

Instructions for connecting the AC ELWA[®]-F to Victron energy - MultiPlus

Combining the AC ELWA-F with a Victron MultiPlus off-grid inverter allows the use of excess photovoltaic power, which cannot be stored in the battery, to generate hot water. When the battery is fully charged, the Victron inverter increases the AC output frequency. The AC ELWA-F detects the rise in frequency and increases the heating power accordingly.

 my-PV cannot be relied on to prevent battery damage at all times, since although the AC ELWA-F acts as a "dump load", it is still not always possible to guarantee overcharge protection (e.g. when the target hot water temperature is reached). The overload protection must be guaranteed by the charge controller or the PV inverter! Deep discharge protection via the inverter is similarly imperative.

1. Basic settings on the AC ELWA-F

Please read the installation and operating instructions supplied with the device before starting it up.

 The AC ELWA-F must always be taken into account when planning loads!

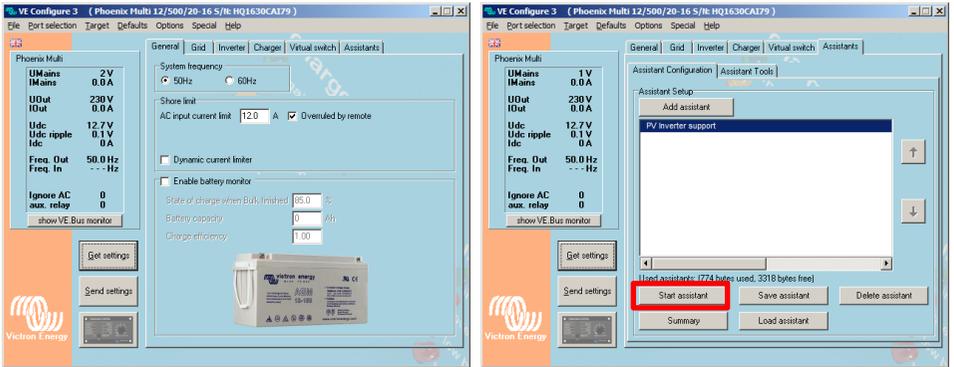
When an AC ELWA-F model is used in combination with a Victron off-grid inverter, the AC ELWA-F will have to be reprogrammed. For detailed instructions, please refer to the operating instructions of the AC ELWA-F. (An interface and PC are required for programming purposes)

If, for example, an inverter with a continuous load of 1,000 W is used and the AC ELWA-F is programmed for a maximum output of 500 W, only 500 W will be available for additional loads in the case of a fully charged battery (AC ELWA-F heats at 500 W).

2. Settings on the Victron MultiPlus inverter

Connect the inverter charger with a PC / laptop via the Victron MK3 interface. Using the "VE Configure" software, all relevant settings (battery type, battery capacity ...) must be made according to the components used (left picture).

The "PV Inverter support" wizard is required to operate the AC ELWA-F (right picture).



The "Start assistant" button opens the "PV Inverter support" window.

Caution with DC-coupled PV island systems (with solar chargers)

⚠ If the solar charge controller limits the battery voltage below the voltage at which the Victron inverter increases its frequency, the AC ELWA-F will not operate.

On the other hand, if the AC ELWA-F cannot process the excess energy (for example, when the target water temperature is reached), the charger must safely protect the battery from overcharging.

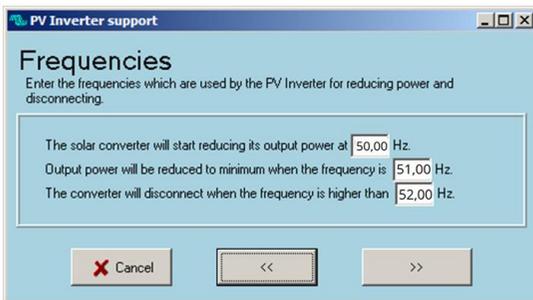
This means certain compromises are required when configuring the voltage and frequency settings of the three merging components (e.g. via the time windows of the reload phase, etc.) Under certain circumstances, this may lead to permanent damage to the battery!

Regardless of the case, please observe the operating instructions of the charger and the requirements of the battery.

To prevent this from becoming an issue, my-PV recommends using the AC ELWA-F in AC-coupled systems, since they are exclusively frequency-controlled.

The regular factory frequency range for the AC ELWA-F is 50.00 to 51.00 Hz. The minimum lower control frequency of the Victron inverter is 50.00 Hz.

Victron inverter: Enter the values 50 Hz, 51 Hz and 52 Hz.

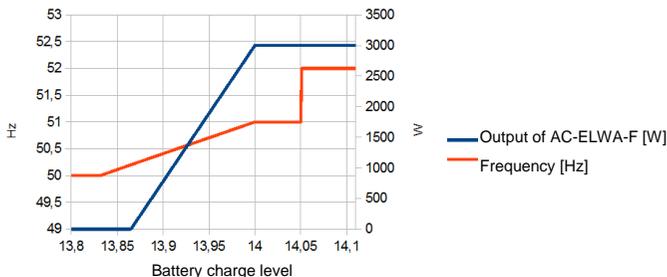


If the battery is not fully charged, the output frequency of the Victron inverter is 50.00 Hz and the AC ELWA-F does not heat up.

To ensure the energy consumption is not exceeded by the AC ELWA-F when the battery is fully charged, the control range of the AC ELWA-F must be set between 50.20 and 51.00 Hz. For this purpose, a my-PV USB-Interface and a PC are required.

A detailed guide can be found in the operating instructions for the AC ELWA-F.

As soon as the battery becomes full, the Victron inverter begins to increase the output frequency. The AC ELWA-F is switched on at a frequency of 50.20 Hz and the heating power is regulated linearly until its power peaks at 51.00 Hz.



The maximum possible heating capacity of the AC ELWA-F is factory-set to 3,000 watts, but can be limited by software to 500 watts.

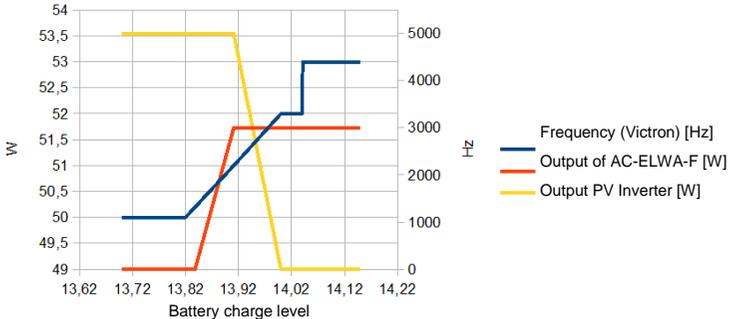
Such throttling is necessary if the continuous power of the Victron inverter is below 3,000 watts and / or additional loads are to be operated at the same time.

EXAMPLE: If a Victron inverter with continuous power of 650 watts is used, the maximum power programmed at the AC ELWA-F must not exceed 650 watts. If the inverter is rated below 500 watts, the AC ELWA-F model cannot be used.

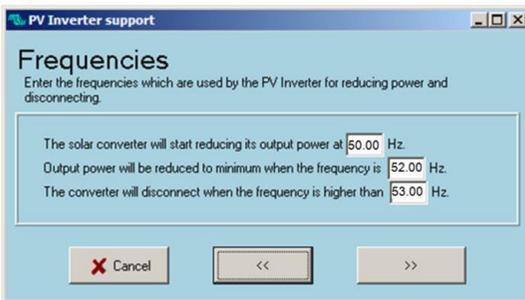
Setting for AC-coupled PV island systems (with PV inverter)

If a grid converter is connected to the AC output of the Victron inverter, depending on the inverted model, the frequency setting may have to be adjusted in the Victron inverter (in the "Wizard" function of the "VE Configure"). In addition, the AC ELWA-F also has to be set to a different frequency range using an interface. (See AC ELWA-F operating instructions)

EXAMPLE: An SMA Sunny Boy is used as a grid inverter, with a control range of 51-52 Hz. In this case, the frequency range of the AC ELWA-F is set to between 50.20 and 51.00 Hz.



The values 50.00 Hz, 52.00 Hz and 53 Hz are entered in the "Wizard" function of the "VE Configure".



Subject to change.

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