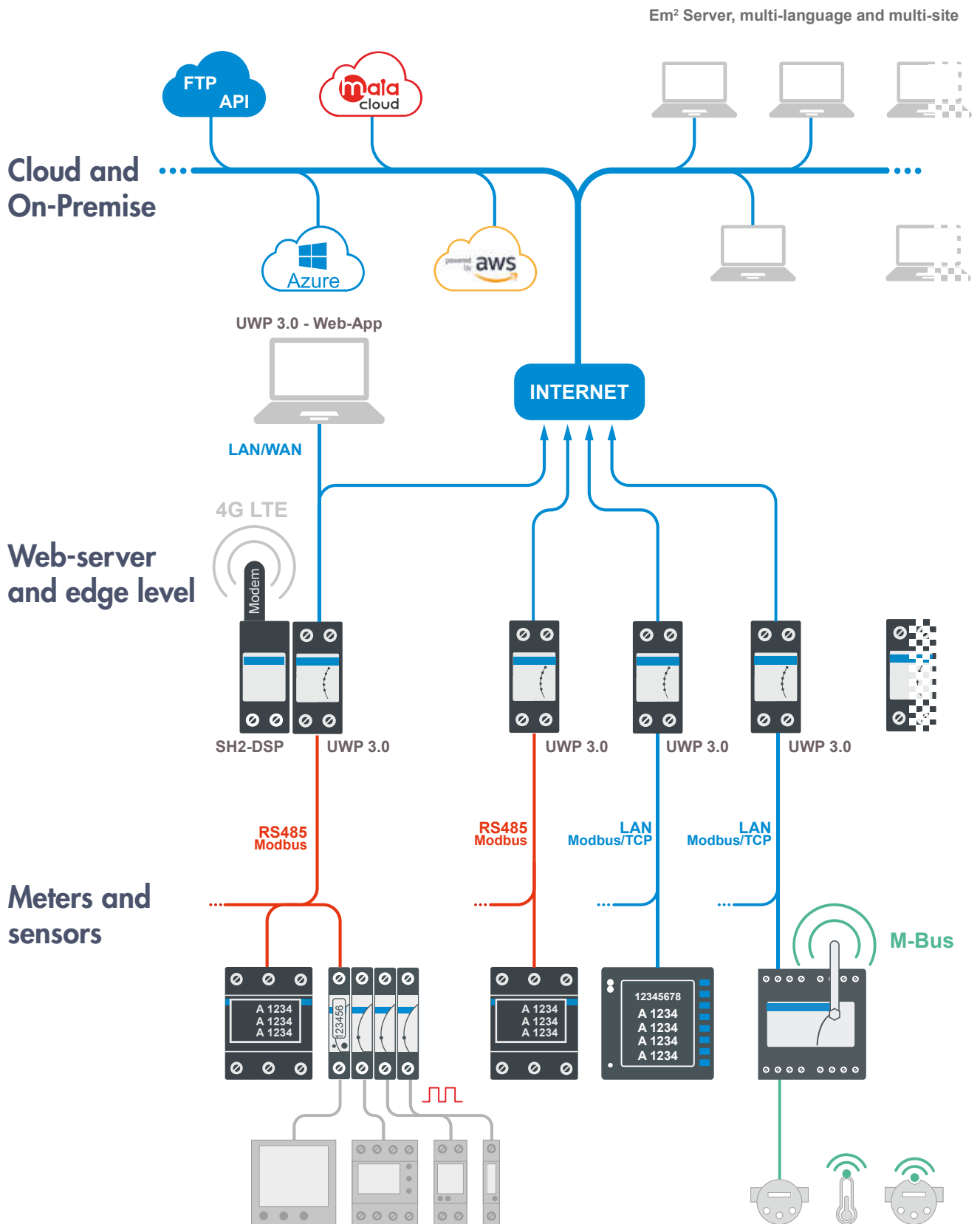




Overview

Energy management

Overview Diagram

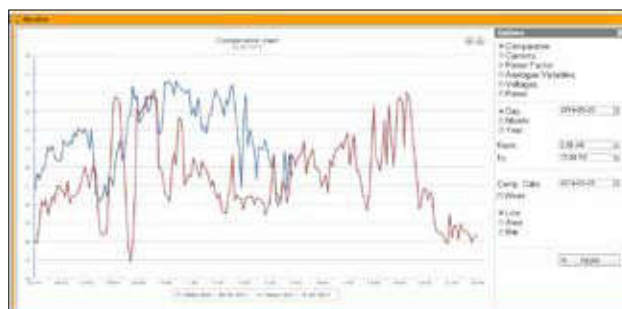


Em² Server: Software for multi-site monitoring



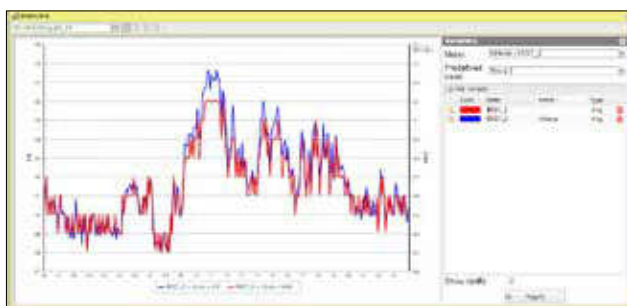
Main page

- Web-based access via standard browser
- Either On-Premises or Cloud deployment
- Multiple accounts with configurable access rights
- Map for locating UWP 3.0 and VMU-C EM devices
- Navigator tool for organizing the system in cost centres according to the needs
- On-the-fly update of the whole database, during the reception of data



Monitoring tool

- Real time (according to sampling interval) and historical data displaying of each energy meter and power analyser variables
- Easy navigation of available meters and cost centres



Analysis tool

- Real time (according to sampling interval) and historical data displaying of any combination of variables
- Comparison of trends in different time intervals



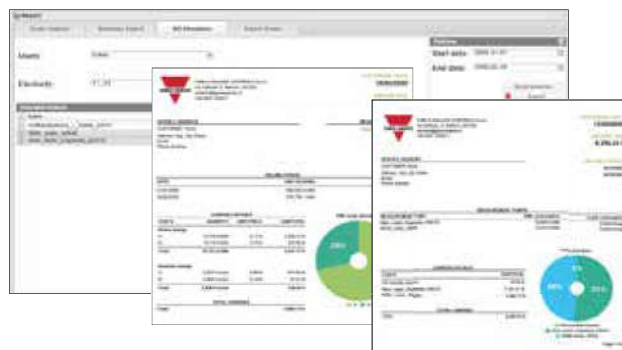
Synoptic tool

- Real time (according to sampling interval) displaying of energy meters and power analysers on top of one or more layouts or schematics
- Multiple panels can be managed



Load profile tool

- Statistical analysis of daily consumption data
- Calculation of the daily baseline
- Estimation of the maximum power for dealing with energy suppliers



Report

- Calendar and tariff settings for cost calculation
- Multiple contracts management for cost simulation
- Excel reports with Pivot table for analysing consumptions and energy cost over a time interval
- Configurable report in PDF format for billing simulation

Overview

Energy management

CT for cable or bus-bar	CT for cable or bus-bar	CT for cable or bus-bar	CT for cable	CTA for cable
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CTD 1X/2X/3X/4X

- 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



CTD 5S/6S

- 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



CTD 8/9/10/11 S, V, H, Q

- 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 3200 A
- Secondary: 5 A (standard) 1 A (available upon request)
- EN61869-2
- CE, cURus



CTV 1X/2X/3X/4X/6X/8X

- Split-core current sensor for cable
- Cable: Ø9.5 mm to 35.5 mm
- Bar: 50x90 mm (CTV-8X)
- Primaries from 60 A to 800 A
- Secondary: 0.333 VAC
- CE, cURus



CTA 5X/6X

- Split-core current sensor for cable
- Cable: Ø24 mm to 36 mm
- Primaries from 100 A to 600 A
- Secondary: 5 AAC
- CE, cURus

3-phase power analyzers	3-phase power analyzers	3-phase power quality analyzers	3-phase branch circuit power analyzers
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WM15

- Dimensions: 96 x 96 mm
- Installation: panel mounting
- Power analyzers, metering from external inputs, THD measurement.
- Measurement of voltage, current, power, power factor and frequency.
- Bi-directional energy metering on 10-digit counters, cl. B (EN50470-3)
- Voltage inputs: 230, 400, 480 or 600 VLL
- Current inputs: 5 A
- Auxiliary or self-power supply
- RS485 Modbus RTU, and pulse outputs
- Sealable terminal covers
- CE, MID (PF), cULus



WM20

- 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 DPVO communication port available
- Configuration software (PC or Android app)
- cULus



WM30 / WM40

- 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 DPVO 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



WM50 and TCD12

- Dimensions: 96 x 96 mm
- Installation: panel mounting
- Up to 96 channels, 32 A, 65 A max (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 settable set point for load monitoring
- Built-in datalogger for variables/events
- Configuration software (PC or Android app)
- cULus

Energy management

1-phase energy meters for 32A



EM110

- Dimensions: 1 DIN module
- Installation: DIN-rail
- Electromechanical totalizer
- Bi-directional energy metering, 7 digits cl. B (EN50470)
- Measuring inputs: 115/230 VAC, 32 A (max 45 A)
- Self-powered
- Pulse output
- Sealable terminal covers
- CE, MID (PFB), cULus (115 V)

1-phase energy analyzers



EM111 / EM112

- 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, 32 A (EM111), 100 A (EM112)
- Self-powered
- Dual tariff management
- Pulse output or RS485 Modbus or M-Bus port
- Sealable terminal covers
- CE, MID (PFA and PFB), cULus (115 V)

3-phase energy analyzers



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, MID (PFA and PFB), cULus

3-phase energy analyzers



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 / ET330 / ET340

- Dimensions: 2 DIN (ET112); 3 DIN (ET330, ET340) modules
- Installation: DIN-rail
- Measurement of voltage, current, power, power factor and frequency.
- Bi-directional energy metering, 2 tariffs, cl. 1 (EN62053-1)
- Measuring inputs: 115/230 VAC, 100 A (ET112); 208 to 400 V_{LL} AC, 5(6) A current input via current transformer (ET330); 65 A (ET340);
- Self-powered
- RS485 Modbus port (screw, 2x RJ45)
- Optical port
- Sealable terminal covers
- CE

Communication interface OptoProg



OptoProg

- Bluetooth and USB interface for meters and analysers with optical port
- Compatible with WM15, WM20, WM30, WM40, WM50 and ET100, ET300 families
- Compatible with UCS PC software and UCS Mobile Android APP
- Battery powered
- CE, FCC, IC, Bluetooth

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, cURus, CSA

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 or self-powered
- 3 inputs for external dimension counting (IS)
- Pulse or relay output; RS485 (Modbus RTU), Ethernet (Modbus TCP), M-Bus (wired and wireless)
- Sealable terminal covers
- CE, MID (PF), cULus (5 A and Ethernet ver.)

Energy management

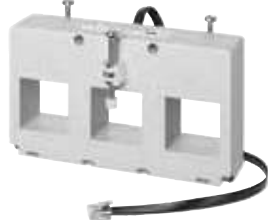
Quick-fit 3-phase energy analyzers



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
- Active energy: Equivalent to Class 1 (EN62053-21)
- 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

- Equivalent to class 0.5 (current) of IEC61869-2
- 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



TCD06 BX / TCD06 BS

- Equivalent to class 0.5 (BX) and class 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)

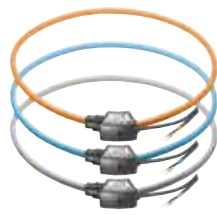
3-phase energy analyzers for 5A, CTV or ROG 4K



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 V 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, MID (AV and PF version)

Rogowski coil for EM210



ROG 4X

- Flexible current sensor (Rogowski coil) for EM210 (MV version)
- Primary current from 20 to 4000 A
- Secondary output 100 mV/kA
- Extended accuracy range $\pm 1\%$
- External coil diameter from 90 mm to 290 mm
- Coil thickness: 8.5 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
- CE, cURus

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 $\varnothing 15$ mm hole,
- 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: $\varnothing 33$ mm hole)
- True RMS AC and DC monitoring
- Voltage range: 800 VAC, 1000 VDC
- Current range: 300 AAC, 400 ADC

Energy management

Monitoring gateway and controller



UWP 3.0

- Micro PC with embedded Web-Server
- Data and event logging from Modbus, Modbus/TCP and Dupline® devices
- Local gateway functions (to BACNet and Modbus/TCP)
- Remote gateway functions (FTP, SFTP, FTPS, Rest-API)
- Microsoft Azure Certified for IoT
- Huge ecosystem of compatible meters, sensors, actuators
- Flexible control functions
- Energy efficiency monitoring
- Building automation control
- Car parking guidance
- MAIA Cloud VPN for secure remote access
- Security capabilities verified by UL

USB Modem connection module



SH2 DSP24

- Dimensions: 2-DIN modules
- USB port to supply dongle modems
- Compatible with a wide range of USB Modems
- Watchdog features to prevent common mobile network glitches
- 24 VDC supplied

Long range endpoint adapter



UWP A

- 2-DIN modules
- Long range wireless, LoRaWAN®
- EU868 and US915 ISM Bands
- Power supply 24 VDC, 115-240 VAC
- CE, LoRaWAN Certified™
- Converts RS485 meters into IoT devices
- Compatible with most Carlo Gavazzi meters and analyzers
- Plug and play commissioning via UCS Software
- Up to 50 UWP A each UWP M
- Up to 10 km wireless communication distance in open air
- High performance antenna included

Long range wireless gateway



UWP M

- 2-DIN modules
- EU868 and US915 ISM Bands
- Power supply 24 VDC, 115-240 VAC
- Works in combination with the UWP 3.0 monitoring controller
- Up to 3 UWP-M for each UWP 3.0
- Up to 50 UWP-A endpoints for each UWP-M
- Plug and play set-up via UWP 3.0 Software Tool
- Up to 10 km wireless communication distance in open air
- High performance antenna included
- No need of any SIM cards

Cloud solution for multi-site monitoring



Em² Server

- Software 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
- Configurable reports in PDF or Excel formats
- Tariffs and contract management
- Alarms management
- Database replication from up to 100 VMU-C EM or UWP 3.0

M-Bus and wireless M-Bus concentrators



SIU MBM-01 / SIU MBM-02

- Dimensions 95 x 71 x 60 mm DIN-rail housing
- SIU MBM-01: M-Bus input
- SIU MBM-02: M-Bus and wireless M-Bus input
- MODBUS TCP/IP output
- Power supply from 15 to 21 VAC, from 18 to 35 VDC
- Ethernet port
- MBUS and Wireless M-Bus scan feature
- SIU MBM-01: up to 20 M-Bus connectable devices
- SIU MBM-02: up to 20 M-Bus connectable devices and 32 wireless M-Bus devices
- SIU-MBM-01-160: up to 160 M-Bus connectable devices
- Set-up by UCS software

Quick-fit 3-phase energy transducer



ET272 + VMU C EM

- Dimensions: 4 DIN modules
- Installation: DIN-rail mounting
- Two 3-phase energy transducers in one
- Current measurement by split-core with RJ plug
- Quick installation through RJ connectors
- Automatic recognition of CT ratios
- Measurement of voltage, current, power, power factor and frequency
- Energy metering, cl. 1
- Inputs: 3 x 230 (440) VAC, current range according to the TCD accessories
- Outputs: 2 pulse (loads 1 and 2)
- RS485 Modbus RTU
- Self addressing function by means of VMU C EM
- CE, cULus

Pulse counter concentrator + extension



VMU MC / VMU OC

- Dimensions 1 DIN modules
- VMU MC: 2 SO input (pulse counting or ON/OFF monitoring)
- VMU OC: 3 SO input (pulse counting or ON/OFF monitoring)
- VMU MC: MODBUS output
- VMU OC: local bus connection to VMU-MC
- VMU MC: 24 VDC power supply
- VMU OC: local bus power supply
- VMU MC: LCD display
- VMU MC: modular solution (from 2 to 11 SO inputs)
- VMU OC: extension module for VMU-MC
- Configuration by UCS Software
- Compatible with Utility meters with SO output

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