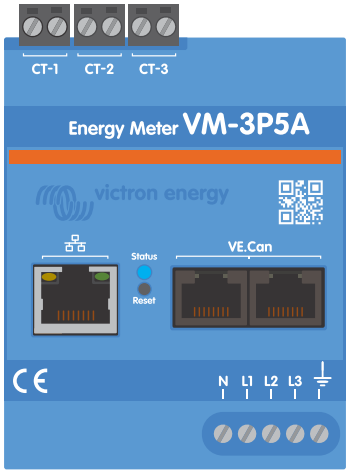
ENGLISH



Victron VM-3P5A Energy Meter Manual

Rev 00 - 06/2026

Table of Contents

1. Safety Instructions

General

Please read the safety instructions below before installing and using the VM-3P5A energy meter to avoid risks of fire, electric shocks, personal injuries or equipment damage.

This product is designed and tested in accordance with international standards. The equipment should be used for its designated application only and in accordance with the specified operating parameters.

Installation

> ⚠ **Installation, maintenance, service and adjustments must be made by qualified personnel only. To reduce the risk of electric shock, do not perform any service other than that specified in the operating instructions unless you are qualified.**

- For electrical work, follow the local national wiring standards, regulations and these installation instructions. Connection to the mains supply must be in accordance with the national regulations for electrical installations.
- Never install near fire sources, explosive materials, combustibles or other flammable sources. Never use it at places where gas or other chemical explosions could occur.
- Turn off mains power before installing or performing operations on it.
- Do not put fingers or insert objects or sharp metallic objects into the terminals.
- Install it in a dry environment.
- Do not apply strong force on the equipment to prevent crashes and deterioration.
- It is not allowed to use the current clamps on bare wires.
- Make sure the ground connection is properly done to prevent equipment damage.

Operation, service and maintenance

- Do not use the device if it shows any signs of damage or does not function properly.
- Do not use the VM-3P5A if it is broken, defective, cracked, damaged, or malfunctioning.
- The VM-3P5A contains no serviceable parts.
- Regular maintenance of the VM-3P5A is not required.
- Avoid moisture, oil/soot/vapours, and keep the device clean.
- Clean using a dry cloth on the front side of the VM-3P5A.

2. Introduction

The VM-3P5A energy meter is a standard device to measure the power and energy of single-, split- and three-phase applications and calculates each phase's power values and broadcasts this over VE.Can or Ethernet with a high rate.

It supports industry-standard 5 A current transformers (not included) and is self-powered from all phases (N-L1-L2-L3). Built-in Ethernet and VE.Can ports enable direct connection to a GX device.

The energy meter works out of the box (the firmware may need to be updated; details can be found in the Firmware Updates [11] chapter) as a grid meter for systems with a MultiPlus, Quattro, Multi RS and Multi HS. Configuration (via VictronConnect) is only required for changing the role and manual IP configuration rather than the default DHCP.

Its data is displayed on a GX device such as the Cerbo GX or Ekrano GX , as well as in VictronConnect and our VRM Portal.

2.1. Features

- Supports industry-standard 5 A current transformers (not included)
- Modbus/UDP communication over Ethernet
- Support for 1-phase, split-phase and 3-phase configuration
- Configurable total energy registration: vector, arithmetic, or absolute
- Reports:
  - line-to-neutral voltage
  - line-to-line voltage
  - power factor (according to IEEE convention)
  - phase sequence (for 3-phase configuration)
  - phase rotation warning (for 3-phase configuration)
  - protective earth voltages
  - neutral and line currents
- Status LED can be set as a pulse counter for quick, at-a-glance diagnostics

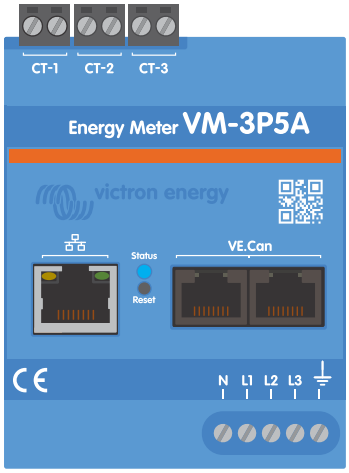
The VM-3P5A can be configured for various roles in a GX device, such as the Cerbo GX or the Ekrano GX. Depending on the application, it can be used:

- as a grid meter, providing control input for an Energy Storage System (ESS)
- to measure the output of a PV inverter
- to measure the output of an AC genset
- as an AC meter to measure a dedicated AC load circuit
- to track an EV charger
- to track a heat pump

It offers two options for connection to a GX device:

1. A wired Ethernet connection to the local network via the built-in Ethernet port, allowing the GX device to communicate with it.
2. A wired VE.Can connection via the onboard VE.Can port, directly linking it to the GX device.

2.2. What's in the box?

Victron VM-3P5A with 3 input terminal blocks	
VE.Can terminators (2 pcs)	

3. Installation

3.1. Installing and wiring external current transformers (CTs)

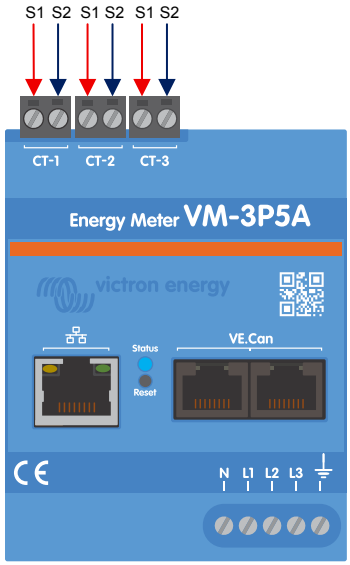
The VM-3P5A requires external current transformers (CTs) for current measurement. CTs are not included and must be sourced separately. Victron Energy does not supply CTs for the VM-3P5A.

CT requirements

- Use CTs with a 5 A secondary output
- The CT primary current setting in the VM-3P5A must match the CT rating. For example, a CT marked 100/5 A must be configured as 100 A primary current. See Configuration & Monitoring [8] for details on how to configure the primary current.

Wiring the CTs

Connect the CT secondary terminals as follows:

• S1 / + → CT-[1..3] left terminal of the connector (top view) • S2 / – → CT-[1..3] right terminal of the connector (top view)	

Ensure the polarity is correct on all phases. Reversed polarity will result in incorrect power and energy readings.

CT orientation

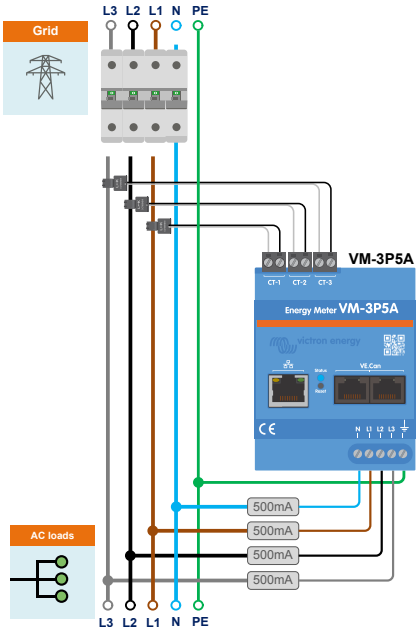
If the CT is marked with a direction arrow or polarity indicator, install it with the marking pointing from the AC source towards the loads. For CTs with S1/S2 polarity markings, S1 should face the AC source side and S2 the load side.

Important notes

- Use one CT per phase and connect each CT to the corresponding input terminal (CT-1, CT-2, CT-3).
- Ensure the phase voltage inputs and CTs correspond to the same phase.
- Do not install CTs on bare conductors.
- Follow the CT manufacturer's installation instructions to avoid damaging the transformer.
- CT extension cables may increase measurement noise. To minimise induced noise, use twisted pair wiring.

3.2. Power wiring and overcurrent protection

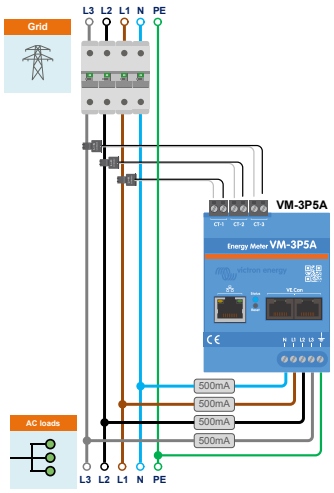
The VM-3P5A does not include a built-in fuse. External overcurrent protection must therefore be installed on each of the four voltage measurement inputs: N, L1, L2, and L3. A 500 mA fuse is required on each input.



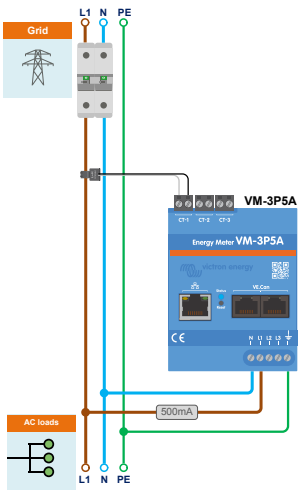
VM-3P5A circuit protection

3.3. Wiring examples by application

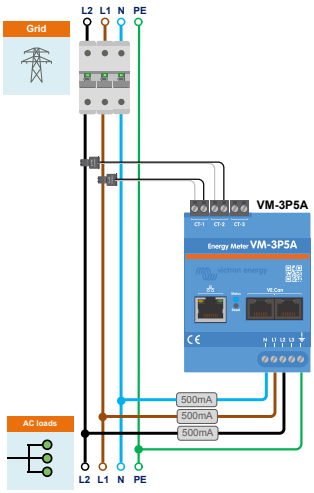
General AC wiring examples



VM-3P5A 3-phase wiring when used as a grid meter

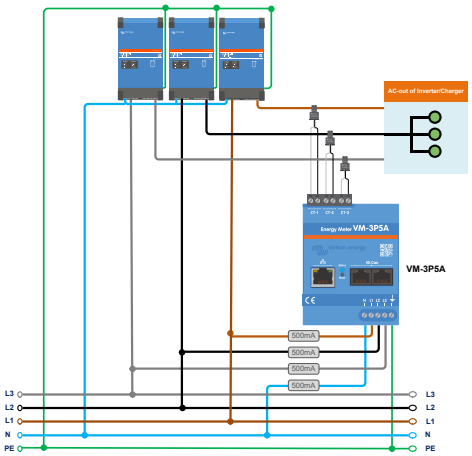


VM-3P5A 1-phase wiring when used as a grid meter

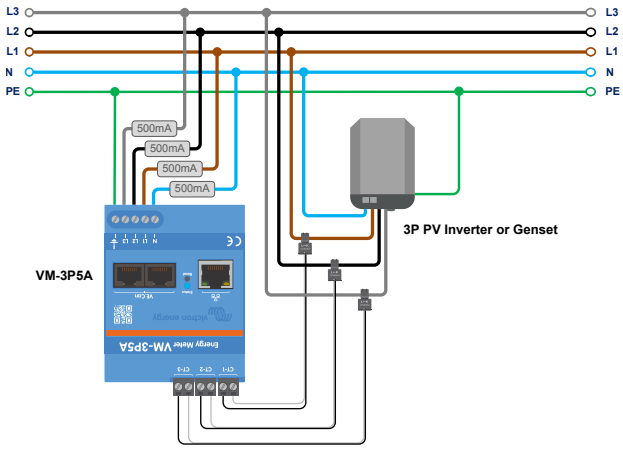


VM-3P5A split-phase wiring when used as a grid meter

Specific AC wiring examples depending on application and role



VM-3P5A 3-phase wiring - Role is set to measure AC loads



VM-3P5A 3-phase wiring - Role is set to measure a PV Inverter (or Generator)

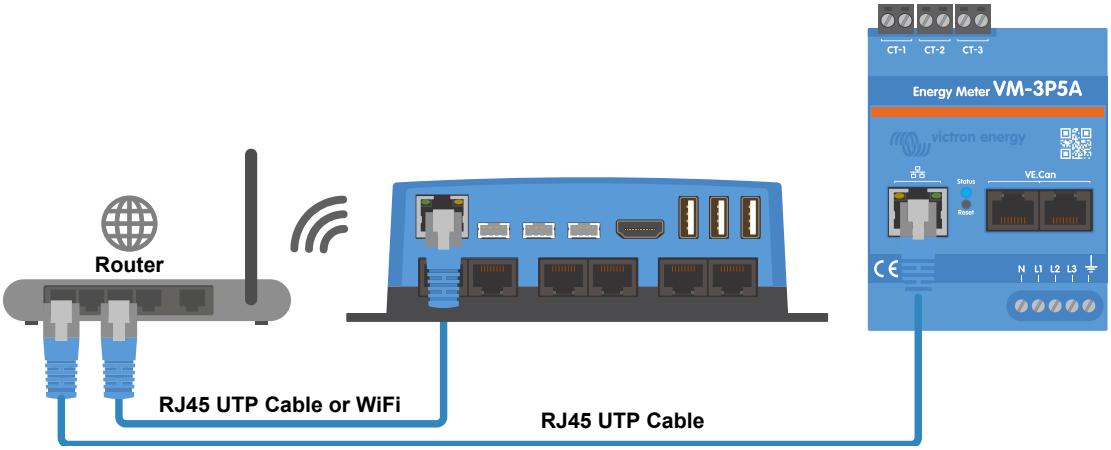
3.4. Ethernet and VE.Can wiring

The VM-3P5A can be connected to the GX device either via VE.Can or Ethernet.

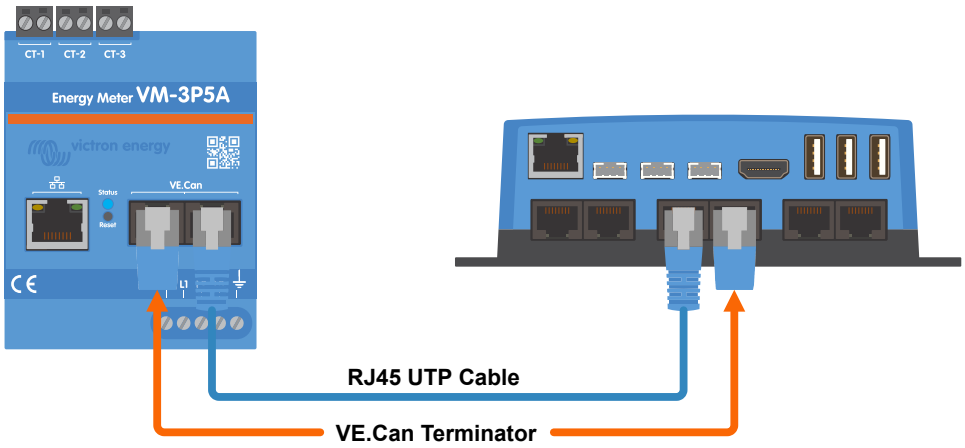
Suppose there is a local network with an Ethernet connection (via a router) to which the GX device is connected via Ethernet or WiFi. In that case, connecting the energy meter to the same network via Ethernet is reasonable.

Alternatively, you can connect the energy meter directly to the GX device via its VE.Can connectors. Ensure that the VE.Can network is properly terminated at both ends with the supplied VE.Can terminators.

For both applications, use a good quality Ethernet cable such as the Victron RJ45 UTP Cable, which can also be purchased from your Victron dealer in different lengths.



The VM-3P5A connected to the GX device via Ethernet



The VM-3P5A connected to the GX device via VE.Can

4. Configuration & Monitoring

The VM-3P5A is configured via VictronConnect.

- When using a VE.Can connection, the VM-3P5A is automatically detected once connected to the VE.Can port and properly terminated. Ensure that the VE.Can profile of the GX device's VE.Can port is set to 250 kbit/s.
- When using an Ethernet connection, the VM-3P5A is automatically recognised by the GX device.

VictronConnect configuration and monitoring

There are two ways to connect to the VM-3P5A with VictronConnect from a mobile device, laptop, or PC:

1. Directly via Ethernet using the Modbus/UDP connection in the local network.
2. Remotely via VictronConnect-Remote (VC-R), using either VE.Can or Modbus/UDP (requires the GX device to be connected to the VRM Portal).

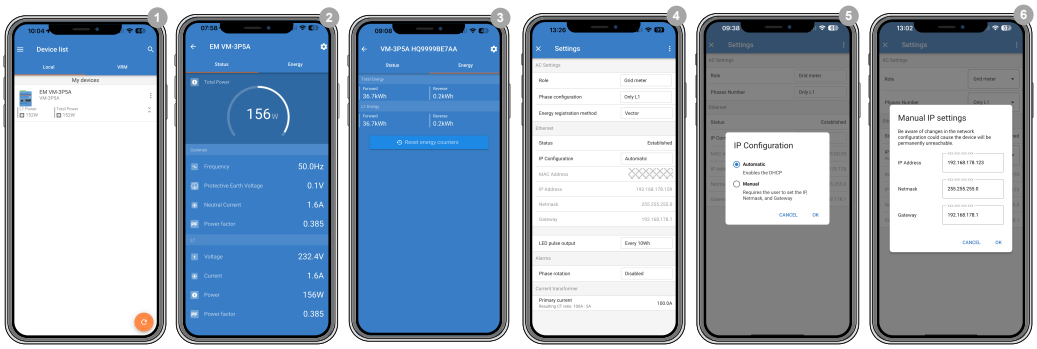
The VM-3P5A supports Instant Readout of key data (total power and power per phase) directly from the Device list (1) in VictronConnect. This works via both a local network connection and VictronConnect-Remote (VC-R).

The VictronConnect data display is divided into:

- A Status page (2), displaying total power, frequency, line-to-neutral voltage, line-to-line voltage, power factor (according to IEEE convention), phase sequence for 3-phase configuration, phase rotation warning for 3-phase configuration, and protective earth voltages as well as neutral and line current.

  The total power gauge displays the measured power as a circular dial, with negative power shown to the left of centre and positive power to the right. The scale adjusts automatically to the highest value recorded during the current VictronConnect session.

- An Energy page (3), showing the energy fed into and purchased per phase.

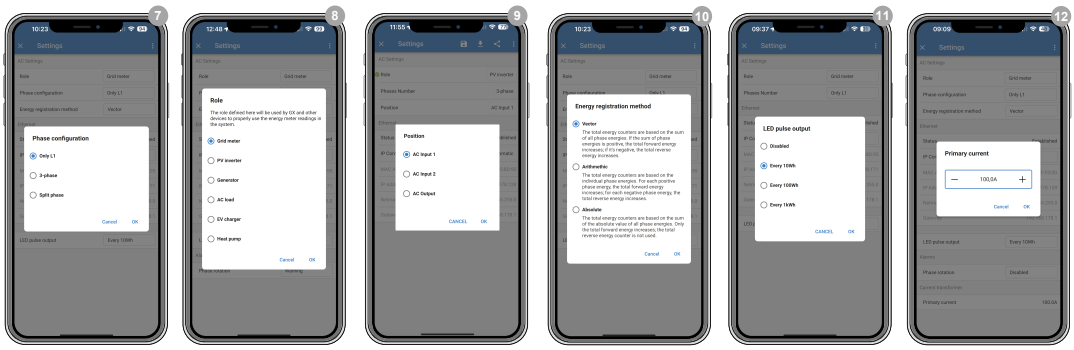


Tapping the cog wheel in the top-right corner of the Status or Energy page opens the Settings page. From here, you can adjust the network settings and configure the meter.

The Settings menu (4) includes the following options:

- **Role:** (8) Set this to Grid meter, PV inverter, Generator, AC load, EV charger, or Heat pump, depending on the appliances you want to measure.
- **Phase Configuration:** (7) For single-phase installation, set to Only L1. For three-phase installation, set to 3-phase. For split-phase installation, set to Split phase.
- **Energy registration method:** (10) Default: Vector. Energy registration methods vary by country. Consult your energy supplier to confirm the method used in your region.
- **IP Configuration:** (5) We recommend leaving this setting on Automatic (DHCP). Manual configuration (6) is only necessary in very rare cases. Contact your network administrator for the details.
- **Position:** (9) If the role is set to PV inverter, AC load, EV charger, or Heat pump, adjust the position depending on where it is connected relative to the Multi/Quattro AC input or AC output.
- **LED pulse output:** (10) The status LED can be configured as an energy pulse signal to provide a quick visual indication of load. Each pulse corresponds to a defined energy amount. Options are: Disabled, 10 Wh (default), 100 Wh, and 1 kWh.
- **Phase rotation:** (4) Enables a phase rotation warning if the phase sequence is L1-L3-L2 (counter-clockwise rotation). Disabled by default.

- **Primary current:** (12) Set the primary current according to the CT ratio printed on the transformer label. For example, a CT marked 250/5 A must be configured with a primary current of 250 A. If the ratio is not printed on the CT itself, refer to the manufacturer's product documentation. The resulting CT ratio is displayed once the value is set.

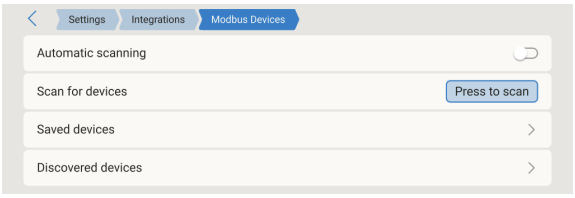


Once the Role has been properly set, the configuration is done.

GX device monitoring

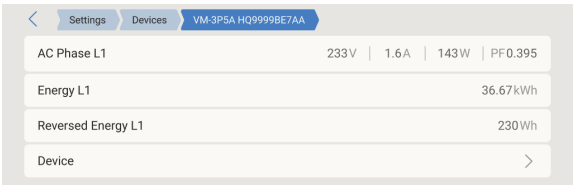
After the VM-3P5A has connected to the GX device in the local network, it must be activated in the Modbus TCP/UDP menu before it appears in the Device list.

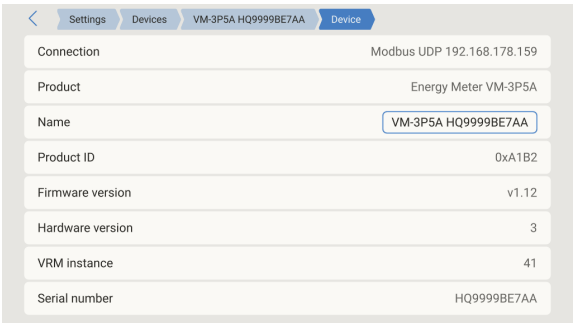
Navigate to Settings → Integrations → Modbus Devices → Discovered devices, and enable the discovered energy meter. By default, the device is disabled when first installed and powered on.



After activation, the energy meter appears in the Device list and the Overview page, from where you can access the following parameters:

- AC Phase L1..L3: voltage, current, power, power factor
- AC Totals: power, forwarded energy, reversed energy
- Energy L1..L3: forwarded energy
- Reversed Energy L1..L3: reversed energy
- Device page: overview of the connection and hardware-specific data, with the option to assign a custom name to the meter





4.1. LED codes

The VM-3P5A has a built-in LED that shows the status of the energy meter.

The LED states are as follows:

- **Blinking fast alternately green/red:** Bootloader/update mode.
- **Solid green:** All ok, normal running mode.
- **Blinking green @ 1Hz (50% duty cycle):** Identify unit. Stops after 60s.
- **Off for 3 seconds, on for another 10 seconds and off again while pressing the reset button for about 15 seconds:** Reset to factory defaults.
- **Off and immediately on after pressing the reset button briefly:** Restart the device.
- **Solid red:** The LED will illuminate solid red if there is an error.
- **Short red pulse:** Each pulse corresponds to a specific amount of energy passing through the meter. These pulses represent increments such as 0.01 kWh, 0.1 kWh, or 1 kWh.

5. Firmware Updates

The firmware of the VM-3P5A can be updated in multiple ways:

- VRM: Remote firmware update: This works over Ethernet and VE.Can connection
- VictronConnect-Remote (VC-R): This works over Ethernet and VE.Can connection
- VictronConnect locally via Ethernet/WiFi connection on the local network

6. Restart and reset to factory defaults

The VM-3P5A has a recessed RESET button that allows you to reset the energy meter to factory defaults or to restart the device if a problem occurs without interrupting the power supply. In addition, a factory reset can also be carried out via VictronConnect.

Restart

To restart the energy meter, briefly press the RESET button. The LED goes off and immediately on again.

Reset to factory defaults

A factory reset resets the following settings to:

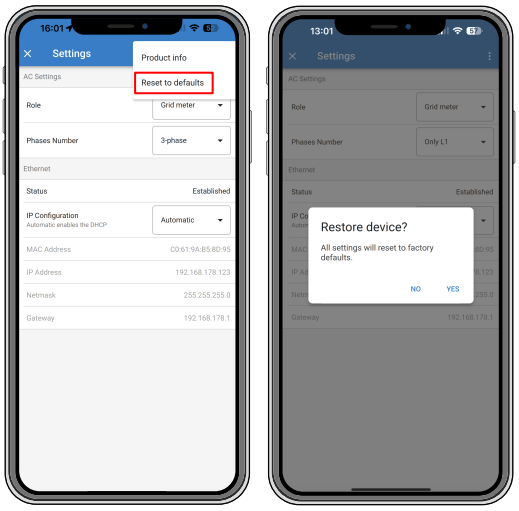
- **IP configuration**: Automatic (DHCP)
- **Role**: Grid
- **Phase configuration:** 3-phase
- **Custom name:** VM-3P5A plus the serial number
- Primary current (CT ratio)
- LED pulse output

Reset to factory defaults step-by-step using the RESET button:

1. Press and hold the RESET button.
   The unit resets and will blank the LED for ~3 seconds. The device then restarts, and the LED lights up green again.
2. Keep pressing the button for another ~10 seconds.
   After 10 seconds, the LED will go blank again.
3. Release the button.
   The device will restart.

Reset to factory defaults step-by-step using the VictronConnect app:

1. Open the VictronConnect app and tap the energy meter you want to reset in the device list.
2. On the status page, tap the gear icon.
3. On the Settings page that opens, tap the 3 vertical dots at the top right.
4. Tap Reset to defaults on the pop-up menu.
5. In the next pop-up menu, confirm the process by tapping on YES.



After the factory reset, the energy meter must be configured again as outlined in the chapter Configuration & Monitoring [8].

7. Troubleshooting

7.1. The LED alternates between green and red blinking (bootloader mode)

There can be two reasons for this behaviour:

1. A firmware update is currently being carried out. Once the firmware update is complete, the energy meter automatically returns to application mode, indicated by a solid green LED.
2. A firmware update was unsuccessful, or there is no application to start. The energy meter remains in bootloader mode until the application has been installed through a firmware update.

   To fix this, perform the firmware update again as outlined in the Firmware Updates [11] chapter.

> When the energy meter is in bootloader mode, the only available methods for performing a firmware update are through VictronConnect locally (via Ethernet or WiFi) or remotely using VRM: Remote firmware updates (utilising VE.Can or Ethernet connectivity).
>
> Performing a firmware update via VictronConnect Remote (VC-R) in bootloader mode is impossible.

7.2. Error codes

The VM-3P5A indicates an error by turning the LED solid red when an error is present. Simultaneously, an error code appears on the GX device, VRM, and VictronConnect.

The following error codes can be displayed:

- **116 - Calibration data lost**

  If the unit does not work and error 116 pops up as the active error, the unit is faulty. Contact your dealer for a replacement.

- **119 - Settings corrupt**

  The energy meter cannot read its configuration and stopped.

  To fix the error, perform a factory reset as described in the Restart and reset to factory defaults [12] chapter.

- **122 - kWh counters corrupt**

  To fix this error, reset the kWh counter.

7.3. FAQ

7.3.1. The current value seems abnormally high for the displayed power

The energy meter calculates each phase's active power (P, in Watts), which is what is shown on the display. Active power is determined by:

- **Single-phase system:**

  $P = \text{Voltage} \times \text{Current} \times \text{Power Factor} (\cos \theta)$

- **Three-phase system:**

  $P = \sqrt{3} \times \text{Voltage} \times \text{Current} \times \text{Power Factor} (\cos \theta)$

If the power factor is unity ($\cos \theta = 1$), the real (active) power equals the apparent power (S), which is simply RMS voltage × RMS current.

In most real-world systems, inductive and/or capacitive loads introduce reactive power. This lowers the power factor, so apparent power (S) becomes higher than active power (P).

In AC systems, it is therefore normal and expected for the apparent power (S) to be higher than the active power (P) whenever the power factor is below 1.

The VM-3P5A also reports the power factor directly. If the current seems unusually high compared to the power reading, check the displayed power factor: a low value confirms that reactive loads are the cause.

Examples of poor power factor:

- Small electronic devices such as USB chargers and LED lighting often have a particularly poor power factor.

- Renewable generation devices, on the other hand, are legally required to operate close to unity power factor. This can exaggerate the difference between P and S, since the “good” power factor from generation cancels out, leaving only the “poor” factor from the loads.

Possible solutions:

- Use loads with built-in power factor correction (common in modern PC power supplies).
- Or consider installing dedicated power factor correction equipment.

7.3.2. The firmware update via the Ethernet connection failed

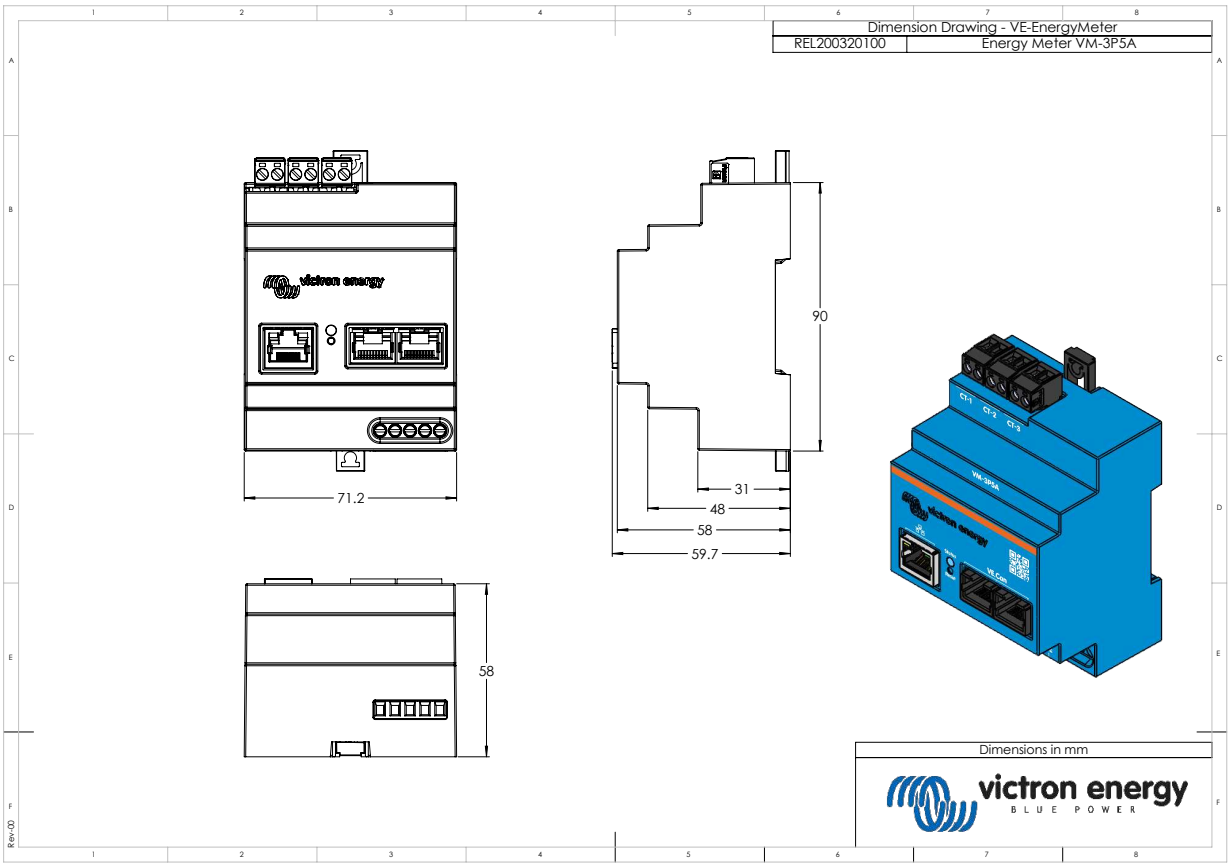
If you encounter problems updating the VM-3P5A's firmware via Ethernet, try connecting it to the GX device via VE.Can (see the Ethernet and VE.Can wiring [7] section for details), perform the update again as outlined in the Firmware Updates [11] chapter, and then reconnect via Ethernet.

8. Technical data

8.1. Technical specifications

VM-3P5A	REL200320100
VOLTAGE INPUTS	
Voltage connection	Direct
Input voltage range L-N	85 to 265 VAC
Input voltage range L-L	150 to 460 VAC
Frequency	50/60 Hz
CURRENT INPUTS	
Current connection	Via current transformers (CTs are not included and must be sourced separately. Victron Energy does not supply CTs for the VM-3P5A)
Rated current	5 A
COMMUNICATION	
VE.Can communication port	Two RJ45 connectors (VE.Can terminators included)
Ethernet communication port	One RJ45 connector, Modbus UDP
Refresh rate	100 ms
POWER SUPPLY	
Type	Self-power supply via N -L1-L2-L3
Switch or circuit breaker	Required as means of a disconnecting device - not included
Consumption	Consumption 1,85 W / 3,5 VA
Frequency	50/60 Hz
ENCLOSURE	
Material & colour	Polycarbonate, blue (RAL5012)
Voltage connection	Screw terminals 1,0 - 2,5mm^2 (22 - 12 AWG)
Current transformer connection	Pluggable screw terminals (included)
Protection category	IP20
Weight	260 g
Dimensions	90 x 71 x 59 mm (3,5 x 2,8 x 2,3 in)
ENVIRONMENTAL	
Indoor/outdoor usage	Indoor only
Operating temperature	From -10 to +55 °C
Storage temperature	From -20 to +70 °C
Relative humidity	< 90 % non-condensing
Altitude	2000 m (6562 ft)
Mains supply voltage fluctuations	±0,1 Vin
Overvoltage category	Cat. III
Pollution degree	2
STANDARDS	
Safety	EN-IEC 61010-1

8.2. Enclosure dimensions



9. Appendix

9.1. Modbus UDP Interface

This appendix describes the Modbus UDP interface implemented by the VM-3P75CT and the VM-3P5A energy meters. It is intended for integrators and developers who want to read measurement data or configuration data directly over the network, in addition to the standard GX device and VictronConnect integration described earlier in this manual.

9.2. Overview

Both the VM-3P75CT and the VM-3P5A communicate using Modbus over UDP rather than the more common Modbus TCP. The meter listens on UDP port 502 and only responds to Modbus Unit ID 1. All requests must use MBAP protocol ID 0. Requests that use a different protocol ID or a different Unit ID are ignored.

Modbus UDP uses the same request and response format as Modbus TCP, except that each message is carried in a single UDP datagram instead of a TCP stream. This keeps the protocol simple to implement, but it also means that individual requests or responses can be lost, delayed, or arrive out of order on a poor network. See Compatibility Notes (A.15) for guidance on handling this.

9.3. Connecting to the meter

To exchange Modbus UDP data with the meter:

1. Connect the client device to the same IP network as the meter.
2. Find the meter IP address. This can be done in one of two ways: look it up in the DHCP lease table of your router, or discover it using mDNS. The meter advertises itself under the service name _victron-energy-meter._udp.
3. Send Modbus requests to meter_ip:502 over UDP, using Unit ID 1.

9.4. Supported function codes

The meter supports the following Modbus function codes. Any other function code results in exception 0x01 (Illegal Function).

Function code	Name
0x03	Read Holding Registers

9.5. Exception codes

Code	Meaning
0x01	Illegal Function
0x02	Illegal Data Address
0x03	Illegal Data Value
0x04	Slave Device Failure

9.6. Address space overview

Base address	Size (16 bit registers)	End address	Access	Description
0x1000	12	0x100B	Read	Device info block (product, serial number, firmware, hardware)
0x2000	38	0x2025	Read	Configuration block
0x3000	144	0x308F	Read	Main meter data map (measurements, energies, mirrors)

A single request must stay fully inside one block. A request that spans more than one block is rejected with exception 0x02 (Illegal Data Address).

9.7. Data representation

- Registers are 16 bit words.
- 32 bit values are sent as two consecutive registers, high word first, then low word.
- Text and byte array values are sent as raw bytes, packed two bytes per register.
- Within each register, the byte order is big endian, as is standard for Modbus.
- Some registers use fixed sentinel values to mark data that is invalid or not available, for example 0x7FFF, 0xFFFF, or 0x7FFFFFFF.

9.8. Function level limits

Function	Limit
0x03 Read Holding Registers	1 to 125 registers per request

9.9. Device info block (0x1000, read only)

Address	Words	Name	Type	Access
0x1000	1	Product ID	uint16	Read
0x1001	8	Serial number	string (16)	Read
0x1009	2	Firmware version	uint32	Read
0x100B	1	Hardware revision	uint16	Read

9.10. Configuration block (0x2000, read only)

Address	Words	Description	Logical type	Access	Notes
0x2000	1	Phase configuration	uint8 in uint16	Read	0 = SinglePhaseL1 1 = SinglePhaseL2 (if supported) 2 = SinglePhaseL3 (if supported) 3 = ThreePhase 4 = SplitPhase
0x2001	1	Meter role	uint8 in uint16	Read	0 = Grid 1 = Pv 2 = Generator 3 = AcMeter 4 = EvCharger 5 = HeatPump 6 = WaterPump 7 = WaterHeater
0x2002	32	User description	string (up to 64 bytes)	Read	32 registers, packed byte by byte
0x2022	1	Meter position	uint8 in uint16	Read	0 = AcInput1 1 = AcOutput 2 = AcInput2
0x2023	1	System instance	uint8 in uint16	Read	Instance index, 0 to 255

Address	Words	Description	Logical type	Access	Notes
0x2024	2	Meter capabilities	uint32 (high, low)	Read	bit0 grid meter role support bit1 PV inverter role support bit2 generator role support bit3 AC meter role support bit4 EV charger role support bit5 heat pump role support bit6 split phase support bit7 water pump role support bit8 water heater role support bit9 PQ snapshots timeout support bit10 UDP PQ snapshots support bit11 single phase L2 support bit12 single phase L3 support

9.11. Main meter data block (0x3000, read only)

This block contains the live measurements, energy totals, and several mirrored sections that exist for compatibility with existing client software.

9.11.1. Primary live data and totals (0x3000 to 0x303F)

Address	Words	Description	Type	Access	Notes
0x3000	1	L1 voltage	int16	Read	0.01 V
0x3001	1	L1 current	int16	Read	0.01 A - VM-3P75CT only
0x3002	2	L1 real power	int32 (high, low)	Read	1 W
0x3004	2	L1 apparent power	int32 (high, low)	Read	1 VA
0x3006	2	L1 forward energy	uint32 (high, low)	Read	0.01 kWh (10 Wh)
0x3008	2	L1 reverse energy	uint32 (high, low)	Read	0.01 kWh (10 Wh)
0x300A	4	Reserved	-	Read	Always 0
0x300E	2	Reserved	-	Read	Always 0
0x3010	1	L2 voltage	int16	Read	0.01 V
0x3011	1	L2 current	int16	Read	0.01 A - VM-3P75CT only
0x3012	2	L2 real power	int32 (high, low)	Read	1 W
0x3014	2	L2 apparent power	int32 (high, low)	Read	1 VA
0x3016	2	L2 forward energy	uint32 (high, low)	Read	0.01 kWh (10 Wh)
0x3018	2	L2 reverse energy	uint32 (high, low)	Read	0.01 kWh (10 Wh)
0x301A	4	Reserved	-	Read	Always 0
0x301E	2	Reserved	-	Read	Always 0
0x3020	1	L3 voltage	int16	Read	0.01 V
0x3021	1	L3 current	int16	Read	0.01 A - VM-3P75CT only
0x3022	2	L3 real power	int32 (high, low)	Read	1 W
0x3024	2	L3 apparent power	int32 (high, low)	Read	1 VA
0x3026	2	L3 forward energy	uint32 (high, low)	Read	0.01 kWh (10 Wh)
0x3028	2	L3 reverse energy	uint32 (high, low)	Read	0.01 kWh (10 Wh)
0x302A	4	Reserved	-	Read	Always 0
0x302E	2	Reserved	-	Read	Always 0
0x3030	2	Total real power	int32 (high, low)	Read	1 W

Address	Words	Description	Type	Access	Notes
0x3032	1	Grid frequency	uint16	Read	0.01 Hz
0x3033	1	PE to N voltage	int16	Read	0.01 V
0x3034	2	Total forward energy	uint32 (high, low)	Read	0.01 kWh (10 Wh)
0x3036	2	Total reverse energy	uint32 (high, low)	Read	0.01 kWh (10 Wh)
0x3038	1	Error code	uint8 in uint16	Read	
0x3039	1	Neutral current	int16	Read	0.01 A
0x303A	1	Total power factor	int16	Read	0.001
0x303B	1	Phase sequence	uint8 in uint16	Read	0 = L1L2L3 1 = L1L3L2 0xFF = Invalid
0x303C	2	Alarms and warnings	uint32 (high, low)	Read	bits 1 to 0: phase rotation level 0 = Unsupported 1 = Ok 2 = Warning 3 = Alarm Bits 31 to 2 reserved.
0x303E	1	Grid frequency (mHz resolution)	uint16	Read	0.001 Hz
0x303F	1	Reserved	-	Read	Always 0

9.11.2. Mirror and per phase auxiliary map (0x3040 to 0x305F)

Address	Words	Description	Type	Access	Notes
0x3040	1	L1 voltage (mirror)	int16	Read	0.01 V
0x3041	1	L1 current (mirror)	int16	Read	0.01 A - VM-3P75CT only
0x3042	2	L1 forward energy (mirror)	uint32 (high, low)	Read	0.01 kWh (10 Wh)
0x3044	2	L1 reverse energy (mirror)	uint32 (high, low)	Read	0.01 kWh (10 Wh)
0x3046	1	L1 line to line voltage	uint16	Read	0.01 V
0x3047	1	L1 power factor	int16	Read	0.001
0x3048	1	L2 voltage (mirror)	int16	Read	0.01 V
0x3049	1	L2 current (mirror)	int16	Read	0.01 A - VM-3P75CT only
0x304A	2	L2 forward energy (mirror)	uint32 (high, low)	Read	0.01 kWh (10 Wh)
0x304C	2	L2 reverse energy (mirror)	uint32 (high, low)	Read	0.01 kWh (10 Wh)
0x304E	1	L2 line to line voltage	uint16	Read	0.01 V
0x304F	1	L2 power factor	int16	Read	0.001
0x3050	1	L3 voltage (mirror)	int16	Read	0.01 V
0x3051	1	L3 current (mirror)	int16	Read	0.01 A - VM-3P75CT only
0x3052	2	L3 forward energy (mirror)	uint32 (high, low)	Read	0.01 kWh (10 Wh)
0x3054	2	L3 reverse energy (mirror)	uint32 (high, low)	Read	0.01 kWh (10 Wh)
0x3056	1	L3 line to line voltage	uint16	Read	0.01 V
0x3057	1	L3 power factor	int16	Read	0.001
0x3058	2	L1 high range current	int32 (high, low)	Read	0.01 A - VM-3P5A only
0x305A	2	L2 high range current	int32 (high, low)	Read	0.01 A - VM-3P5A only
0x305C	2	L3 high range current	int32 (high, low)	Read	0.01 A - VM-3P5A only
0x305E	2	Reserved	-	Read	Always 0

Addresses 0x3060 to 0x307F (32 registers) are reserved and always read back as 0.

9.11.3. Power mirror map (0x3080 to 0x308F)

Address	Words	Description	Type	Access	Notes
0x3080	2	Total real power (mirror)	int32 (high, low)	Read	1 W
0x3082	2	L1 real power (mirror)	int32 (high, low)	Read	1 W
0x3084	2	L1 apparent power (mirror)	int32 (high, low)	Read	1 VA
0x3086	2	L2 real power (mirror)	int32 (high, low)	Read	1 W
0x3088	2	L2 apparent power (mirror)	int32 (high, low)	Read	1 VA
0x308A	2	L3 real power (mirror)	int32 (high, low)	Read	1 W
0x308C	2	L3 apparent power (mirror)	int32 (high, low)	Read	1 VA
0x308E	2	Reserved	-	Read	Always 0

9.12. Recommended polling strategy

1. Read the static identification data once, from the 0x1000 block.
2. Read the configuration snapshot from the 0x2000 block on startup, and again whenever a configuration change is expected.
3. Poll the live values in the 0x3000 block at a fixed interval suited to your application.
4. Treat reserved addresses as always 0.
5. Apply the scaling given in this appendix, for example 0.01 V, 0.01 A, 0.01 Hz, or 0.001 for power factor.
6. Treat sentinel values and 0xFFFF fallback words as not available or invalid.

9.13. Important Compatibility Notes

- This is UDP, so requests and responses are connectionless and may be lost or reordered on a poor network.
- The register map includes mirrored addresses to remain compatible with existing client software.