domat
control system

COM. INTERFACE

Communication interface for PV plant monitoring

Summary

Cabinet for data concentration from string monitoring boxes RFVE, cumulated values from energy meter(s), inverter data and other process values (by analogue and digital inputs). The measured data are processed and communicated over Ethernet (local network infrastructure) to the monitoring system or datalogger cabinet.

Application

Solar photovoltaic systems – data acquisition from string monitoring boxes, inverters, and other measuring points

Function

The interface collects data from following devices:
- RFVE string monitoring boxes (max. 50 boxes)
- inverters communicating over RS232, RS485 or Ethernet
- energy meter(s) at the inverter AC output if installed
- outside, panels and room temperatures, solar radiation intensity etc. (suitable sensors are necessary)
- protective devices states, switches, tamper contacts etc. – free definable according to site configuration

All data are brought to the Ethernet and communicated to a supervisory SCADA or PLC, or available over a web server. As an option, a M-Bus converter is supplied for energy metering integration.

Technical data

Power	230 V AC, max. 25 VA
Interfaces	
Ethernet	Ethernet 10/100BaseT, RJ45 for communication to SCADA and optionally to inverters
RS232	optionally 1x for inverter, 300 ... 115200 bit/s
RS485	1x for string monitoring boxes optionally 1x for inverter
	300 ... 115200 bit/s
M-Bus (optional)	1x energy meter data acquisition, max. 60 meters
Analogue inputs	2x passive (temperature, resistance), or 0...10 V – configurable (AI1, AI2)

	2x passive (temperature, resistance) (AI3, AI4)
Binary inputs	4x, 24 V AC @ 7mA for external potential-free contacts
Analogue outputs	2x 0-10 V DC min. 10kΩ, max. current 10 mA, short-circuit proof with current limitation to 20 mA
Binary outputs	5x relay, NO contact 5A/250 V AC, 5A/30 V DC, 750 VA, 90 W 2x triac 24 V AC, 0.5 A
Cabinet	Polyester – SMC Preprec, grey cable glands below, fixed by 4x M8 scrwes or on any flat base, UV resistant, self-extinguishing, halogen-free
Dimensions	500 (w) x 600 (h) x 300 (d) mm
Protection	IP43
Outside temperature	-20...50°C
Surge protection	Type I and II according to IEC 61643-1
Power terminals	Screw terminals, cables up to 6 mm2
Communication and I/O terminals	Screw terminals, cables up to 6 mm2

Supported inverter types

- Schneider Electric - Xantrex (over RS485)
- Advanced Energy – Solaron (over Ethernet)
- SMA
- Refu - Refusol (over RS485)

In preparation:

- Oelmaier
- Power One – Aurora
- LTi
- Sinvert

Shop drawings of the panel and item list are in a separate document and are not part of this data sheet.

Terminals

Ethernet (RJ45) connects directly to the PC in the cabinet and is not brought to the terminal rail.

Block	Terminal	Function
X	L	Power 230 V, 50 Hz live
	N	Common
	PE	Protective earth
XC	K+	RS485 to inverters, positive
	K-	RS485 to inverters, negative
XN	G	24 V AC for powering of optional active sensors
	G0	24 V AC common
	G	24 V AC for powering of optional active sensors
	G0	24 V AC common
XM	1	M-Bus
	2	M-Bus
XDI	C	Binary inputs, common terminal (source of 24 V AC)
	1	Binary input DI1
	2	Binary input DI2
	3	Binary input DI3
	4	Binary input DI4
XAI	1	Analogue input 1 – temperature or 0..10 V
	2	Analogue input 1, signal earth
	3	Analogue input 2 – temperature or 0..10 V
	4	Analogue input 2, signal earth

	5	Analogue input 3 – temperature
	6	Analogue input 3, signal earth
	7	Analogue input 4 – temperature
	8	Analogue input 4, signal earth
XAO	1	Analogue output AO1
	C1	Analogue output AO1, signal earth
	2	Analogue output AO2
	C2	Analogue output AO2, signal earth
XDO	1	Binary output (relay) DO1
	2	Binary output (relay) DO2
	3	Binary output (relay) DO3
	C123	Binary outputs DO1 to DO3, common terminal
	4	Binary output (relay) DO4
	C4	Binary output (relay) DO4
	5	Binary output (relay) DO5
	C5	Binary output (relay) DO5
	6	Binary output (triac 24 V, 0.5 A) DO6
	7	Binary output (triac 24 V, 0.5 A) DO7
	C67	Binary outputs DO6 and DO7, common terminal

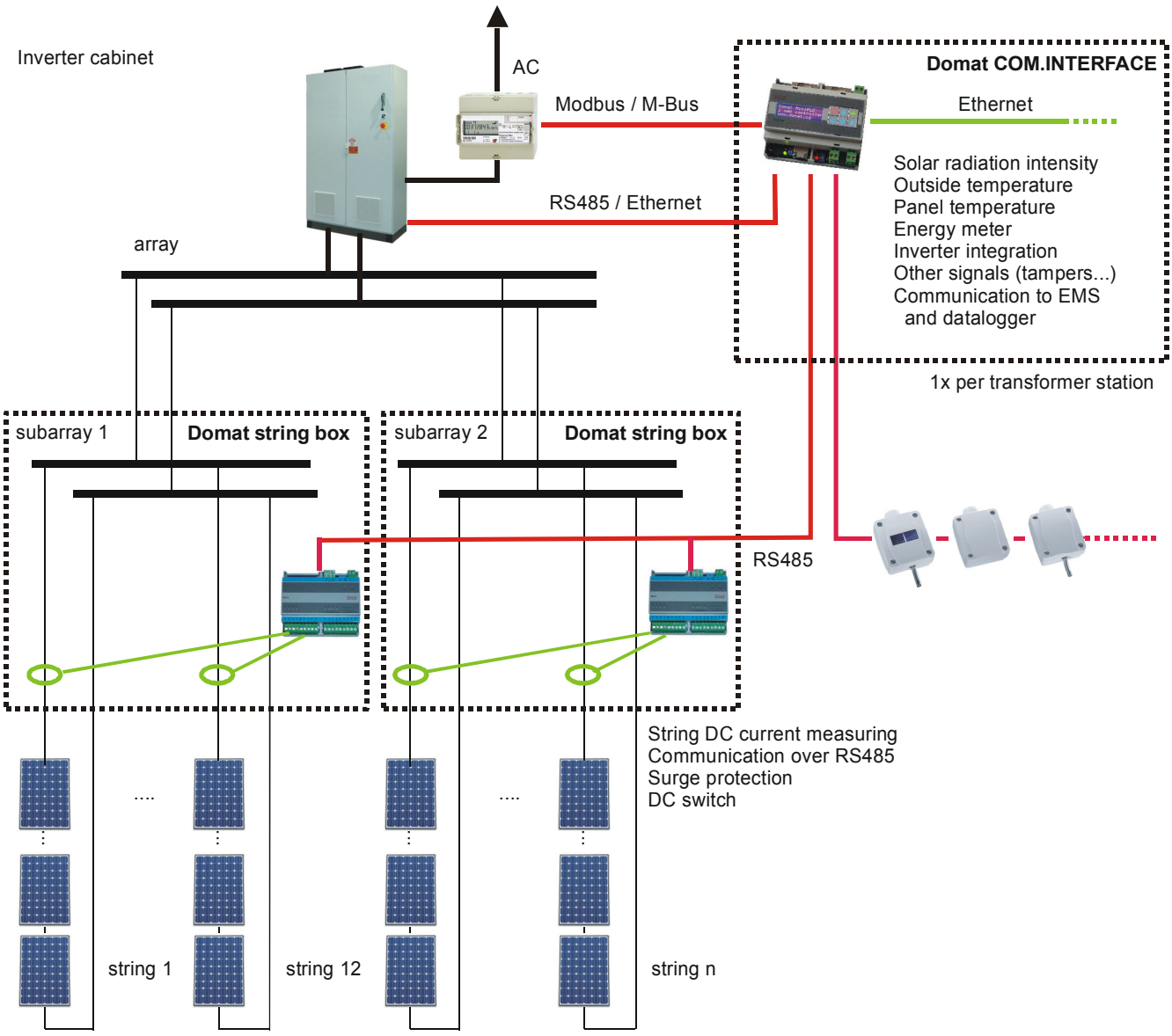
Optional accessories

S010-MBUS	RS232 – M-Bus converter
M012	RS232 – RS485 converter, optically separated
ALTM2-U	active strap-on temperature sensor, separate measuring element
ATM1-U	active outdoor temperature sensor
UI071	communicative room temperature sensor, RS485
M700	2x counter input module

Related products

RFVE	string monitoring box
DATALOGGER	data acquisiton box for PV plant monitoring
RC-Vision	SCADA software
Domat EMS	graphical supervisory system for energy controls
RPQC	active and reactive power controller

Topology:


Inverter cabinet
AC
Modbus / M-Bus
Domat COM.INTERFACE
Ethernet
RS485 / Ethernet
Solar radiation intensity
Outside temperature
Panel temperature
Energy meter
Inverter integration
Other signals (tampers...)
Communication to EMS
and datalogger
array
1x per transformer station
subarray 1
Domat string box
subarray 2
Domat string box
RS485
String DC current measuring
Communication over RS485
Surge protection
DC switch
....
....
string 1
string 12
string n