Energy Meter EM24 Ethernet manual

1. Introduction and usage

This document is the manual for the Ethernet EM24 three phase max 65 A per phase Energy Meter. It is similar in appearance to the RS485 meter, but with an Ethernet socket.

The Energy Meter can be used as a:

1. Grid meter, and used as control input for an ESS System.
2. Measure the output of a PV Inverter
3. Measure the output of a AC Genset
4. (deprecated) ~~Grid meter, used as control input for a~~ Hub-4 system

For all above usages, the meter should be connected to the local network in such a way that the GX device can reach it. For a full overview of all available & GX-compatible Energy Meters, read the Energy Meters Start page and Energy Meter Product page.

The REL200200100 is the EM24DINAV23XE1X29 from Carlo Gavazzi. The AV5 model from Carlo Gavazzi can also be used, as the communication is the same. Note that this model is not stocked by Victron Energy, we recommend that you purchase it locally.

2. AC Wiring and configuration

3-phase diagram:

When used to measure a PV Inverter, terminals 1, 4 and 7 should face the PV inverter to ensure correct direction of current and power.

Single phase single function diagram:

Note the jumper between terminals 1 and 4. You do not need this connection if you have the version AV2 of the sensor:

The diagram shows the wiring when used as a grid meter.

To measure a single phase PV inverter in a 3-phase system, connect all 3 phases to the grid phasing terminals (3, 6 and 9). Now you can chose on which phase you want the PV inverter by connecting the

L1 line of the PV inverter to terminal 1, 4 or 7.

Single phase dual function

If you wish to use a three phase meter in a single phase installation to measure the grid on one input and PV inverter output on another phase, use the ET340 instead. See Energy Meters FAQ, Q5 for more details. Do not use the EM24 meter for such system.

If you understand the limitations of this meter in this configuration and wish to proceed anyway, see this diagram -

power_meter_1phase_pv_dec2016.png

System Configuration

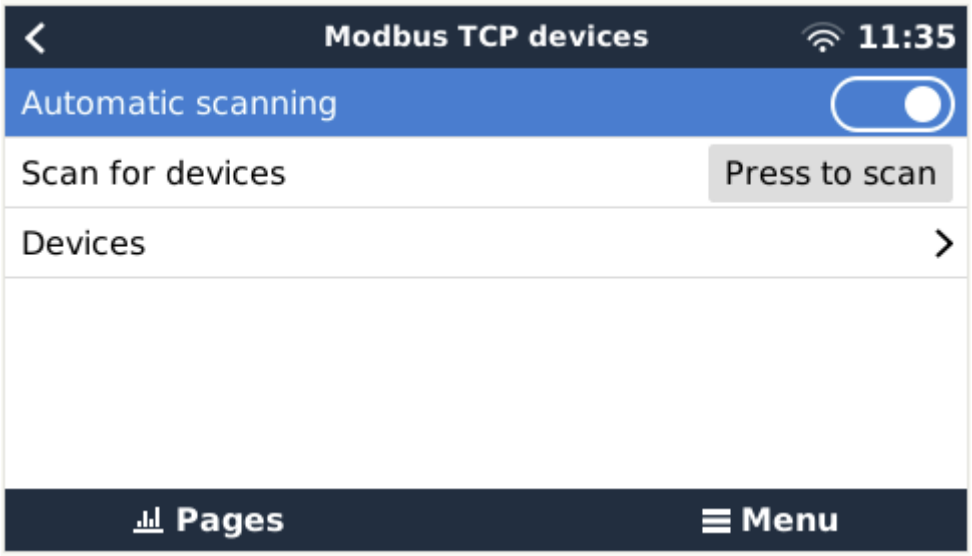
Unlike the RS485 model, the Ethernet EM24 is not yet automatically configured. Before use the electrical system configuration (3-phase or single-phase) must be set on the meter itself. Refer to the EM24 manual for this.

The application type should be set to H. This is also the default configuration.

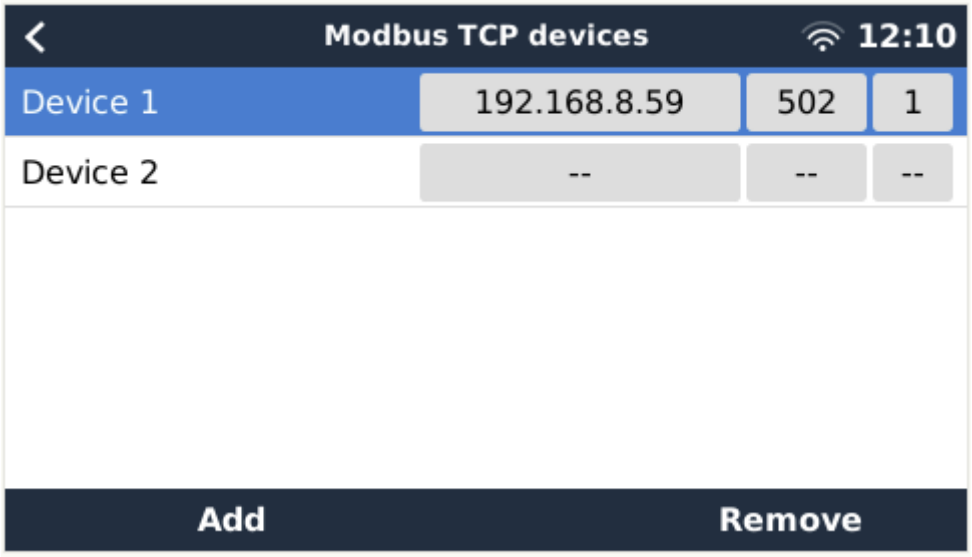
3. GX Configuration

In most networks the meter will be automatically configured by DHCP when plugged in. For larger installations we recommend configuring a static IP address. This avoids an address change if the DHCP server assigns a different IP address in future.

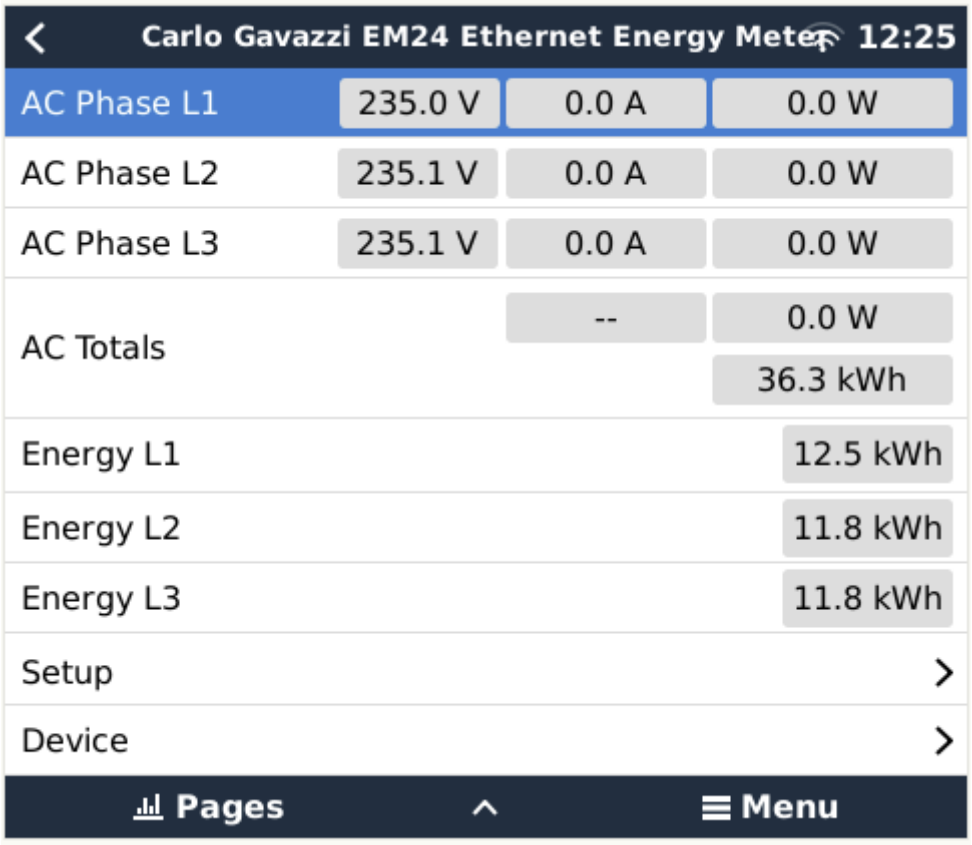
The configuration for Ethernet EM24 meters can be found under Settings → Modbus TCP devices. The default is to scan for new devices every ten minutes, but a manual scan is also possible.



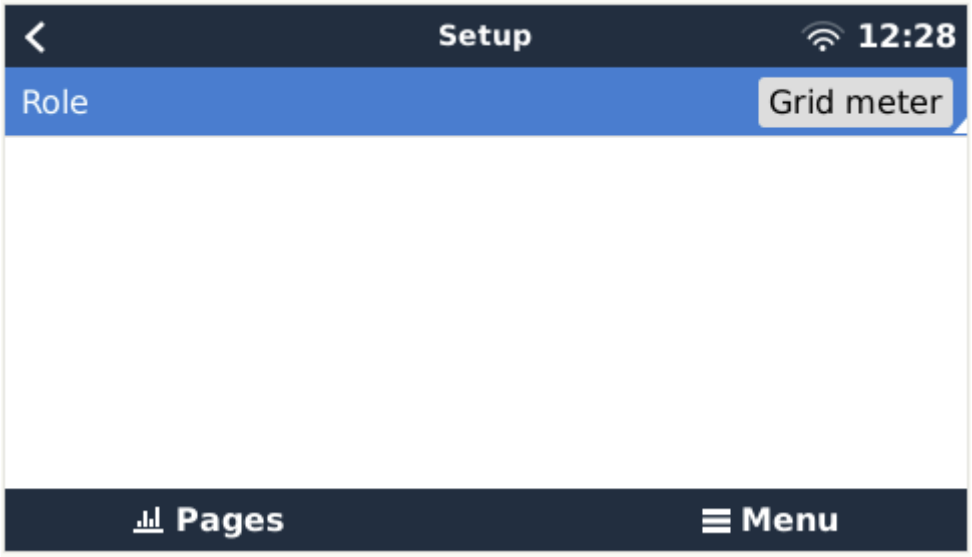
Once a meter is found, it will be shown under Devices. It is also possible to manually define the connection details of a meter, in case scanning does not locate it.



The meter will also show up on the Device List on the GX Device. Accessing it will show the relevant information.



The role of the meter can also be changed through the Setup menu. The role will be one of Grid meter, PV inverter, or Generator.



note on GX firmware versions:

To support the ethernet EM24 meters, Venus 2.60 is the minimum firmware required on the GX device.

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