

PROTECT PV

UTILITY-SCALE INVERTER

Solar Inverter for Grid Connection
Utility Scale
250, 560, 690, 880 kVA



The Solar Inverter Protect PV product line designed by AEG Power Solutions offers professional solutions for utility-scale applications on industrial roofs and ground area installations. A key feature of the PV product line is its power stack with advance-design measuring and control technology enabling DC input voltages of up to 1000 VDC. Thin-film modules can therefore be used efficiently and savings made on wiring costs.

The combiner boxes can be designed as required with up to 6 input fuses available (PV.250 - PV.880 8 pcs., positive and negative). The AEG PS solution entitled "active earthing" provides for a safer application of module technologies that require electrical grounding for operation. Another option called "copain mode" is available in which two units operate as a highly efficient team (master/slave functionality).

Maximum Power Point Tracking is designed to meet the latest requirements for quick responses to dynamic weather conditions such as spontaneous cloud cover on a clear day, and reliable day/night detection (active/passive).

With an efficiency factor of 98.85% according to the European standard 50530, the Protect PV.880 for example well exceeds expectations for its power class. With an appropriate transformer, it can be connected to the medium voltage grid (MV, e.g. 10, 20 kV).

Monitoring and power plant integration is based on Modbus Protocol and advanced CAN BUS communication as well as via optic fiber and ethernet between the containers. This allows for cost-effective, safe and reliable remote monitoring and control of the PV plant. The monitoring and control system can be integrated into an overriding power station control technology. Because of the open structure, future requirements of the grid operators can also be taken into account.

This communication structure enables the operator to carry out continuous monitoring, failure analysis, reporting and performance statistics. Remote monitoring and remote access are available via GSM, DSL and WebPortal, for example, and programmable alarm functions via email/SMS settings.

Turnkey container solutions in different power classes integrate all necessary components and can be supplied ready for connection to the power plant on site.

With over 60 years of experience in power supply systems and solutions for power plants, AEG Power Solutions offers a comprehensive range of services aimed at securing maximum yields for your PV power installation. These services include contractual solutions with service guarantees and high inverter availability.

PROTECT PV

TECHNICAL DATA

	Protect PV.250	Protect PV.560	Protect PV.690	Protect PV.880
DC INPUT				
Recom. PV power ^{*1}	250 - 320 kW _p	500 - 680 kW _p	630 - 890 kW _p	800 - 1150 kW _p
DC voltage window	345 - 1000 V	385 - 1000 V	465 - 1000 V	486 - 1000 V
Max. DC voltage	1000 V			
Extended U _{MPPT} voltage range	345 - 1000 V	385 - 1000 V	465 - 1000 V	486 - 1000 V
U _{MPPT} voltage range @ 50 °C (EN50530)	450 - 820 V	500 - 820 V	550 - 820 V	573 - 820 V
Max. DC current	600 A	1060 A	1170 A	1440 A
Quantity DC inputs	1 MCCB			
Quantity DC fuses	up to 6 pcs. (pos & neg)		up to 8 pcs. (pos & neg)	
Over voltage protection	Grade 2			
AC OUTPUT				
Nom. AC power at cos φ = 1 (@ 50 °C)		510 kVA	630 kVA	800 kVA
Nom. AC power at cos φ = 1 (@ 45 °C)	255 kVA			
Nom. AC power at cos φ = 1 (@ 25 °C)		560 kVA	690 kVA	880 kVA
Power factor, adjustable	lag 0.9 – 1 – lead 0.9			
Output voltage without transformer	255 V	283 V	345 V	360 V
Max. AC current	577 A	1144 A	1159 A	1411 A
MV-connection ^{*2}	10, 20 kV and other, as required			
Mains frequency	50 / 60 Hz			
Current distortion	< 3 %			
Over voltage protection	Grade 2			
GENERAL DATA				
Efficiency ^{*3} (Max. / Euro / CEC)	98.7 %/98.5 %/98.5 %	98.4 %/98.2 %/98.2 %		98.9 %/98.6 %/98.7 %
External power supply	TN-S, 230 V 50/60 Hz			
Operating temperature	-10 °C to +45 °C	-20 °C to +50 °C		
Rel. humidity	15 ... 95 % max, non condensing			
Protection grade, EN 60529	IP 20			
Altitude above sea level	1,500 m	1,500 m (3,000 m max. 40 °C)		
Dimensions (W x H x D)	2100 x 2000 x 600 mm	2700 x 1800 (+230 fans) x 600 mm		
Weight	approx. 1130 kg	approx. 1650 kg	approx. 1800 kg	approx. 1850 kg
Equipment color	RAL 7035			
CE Certificate	Yes			
Grid monitoring	according to FNN (VDN, BDEW) and corresponding to local requirements			
ALARM & CONTROLS				
Earth fault monitoring	Yes			
Over voltage protection	Yes			
Contact and breaker position	Yes			
Emergency power off	Yes			
Failure indicators (acoustic/optical)	3 status LED, detailed history			
COMMUNICATION				
Display	240 x 64 graphical LC Display and 4 display keys			
Hardware	RS 485, RS 232, CAN BUS, Ethernet Freely programmable opto coupler inputs and dry contacts			
Telecom line	ISDN, GSM, GPRS, DSL			
Software/Protocol	Modbus, Profibus DP, Web portal, CANopen CiA 437			
Over voltage protection	Option			
OPTIONS				
Container solution	Yes			
MV transformer	Yes			
MV switchgear	Yes			
String monitoring	Yes			
PV plant control	Yes			
"Copain" mode (Team-Master/Slave)	Yes			No

*1: Depending on local environmental conditions - *2: External transformer necessary

*3: Without transformer (LV/MV) - Technical data is preliminary and subject to change without prior notice.

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