Solar inverters

ABB central inverters PVS800 100 to 630 kW

ABB central inverters raise reliability, efficiency and ease of 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 630 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_2-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 life cycle 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.

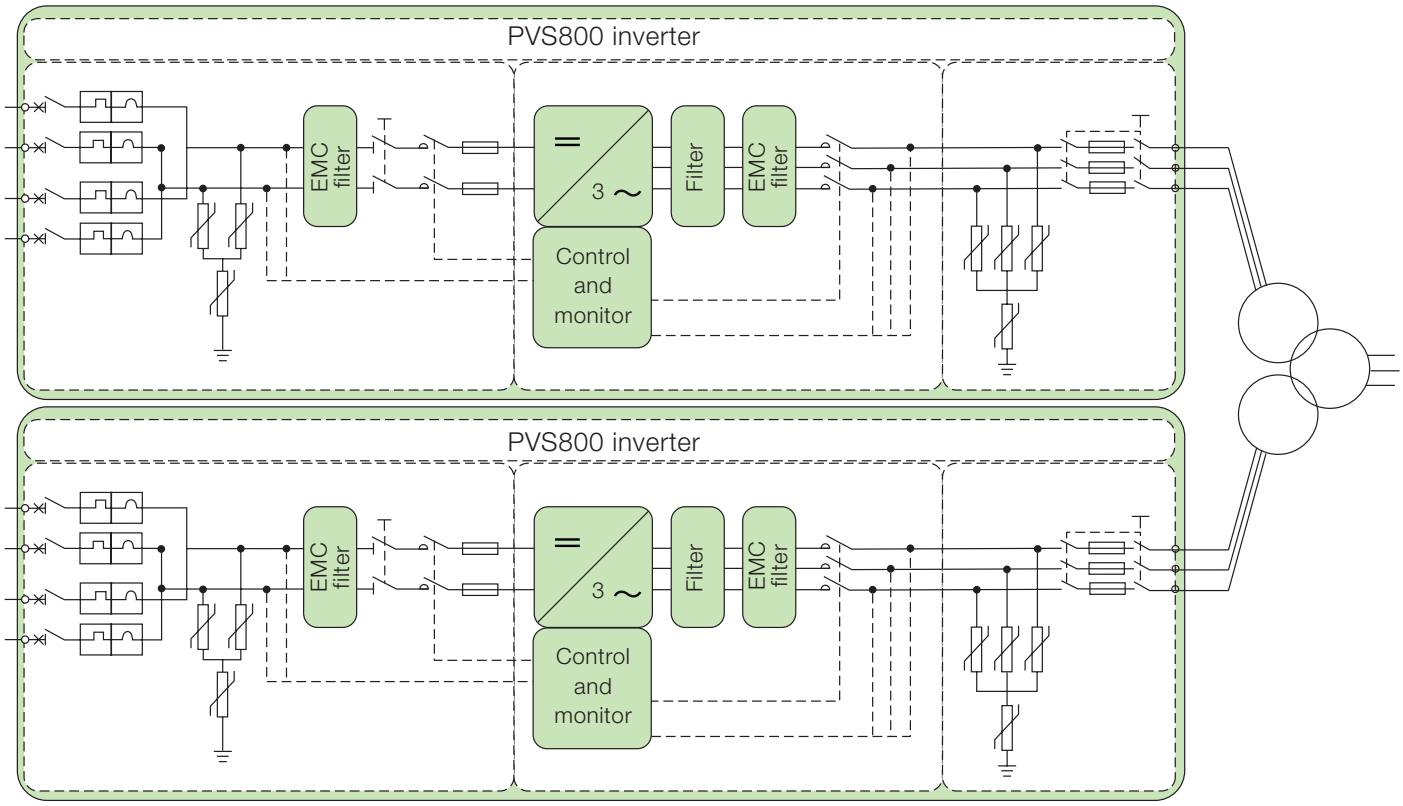
In certain conditions, the ABB central inverter's topology allows a parallel connection directly to the AC side, enabling electricity to be fed to the grid via a single transformer. This avoids the need for each central inverter to have its own transformer, thereby saving cost and space. However, in 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

Type designation	PVS800 -57-0100kW-A	PVS800 -57-0250kW-A	PVS800 -57-0315kW-B	PVS800 -57-0500kW-A	PVS800 -57-0630kW-B
	100 kW	250 kW	315 kW	500 kW	630 kW
Input (DC)					
Maximum input power ($P_{PV, max}$) [1]	120 kW_p	300 kW_p	378 kW_p	600 kW_p	756 kW_p
DC voltage range, mpp ($U_{DC, mpp}$)	450 to 825 V	450 to 825 V	525 to 825 V	450 to 825 V	525 to 825 V
Maximum DC voltage ($U_{DC, max}$)	1000 V	1000 V	1000 V	1000 V	1000 V
Maximum DC current ($I_{DC, max}$)	245 A	600 A	615 A	1145 A	1240 A
Voltage ripple	< 3%	< 3%	< 3%	< 3%	< 3%
Number of protected DC inputs (parallel)	1 (+/-) /4 [2]	2, 4, 8 (+/-)/8 [2]	2, 4, 8 (+/-)	4, 8, 12 (+/-)/16 [2]	4, 8, 12 (+/-)
Output (AC)					
Nominal AC output power ($P_{AC, N}$)	100 kW	250 kW	315 kW [3]	500 kW	630 kW [3]
Nominal AC current ($I_{AC, N}$)	195 A	485 A	520 A	965 A	1040 A
Nominal output voltage ($U_{AC, N}$) [4]	300 V	300 V	350 V	300 V	350 V
Output frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Harmonic distortion, current [5]	< 3%	< 3%	< 3%	< 3%	< 3%
Power factor compensation (cosφ)	Yes	Yes	Yes	Yes	Yes
Distribution network type [6]	TN and IT	TN and IT	TN and IT	TN and IT	TN and IT
Efficiency					
Maximum [7]	98.0%	98.0%	98.6%	98.6%	98.6%
Euro-eta [7]	97.5%	97.6%	98.3%	98.2%	98.4%
Power consumption					
Own consumption in operation	< 350 W	< 350 W	< 350 W	< 550 W	< 550 W
Standby operation consumption	60 W	60 W	60 W	70 W	70 W
External auxiliary voltage [8]	230 V, 50 Hz	230 V, 50 Hz	230 V, 50 Hz	230 V, 50 Hz	230 V, 50 Hz
Dimensions and weight					
Width/Height/Depth, mm (W/H/D)	1030/2130/646	1830/2130/646 [9]	1830/2130/646 [9]	2630/2130/646 [9]	2630/2130/646 [9]
Weight appr. [9]	550 kg	1100 kg	1100 kg	1800 kg	1800 kg

[1] Inverter limits the power to a safe level
[2] Optional MCB inputs, 80 A inputs
[3] Up to 10% overlodability at lower temperatures. Maximum 110% at 25 °C. See the user manual for details.
[4] Grid voltage (+/- 10%)
[5] At nominal power
[6] Inverter side must be IT type
[7] Without auxiliary power consumption at min U_{DC}
[8] 115 V, 60 Hz optional
[9] For the smallest number of protected inputs. See the user manual for details.

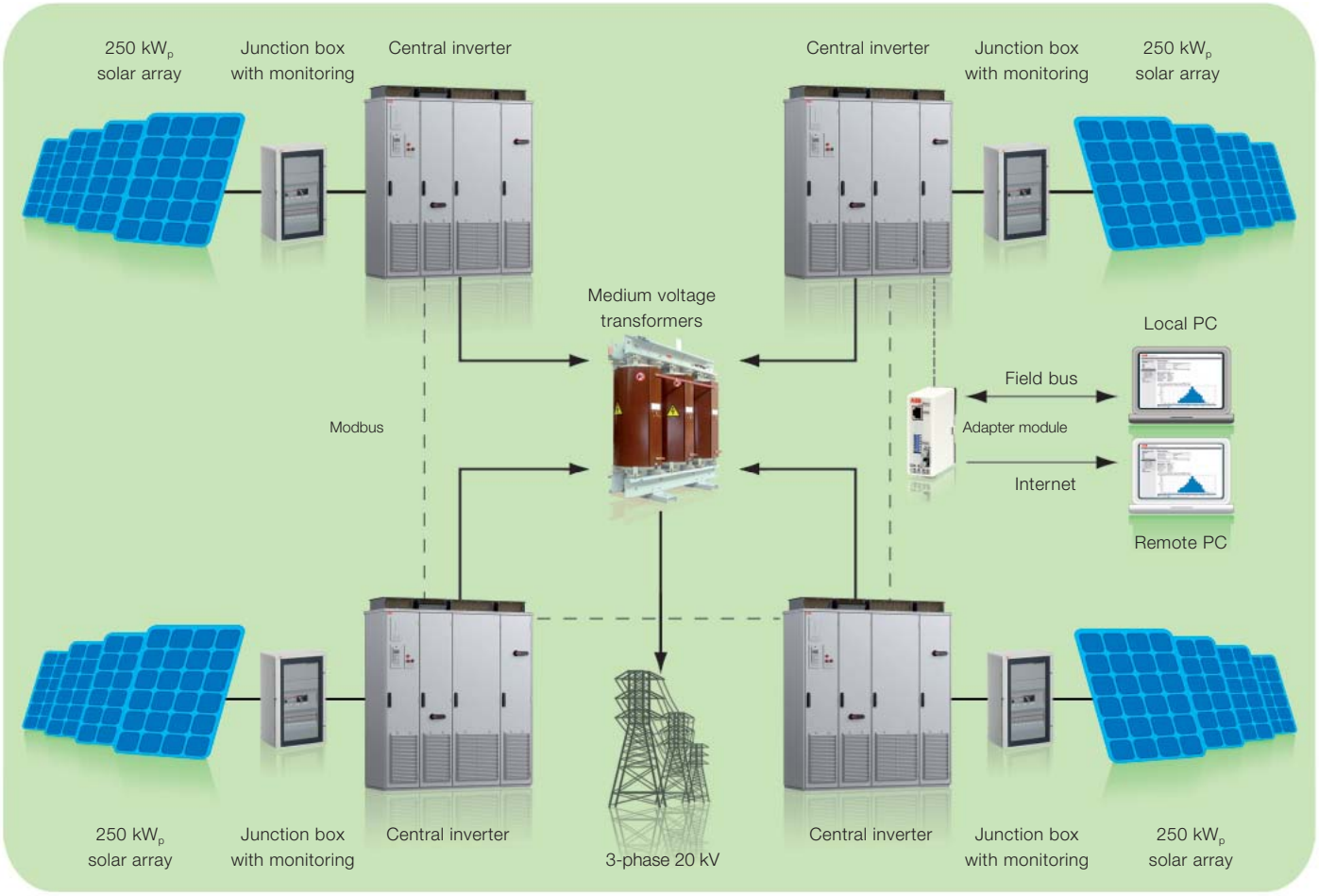
ABB central inverter design and grid connection



Type designation	PVS800 -57-0100kW-A	PVS800 -57-0250kW-A	PVS800 -57-0315kW-B	PVS800 -57-0500kW-A	PVS800 -57-0630kW-B
	100 kW	250 kW	315 kW	500 kW	630 kW
Environmental limits					
Degree of protection	IP42	IP42	IP42	IP42	IP42
Ambient temperature range (nominal ratings) [10]	-15 °C to +40 °C	-15 °C to +40 °C	-15 °C to +45 °C	-15 °C to +40 °C	-15 °C to +45 °C
Maximum ambient temperature [11]	+50 °C	+50 °C	+55 °C	+50 °C	+55 °C
Relative humidity, not condensing	15% to 95%	15% to 95%	15% to 95%	15% to 95%	15% to 95%
Maximum altitude (above sea level) [12]	2000 m	2000 m	2000 m	2000 m	2000 m
Maximum noise level	75 dBA	75 dBA [13]	75 dBA [13]	75 dBA [13]	75 dBA [13]
Maximum air flow of the inverter section	1100 m^3/h	1680 m^3/h	1680 m^3/h	3360 m^3/h	3360 m^3/h
Protection					
Ground fault monitoring [14]	Yes	Yes	Yes	Yes	Yes
Grid monitoring	Yes	Yes	Yes	Yes	Yes
Anti-islanding	Yes	Yes	Yes	Yes	Yes
DC reverse polarity	Yes	Yes	Yes	Yes	Yes
AC and DC short circuit and over current	Yes	Yes	Yes	Yes	Yes
AC and DC over voltage and temperature	Yes	Yes	Yes	Yes	Yes
User interface and communications					
Local user interface	ABB local control panel				
Analog inputs/outputs	1/2	1/2	1/2	1/2	1/2
Digital inputs/relay outputs	3/1	3/1	3/1	3/1	3/1
Fieldbus connectivity	Modbus, PROFIBUS, Ethernet				
Product compliance					
Safety and EMC	CE conformity according to LV and EMC directives				
Certifications and approvals	VDE, CEI, UNE, RD, EDF, Golden Sun, BDEW				
Grid support	Reactive power compensation, Power reduction, Low voltage ride through				

[10] Frosting is not allowed. May need optional cabinet heating.
[11] Power derating after 40 °C/45 °C
[12] Power derating above 1000 m. Above 2000 m special requirements.
[13] At partial power typically < 70 dBA
[14] Optional

ABB central inverter data communication principle



Accessories

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

Options

- Integrated and flexible DC input extension cabinets
- Cabinet heating
- I/O extensions
- DC grounding (negative and positive)
- Fieldbus and Ethernet connections

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 your local ABB representative or visit:

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

3AUA0000057380 REV I EN 24.5.2012 #16283

Power and productivity
for a better world™