



PV COMP 350



PV COMP 350 is device for transformation of DC voltage generated on the terminals of the solar panel after impact of photons to three phase AC power grid with reactive power compensation capability, specially designed for cooperation with large gensets in hybrid microgrid systems. **The current not used for the active power generation from PV panels can be used for reactive power compensation, even during the night or darkness.**

PV COMP 350 is transformerless inverter designed for direct connection of a inverter or arbitrary number of parallel ranged inverters on the primary side of the transformer with ratio 0.35/11-33 kV.

Inverters of the PV COMP 350 family are able to operate in wide range of input voltage – voltage of photovoltaic cells within the range from 580 V to 850 V at the rated grid voltage. The selection and structure of concrete types is made according to specific solar power plant application. The maximal power of the inverter is 150 kW, it was chosen as an optimal power in consideration of service characteristics: modularity of the solution, maintenance, service, partial shading of PV panels, number of strings and failure of the solar power plant part.

The main advantages of using PV COMP 350

- high efficiency 98 % is achieved by using the modern switching elements of the 5th generation and by eliminating the self-consumption to minimum as using of the modern low loss magnetic circuits with amorphous metals and ferrite powder materials
- parallel cooperation of the inverters in an automatic cascade regime increases the achieved gain by about 1,5 to 2%
- fast and effective MPP tracking
- controlled 4 quadrant rectifier is used as a power converter, which through its control secures “zero” share of higher harmonic currents
- full reactive control, $\cos \varphi$ from 0.00 to 1.00 (normal adjustment: $\cos \varphi = 1$), up to its full kVA rating
- the controlled rectifier allows the automatic phasing to the three-phase network with adjusting to an instantaneous frequency and voltage
- 100% symmetry of the output power and voltage is ensured without using the „power balancer“ unit
- „zero“ harmonic distortion of the current to the grid (THDi max. 3%)
- Optimal decentralized solution with the advantageous proportion: number of inverters / exploitability of power plant / price
- inbuilt protection elements and safety of every string, inbuilt measuring of insulation status
- connectivity of strings in enclosures with outlet DC
- compact unit with inbuilt output contactor disconnection to 10ms after the loss of a phase or unpermitted conditions of electrical grid
- inbuilt AC cut-out switch for disconnection of the device
- inbuilt DC circuit switch off
- simply parallel coupling of inverters for higher power
- indication of kW and produced kWh for chosen time period
- it meets the requirements of distribution systems for voltage and current quality, it also meets all relevant security requirements and EMC standards
- design with focus on high reliability and efficiency – lifetime several times exceeds period of returnability period, the lifetime is extended also by using foil capacitors and bearingless fans (magnetic levitation)
- triple control of disconnection and repeated start-up of power plant by independent hardware monitoring system with the control report sent to superior Control System
- possibility of extending the 5 years standard warranty
- excellent communication possibilities for control by superior Control System by RS 485 with communication possibilities over Profibus DP or Modbus RTU

Options:

- Telemetry – remote access the control system of the power plant
- online visualization with secured Internet access over Ethernet / Wi-fi / 4G
- automatic notice of alarm status and summary report by E-mail, SMS or FTP
- detachable manual graphic control panel
- inbuilt overvoltage protection of DC input circuit and cells as well as protection of AC side

Basic technical data

	PV COMP 350 / 150
Output	
Rated output current	250 A
Rated AC apparent power	150 kVA
Max Active Power	150 kW
Max Reactive Power	150 kVAr
Input	
Rated input current (Vdc = 675 V)	230 A
Dimensions W x H x D [mm]	800x2000x500
Weight [kg]	370 kg

Technical data of PV COMP 350

Peak DC supply voltage	880 V no-load
MPPT operating voltage	580 to 850 V
Output voltage	3x 350 V $\pm 10\%$
Maximal Efficiency	$\geq 98\%$
Euro Efficiency	$\geq 96.5\%$
Output frequency	50 Hz ± 0.5 Hz
cos ϕ	Adjustable from 0.00 to 1.00, in both inductive and capacitive directions (default = 1)
General harmonic distortion of the output current (THDi)	Max. 3 % at rated current (THDv of the network $\leq 1,5\%$)
RFI filter	Inbuilt input DC filter and output AC RFI filter
Control system	32 bit. μ P DSP – TI
Communication	RS 485 Modbus RTU, USB
Communication module - Optional	Profibus DP, Custom PV MONITOR – visualization system
Contactor at the output	YES
Speed of disconnecting from the grid if the grid is defective	≤ 10 ms
Control panel - Optional	Graphic, detachable, programmable
Analog input	4 / 0 (4) – 20 mA / 0 (2) – 10 V/
Analog output	3 / 0 (4) – 20 mA / 0 (2) – 10 V/
Relay output	3 x relay, adjustable, programmable
Protections	Current overloading, overvoltage protection of DC inputs and panels (option), overvoltage protection on the AC side (option), undervoltage, overvoltage, earth connection on the AC output, cut off between output phases, overheating of the
Cooling	Forced air cooling by inbuilt ventilators
Absolute altitude of the permitted usage	≤ 1000 m above the sea, 1% reduction of power for every 100 m above 1000 m
Relative humidity of the air	$\leq 95\%$ without corrosive and explosive gases, without water vapor and condensates
Ambient working temperature	+ 0 °C to + 40 °C (-20 °C to + 40 °C with optional tempering)
Storage ambient temperature	- 25 °C to + 50 °C
Protection	IP54
EN standards compliance	Safety: EN 50 178 EMC immunity, emission: EN 61000-6-1,3 Harmonic distortion: EN 61000-3-11, EN 61000-3-12
Instructions EEC	2014/35/EEC, 2014/30/EEC, 2011/65/EEC