

Solar inverters

# ABB central inverters PVS800 100 to 500 kW



**ABB central inverters raise reliability, efficiency and ease on installation to new levels. The inverters are aimed at system integrators and end users who require high performance solar inverters for large photovoltaic power plants and industrial and commercial buildings. The inverters are available from 100 kW up to 500 kW, and are optimized for cost-efficient multi-megawatt power plants.**

### **World's leading inverter platform**

The ABB solar inverters have been developed on the basis of decades of experience in the industry and proven technology platform. Unrivalled expertise from the world's market and technology leader in variable speed AC and DC drives is the hallmark of the new solar inverter series.

Based on ABB's highly successful platform of industrial drives - the most widely used industrial drives on the market - the inverters are the most efficient and cost-effective way to convert the direct current generated by solar modules into high-quality and CO<sub>2</sub>-free alternating current that can be fed into the power network.

### **Solar inverters from ABB**

ABB central inverters are ideal for large photovoltaic power plants and medium sized power plants installed in commercial or industrial buildings. High efficiency, proven components, compact and modular design and a host of lifecycle services ensures ABB central inverters provide a rapid return on investment.

### **Highlights**

- High efficiency and long operating life
- Modular and compact product design
- Extensive DC and AC side protection
- Power factor compensation as standard
- Fast and easy installation
- Complete range of industrial-type data communication options, including remote monitoring
- Life cycle service and support through ABB's extensive global service network

# ABB central inverters

## Maximum energy and feed-in revenues

ABB central inverters have a high efficiency level. Optimized and accurate system control and a maximum power point tracking (MPPT) algorithm ensure that maximum energy is delivered to the power network from the solar modules. For end users this generates the highest possible revenues from the feed-in tariffs now common in many countries.

## Proven ABB components

The inverters comprise proven ABB components with a long track record of performance excellence in demanding applications and harsh environments. Equipped with extensive electrical and mechanical protection, the inverters are engineered to provide a long and reliable service life of at least 20 years.

## Compact and modular design

The inverters are designed for fast and easy installation. The industrial design and modular platform provides a wide range of options like remote monitoring,

fieldbus connection and integrated DC cabinets. The inverters are customized and configured to meet end user needs and are available with short delivery times.

## Effective connectivity

ABB's transformerless central inverter series enables system integrators to design the solar power plant using a combination of different power rating inverters, which are connected to the medium voltage grid centrally.

In certain conditions, the ABB central inverter's topology allows a parallel connection directly to the AC side, enabling electricity to be fed to the grid via a single transformer. This avoids the need for each central inverter to have its own transformer, thereby saving cost and space. However, in systems where the DC side needs to be grounded, an inverter dedicated winding within a transformer, or a separate transformer, must be used always.



## Technical data and types

	100 kW	250 kW	500 kW
<b>Type code</b>	PVS800-57-0100kW-A	PVS800-57-0250kW-A	PVS800-57-0500kW-A
<b>Input (DC)</b>			
Recommended max PV-power ( $P_{PV}$ )	120 kW	300 kW	600 kW
DC voltage range, mpp ( $U_{DC}$ )	450-750 V	450-750 V	450-750 V
Maximum DC voltage ( $U_{DC, max}$ )	900 V	900 V	900 V
Maximum DC current ( $I_{DC, max}$ )	245 A	600 A	1200 A
Voltage ripple, PV voltage ( $U_{PV}$ )	< 3%	< 3%	< 3%
Number of protected DC inputs (parallel)	1 (+/-) / 4 <sup>4)</sup>	1 (+/-) / 8 <sup>4)</sup>	2 (+/-) / 16 <sup>4)</sup>
<b>Output (AC)</b>			
Nominal AC output power ( $P_{AC, nom}$ )	100 kW	250 kW	500 kW
Nominal AC current ( $I_{AC, nom}$ )	195 A	485 A	965 A
Operating grid voltage (+/- 10%) <sup>1)</sup>	300 V	300 V	300 V
Operating range, grid frequency ( $f_{AC}$ ) <sup>2)</sup>	50/60 Hz	50/60 Hz	50/60 Hz
Harmonic distortion of grid current ( $KI_{AC}$ ) <sup>5)</sup>	< 3%	< 3%	< 3%
Power factor (cosφ) compensation	Yes	Yes	Yes
Grid structure (distribution network)	TN and IT grid	TN and IT grid	TN and IT grid
<b>Efficiency</b>			
Maximum efficiency ( $P_{AC, max}$ ) <sup>3)</sup>	98.0%	98.0%	97.8%
Euro-eta <sup>3)</sup>	97.5%	97.6%	97.4%
<b>Power consumption</b>			
Own consumption in operation ( $P_{day}$ )	< 350 W	< 300 W	< 600 W
Standby operation consumption ( $P_{night}$ )	< appr. 55 W	< appr. 55 W	< appr. 55 W
External auxiliary voltage	230 V, 50 Hz	230 V, 50 Hz	230 V, 50 Hz
<b>Dimensions and weight</b>			
Width/Height/Depth, mm (W / H / D)	1030 / 2130 / 644	1830 / 2130 / 644	3030 / 2130 / 644
Weight appr.	575 kg	950 kg	2200 kg

<sup>1)</sup> Range to be adjusted specifically for each country standards.

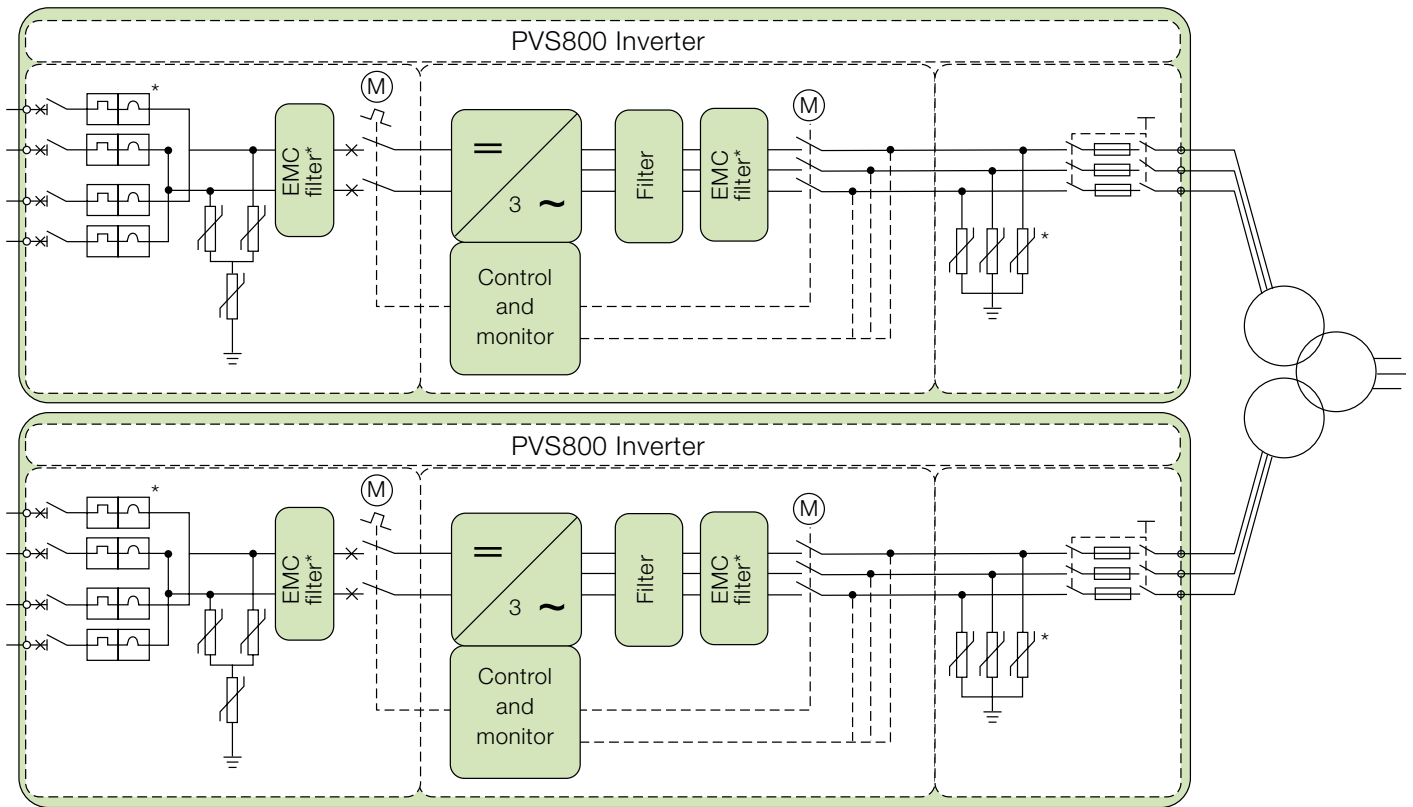
<sup>2)</sup> Range to be adjusted specifically for each country standards.

<sup>3)</sup> Efficiency measured without auxiliary power consumption, at  $U_{DC}$  450 V.

<sup>4)</sup> Optional

<sup>5)</sup> At nominal power

## ABB central inverter design and grid connection



\* Optional

	100 kW	250 kW	500 kW
<b>Type code</b>	PVS800-57-0100kW-A	PVS800-57-0250kW-A	PVS800-57-0500kW-A
<b>Environmental limits</b>			
Degree of protection	IP22 / IP42 <sup>4)</sup>	IP22 / IP42 <sup>4)</sup>	IP22 / IP42 <sup>4)</sup>
Ambient temperature range (nominal ratings) <sup>6)</sup>	-20 °C to +40 °C	-20 °C to +40 °C	-20 °C to +40 °C
Maximum ambient temperature <sup>7)</sup>	+50 °C	+50 °C	+50 °C
Relative humidity, not condensing	15% to 95%	15% to 95%	15% to 95%
Maximum altitude (above sea level) <sup>8)</sup>	2000 m	2000 m	2000 m
Maximum noise level	75 dBA	75 dBA (typically <65dBA)	75 dBA (typically <65dBA)
Cooling air flow	1300 m <sup>3</sup> /h	1880 m <sup>3</sup> /h	3760 m <sup>3</sup> /h
<b>Protection</b>			
Ground fault monitoring <sup>4)</sup>	Yes	Yes	Yes
Grid monitoring <sup>4)</sup>	Yes	Yes	Yes
DC reverse polarity	Yes	Yes	Yes
AC short circuit	Yes	Yes	Yes
Oversvoltage, current and temp protection DC, AC	Yes	Yes	Yes
<b>User interface and communications</b>			
Local user interface	ABB local control panel	ABB local control panel	ABB local control panel
Analog inputs	2xPT100, 2xAin	2xPT100, 2xAin	2xPT100, 2xAin
Electrically isolated relay	2	2	2
Fieldbus connectivity	Modbus, Profibus, Ethernet		
<b>Product compliance</b>			
Safety and EMC	CE conformity according to LV and EMC directives		
Grid compliance	According to country requirements		
Grid support	Reactive power compensation, Power reduction, Low voltage ride through <sup>4)</sup>		

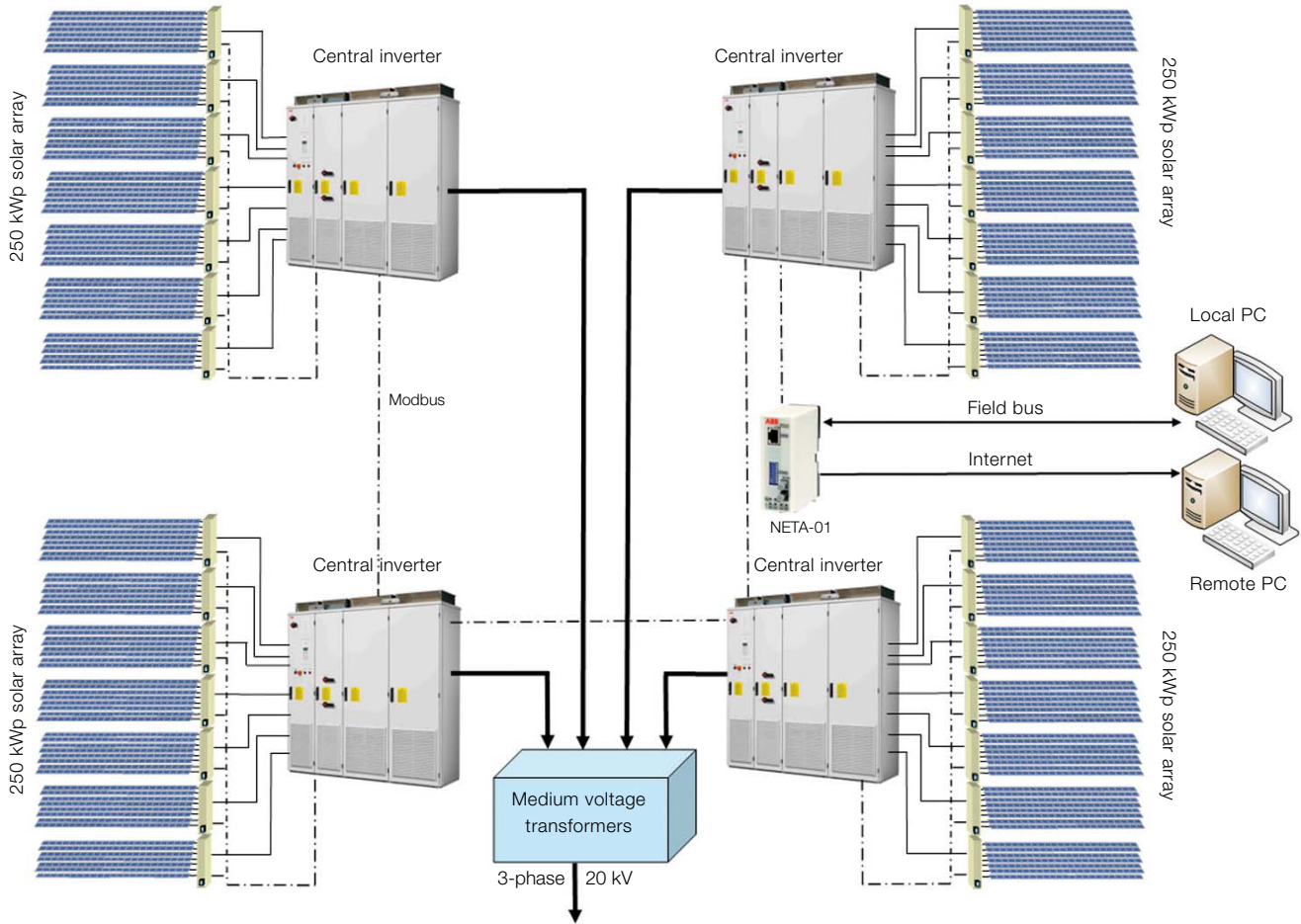
<sup>4)</sup> Optional

<sup>6)</sup> Frosting is not allowed. May need optional cabinet heating.

<sup>7)</sup> Power derating after 40 °C

<sup>8)</sup> Power derating above 1000 m

## ABB central inverter data communication principle



### Accessories

- Solar array junction boxes with string monitoring
- Remote monitoring solutions
- Warranty extensions possible

### Options

- Increased IP ratings for cabinets
- Custom made integrated DC input cabinets
- Cabinet heating
- I/O extensions
- Communication/monitoring
  - Local PC and automation system connections
  - Remote connection option suitable for modem or Ethernet

### Support and service

ABB supports its customers with a dedicated service network in more than 60 countries and provides a complete range of life cycle services from installation and commissioning to preventative maintenance, spare parts, repairs and recycling.

For more information please contact:

[www.abb.com/solar](http://www.abb.com/solar)  
[www.abb.com](http://www.abb.com)

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Custom made integrated DC input cabinet



Junction box