

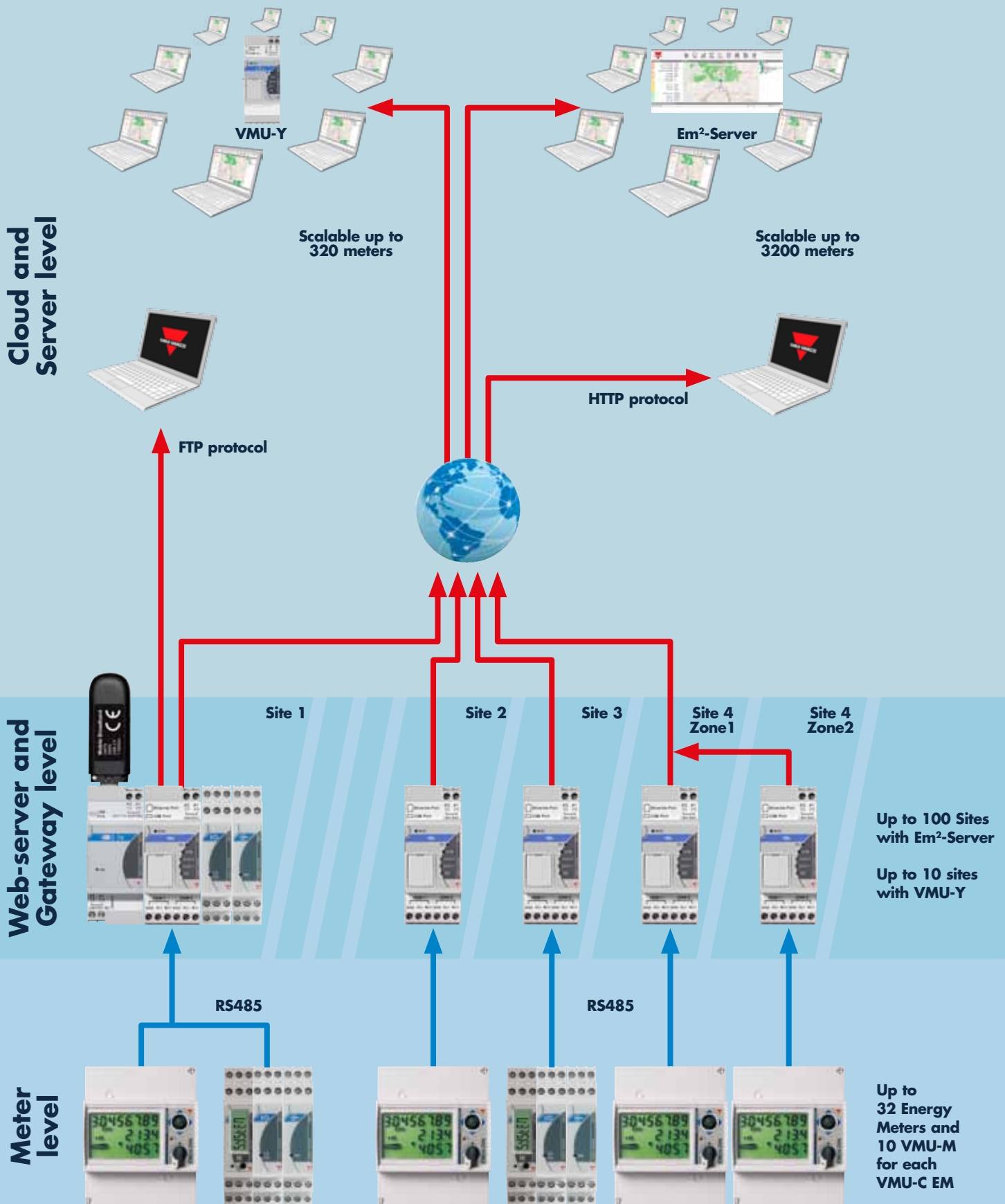


Overview

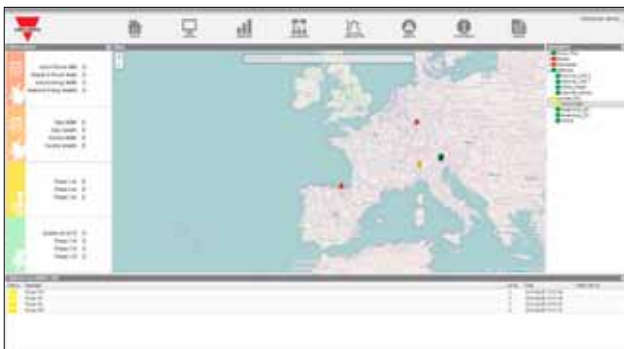
Energy management

Overview

Diagrams



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



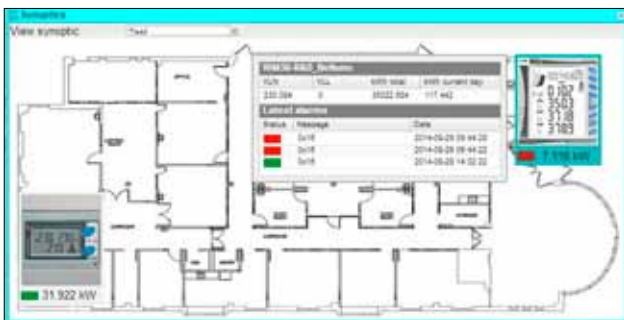
Monitoring and analysis tool

- 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

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 or bus-bar
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TADK/TADK-2

- Wound primary
- Primaries: 1A to 40A (TADK)
1A to 250A (TADK-2)
- Secondary: 5A (standard)
1A (available upon request)
- Sealable terminal covers
- CE



CTD-1X/2X/3X/4X

- For cable or bus-bar
- Cable: Ø23mm to Ø51mm
- Bar: 20x5mm to 64x20mm or 51x43mm
- Sealable terminal covers
- Primaries from 50A to 1600A
- Secondary: 5A (standard)
1A (available upon request)
- IEC60044-1
- CE, cURus



CTD-5S/6S

- Split-core for cable or bus-bar
- Cable: Ø26mm to Ø50mm
- Bar: 26x32mm, 50x52mm
- Sealable terminal covers
- Primaries from 100A to 1000A
- Secondary: 5A (standard)
1A (available upon request)
- IEC60044-1
- CE, cURus



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

- Solid or split-core for cable or bus-bar
- Bar: 31x81mm (vertical), 81x31mm (horizontal) to 38x127mm
- Sealable terminal covers
- Primaries 150A to 4000A
- Secondary: 5A (standard)
1A (available upon request)
- IEC60044-1
- CE, cURus



CTV-1X/2X/3X/4X

- Split-core current sensor for cable
- Cable: Ø9.6mm to 20mm
- Primaries from 60A to 400A
- Secondary: 0.333VAC
- CE, cURus

3-phase multi function meters	3-phase multi function meters	3-phase energy analysers for retro-fit	3-phase energy analysers for 5A or 0.333mV CTs
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WM10

- 3-phase multifunction meter with direct connection
- Direct connection up to 65 A
- Dimension 4-DIN rail module housings
- Accuracy 0.5%
- Display 3 variables at a time
- Direct measurement in a very compact housing to save space
- Measurement of both system and single phase variables
- Easy installation: no parameters programming needed



WM12DIN/WM14DIN WM1296/WM1496

- Dimensions: 6 DIN modules or 96x96mm
- 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: 230VAC, 5A
- Power supply: 90-260VDC/AC
- Pulse or relay outputs
- RS485 Modbus
- CE, cULus



EM21 72R EM21 72V

- Dimensions: 4 DIN modules or 72x72mm
- Installation: DIN-rail or panel mounting
- LCD with two installation options.
- Measurement of voltage, current, power, power factor and frequency
- 7-digit energy metering, EM21 72R: cl. 2 (EN62053-21), EM21 72V: cl. 1 (EN62053-21)
- Voltage inputs: 3x230(400)VAC.
- Split-core current sensors: 90A, Ø10mm (VV23), 150A Ø16mm (VV33), 250A Ø24mm (VV53) EM21 72V: 0.333mV from CTV-xX sensors
- Self-power supply
- Pulse outputs, RS485 Modbus RTU
- CE, cULus



EM210

- Dimensions: 4 DIN modules or 72x72mm
- 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: 5A CT (AV version) or 0.333mV from CTV-xX sensors (MV version)
- Self-power supply
- Pulse output 1, RS485 Modbus RTU, high speed (up to 115kbps)
- Sealable terminal covers
- CE, cULus

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, 45A
- Self-powered
- Pulse output
- Sealable terminal covers
- CE, MID (PFB)

1-phase energy analysers 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, 45A
- Self-powered
- Dual tariff management
- Pulse output or RS485 Modbus or M-Bus port
- Sealable terminal covers
- CE, MID (PFB)

1-phase energy analysers 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 (PFB)

3-phase energy analysers 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: 230 to 400 VLL ac, 65A
- 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 analysers



EM24

- Dimensions: 4 DIN modules
- Installation: DIN-rail
- Meter for energy from CT 5A or for direct energy 65A. 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: 5A, 65A
- 115-230VAC 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 meters



EM23 / EM33

- 3-phase energy meter with direct connection
- Direct connection up to 32A (EM33) or 65A (EM23)
- Dimensions: 4-DIN rail module housings
- Class 1 (kWh) acc. to EN62053-1
- Serial RS485 or open collector (EM23) output
- Sealable terminal covers
- CE, MID (PF)

3-phase power quality analysers/transducers



WM5

- Dimensions: 96x96mm panel;
- Accuracy 0.2% (voltage, current)
- Universal power supply
- Front protection degree IP65, NEMA4X, NEMA12
- cULus approved, Measurement Canada certified
- 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

3-phase energy analysers



EM26

- Dimensions: 96x96mm
- 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: 5A
- Power supply 90-260VDC/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 analysers



EM270 / EM271

- Dimensions: 4 DIN modules or 72x72mm
- Installation: DIN-rail or panel mounting
- Two 3-phase energy analysers with sum function
- Current measurement by triple CT, solid core (EM270), split-core (EM271) 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: 3x230(440)VAC, current range according to the TCD accessories
- Outputs: 2 pulse (loads 1 and 2)
- RS485 Modbus RTU
- CE, cULus (EM270)

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



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

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

Multiple miniature split-core current sensor for EM271



TCD_M

- Equivalent to Class 1 (currents) of EN60044-1
- Primary: 60A (TCD0M), 100A (TCD1M), 200A (TCD2M), 400A (TCD3M)
- Hole size: 9.6mm (TCD0M), 15.5mm (TCD1M), 15.5mm (TCD2M), 20.5mm (TCD3M)
- Cable length: 1.8m (TCD0M), 1.5m (TCD1M and TCD2M), 2.0m (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 (80cm) from TCD_M head to EM271 energy meter through RJ11
- CE

Quick-fit 3-phase energy analysers



EM280

- Dimensions: 4 DIN modules or 72x72mm
- Installation: DIN-rail or panel mounting
- Six 1-phase or two 3-phase energy analysers with sum function
- Current measurement by six channels, solid core CT block with RJ plugs
- Quick installation through RJ connectors
- Automatic recognition of CT ratio
- Measurement of voltage, current, power, power factor and frequency,
- Energy metering, cl. 1.
- Inputs: 3 x 230(440)VAC, 6 x 32A
- Outputs: 2 pulse (loads 1 and 2)
- RS485 Modbus RTU
- CE

Multiple current transformer block for EM280



TCD06BX

- Equivalent to Class 0.5 (current) of EN60044-1
- Primary current: 32A
- Hole size: 7mm
- Hole centre distance: 17.5mm
- RJ11 cable length: 80, 150 or 200cm
- Auto-detection of the primary current rated value by the EM280 energy meter
- CE

3-phase power quality analysers



WM30 / WM40

- Dimensions: 96x96mm panel mounting housing
- Accuracy 0.2% (voltage, current)
- Universal power supply
- Front protection degree IP65, NEMA4X, NEMA12
- cULus approved; Solar California listed
- Modular housing to build the instrument according to the real application needs
- Modbus and BACnet (both RS485 or Ethernet), 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)

3-phase power quality transducers



PQT-H

- Dimensions 90x90mm DIN rail housing
- Accuracy 0.2% (voltage, current)
- Universal power supply
- Event data stamping and 12-tariff energy management
- cULus approved
- 16-alarm PLC logic and digital inputs for utility metering
- Modular housing to build the instrument according to the real application needs
- Modbus RS485 and Ethernet communication ports available

3-phase power transducers



CPT-DIN

- Dimensions: 45x83.5x98.5mm
- 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 3x230(400)VAC, 5A
- Power supply: 18-60 or 90-260VDC/AC
- Outputs: 3 analogue 20mA, or 3 10VDC, 2 relays for alarms
- RS485 Modbus RTU
- CE, cURus, 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-W alarm management (e-mail or SMS)
- Power supply: 24VDC
- 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 (+/- 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 0-20mA
- 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

Embedded aggregation server



VMU-Y EM

- 2-DIN size; DIN-rail mounting
- Multi-site monitoring management
- Power supply 24VDC (\pm 20%)
- 2 USB ports (data /connection backup)
- 1 SD port (backup)
- 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 10 VMU-C EM

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 management
- 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

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