Energy Meters start page

At Victron Energy, we stock several types of Energy Meters depending on the application.

- ET112 for single phase monitoring (including a single phase inverter in a 3 phase system)
- ET340 for multi-phase installations
- EM24 for 3 phase monitoring only.

The Energy Meters are used in systems with a Venus-device. To measure the output of a grid inverter (more info in the Venus-OS manual here. Or as a Grid Meter in an ESS installation, more information in the ESS manual.

1. Selection guide

Requirement	Type	Solution		
		Part number	Model	Specs
Single phase up to 100A	Shunt	REL300100000	ET112	1 phase - max 100A
Three phase up to 65A/phase	Shunt	REL300300000	ET340	3 phase - max 65A/phase
Single phase more than 100A/phase	CT	See three phase CT solution		
Three phase more than 65A/phase	CTs	Carlo Gavazzi EM24DINAV53DISX (see FAQ Q8)		

1.1 Support for other Carlo Gavazzi meters

Besides above listed meters, there are many more meters available from Carlo Gavazzi. Use this list to see which ones are compatible.

Type	Support	Remarks
EM111	Supported	Compatible with ET112.
ET111	Supported	Compatible with ET112.
EM112	Supported	Compatible with ET112.
ET340	Supported	None.
EM340	Not supported	does not report exported energy per phase (unlike the ET340)
EM21 72D	Not supported	does not report exported energy, com protocol not compatible with supported grid meters
EM271	Not supported	does not report exported energy, com protocol not compatible with supported grid meters

2. Manuals

- REL300100000 - ET112 - 1 phase - max 100A
- REL300300000 - ET340 - 3 phase max 65A/phase

No longer used:

- REL200100000 - EM24 - 3 phase max 65A/phase

3. FAQ

Q1: Can I combine three ET112s for a three phase system?

No.

Q2: Can I use other meters, for example from other brands?

No.

Q3: I already have a Fronius SmartGrid meter, can I use that?

No.

Q5: What are the differences between the old and new three meters?

Old meter:

- REL200100000 - Carlo Gavazzi EM24DINAV93XISX

New meters:

- REL300100000 - Carlo Gavazzi ET112-DIN.AV01.X.S1.X
- REL300300000 - Carlo Gavazzi ET340-DIN.AV23.X.S1.X

Differences:

- The new meters don't have a front selector that the installer needs to put in a different setting than it comes out of the box: easier, less mistakes to be made.
- The new meters have no display. The only thing they have is an LED, which blinks in case of active communication.
- The new meters have 2 RJ45 sockets for the Modbus RS485 connection. But they are not used. Note the possible confusion because of yet another RJ-45 socket in the Victron world though. Don't mix that with VE.Bus, VE.Can or VE.net. Besides the RJ-45 sockets, the meters still also have terminals for the RS485 wiring, which is how we advise to connect a meter to the CCGX.
- Since there is no display, the Modbus address can no longer be changed on the meter. Combining multiple of those meters on one RS485 network is therefore not supported.

Three-phase new meter only (ET340):

- Measuring a single phase PV Inverter on the second phase of the new meter, ET340, actually works. Where-as with the old meter, the EM24, only the Power Metering (Watts) works. The Energy Metering (kWh) for a single phase PV Inverter on the second phase of the EM24 does not work.

Q6: Will you keep shipping the old meter? (EM24)

No.

Why not? Because it is more expensive than the new one.

And also because measuring a single phase inverter on the second phase does not work 100%, see Q5.

In case you still prefer to use the EM24, you can always buy that from Carlo Gavazzi directly, or through one of their distributors.

Q7: Can I buy those meters directly from Carlo Gavazzi instead of from you?

Yes. That is also why we make no secret of the CG part numbers.

Q8: I want to use Current Transformers (CTs), is that possible?

Yes. You can buy the CG EM24DINAV53DISX directly from Carlo Gavazzi or one of their distributors. Even though Victron does not stock that type of meter, we do support it in our software.

The EM24DINAV53DISX is the solution for three-phase systems that go over 65A per phase.

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