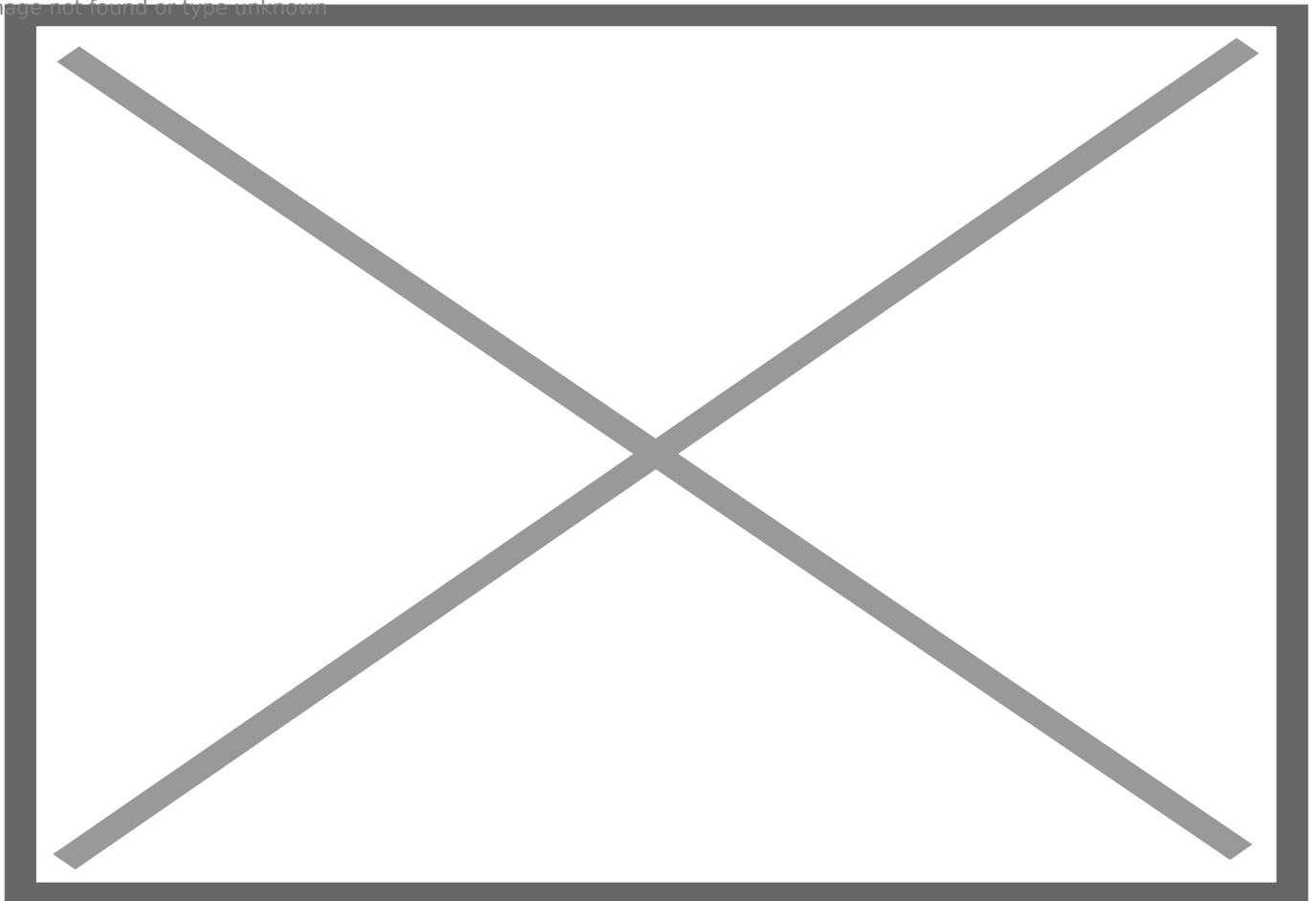


Waveform View

The eGauge waveform view allows the raw amperage and voltage to be visually displayed in an oscilloscope like view. Starting in [firmware version v3.5](#), this tool can be accessed from the main graph page in **View -> Waveform**. To access this tool, valid credentials to view device data are required. The waveform view works on all modern browsers as well as mobile platforms like Android or iPhone.

Waveform Display overview

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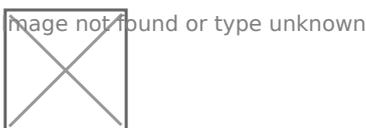
1) Display

The main display. Here the selected channels are displayed. The grey divider bar separating the Display from Horizontal Controls can be dragged to enlarge or shrink the main display. This divider disappears on small screens in landscape mode, where there isn't enough height to display the screen and the controls below it. In that case, the entire page becomes can be scrolled.

Features include:

- Click and drag in the display to move forward or backward in time (this adjusts the "Time offset" option in Horizontal Controls).
- Mouse-wheel up or down (or two-finger pinch together/apart on mobile) to zoom in our out of the waveform (adjusting both the "Time offset" and "Time base" Horizontal Controls).
- Double click to zoom in on that part of the capture
- Enabling Markers provides additional values. The vertical marker bar can be clicked and dragged to move the marker point along the waveform.
- Click on a waveform to highlight it. When the waveform is highlighted, the actions change:
 - * Click and drag up and down to change the vertical offset (this adjusts the "Offset" of the waveform's Vertical Controls).
 - * Mouse-wheel up or down (or two-finger pinch together/apart on mobile) to change the sensitivity of the waveform (adjusting both the "offset" and "sensitivity" of the waveform's Vertical Controls).
- To de-select a waveform, click anywhere in the display that does not have a waveform or marker displayed.

The right side of the display will show a small ground symbol indicating the zero-level for that channel. The color of the symbol matches the color selected for the channel waveform:



If marker "B" is active, "By" will be shown on the right side of the display indicating the horizontal line for the marker "B" y-axis:

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The left side of the display will display a "T" indicating the horizontal line for the trigger level. The color of the "T" matches the color selected for the channel waveform:

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If marker "A" is active, "Ay" will be shown on the left side of the display indicating the horizontal line for the marker "A" y-axis:

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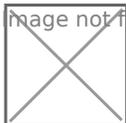
On the top side of the display, an upside-down triangle indicates the trigger point on the x-axis:

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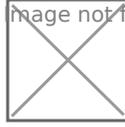
If marker "A" is active, "Ax" will be shown on the top side of the display indicating the vertical line for the marker "A" x-axis:

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On the bottom side of the display, a triangle indicates the trigger point on the x-axis:

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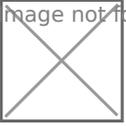
If marker "B" is active, "Bx" will be shown on the bottom side of the display indicating the vertical line for the "B" x-axis:

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If one or more markers are active, the data for the maker values will be displayed on the bottom side of the display:

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Horizontal and Vertical divisions

The display is divided into rectangular segments.

Each horizontal segment (shown in red) is equal to the "Time base" setting. Here it is 8.2 milliseconds.

Each vertical segment (shown in purple) is equal to the particular waveform's "sensitivity" setting. Here it is equal to 50 volts.

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2) Horizontal Controls

The Horizontal Controls adjusts the displays time axis (x-axis).

Time base

This setting controls the amount of time shown in the display. The up/down arrows can be used to increase and decrease the value, or a number may be manually entered.

Each rectangle's length is a single time division. Increasing the time per division allows more of the waveform capture to be displayed. Consequently, decreasing the time per division allows you to zoom into the waveform capture.

Time offset

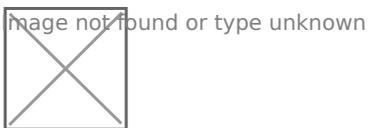
The time offset setting allows the waveform's time axis to be offset relative to the capture point. Adjusting this value scrolls the display to the left or right. You can click the "0" between the arrows to reset the offset to zero.

3) Vertical Controls

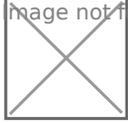
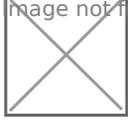
The vertical controls adjust the vertical scaling of the graph, as well as certain aspects of the waveforms being displayed.

The "Select Channels" button in the upper right hand corner of the section provides a list of configured and available channels to view in the display.

Below describes each function of the vertical control:



Symbol	Description
 A square box with a diagonal cross (X) inside, indicating a missing image. The text "image not found or type unknown" is written above the box.	Channel name.

	<p>Toggle visibility. When hidden, symbol changes to a slash over the eye.</p>
	<p>Negate waveform polarity. When negated, symbol changes to a negative sign.</p>
	<p>Change waveform color.</p>
	<p>Autoscale waveform vertical scale.</p>
	<p>Remove channel from display.</p>

Sensitivity

The sensitivity setting adjusts the vertical scaling of the waveform. A higher sensitivity equals a higher value (such as voltage or amperage) per vertical division. Increasing the sensitivity will shrink the waveform vertically.

Offset

The offset option offsets the waveform vertically. Increasing this value will raise the waveform above the x-axis, and decreasing will lower the waveform below the x-axis.

4) Show/hide menu

This shows or hides the right-hand menu containing the marker configuration and trigger settings. Hiding it expands the display to fill the window horizontally.

If the screen displaying the waveform interface is too small, the menu will be hidden by default.

5) Marker Settings

Two markers are available to measure the time, voltage and current, or differences between the two markers. Below is an image of two markers configured to display.

When a marker is configured, a horizontal and vertical line will appear on the display. To move the marker, click on the horizontal marker line to highlight it. Then, click and drag left or right on the display to move the marker. The markers are identified by Ax (marker A's x-axis), Ay (Marker A's y-axis), Bx (marker B's x-axis) and By (marker B's y-axis).

If the "Track waveform" option is selected, when moving the marker left or right, it will trace the waveform it is on. Otherwise, the y-axis value will not change when the markers x-axis is adjusted left or right.

If both markers are active, delta values will appear. Delta values on the y-axis are only available if the y-axis units are the same (i.e., both voltage or both current).

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6) Trigger Settings

The trigger settings configure when the waveform capture is initiated.

Sweep

Sweep options are "Auto", "Triggered", or "Single". "Single" will perform a single capture once and update again. A "Triggered" sweep will wait for the trigger condition to be met before initiating the capture. "Auto" will wait for the trigger condition, but will time and initiate if too much time has elapsed without the trigger condition being met.

Source

Source chooses the channel that the trigger will be based on.

Mode

Mode is the trigger mode. Options are "Rising edge", "Falling edge", ">" (greater-than) and "<" (less-than).

Level

The level defines the y-axis point for the trigger mode. For example, using the greater-than mode with a level of 100 V will wait to capture until the source waveform value is greater than 100V (regardless of whether it is rising or falling). Choosing "Rising edge" with a level of 0 V will wait to capture until the waveform crosses the x-axis zero if the value is going from low to high. "Falling edge" would capture when the waveform goes from high to low over the trigger level. The "0" button between the up/down arrows can be clicked to reset the level to zero.

7) Start/Stop capture

Pressing this button will activate the capture process. The capture does not actually occur until the trigger conditions are met (or time out if using "Auto" sweep). If the capture process is running, pressing it will stop the process and leave the last waveform capture displayed for analysis.

	Capture process is not running. Press to begin process.
	Capture process is active, display is updating or waiting for the trigger condition to be met. Press to stop updates and halt the capture process.