V3IS00418-011

Mod. Energy-400 D PWR
Energy-400 D PWRi

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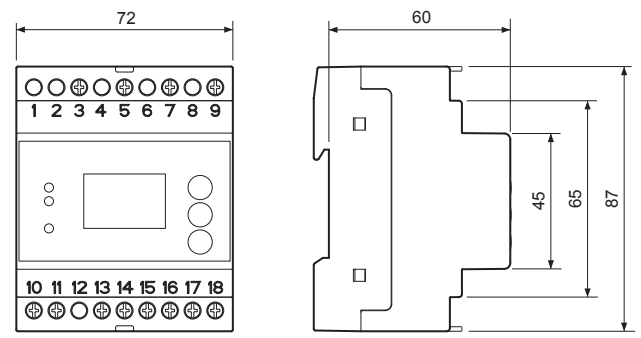
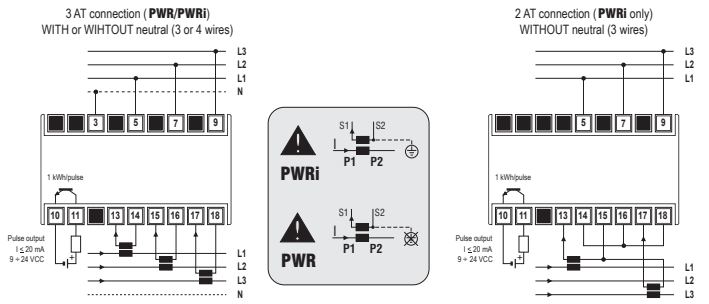
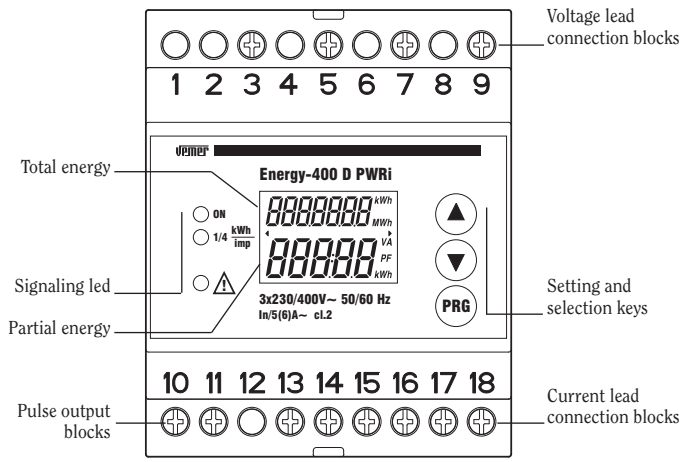
Dimensions



Connection diagram



Description



User Manual
THREE-PHASE ACTIVE ENERGY METER
Read all the instructions carefully

- Series of 4-DIN size static meters to read active energy consumption in 400V three-phase systems
  – ENERGY-400 D PWR with current inlet through **shunt**
  – ENERGY-400 D PWRi with current inlet through **coils**, with galvanic isolation between the primary and the secondary
  Connection to the power source is through external **ATs** type x/5A

SAFETY WARNINGS

To guarantee correct installation, observe the following instructions:

1) ***The appliance must be installed by a qualified operator***
2) ***The appliance must be installed in an electrical panel which, after installation, leaves terminals inaccessible***
3) ***A protection device against over-currents must be installed in the electrical system upstream of the energy meter***
4) ***Connect the instruments as shown in the diagrams opposite***
5) ***Before making contact with terminals, ensure that conductors to be connected to the appliance are not live***
6) ***Do not power or connect the appliance if any part of it is damaged***

Code	Model	Description
VE119400	**Energy-400 D PWR**	Three-phase active energy meter
VE120200	**Energy-400 D PWRi**	Insulated three-phase active energy meter

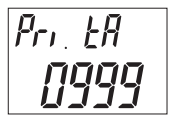
TECHNICAL SPECIFICATIONS

- Power supply: 3x230 (400)V AC (-15% ÷ +10%), 50/60Hz
- Input Current: In = 5A; Imax = 6A
- Startup current: ≤15mA
- Maximum consumption: 3,5VA to 400V AC
- Accuracy: class 2 (EN 62053-21)
- Maximum loss: voltage circuits <2.5 VA
  power circuits <2.5 VA
- Galvanic isolation between the voltage inputs and the current inputs (for model **PWRi only**).
- Amperometric connection by external AT x/5A
- Display: by way of 7 + 5 digit LCD display units
- Partial energy resolution: fixed 1kWh
- Total energy resolution: fixed 1kWh
- Pulse properties: Length: 100ms ±15%
  Voltage: 9 ÷ 24 V CC ± 10%
  Maximum output current: 20 mA
- Signaling leds: green = power on
  red = flashing at 1/4kWh
  yellow = wrong connection
- Optoinsulated pulse output for remote meter reading
- Operating conditions: Temperature: -10 ÷ +45°C
  Relative humidity: 10% ÷ 90% non condensing
- Storage temperature: -25 °C ÷ +70 °C
- Enclosure: 4 DIN sizes
- Ingress protection rating IP: IP20/IP51 on the front

INSTALLATION

1) On powering the device up, select the transformation ratio according to the external AT x/5A used. The AT secondaries of the sole PWRi model can be connected to the earthing system
2) The device must be connected as in the diagram, observing AT energy direction
3) In order for the error to stay within the device's class limits it is necessary to use the current transformer in its linear operating range

PROGRAMMING EXTERNAL ATS (X/5A)



Switch the device on while holding down the PRG key until the firmware version page appears.
Press the PRG key to access the page reading the device's serial number and then the AT setting page.

The first value displayed is the AT primary, according to the settings assigned to the device until then. To set the AT value, select the digit that needs to be changed using the PRG key. When the digit selected flashes, change it using the arrow keys ▲ and ▼. The range of available values is from 0005 to 1000. To exit the programming mode hold the PRG key down for at least 3 seconds. If while in the AT setting window, no key is pressed for 30 seconds , this will be exited and no change will be stored.
The default factory setting is 5/5A.

Note: When the AT setting is altered, then the partial energy meter is zeroed, whereas the total energy meter remains unchanged.

OPERATION

- When the device is turned on the main page is displayed, representing the total energy count on the 7-digit upper block and the partial energy count on the 5-digit lower block The measuring resolution for both meters is 1kWh
- To display the **total** energy count only, press the ▲ key: this meter cannot be set to zero

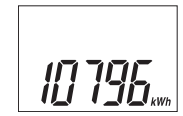
Main page

- To display the **partial** energy reading, press the ▲ key again: this meter can also be zeroed manually anytime by holding the "Prg" key pressed for more than four seconds

Total meter

- To return to the main page reading both meters (total and partial energy), press the ▲ key again

Press the ▼ key to revert the above described sequence. i.e. scroll the pages backward.



Partial meter

Note: The energy value reading refers to the complete three-phase system as an algebraic addition ($E_{tot} = E_1+E_2+E_3$)

BACKLIGHTING

Backlighting is enabled by default: it is switched on each time the key is pressed and stays on for 30 seconds after the last key is pressed. In order to enable/disable the backlighting, go the **main page** and hold the "Prg" key pressed for at least 4 seconds: the ON/OFF backlight status will be displayed for a couple of seconds, after which the main page will return.

Backlighting status

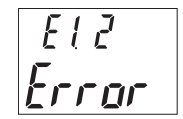
CONNECTION CHECKS

When the device is switched on, correct connection to current and voltage terminals are checked. If connection is incorrect, the yellow LED lights up for three minutes and then goes off.
At this stage and during normal operation it is possible to view the detailed connection status by holding down the PRG push-button from the total meter page: the AT setting page (read-only at this stage) and the connection status page will then be displayed successively, with the possible errors (if any).

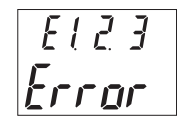
In case of error the following messages may appear on the display:

Connection error on one phase (L1 in this case)
E1 is negative

Connection error on two phases (L1 and L2 in this case)
E1 and E2 are negative



Connection error on three phases
E1, E2 and E3 are negative



To exit the error reading page, press the PRG key.
If no error is to be reported the "no Error " message will be read for a couple of seconds. Then the device will resume normal operation from the total energy page.

Note: to restore correct meter operation after an error reading has been displayed, switch the meter off, connect voltage and current as in the diagrams and then switch the meter back on.

STANDARD REFERENCES

Conformity to the EU directives:
2006/95/EC (Low Voltage)
89/336/EEC modified by **92/31/EEC** and **93/68/EEC** (E.M.C.)
is declared with reference to the following harmonised standards:
- **Safety:** EN 61010-1
- **Electromagnetic compatibility:** EN 62052-11 and EN 62053-21