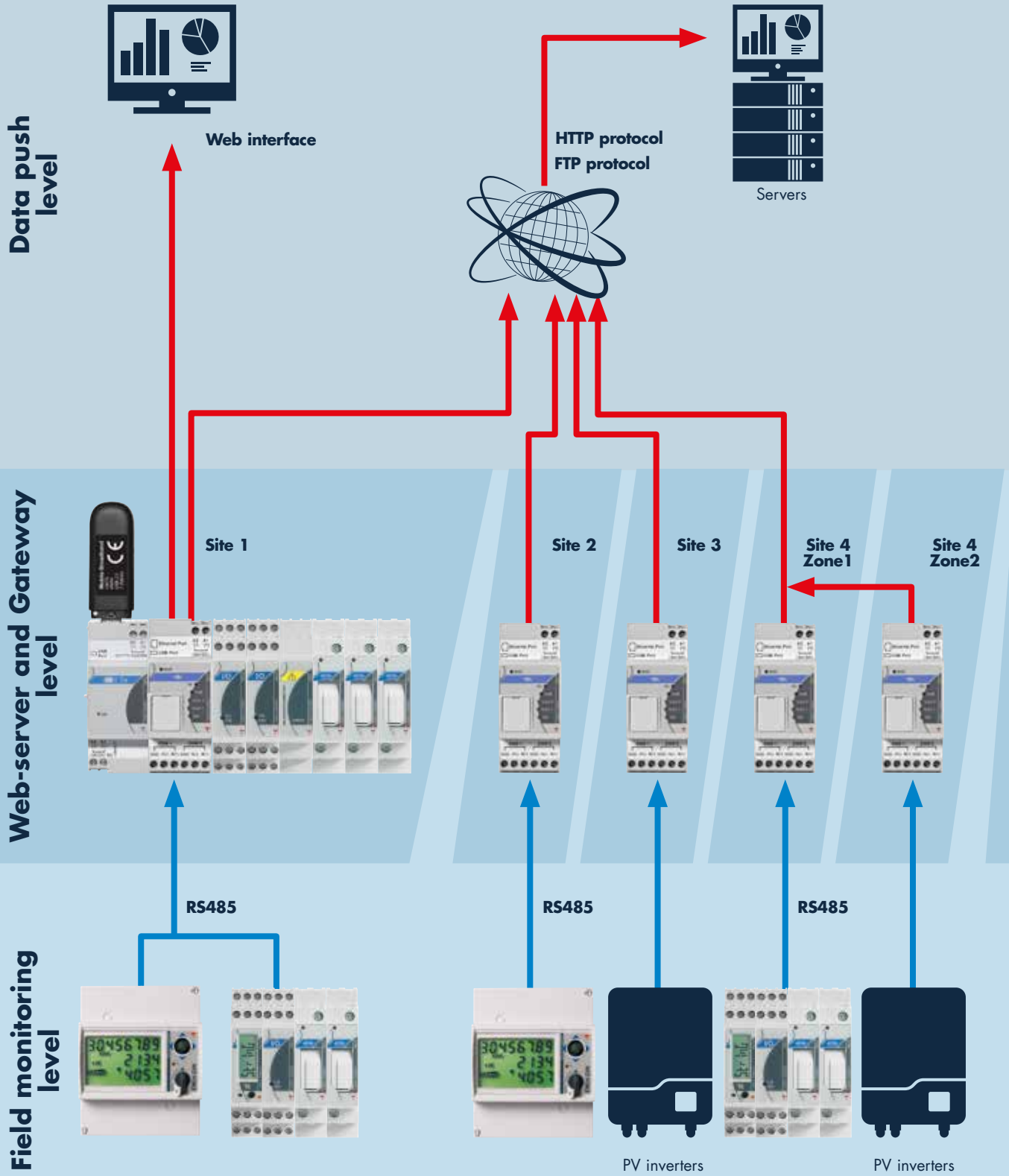




Overview

PV monitoring

PV monitoring diagram



Up to 64 Energy meters + Inverters and 14 VMU-M (string-boxes) for each VMU-C PV

Overview

PV monitoring

Solar monitoring solutions



Eos-Array / Eos-Array Lite

- Modular local monitoring system for PV plant
- Up to 16 DIN module configuration
- Eos-ArraySoft, freeware configuration software
- Eos-Array can manage in addition to VMU-M unit up to: 1 VMU-P, up to 15 VMU-S and up to 7 VMU-O for a total of maximum 15 units

MAIN FEATURES

- The Eos-Array solution can be composed of: VMU-M the master unit and data logger; VMU-S the string controller; VMU-P the environment variable unit and VMU-O the I/O unit
- Eos-Array Lite is the answer to those photovoltaic applications where a less sophisticated monitoring solution is needed

Web servers and dataloggers



VMU-C PV (Eos-Web)

- Dimensions: 2 DIN modules
- Micro PC with web server and web service capability
- Data and event logging capability
- Internal 4GB memory and 16GB SDHC card back-up memory (on request)
- Variables shown as graphs and numbers in formatted tables
- All data exports on HTML format compatible with Excel or other spread sheets
- Management up to 14 Eos-Array, 64 inverters + energy meters

MAIN FEATURES

- Efficiency calculation and control on different levels: string, BOS and Performance ratio and Yield indices
- Alarms control with automatic e-mailing and SMS management by means of VMU-D

USB dongle connection modules



VMU-D

- Dimensions: 2 DIN modules
- Compatible with Carlo Gavazzi approved 3G/4G USB modems
- Power supply: 24 VDC (+/- 20%)
- Suitable for use with VMU-C

MAIN FEATURES

- 3G or 4G Mobile Internet connectivity
- SMS alerting
- SMS commands

Interface protections



PI-DIN

- Dimensions: 90 x 71 x 66 mm
- Interface protection monitoring relay for 1-phase or 3-phase systems with or without neutral
- Voltage and frequency protection
- 4 inputs (CEI-021) or 2 inputs (VDE4105), 2 outputs
- Measure V, Hz
- Auxiliary power supply 230 VAC or 24 VDC
- Data logger with 10 last events logging

MAIN FEATURES

- Settings, menu and logger navigation by means of front joystick
- Password protected settings, Dual Function Alarm LED
- Certified according to Italian CEI 0-21 2012-06 and V1:2012-12 and German VDE-AR-N-4105:2011-0
- Anti-islanding on VDE model

Interface protections



DPC02DM...B005

- Dimensions: 45 x 80 x 99.5 mm
- DIN rail mounting
- Power: 208 to 240 VAC or 380 to 415 VAC
- Protection degree: IP20
- Output: programmable relays 2 SPDT N.E. or 1 DPDT N.E.

MAIN FEATURES

- One-phase and three-phase relays for monitoring maximum and minimum voltage and frequency, phase sequence and phase failure. It checks that frequency and voltage are within the limits set by the utility

Interface protections



DPC72DM

- Dimensions: 90 x 71 x 65 mm, 4 DIN module
- DIN rail mounting – sealable housing
- Values and intervention time programming
- Serial port RS485 Modbus RTU
- Protection degree: IP50
- Output: 1 DPDT N.E.

MAIN FEATURES

- One-phase and three-phase relays for monitoring maximum and minimum voltage and frequency, phase sequence and phase failure. It checks that frequency and voltage are within the limits set by the utility
- Record of the last 10 events (date, time and reason for the event)

PV monitoring

Surge arresters



DSC

- Dimensions: 90 x 72 x 70 mm
- Class I and II
- Protective element: High Energy MOV
- High surge discharge rating: $I_{imp} = 12.5$ kA per pole
- Housing: compact design

MAIN FEATURES

- Specifically designed for PV installations with or without LPS (Lightning Protection System)
- Location of use: photovoltaic system - PV module side

Surge arresters



DSB / DSF

- Dimensions: 90 x 36 x 72 mm
- Class II
- Available for PV and AC installations
- Models for communication lines
- Optional remote monitoring
- For DIN rail mounting

MAIN FEATURES

- NO backup fuse required
- Appr. Acc. to IEC61643-11 and UTE C61-740-51
- Complies with prEN50539-11

Surge arresters



DSB51XXDP

- Dimensions: 90 x 12 x 71.5 mm DIN-rail housing
- 15 VDC nominal voltage
- 10 kA I_{nom} , 20 kA I_{max}
- Rated spark overvoltage 184V to 276V
- C1/C2/C3 according to IEC 61643-21

MAIN FEATURES

- Designed for Dupline® communication lines
- Three stage topology with dual GDT
- Socket with replaceable cartridge

Switching power supplies



SPM

- DIN rail housing
- Universal input 90-264 VAC / 120- 370 VDC
- Single phase and battery charger versions available
- Approvals/Marks: UL, cUL listed and TÜV/CE approved

MAIN FEATURES

- Operating temperature w/o derating -25°C to +60°C
- Short circuit and Overload protection
- High efficiency (up to 89%)

DIN rail DC/DC converter



DCC 24VDC

- DIN rail mounting
- Ultra wide input: 200 - 1500 VDC
- 24VDC 15 W/40 W output
- High efficiency up to 80%
- Wide temperature range -40 to +70° C
- Output over voltage and short circuit protection
- Reverse input protection

MAIN FEATURES

- Widely used in Photovoltaic power generation with high voltage inverters
- It provides stable operating voltage to low voltage DC equipment
- Option of built-in high voltage fuse and EMC filter

3-phase energy analysers



EM24 DIN

- Dimensions: 4 DIN modules
- 3-phase energy analyser with direct connection
- Current input for direct connection up to 65A or external CT connection
- Class 1 (kWh) acc. to EN62053-1
- Pulse open collector output
- Modbus communication port

MAIN FEATURES

- Direct or external CT measurement in a very compact housing to save space
- Suitable for measuring generated and consumed energy
- MID Annex D certification available

PV monitoring

Contactless power analysers



CPA050 / CPA300

- CPA050: 63 x 46 x 25 mm (without connectors); CPA300: 99 x 89 x 30 mm (without connectors)
DIN rail and panel mounting
- Power analyser
- 1-phase AC (from 1 to 400 Hz) or DC
- Power supply from 9 to 30 VDC

MAIN FEATURES

- Contactless Hall effect sensing for current
CPA050: 15 mm hole diameter
CPA300: 33 mm hole diameter
- True RMS AC and DC monitoring
- Voltage range: 800 VAC, 1000 VDC
- Current range: 50 AAC, 50 ADC (CPA050)
300 AAC, 400 ADC (CPA300)

Contactless power analysers



CPA300-V

- Dimensions: 99 x 89 x 30 mm (without connectors);
DIN rail and panel mounting
- Current transducer for PV installations up to 1500 VDC
- 1-phase AC (from 1 to 400 Hz) or DC
- Power supply from 9 to 30 VDC

MAIN FEATURES

- Contactless Hall effect sensing for current
- Current range: 300 AAC, 400 ADC
- Modbus RS485 and analog output

Temperature sensors



TEMPSOL / IKE20001K

- Temperature Pt100 or Pt1000 (TEMPSOL)
- Temperature Pt1000 (IKE20001K)
- $\pm 0.3^{\circ}\text{C}$ connection type
- 2 wire connection type

MAIN FEATURES

- Specifically design to measure the temperature of PV panels (TEMPSOL)
- For air temperature measurement in PV plants (IKE20001k)

Irradiation sensors



PVS-1

- Dimensions: 57 x 48 x 15 mm (not including clamp)
- Sensor type: crystalline silicon cell
- No need for external power supply (self-powered)
- Long lasting 3% accuracy, thanks to a special antiageing treatment
- Calibration process according to IEC 60904-2 and 60904-4
- Two available versions: 4-20 mA output / 0-80 mV output

MAIN FEATURES

- Long life rugged aluminium case
- UV resistant resin encapsulation
- Fast installation, thanks to the clamping system designed to easily fit the photovoltaic module's frame

Pyranometers



PVS-2A

- Dimensions: 162 x 215 x 40 mm (not including clamp)
- 2nd class thermopile pyranometer
- 4-20 mA output for reliable connections
- Calibration certificate according to ISO 9847

MAIN FEATURES

- Compact and rugged IP67 aluminium case
- Compliant with WMO (World Meteorological Organization) for environmental monitoring
- Compliant with ISO9060 and IEC17025 for photovoltaic monitoring

Anemometers / Wind vanes



DWS-D / DWS-V

- Rotor size: 145 mm
- PNP & NPN open collector output in one unit
- Rotor: black painted stainless steel
- Wind vane for relative wind direction (0 and 90 degree internals -DWS-D-DAC13) (+/- 7 degree of wind direction, left/right wind indication DWS-D-DDC13)
- Anemometer with opto-electronic detection (DWSV...)
- Measuring range 2 to 30 m/s
- Current source output 10 to 28 VDC supply

MAIN FEATURES

- Opto-electronic detection
- All inputs and outputs are protected against reverse polarity and transients
- Dust sealed stainless steel ball bearing

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