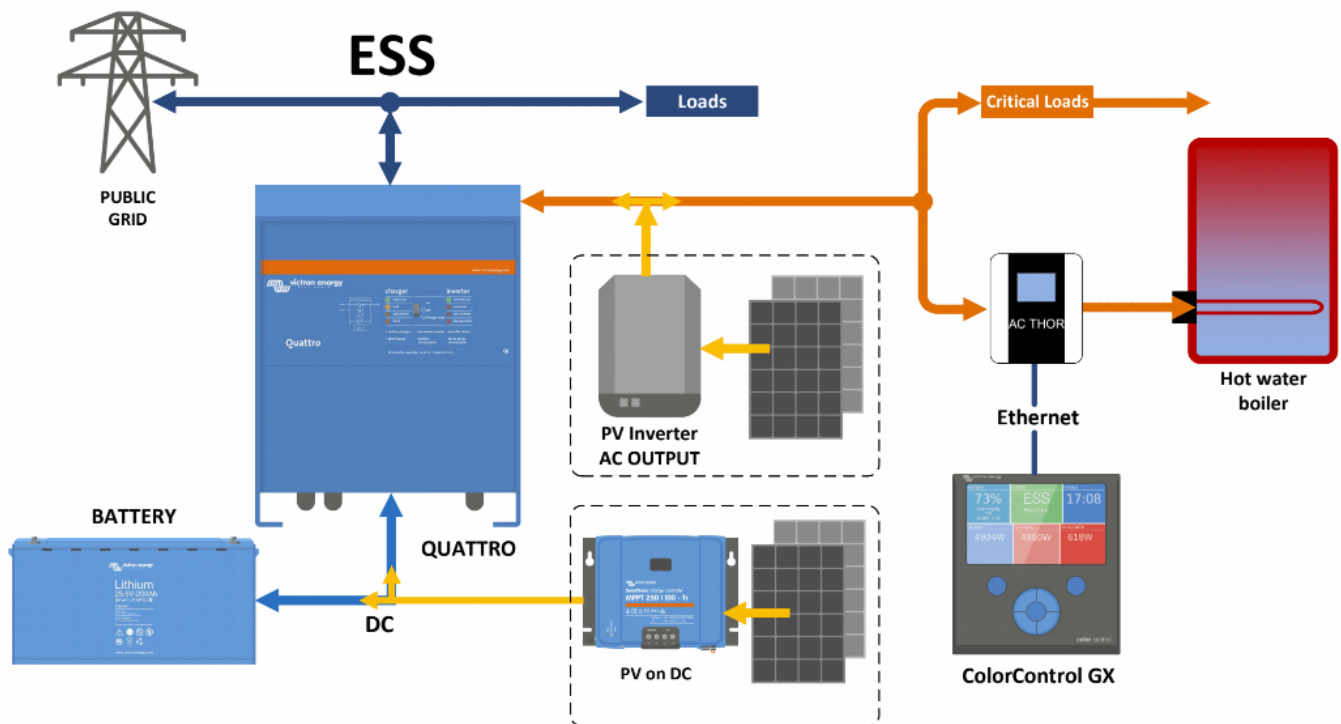


# my-PV AC-Thor and Victron Energy ESS

When the batteries are full, we still have PV power available, but our grid operator doesn't allow feeding, that power is lost. We could use that power and send it to a boiler or something similar. For this we are using a device from my-PV called AC-Thor.

The schematic for the ESS system looks like this (the meter from my-PV is not needed in this setup):



First setup:

AC-Thor device must be connected on the AC output of the Multi/Quattro.

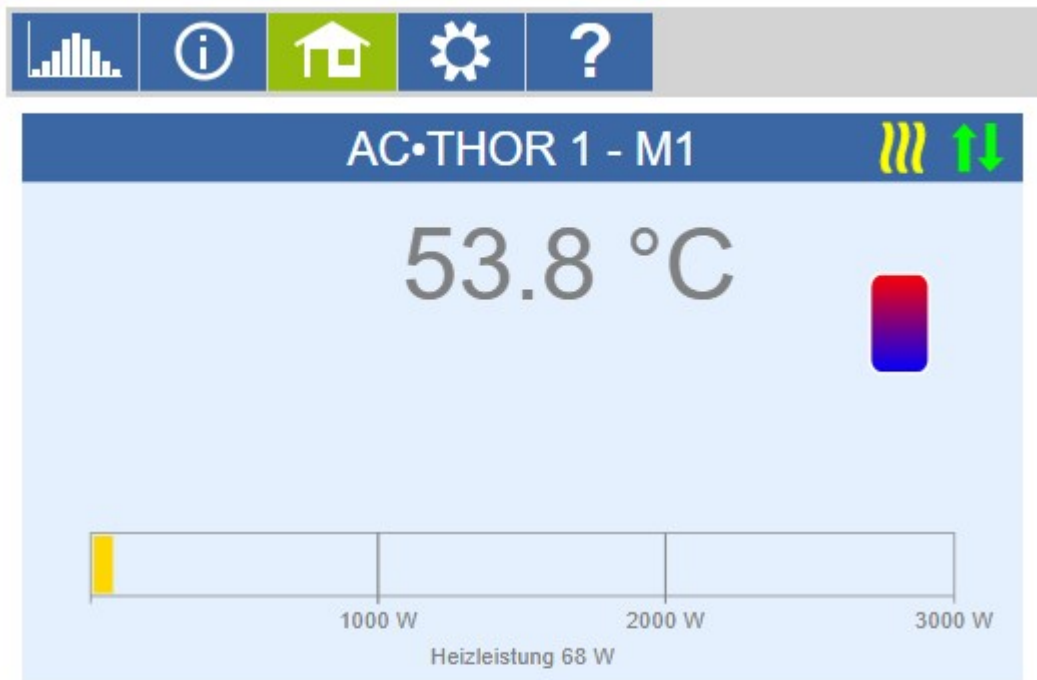
Must be in the same LAN network as Color GX or Venus GX, with DHCP enable (default).

Using the device touch screen, select Information menu and go to the third screen to find the current IP address.



Open a browser, put that IP address into the address field and press enter

The webpage should look like this:



## Device state

- ☐ Off  
☒ On

Firmware Version: a0010103

Internet connection required for help.

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Please check the firmware version on AC-Thor device, must be at least a0010006.

Firmware Version: a0010006

Internet connection required for help.

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Go to setting and select the "Mode". For ESS select "Hot water 3kW", .

## Access level

Level:	Level 3 ▼	Password: <input type="text"/>
<input type="button" value="Save"/>		

## Mode

Mode:	1: Hotwater 3kW ▼
<input type="button" value="Save"/>	

In order to have communication between the GX device (like ColorControl GX or Cerbo GX) and Ac-Thor, some parameters must be configured:

<b>Control type</b>	Victron 1ph Manual		
	Victron 3ph Manual		
Signal source:	Victron 3ph Manual		
ACTHOR Number >1: only "Slave" selectable			
IP address of signal source:	<input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/>		
Control status:	Conn. to Adj.Modbus P=-997		
Power timeout:	<input type="text" value="10"/>	Seconds	
Control target:	<input type="text" value="-50"/> W		
Negative value means feed-in. Only change this value if you are familiar with the control strategy - red Help for more details.			
Block Start-Hour:	<input type="text" value="0"/>	Block Stop-Hour:	<input type="text" value="0"/>
<input type="button" value="Save"/>			

First you select which type of energy meter you are going to read from. Select 'Victron 1ph Manual' if you are using a single phase meter like the ET112 or select 'Victron 3ph Manual' if you are using a three phase meter like the EM24 or ET340.

On the background by choosing one of these setups communication will be done through ModbusTCP Port 502, the Device ID will be set to 0 and the ModbusTCP registers will be set to 820 for single phase or 820, 821 & 822 for three phase and values are in Int16 format & a minus value (-feed) will detect feedin energy.

On the IP address field, you have to put the GX device (like ColorControl GX or Cerbo GX) IP address. If you don't know how to obtain it, please check here:

<https://www.victronenergy.com/panel-systems-remote-monitoring/venus-gx#manuals>

On the Control target, recommended value is -50W.

Press Save to store the parameters.

On the GX device please be sure that Modbus TCP is enabled (Settings → Services → Modbus TCP)

<b>Services</b> 09:50	<b>Modbus/TCP</b> 09:50
Modbus TCP <input checked="" type="checkbox"/> Enabled >	Enable Modbus/TCP <input checked="" type="checkbox"/>
MQTT on LAN (SSL) <input type="checkbox"/>	No errors reported
VE.Can port >	Available services >
CAN 2 port >	
<b>Pages</b> <b>Menu</b>	<b>Pages</b> <b>Menu</b>

Feed in excess solar power must be enabled for the system with PV panels connected using MPPT's and Fronius Zero Feed-in must be disabled for systems with PV panels connected using Fronius PV Inverters.

<
ESS
10:59

Multiphase regulation
Total of all phases

Minimum SOC (unless grid fails)
20%

Limit inverter power

Grid setpoint
0W

Grid feed-in
>

Scheduled charging
>

Pages
Menu

<
Grid feed-in
10:59

AC-coupled PV - feed in excess

DC-coupled PV - feed in excess

Limit system feed-in

Feed-in limiting active
No

Pages
Menu

If everything is correctly configured, you should see in the information screen of the AC-Thor, the grid consumption/feed displayed as Meter measured value, positive for consumption and negative for feed in:

AC•THOR 1

Power total	0 W
Power share PV	0 W
Power share grid	0 W
Power 1 share PV	0 W
Power 1 share grid	0 W
Power 2 share PV	0 W
Power 2 share grid	0 W
Meter	87 W
Power PV	0 W
Load	1
Load nominal power	0 W

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AC•THOR 1

Power total	447 W
Power share PV	447 W
Power share grid	0 W
Power 1 share PV	447 W
Power 1 share grid	0 W
Power 2 share PV	0 W
Power 2 share grid	0 W
Meter	-430 W
Power PV	0 W
Load	1
Load nominal power	0 W

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AC-Thor will control the energy sent to the boiler so that the energy sent to the grid is approximately

50W.



To prevent boiler to over heat, please be sure the temperature sensor is connected to AC-Thor and installed inside the boiler. The temperature parameters can be configured in the settings menu:

### Hotwater

Temperature:	max °C	Min °C
	<input type="text" value="60"/>	<input type="text" value="50"/>
Boost-Mode:	<input checked="" type="radio"/> Off	<input type="radio"/> On
Timeframe:	start hour	stop hour
	<input type="text" value="17"/>	<input type="text" value="23"/>
Weekday	<input type="checkbox"/> Mon	<input type="checkbox"/> Tue
<input type="button" value="Save"/>		

### AC-THOR Technical specifications:

- mains voltage 230 V, 50 Hz
- outputs 0-3000 W infinitely variable + switching output 16 A
- mains connection Single-phase, earthing contact plug
- consumer connection Protective contact socket for resistive loads
- display Color Graphics, Touch Screen 2.83 "
- connection cable 2,8 m
- dimensions (W x H x D) 135 x 210 x 65 mm

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Last update: **2021-02-17 13:34**

