ABB monitoring and communications PVI-AEC-EVO

PVI-AEC-EVO is the low cost solution for remote monitoring of PV plants with all ABB devices.

The modular and expandable architecture combined with the din-rail mounting system makes the PVI-AEC-EVO suitable for any kind of installation in PV plants where ABB inverters and Stringcomb have been installed.

The communication between the PVI-AEC-EVO and all other ABB devices is based on the proprietary Aurora Protocol while environmental data can be obtained by connecting analog sensors directly to the three available analog inputs.

Six digital inputs are also provided by PVI-AEC-EVO to connect a pulse counting meter as well as to detect specific status inputs.

Moreover, the presence of digital outputs allows PVI-AEC-EVO to satisfy the need of generating impulse signals, status signals or relay outputs.

The built-in 2 x 16 characters display along with the integrated Web User Interface, accessible via LAN connection, makes the system to be easy configured
Operating as gateway the PVI-AEC-EVO sends all data collected securely and reliably to the Aurora Vision® Plant Management Platform for performance monitoring, condition monitoring and data reporting.

Highlights
– An expansion bus enables easy connection of options for battery backup pack or GSM/GPRS module for remote connectivity when a wired LAN Ethernet is missing
– Connects up to 128 ABB inverters using Aurora Protocol over RS485 for low frequency data sampling
– A quick review of the main key performance parameter of the plant locally provided by WUI
– Removable 2GB capacity SD Card flash memory for backup data storing
– Remote configuration and management capabilities, including firmware upgrades over the Internet using Plant Portfolio Manager

Power and productivity
for a better world™

ABB

Additional highlights

– Light version available for cost effective residential / small commercial installation with all ABB string inverters (TRIO 20/27.6 kW excluded)
– Collects performance information such as energy harvest, power, voltage and inverter status
– Built-in display enables easy configuration of inputs, outputs, and communications
– Simple end-user UI using Plant Viewer or Plant Viewer for Mobile

Technical data and types

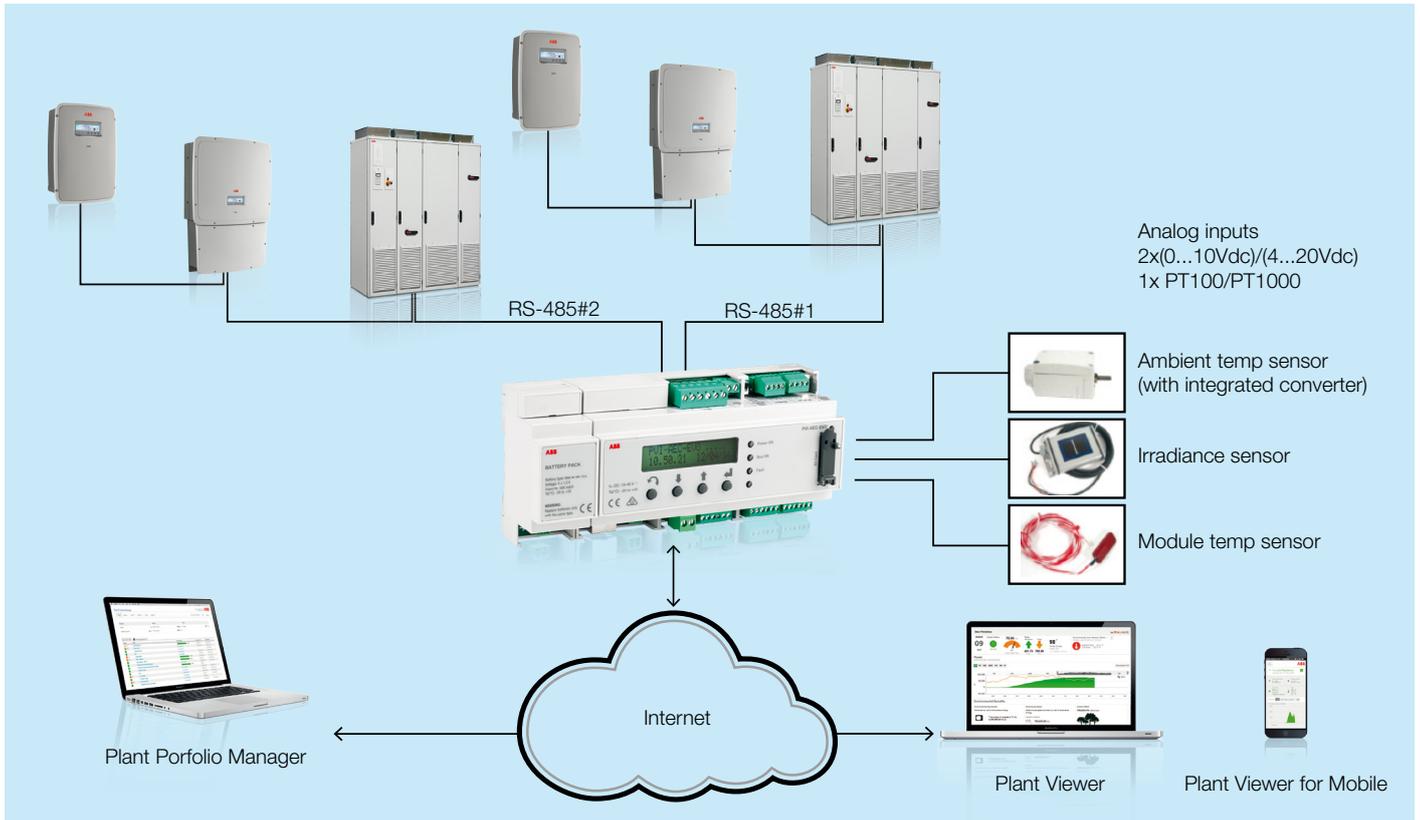| Type code	PVI-AEC-EVO
Communication interfaces	
Inverter communication (port 1)	RS485 - Aurora Protocol
Additional inverter communication (port 2)	RS485 - Configurable to Aurora Protocol or Modbus RTU for connecting a meter [1]
Maximum number of ABB devices	64 x string inverters or 32 x 55kW conversion module (ABB PVI-xxx central inverter family) for each RS485
Ethernet connections	RJ-45 Ethernet 10/100 base-T (LAN/WAN)
Fieldbus cable	RS-485 Shielded twisted pair. Recomended Belden # 1120A cable or # 3106A for 3 conductors
Communication protocols	
Plant fieldbus protocols	Aurora Protocol, Modbus RTU
LAN/WAN protocols	HTTP, XML
Data logging specifications	
Data sampling rate	Continuous
Logging	15 min
Local storage	SD card (2GB)
Upgradeability	Field upgradable over the Internet (Aurora Vision® Plant Management Platform) or locally via SD card
Features	
Configurable analog inputs	2 x configurable as 0 to 10 Vdc, 4 to 20 mA or 0 to 20 mA
Temperature analog input	1 x PT100 or PT1000 sensor with autosetting
Configurable digital inputs	4 x opto isolated as status inputs (for alarms) or power management (PM) control signals [2] 2 x opto isolated as status inputs or pulse converter inputs (from energy meter)
Digital outputs	3 x relais power contacts 230 V / 3 A
Digital outputs configurable	2 x opto isolated (27 V, 50 mA) output status or power output
Power supply	
AC power supply input	100...240 VAC
DC power supply output	24 VDC, 1 A
Maximum consumption	<7.5 W
Battery for integrated clock	Lithium type Li2032
Environmental parameters	
Ambient temperature range	-20...+55 °C (-13... 131 °F)
Environmental protection	IP 20
Relative humidity	< 90% non condensing
Mechanical parameters (per unit)	
Dimensions H x W x D	190 mm x 90 mm x 63 mm / 93,54" x 6,30" x 2,48" -9 modules
Weight	< 0.36 kg /0.80 lb
Mounting system	35 mm top hat din rail (EN50022)
Product versions available	
Standard	PVI-AEC-EVO [3]
Light	PVI-AEC-EVO-LIGHT [4]
Compliance	
Marking	CE
Safety and EMC standards	EN60950-1, EN 55022, EN 55024

[1] Check compatibility list before to order
[2] Check for availability
[3] All ABB inverters supported except for PRO-33, ULTRA and PVS-xxx
[4] Maximum 5 x ABB string inverters supported (TRIO-20.0/27.6 and PRO-33 excluded)
Remark. Features not specifically listed in the present data sheet are not included in the product

PVI-AEC-EVO application with weather sensors

Analog inputs
2x(0...10Vdc)/(4...20Vdc)
1x PT100/PT1000

RS-485#2

RS-485#1

Ambient temp sensor
(with integrated converter)

Irradiance sensor

Module temp sensor

Plant Porfolio Manager

Internet

Plant Viewer

Plant Viewer for Mobile

PVI-AEC-EVO - Accessories

PVI-AEC-IRR	Irradiance reference cell 0 - 10 V		**PVI-AEC-T1000-integrated**	PT-100 temperature Sensor with integrated converter 0 to 10 V	
PVI-AEC-IRR-T	Irradiance reference cell 0 - 10 V & back of reference cell temperature		**PVI-AEC-WIND-COMPACT**	Wind speed sensor	
PVI-AEC-IRR-T(30)	Irradiance reference cell 0 - 10 V & back of reference cell temperature with 30 m cable				
PVI-AEC-T100-ADH	PT-100 Self-Adhesive back of panel temperature sensor		**PVI-GSM/GPRS**	GPRS cellular module	
PVI-AEC-T1000-BOX	Ambient temperature sensor with IP65 enlosure		**PVI-GSM/GPRS**	Backup battery pack	

Block diagram of PVI-AEC-EVO

18 - 36 Vdc

Internal power supply

Supply BUS + 5 V / 0.5A

RS232
TX
RX
RTN

Keyboard

Display

Devices
RS485_1
+ T/R
- T/R
RTN

Relay output optoisolated 250V / 3A

Relay 1
Relay 2
Relay 3

Devices / MOD BUS
RS485_2
+ T/R
- T/R
RTN

CPU

USB_mini
USB_type A
Ethernet 10/100
SD / MMC card

Output status (DO_PWM1)
Output status (DO_PWM2)

PT 100 / PT 1000 sensor

3

A / D

6

Configurable analog input
Configurable digital input

BCD.00389 Rev. B EN 09.03.2015

Support and service

ABB supports its customers with dedicated, global service organization in more than 60 countries and strong regional and national technical partner networks providing complete range of life cycle services.

For more information please contact your local ABB representative or visit:

www.abb.com/solarinverters
www.abb.com/solar
www.abb.com

Power and productivity
for a better world™

ABB