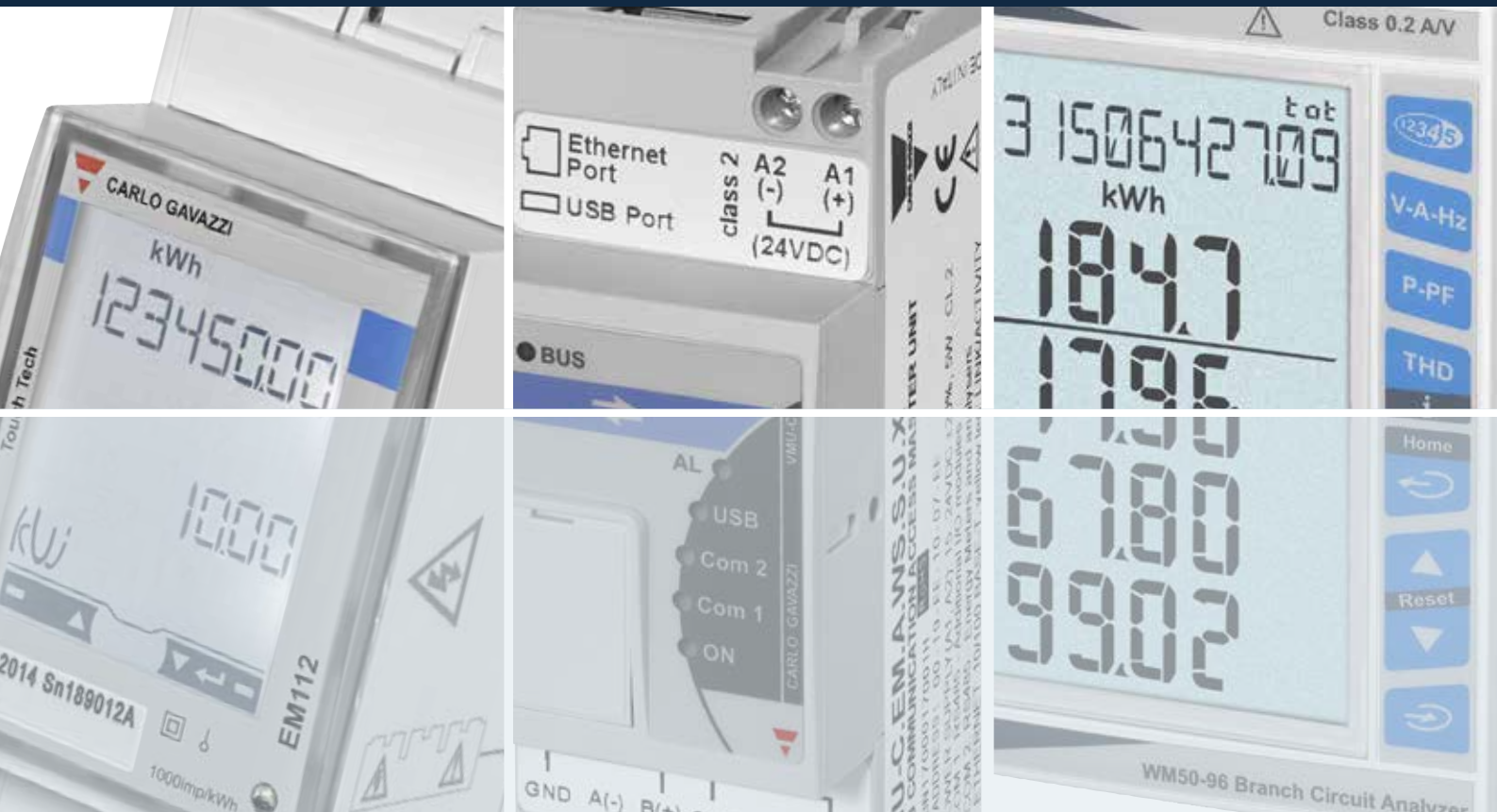
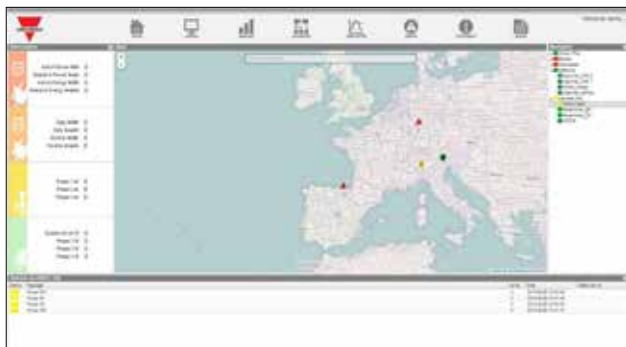




Overview

Energy management

Em²-Server: Cloud solution for multi-site monitoring



Home page

- Integrated MAP view
- Hierarchical tree to navigate data with ease
- Movable and resizable views fitting the needs of a control room



Monitoring and analysis tool

- Historical data analysis tools
- Graphical monitoring features
- Comprehensive data exporting tools (standard XLS format)



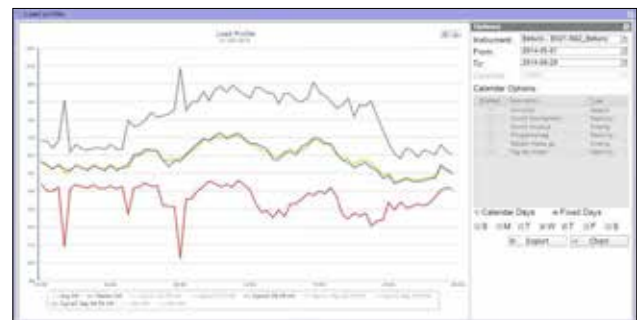
Login page

- Multilingual web based user interface
- User rights management
- Concurrent data access from multiple locations



Synoptics tool

- User defined background
- Active iconized energy meters showing real time variables and status
- Multiple Synoptics views may be created

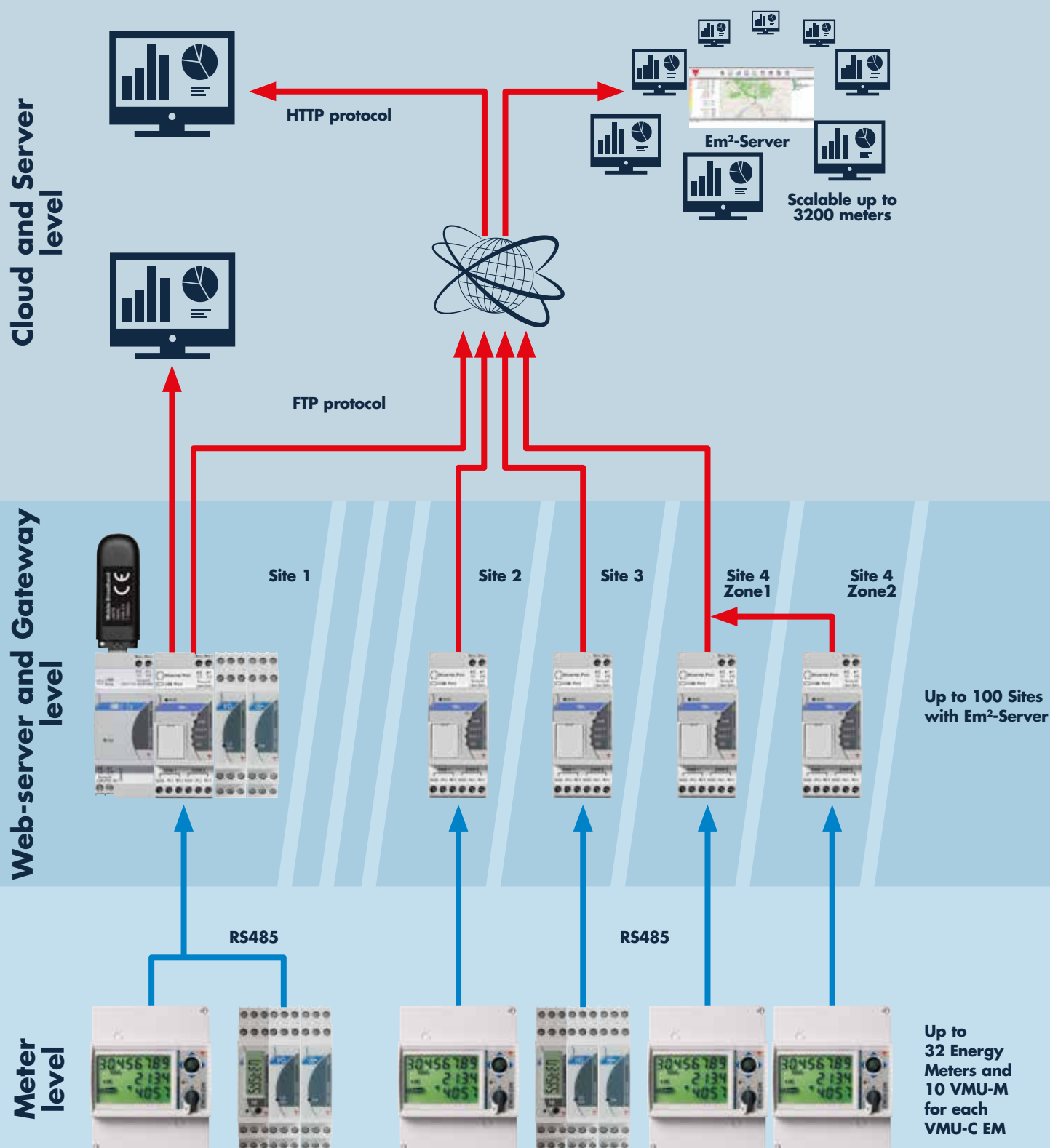


Load profile tool

- Load profile statistical analysis based on actual data
- Profiles may be exported as Excel files or represented as charts
- Calculation of average, median, maximum and statistical confidence range

Overview

Diagrams



Overview

Energy management

Wound primary CT	CT for cable or bus-bar	CT for cable or bus-bar	CT for cable or bus-bar	CT for cable
				
TADK/TADK-2	CTD-1X/2X/3X/4X	CTD-5S/6S	CTD-8/9/10/11 S, V, H, Q	CTV-1X/2X/3X/4X
- Wound primary - Primaries: 1 A to 40 A (TADK) 1 A to 250 A (TADK-2) - Secondary: 5 A (standard) 1 A (available upon request) - Sealable terminal covers - CE	- For cable or bus-bar - Cable: Ø23 mm to Ø51 mm - Bar: 20x5 mm to 64x20 mm or 51x43 mm - Sealable terminal covers - Primaries from 50 A to 1600 A - Secondary: 5 A (standard) 1 A (available upon request) - EN61869-2 - CE, cURus	- Split-core for cable or bus-bar - Cable: Ø26 mm to Ø50 mm - Bar: 26x32 mm, 50x52 mm - Sealable terminal covers - Primaries from 100 A to 1000 A - Secondary: 5 A (standard) 1 A (available upon request) - EN61869-2 - CE, cURus	- Solid or split-core for cable or bus-bar - Bar: 31x81 mm (vertical), 81x31 mm (horizontal) to 38x127 mm - Sealable terminal covers - Primaries 150 A to 4000 A - Secondary: 5 A (standard) 1 A (available upon request) - EN61869-2 - CE, cURus	- Split-core current sensor for cable - Cable: Ø9.6 mm to 20 mm - Primaries from 60 A to 400 A - Secondary: 0.333 VAC - CE, cURus

3-phase power analyzers	3-phase power quality analyzers	3-phase branch circuit power analyzers	3-phase power quality analyzers/transducers
			
WM20	WM30 / WM40	WM50 and TCD12	WM5
- Dimensions: 96 x 96 mm - Installation: panel mounting - Accuracy 0.2% (voltage, current) - Universal power supply - Front protection degree IP65, NEMA4X, NEMA12 - Modular housing to build the instrument according to the real application needs - Modbus and BACnet (both RS485 or Ethernet), and Profibus DPV0 communication port available - Configuration software (PC or Android app) - cULus	- Dimensions: 96 x 96 mm - Installation: panel mounting - Accuracy 0.2% (voltage, current) - Universal power supply - Front protection degree IP65, NEMA4X, NEMA12 - Modular housing to build the instrument according to the real application needs - Modbus and BACnet (both RS485 or Ethernet), Profibus DPV0, and EtherNet/IP communication port available 16-alarm PLC logic and digital inputs for utility metering (WM40) - Built-in datalogger for instantaneous variables, dmd profiles and events (WM40) - Configuration software (PC or Android app) - cULus, Solar California listed	- Dimensions: 96 x 96 mm - Installation: panel mounting - Up to 96 channels, 32 A (8x TCD12) - Accuracy 0.2% (voltage, main current), 0.5% (branch currents) - Modbus communication port available (RS485 or Ethernet) - Up to 6 digital outputs (static or relay) and 6 digital inputs or temperature and analogue input 96 channel alarms, freely setttable set point for load monitoring - Built-in datalogger for variables and events - Configuration software (PC or Android app) - cULus	- Dimensions: 96 x 96 mm - Installation: panel mounting - Accuracy 0.2% (voltage, current) - Universal power supply - Front protection degree IP65, NEMA4X, NEMA12 16-alarm PLC logic, digital inputs for utility metering, 12 tariffs, event data stamping - Modular housing to build the instrument according to the real application needs - Modbus RS485 and Ethernet communication ports available - cULus, Measurement Canada certified

Energy management

1-phase energy meters up to 45A



EM110

- Dimensions: 1 DIN module
- Installation: DIN-rail
- Electromechanical totalizer
- Bi-directional energy metering, 7 digits cl. B (EN50470)
- Measuring inputs: 115/230 VAC, 45 A
- Self-powered
- Pulse output
- Sealable terminal covers
- CE, MID (PFB), cULus (115 V)

1-phase energy analyzers up to 45A



EM111

- Dimensions: 1 DIN module
- Installation: DIN-rail
- Backlit touch LCD
- Measurement of voltage, current, power, power factor and frequency
- Bi-directional energy metering, 7 digits cl. B (EN50470)
- Measuring inputs: 115/230 VAC, 45 A
- Self-powered
- Dual tariff management
- Pulse output or RS485 Modbus or M-Bus port
- Sealable terminal covers
- CE, MID (PFA and PFB)

1-phase energy analyzers up to 100A



EM112

- Dimensions: 2 DIN modules
- Installation: DIN-rail
- Backlit touch LCD
- Display backup by supercapacitor
- Measurement of voltage, current, power, power factor and frequency
- Bi-directional energy metering, 8 digits, cl. B (EN50470)
- Measuring inputs: 115/230 VAC, 100 A
- Self-powered
- Dual tariff management
- Pulse output or RS485 Modbus or M-Bus port
- Sealable terminal covers
- CE, MID (PFA and PFB)

3-phase energy analyzers for current via 5A CT



EM330

- Dimensions: 3 DIN modules
- Installation: DIN-rail
- Backlit touch LCD
- Measurement of voltage, current, power, power factor and frequency
- Bi-directional energy metering, 3x 8-digit, cl. B (EN50470)
- Measuring inputs: 400 to 480 V_{LL} AC, 5(6) A current input via current transformer
- Auxiliary power supply
- Dual tariff management
- Pulse output or RS485 Modbus or M-Bus port
- Sealable terminal covers
- CE

3-phase energy analyzers for direct current up to 65A



EM340

- Dimensions: 3 DIN modules
- Installation: DIN-rail
- Backlit touch LCD
- Measurement of voltage, current, power, power factor and frequency
- Bi-directional energy metering, 3x 8-digit, cl. B (EN50470)
- Measuring inputs: 208 to 400 V_{LL} AC, 65 A
- Self-powered
- Dual tariff management
- Pulse output or RS485 Modbus or M-Bus port
- Sealable terminal covers
- CE, MID (PFA and PFB)

1 and 3-phase energy transducers



ET112 / ET340

- Dimensions: 2 DIN (ET112); 3 DIN (ET340) modules
- Installation: DIN-rail
- Measurement of voltage, current, power, power factor and frequency. THD (V, A) ET340
- Bi-directional energy metering, 2 tariffs, cl. 1 (EN62053-1)
- Measuring inputs: 115/230 VAC, 100 A (ET112); 208 to 400 V_{LL} AC, 65 A (ET340)
- Self-powered
- RS485 Modbus port (screw, 2x RJ45)
- Optical port
- Sealable terminal covers
- CE

3-phase energy analyzers



EM24

- Dimensions: 4 DIN modules
- Installation: DIN-rail
- Meter for energy from CT 5 A or for direct energy 65 A. External pulse counting
- Measurement of voltage, current, power, power factor and frequency. Metering from external sources and 4-tariff management
- Bi-directional energy metering on 2 8-digit counters, cl. B (EN50470-3)
- Voltage inputs: 3x230(400)VAC
- Current inputs: 5 A, 65 A
- 115-230 VAC power supply or self-powered
- 3 inputs for external dimension counting (IS)
- Pulse or relay output: RS485 Modbus RTU, M-Bus
- Sealable terminal covers
- CE, MID (PF), cULus (5A version)

3-phase energy analyzers



EM26

- Dimensions: 96 x 96 mm
- Installation: panel mounting
- Energy meter, metering from external inputs, THD measurement.
- Measurement of voltage, current, power, power factor and frequency. Metering from external sources and 4-tariff management
- Bi-directional energy metering on 2 8-digit counters, cl. B (EN50470-3)
- Voltage inputs: 3x230 or 3x100(400)V
- Current inputs: 5 A
- Power supply 90-260 VDC/AC
- 3 inputs for external dimension counting (I3)
- RS485 Modbus RTU, pulse or relay
- Sealable terminal covers
- CE, MID (PF), cULus

Energy management

Quick-fit 3-phase energy analyzers



EM270 / EM271 / EM280

- Dimensions: 4 DIN modules or 72x72 mm
- Installation: DIN-rail or panel mounting
- Two 3-phase energy analyzers with sum function
- Current measurement by triple CT, solid core (EM270), split-core (EM271) with RJ plug, 6 transformers block (EM280)
- Quick installation through RJ connectors
- Automatic recognition of CT ratios
- Measurement of voltage, current, power, power factor and frequency
- Energy metering, cl. 1.
- Inputs: 3x230(440)VAC, current range according to the TCD accessories
- Outputs: 2 pulse (loads 1 and 2)
- RS485 Modbus RTU
- CE, cULus

3-phase CT for EM270 for cable or bus-bar



TCD-1X/TCD-2X/TCD-3X

- Dimensions (LxHxP):
TCD-1X: 74.84x72x66.80 mm
TCD-2X: 105x72x50 mm
TCD-3X: 135x78x50 mm
- Bus-bar sizes:
TCD-1X: 15.90x30.48 mm
TCD-2X: 21.26x25.26 mm
TCD-3X: 31.25x31.25 mm
- Centre-to-centre distance:
TCD-1X: 25 mm
TCD-2X: 35 mm
TCD-3X: 45 mm
- Primary:
TCD-1X: 160 A
TCD-2X: 250 A
TCD-3X: 630 A
- CE, UL (with EM270)

Multiple miniature split-core current sensor for EM271



TCD_M

- Equivalent to Class 1 (currents) of IEC61869-2
- Primary: 60 A (TCD0M), 100 A (TCD1M), 200 A (TCD2M), 400 A (TCD3M)
- Hole size: 9.6 mm (TCD0M), 15.5 mm (TCD1M), 15.5 mm (TCD2M), 20.5 mm (TCD3M)
- Cable length: 1.8 m (TCD0M), 1.5 m (TCD1M and TCD2M), 2.0 m (TCD3M)
- Auto-detection of the primary current rated value by the EM271 energy meter
- TCD_M head for wall and DIN-rail mounting
- Umbilical connection (80 cm) from TCD_M head to EM271 energy meter through RJ11
- CE, UL (with EM271)

Multiple current transformer block for EM280



TCD06BX / TCD06BS

- Equivalent to Class 0.5 (BX) and 1 (BS) (current) of IEC61869-2
- Solid core (BX) or split core (BS)
- Primary current: 32 A
- Hole size: 7 mm (BX) or 8.5 mm (BS)
- Hole centre distance: 17.5 mm
- RJ11 cable length: 80, 150 or 200 cm
- Auto-detection of the primary current rated value by the EM280 energy meter
- CE, UL (with EM280)

3-phase energy analyzers for 5A, CTV or ROG4K



EM210

- Dimensions: 4 DIN modules or 72x72 mm
- Installation: DIN-rail or panel mounting
- LCD with two installation options
- Measurement of voltage, current, power, power factor and frequency
- Bi-directional energy metering, 3 x 3-digit or 8-digit readout, cl. B (EN50470)
- Voltage inputs: 3x230 (400) VAC; Current inputs: 5 A CT (AV version) or 0.333 mV from CTV-xx sensors (MV version) or ROG4K coils (MV version)
- Self-power supply
- Pulse output 1, RS485 Modbus RTU, high speed (up to 115 kbps)
- Sealable terminal covers
- CE, cULus

Rogowski coil for EM210



ROG4K

- Flexible current sensor (Rogowski coil) for EM210
- Primary current from 20 to 4000 A
- Extended accuracy range $\pm 1\%$
- Internal diameter from 115 mm to 275 mm
- User-friendly and safe coil closing system
- Direct connection to EM210 MV energy analyzer
- No power supply or external integrator required
- Coloured label on the cable for error-free connection check

3-phase multi function meters



WM12DIN/WM14DIN WM1296/WM1496

- Dimensions: 6 DIN modules or 96x96 mm
- Installation: DIN-rail or panel mounting
- 3 red LED displays
- Measurement of voltage, current, power, power factor and frequency, energy (WM14)
- Energy metering, 9 digits, cl. 2
- Measuring inputs: 230 VAC, 5 A
- Power supply: 90-260 VDC/AC
- Pulse or relay outputs
- RS485 Modbus
- CE, cULus

3-phase power transducers



CPT-DIN

- Dimensions: 45 x 83.5 x 98.5 mm
- Installation: DIN-rail
- Programmable one-, two- and three-phase measurement transducer
- Measurement of voltage, current, power, power factor, frequency and energy
- Energy metering, 9 digits
- Measuring inputs 3 x 230(400) VAC, 5 A
- Power supply: 18-60 or 90-260 VDC/AC
- Outputs: 3 analogue 20 mA, or 3 10 VDC, 2 relays for alarms
- RS485 Modbus RTU
- CE, cULus, CSA

Energy management

Web server and datalogger



VMU-C EM

- Micro PC with datalogger function
- Web Server, Push and API Pull
- Modbus TCP Slave function
- Data display (charts and tables)
- Data export to HTML compatible with Excel and other spreadsheets
- 4GB internal memory, Back-up memory on micro SDHC and USB
- Energy analysis of each individual load
- Invoicing simulation
- Virtual meter with sum function
- VMU-D alarm management (e-mail or SMS)
- Power supply: 24 VDC
- 1 RS485 for 32 Energy meters, 1 RS485 for VMU-M EM, RJ45 for Ethernet connection
- CE, cULus

USB dongle connection modules



VMU-D

- Dimensions: 2 DIN modules
- Installation: DIN-module
- Compatible with Carlo Gavazzi approved 3G/4G USB modems
- Power supply 24 VDC ($\pm 20\%$)
- Suitable for use with VMU-C and VMU-Y
- 3G or 4G Mobile Internet connectivity
- SMS alerting
- SMS commands
- CE, cULus

Modules for VMU-C EM



VMU-P EM

- Dimensions: 1 DIN module
- Installation: DIN-rail
- Connection to VMU-C EM, directly or through VMU-M EM, on RS485 for measurement and state acquisition
- Measuring inputs: Temperatures, PT100 or PT1000, 1 for current 0-20 mA
- Power supply: from the local bus or from VMU-M EM
- Proprietary communication with VMU-C EM or VMU-M EM
- CE, cULus

Modules for VMU-C EM



VMU-O EM

- Dimensions: 1 DIN module
- Installation: DIN-rail
- Connection to VMU-C EM, directly or through VMU-M EM, on RS485 for measurement and state acquisition
- Power supply: from the local bus or from VMU-M EM
- 2 digital inputs
- 2 relay outputs
- Proprietary communication with VMU-C EM or VMU-M EM
- CE, cULus

Cloud solution for multi-site monitoring



Em²-Server

- Virtual machine for energy data management
- Multi-site monitoring management
- Flexible and scalable architecture
- VMware® technology compatibility
- Load profile management
- Data analysis and benchmark
- Data and event logging
- Customizable graphical synoptic
- All data exported in format compatible with Excel or other spread sheets
- Tariffs and contract management
- Alarms management
- Database replication from up to 100 VMU-C EM

Contactless power analyzers



CPA050

- Dimensions: 63x46x25 mm (without connectors)
- Installation: DIN-rail and panel mounting
- 1-phase AC (from 1 to 400 Hz) or DC
- Power supply from 9 to 30 VDC
- Contactless Hall effect sensing for current (15 mm hole diameter)
- True RMS AC and DC monitoring
- Voltage range: 800 VAC, 1000 VDC
- Current range: 50 AAC, 50 ADC

Contactless power analyzers



CPA300

- Dimensions: 99x89x30 mm (without connectors)
- Installation: DIN-rail and panel mounting
- 1-phase AC (from 1 to 400 Hz) or DC
- Power supply from 9 to 30 VDC
- Contactless Hall effect sensing for current (33 mm hole diameter)
- True RMS AC and DC monitoring
- Voltage range: 800 VAC, 1000 VDC
- Current range: 300 AAC, 400 ADC

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