



## CVM-A1500-FLEX-485-ICT2

CVM-A1500-FLEX-485-ICT2, Power quality analyzers with recording of quality events and transients in accordance with (IEC 61000-4-30 Ed.2) Class A

Code: M56351.

- > Protocol: Modbus/RTU | BACnet | webserver (HTTP) | XML | HTML5
- > Memory: 200 MB
- > Memory: Yes
- > Events / Waveform: Yes
- > Certification: -
- > Energy accuracy: 1
- > Communications: RS-485 | Ethernet
- > Transistor output: 2
- > N° relays: 2
- > Digital inputs: 2
- > Harmonics: 63
- > Input current: Rogowski
- > Mounting: Pannel
- > Modules: 144 x 144

### Description

**CVM-A1500** is a panel mounted power quality analyzer with EMS (Energy Management Software) integrated. Its internal Web Server (html5) allows any user to have full installation control by using any web browser.

Designed to be installed in the most relevant or critical part of electric installations since it registers and monitors a wide range of variables (almost one year of data with RMS, maximum and minimum values). The device also registers power quality events such as swells, dips, interruptions (every half cycle) and transients (according to **IEC 61000-4-30** Class A). Any event will be immediately captured with the voltage and current waveform.

This model adds the measurement of power quality variables (defined in the standard **EN 50160**) such as flicker, unbalance (Kd) and asymmetry (Ka) coefficients or voltage and current harmonics decomposition up to 63th. In addition it is possible to monitor in real time the instantaneous waveforms of voltage and current through its oscilloscope function.

As an added value, **CVM-A1500** displays the number of events and transients on each affected phase with the level reached, duration and its associated waveform. In addition, those events are directly displayed in CBEMA, ITIC y SEMI-F47 graphs.

The smart design of the **CVM-A1500** allows users to customize their own screens in order to access to the information faster and easy. Remark that the device allows the connection though PowerStudio software to save and store, in a redundant way, all the information in a server or PC avoiding memory limits.

- Dimensions: 144 x 144 mm
- Energy Management Software (EMS) included with historical data register
- Register of power quality events, waveforms and instantaneous parameters.
- Expandable up to 3 modules (inputs/outputs and communications)
- VGA color display with high definition
- IP 65 with airtight seal
- 5 voltage channels + 4 ITF current channels
- Active energy class 0,2S (**IEC 62053-22**)
- Universal switching power supply AC/DC or DC
- Ethernet communications (Web Server) + RS-485 (ModBus RTU or BACnet protocol)
- 5 user customizable screens
- 3 tariffs (selectable by digital input or by communications)



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Power analyzer for panel with power quality measurement parameters

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- Cost calculation (any currency) and emissions of  $\text{kgCO}_2$
- 2 relay outputs for alarms + 2 transistor outputs for alarms or pulses + 2 digital inputs to select tariff, to control logical states or pulse centralizer from any external meter.

### Application

- Control, monitoring and logging of the power quality in High and Low Voltage distribution panels. Performed directly or remotely thanks to its WEB server. Integration in SCADA systems through XML requests.
- 4 alarms (2 per transistor and 2 per relay), fully and independently programmable according to a low or high value, hysteresis, connection/disconnection delays, normally open or closed standby status and interlocking.
- Generation of impulses with transistor outputs, fully and independently configurable over any incremental parameter (energy, costs,  $\text{kgCO}_2$ , total meter or tariff hours).
- Transducer converting analogue signals to any instantaneous parameter measured or calculated by the unit, with built-in expansion modules with analogue outputs.
- Display of process signals featuring a built-in expansion module with analogue inputs, with optional reporting of these signals to SCADA systems through communications systems.
- Control of electrical load or alarm signal operations by programming the transistor or relay outputs that are built-in or added through expansion modules.
- Datalogger integrated with Web server and XML (log of historical data).



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### Specifications

#### AC power supply

|                       |               |
|-----------------------|---------------|
| Installation category | CAT III 300 V |
| Consumption           | 15 ... 22 VA  |
| Frequency             | 45 ... 65Hz   |
| Nominal voltage       | 100...240 V ~ |

#### DC power supply

|                       |                 |
|-----------------------|-----------------|
| Installation category | CAT III 300 V   |
| Consumption           | 8 ... 10 W      |
| Nominal voltage       | 120 ... 300 Vdc |

#### Mechanical characteristics

|                                  |                            |
|----------------------------------|----------------------------|
| Size (mm) width x height x depth | 144.7 x 144.7 x 131.1 (mm) |
| Fastening                        | Pannel (DIN43700) 138x138  |
| Weight (kg)                      | 0,752                      |

#### Environmental characteristics

|  |                |
|--|----------------|
| Relative humidity (without condensation) | 5 ... 95%      |
| Storage temperature                      | -20... +80 °C  |
| Working temperature                      | -10 ... +50 °C |

#### Standards

|                                       |   |
|---------------------------------------|---|
| Certifications                        | CSA 61010-1 3rd edition   |
| Electrical safety, Maximum height (m) | 2000  |
| Standards                             | UNE EN 61000-6-4, UNE EN 61000-6-2, IEC 60664-1, CAN/CSA-22.2 No. 61010-1 3rd. Edition 2012-05, IEC 61010-2-030, Measures according to : IEC 61557-12 |

#### Current measurement circuit

|                               |                 |
|-------------------------------|-----------------|
| Installation category         | CAT III 600 V   |
| Nominal current (In)          | 1000 / 100 mV ~ |
| Phase current measuring range | 10 ... 120 % In |
| Minimum current measurement   | 10 A            |

#### Voltage measurement circuit

|                           |              |
|---------------------------|--------------|
| Installation category     | CAT III 600V |
| Sampling frequency        | 40...70 Hz   |
| Input impedance           | 1.2MΩ        |
| Frequency measuring range | 40...70 Hz   |



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|                                      |             |
|--------------------------------------|-------------|
| Voltage measuring range              | 20...600 V~ |
| Maximum input voltage consumption    | 0,15VA      |
| Minimum measurement voltage (Vstart) | 10 V~       |

### User interface

|                           |                    |
|---------------------------|--------------------|
| LED                       | 3 LED              |
| Resolution of the display | VGA (640x480)      |
| Keyboard                  | Capacitive, 3 keys |
| Display type              | TFT color          |

### Digital inputs

|                               |                        |
|-------------------------------|------------------------|
| Input/output insulation       | 4 kV                   |
| Quantity                      | 2                      |
| Type                          | Potential-free contact |
| Maximum short-circuit current | 5 mA                   |
| Maximum open circuit voltage  | 15 Vdc                 |

### Digital relay outputs

|                                   |                        |
|-----------------------------------|------------------------|
| Electrical life (at maximum load) | $3 \times 10^6$ cycles |
| Mechanical life                   | $1 \times 10^7$ cycles |
| Maximum switching capacity        | 1500 VA                |

### Digital transistor outputs

|  |                 |
|--|-----------------|
| Pulse width                            | 1 ms            |
| Quantity                               | 2               |
| Pulse output, time period (Ton / Toff) | 0,3 ms / 0,7 ms |
| Maximum frequency                      | 1 kHz           |
| Maximum current                        | 130mA           |
| Maximum voltage                        | 48 Vdc          |

### Measurement accuracy

|                                   |                                  |
|-----------------------------------|----------------------------------|
| Voltage asymmetry (Ka)            | Class A (IEC 61000-4-30)         |
| Voltage unbalance (Kd)            | class A (IEC 61000-4-30)         |
| Frequency measurement             | Class 0.02                       |
| Phase current measurement         | Class 0.2 $\pm 1$ digit          |
| Reactive power measurement (kvar) | (Vn 230/110 Vac) $2 \pm 2$ digit |
| Apparent power measurement (kVA)  | (Vn 230/110 Vac) $1 \pm 2$ digit |
| Active power measurement (kW)     | (Vn 230/110 Vac) $1 \pm 2$ digit |
| Power factor measurement          | Class 0.5                        |
| Voltage THD                       | Class 1                          |



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|                             |                                     |
|-----------------------------|-------------------------------------|
| Phase voltage measurement   | Class 0.5 ±1 digit                  |
| Neutral voltage measurement | Class 0.5 ±1 digit (55...500 V~)    |
| Pinst. Flicker              | 3 % (IEC 61000-4-15)                |
| Pst Flicker                 | 5 % (0,2...10 Pst) (IEC 61000-4-15) |
| Voltage harmonics (THD)     | Class 1                             |

## Serial communication

|                   |                    |
|-------------------|--------------------|
| Protocol          | ModBus/RTU, BACnet |
| Technology / Type | RS-485 / BACnet    |

### CVM-A

Power quality analyzers, colour display, panel mounted

| CODE          | TYPE                     | Energy accuracy | Input current              | Certification            | Communications    |
|---------------|--------------------------|-----------------|----------------------------|--------------------------|-------------------|
| M563110000A00 | CVM-A1500A-ITF-485-ICT2  | 0,2S (.../5A)   | .../5 A   .../1 A   250 mA | IEC 61000-4-30 (Class A) | RS-485   Ethernet |
| M563510000A00 | CVM-A1500A-FLEX-485-ICT2 | 1               | Rogowski                   | IEC 61000-4-30 (Class A) | RS-485   Ethernet |
| M56311.       | CVM-A1500-ITF-485-ICT2   | 0,2S (.../5A)   | .../5 A   .../1 A   250 mA |                          | RS-485   Ethernet |
| M56351.       | CVM-A1500-FLEX-485-ICT2  | 1               | Rogowski                   |                          | RS-485   Ethernet |

Four-quadrant measuring device with PowerStudio embedded. Integrated Datalogger module. Optional Modbus/TCP. 200MB Internal memory  
See expansion modules and accessories (sealing gaskets) for CVM-A/CVM-B.

**Precision power without connected sensors.**

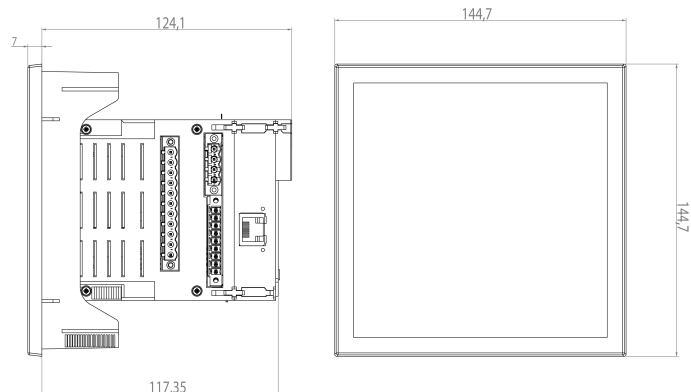


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### Dimensions



### Connections

Measurement system: 4W-3 Ph (FLEX type transformer secondary:  $\pm 100$  mV-)

