Energy Management Accessories Type Eos-Gate

- **Embedded PC with data acquisition, data logging and protocol conversion capabilities**
- **Internet Gateway from Eos-Array and Eos-Array Lite to Fat Spaniel® Web Platform**
- **Two RS485 communication ports (Modbus)**
- **Two Ethernet ports**

Product Description

The Eos-Gate is a device which allows to monitor a photovoltaic installation by means of a remote Web Portal. The Eos-Gate polls data (measurements and alarms) from a set of monitoring devices installed in the plant location and transmits those data to a remote web-server through internet using a shared communication protocol. Data-logging features are used to secure the communication so to not lose data. The Eos-Gate polls data from the Carlo Gavazzi's AC meter and from the Eos-Array/Eos-Array Lite string combiner DC monitoring system, so that it provides a complete AC and DC monitoring of a photovoltaic plant. The Eos-Gate transmits data to the Fat Spaniel® Portal using a push-based tecnology which avoids firewall related issues. The Fat Spaniel® Portal is a web portal platform which allows the user to manage its data remotely with an easy and powerful web based user interface.

How to order

Eos-Gate D XX X

Model ———————
Power Supply ———————
Option ———————
Special features ———————

Type Selection

Power Supply	Option	Special features
D: from 12 to 48VDC	**XX:** none	**X:** none

Hardware

Type		Comunication Port	
Operating System	Embedded PC Linux kernel 2.6	Ethernet	2 ports for internet/LAN connection
Processor	ARM9 RISC 32-bit 192Mhz	RS485	1 port for Eos-Array/Eos-Array Lite and Carlo Gavazzi's AC meters connection
Operation	Fan-less		
Memory			1 port for third party devices
RAM	32MB		
Flash ROM	16MB		
Integrated SD	1 GB industrial grade, SLC type		
Alert tools	Built-in RTC (real-time clock) Built-in buzzer		

Supply specification

DC supply	12 to 48 VDC	AC/DC power supply adapter	Universal power adapter included
Power-on indication	System ready LED		
Power consumption	340 mA @ 12V (4.5W)		

Input/Output specifications

LAN
Ethernet — 2 auto sensing 10/100 Mbps ports

Connector — RJ45
Magnetic Isolation Protection: 1.5kV built-in

"Link" indication — LED
10M/Link (x2), 100M/Link (x2)

Serial Interface
RS485 ports — 2
Connector — DB9 male
ESD protection — 15kV for all signals

Indicators — LED TxD (x2), RxD (x2)
Baudrate — selectable from 9600bps to 115200bps

Management
Eos-Gate — Web based software for configuration and testing.The software is based on the Eos-Gate internal web server and allows to configure and test the Eos-Gate through a TCP/IP connection.

General specifications

Operating Temperature — -10°C to +60°C
5% to 95% RH (non-condensing)

Storage Temperature — -20°C to 80°C

EMC — CE (EN55022 Class A, EN61000-3-2 Class A, EN61000-3-3, EN55024) FCC (Part 15 Subpart B, CISPR 22 Class A)

Standard compliance
Safety — UL/cUL (UL60950-1, CSA C22.2 No 60950-1-03) EN60950-1

Approvals — CE

Housing
Dimensions (LxWxH) — 100 x26 x 111 mm

Weight — Approx. 280 g (packing included)

Mounting — wallmount or DIN rail

Main Function

Supported field devices — Carlo Gavazzi AC meter (up to 1 meter): EM21, EM24, EM26, WM30, WM40, WM5.
Carlo Gavazzi DC monitoring device (up to 10 Eos Array): Eos-Array/Eos-Array Lite

Supported Web Portals — Fat Spaniel® Insight Platform and Fat Spaniel® Solar Vision

Polling time interval — Sampling interval: 30 seconds; data are transmitted to the remote web platform every 10 minutes

Historical data storing — up to 30 days if internet connection is out of order

Managed data
Eos-Array
Electrical measurements — instantaneous values for DC current, DC voltage, DC power, DC energy, string Efficiency at string level and string-combiner level.

Environmental measurements — instantaneous values for ambient temperature, solar irradiation, wind speed according to the installed

Eos-Array modules and sensors relevant Eos-Array's status information

Alarms —

Eos-Array Lite
Electrical measurements — instantaneous values for DC current, DC voltage, at string level and string-combiner level.

Environmental measurements — instantaneous values for ambient temperature and solar irradiation according to the installed Eos-Array Lite modules and sensors

Alarms — relevant Eos-Array Lite's status information

Managed data for AC meters, 1-phase system — V= AC Voltage, instantaneous variable
A= AC Current, instantaneous variable
W = AC active power, instantaneous variable
kWh-= AC energy produced, instantaneous variable
kWh+= AC energy consumed, instantaneous variable

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Main Function (cont.)

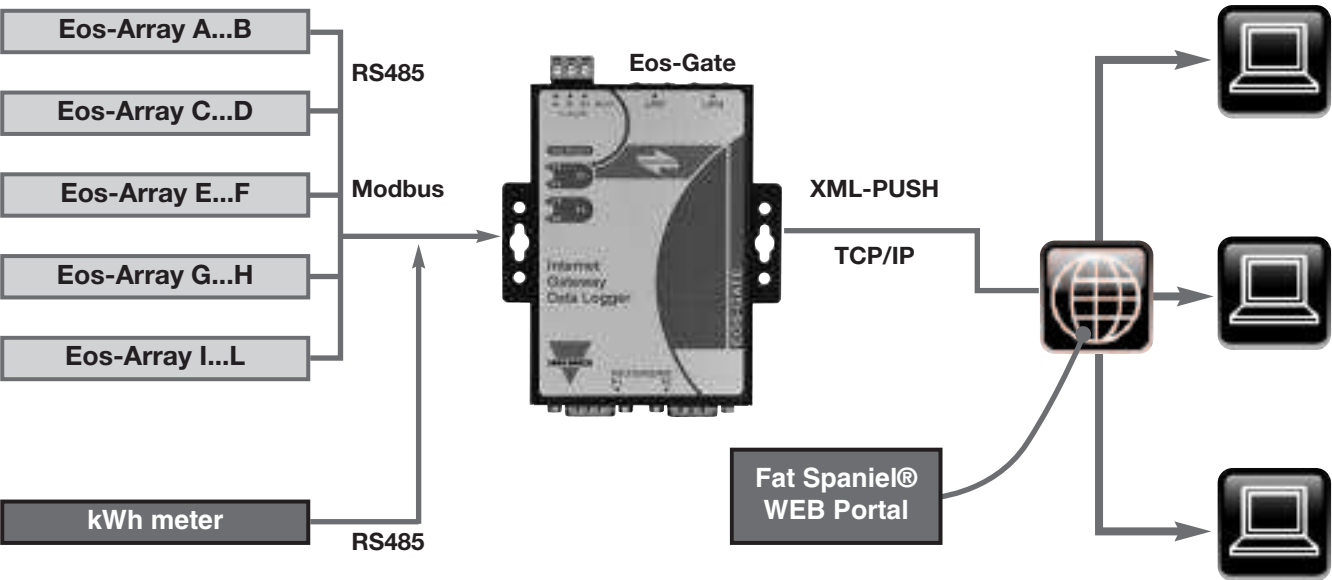| Managed data for AC meters, 3-phase 4-wires system	V_{L1}= AC Voltage phase L1, instantaneous variable; V_{L2}= AC Voltage phase L2, instantaneous variable; V_{L3}= AC Voltage phase L3, instantaneous variable; V_{L1-2}= AC Voltage phase L1 to L2, instantaneous variable; V_{L2-3}= AC Voltage phase L2 to L3, instantaneous variable; V_{L3-1}= AC Voltage phase L3 to L1, instantaneous variable; I_{L1}= AC Current phase L1, instantaneous variable; I_{L2}= AC Current phase L2, instantaneous variable; I_{L3}= AC Current phase L3, instantaneous variable; W_{L1}= AC Current phase L1, instantaenous variable; W_{L2}= AC Current phase L2, instantaenous variable; W_{L3}= AC Current phase L3, instantaenous variable; Wsys= AC active power, system, instantaneous variable; kWh-= AC energy produced, instantaneous variable kWh+= AC energy consumed, instantaneous variable	Managed data for AC meters, 3-phase 3-wires system	V_{L1-2}= AC Voltage phase A to B, instantaneous variable; V_{L2-3}= AC Voltage phase B to C, instantaneous variable; V_{L3-1}= AC Voltage phase C to A, instantaneous variable; I_{L1}= AC Current phase A, instantaneous variable; I_{L2}= AC Current phase B, instantaneous variable; I_{L3}= AC Current phase C, instantaneous variable; W_{L1}= AC Current phase A, instantaenous variable; W_{L2}= AC Current phase B, instantaenous variable; W_{L3}= AC Current phase C, instantaenous variable; Wsys= AC active power, system, instantaneous variable; kWh-= AC energy produced, instantaneous variable kWh+= AC energy consumed, instantaneous variable

Eos-GateSoft programming parameters

Internal web server	Configuration software based on a web server integrated into the Eos-Gate; the web based interface allows to configure parameters and test the Eos-Gate functionalities	Web Portal parameters configuration	Configuration of the relevant Web Portal parameters (internet address, authentication codes)
Network Configuration	RS485 parameters configuration TCP/IP network parameters configuration	Added services	dyndns management, NTP (network time protocol) synchronization
Field devices configuration	Scanning mode available for Eos-Array/Eos-Array Lite and Carlo Gavazzi's AC meters		

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Example of communication architecture

Eos-Array A...B	
Eos-Array C...D	RS485
Eos-Array E...F	Modbus
Eos-Array G...H	
Eos-Array I...L	

Eos-Gate

XML-PUSH

TCP/IP

Fat Spaniel® WEB Portal

kWh meter

RS485

Dimension

Ø6 (0.24")
ø4 (0.16")
25 (0.98")
12.5 (0.49")
Ø7 (0.28")

111 (4.31")

21.3 (0.8")

47.3 (1.56")

unit=mm(inch)

26.0 (1.02")

77 (3.03")
88 (3.46")
100 (4.18")