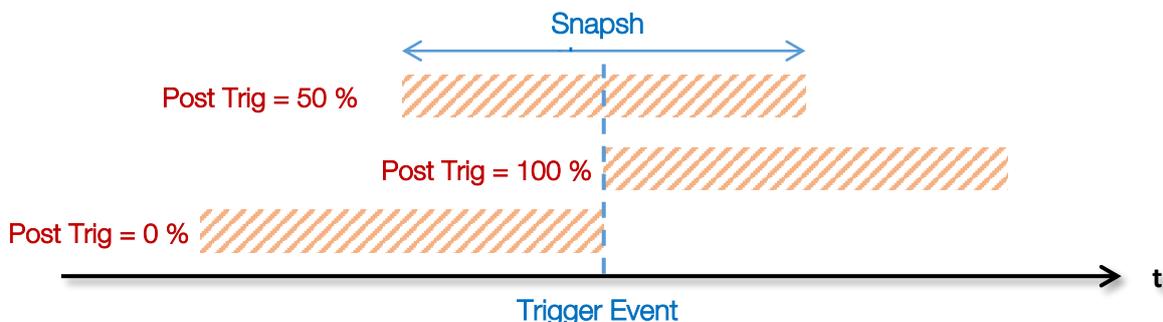
In the table below you can find the characteristics of the waveform capture according to the subsampling ratio. For example, if my subsampling ratio is set to 4, I will have a sample every 416µs which give a total of 24 period in one capture if I work with a 60 Hz signal

Subsampling factor	Interval of time between samples	Number of point \ period	Captured period count in One buffer (50Hz/60Hz)	Total capture duration buffer (50Hz/60Hz)	Total capture duration post buffer (50Hz/60Hz)
1	1/9600Hz ~ 104µs / pt	192 / 160	5 / 6	100ms / 120ms	100ms / 120ms
2	2/9600Hz ~ 208µs / pt	96 / 80	10 / 12	200ms / 240ms	200ms / 240ms
4	4/9600Hz ~ 416µs / pt	48 / 40	20 / 24	400ms / 480ms	400ms / 480ms
8	8/9600Hz ~ 833µs / pt	24 / 20	40 / 48	800ms / 960ms	800ms / 960ms
16	16/9600Hz ~ 1666µs / pt	10 / 12	80 / 96	1600ms / 1920ms	1600ms / 1920ms

### Post-trig Event ratio

The post-trig event ratio determine which part of the event will be capture (pre-event, post event or both). This setting is configured in the waveform menu settings. Go back to page 8 for more information

For example, if my Post-trig Event ratio is set to 100%, I will only have the post-event waveform. On the contrary, to only have a pre-event waveform, the post trig Event has to be set to 0%. By default this ratio is configured to 50% to have both pre and post Event waveform



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