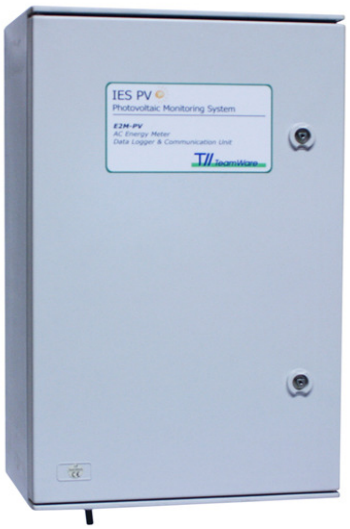

Unit for measurement and recording of electrical quantities on LV and MV distribuited generation plants

General features

The E2M-PV module includes a class 1 bidirectional smart-meter to measure and record the electric quantities on the LV/MV power network, according to standard IEC 62052.
E2M-PV module is available in 2 versions: one for direct connection on LV lines up 60A, one for semi direct connection through external CT, suitable for higher currents.
For MV networks, E2M-PV module can be equipped with an interface for reading fiscal meters (ES module) and it's available in the indirect connection version (through CT and VT).

E2M-PV is equipped with multiple communication interfaces (GSM/GPRS, Ethernet/ADSL) making it suitable for remote monitoring networks. It also has a RS485 bus for connections to other local measuring units (DC measures, weather measures) or intelligent devices (inverters, local controls, switch panels PLC, etc).

E2M-PV is arranged in an IP65 plastic enclosure, with door key and sealed cable glands for outdoor usage. The module is equipped with support terminal blocks for simple wiring to the AC power network and the inverters. Also, it is designed to accept protections against overvoltages occurring on the power network and the field bus.

E2M-PV also has a backup battery, to ensure the possibility of sending alarm signals even in network absence conditions.

Functions

- Measure and recording of power profiles (with programmable rate, from 1 minute to 1 hour) and of the energy daily and monthly produced and consumed by the photovoltaic plant, class 1 according to IEC 62052 (AC side) .
- Recording of voltage, current and power measures on DC side received from DCM-PV modules (at same rate of AC measures; in case of multi-array plants it is possible to connect up to 6 modules).
- Recording of weather data coming from weather module MTM-PV (sun radiation over the PV panels, sun radiation over the horizontal plane, PV panel temperature, air temperature, wind speed) at same rate of AC measures.
- Alarm signaling (with a sms) when no power generation is detected even with the presence of a valuable sun radiation.
- Clock calendar with day light saving time according to UE standard.
- External GPS receiver to sync the time base and to correlate the photovoltaic generated energy together with the positional information (option).
- Remote communication with central system based on IP protocols (Modbus over TCP) via GSM / GPRS modem or ADSL internet router.
- Local communication with a PC for configuration and diagnostic.
- Direct link with the plant inverters to collect anomalies and fault alarms (optional function, requiring specific protocol drivers for each inverter models).
- Self-diagnostic to supervise the device operations and the data storage integrity.
- Remote firmware upgrade to add new specific features.

Technical specifications

- 3 voltage inputs with common neutral (Vn: 3 x 230 Vac phase-neutral).
- 3 insulated current channels for direct connection (up to 60A, Ib = 10A) or for semi direct and indirect insertion with external CT (Ib = 5A).
- Pulses emitter interface (6 channels).
- LCD display.
- Two pushbuttons for pages scrolling and menu navigation.
- Embedded GSM/GPRS modem.
- Arrangement for mounting an external high gain directional antenna, for installation in area with low mobile signal strength.
- Two pulse emitting leds for energy metering certification.
- 1 RS485 field-bus for communication with plant modules (weather data, DC measures).
- 1 RS232/RS485 communication port for local connection to PC or IED (ex. inverter).
- 1 Ethernet 10/100baseT communication port for local PC and/or router connection.
- 1 RS485 communication port to connect to a GPS (geographical localization and time synchronization).
- Nonvolatile clock calendar (accuracy ±1 minute/month).
- Configurable digital inputs and outputs for alarms and/or local signaling.
- 1MB nonvolatile memory for data storage (2 months recording buffer and recording rate of 15 minutes).
- 230 Vac power supply
- 2 integrated 12 Vdc power supplies for other field modules with fuse terminal blocks.
- Backup battery 12V - 0.8Ah
- Arrangement for overvoltages suppressors (varistor or gas type suppressors) both on AC and field bus sides.
- Plastic enclosure IP65 30x50x20 cm, with door key and sealed cable glands.

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