SOLAR INVERTERS

ABB central inverters

PVS980 – 1818 to 2091 kVA

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01

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 (PV) power plants. PVS980 central inverters are available from 1818 kVA up to 2091 kVA, and are optimized for cost-effective, multi-megawatt power plants.

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01 ABB central inverter, PVS980 – an outdoor inverter with robust enclosure

World's leading inverter platform
Like other ABB central inverters, the PVS980 has 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 frequency converters is the hallmark of this solar inverter series.

The PVS980 inverter is one of the most efficient and cost-effective ways of converting the direct current (DC) generated by solar modules into highquality and CO_2-free alternating current (AC) that can be fed into the power distribution network.

PVS980 central inverters from ABB
ABB PVS980 central inverters are ideal for large PV power plants. The high DC input voltage, high efficiency, proven components, compact and modular design and a host of life cycle services ensure ABB PVS980 central inverters provide a rapid return on investment.

Highlights
- High total performance
- Outstanding endurance for outdoor use
- Compact, modular product design
- High DC input voltage up to 1500 VDC
- Extensive DC and AC side protection
- Self-contained cooling system with high efficiency
- Versatile design for large-scale PV plants to minimize system costs
- Complete range of industrial data communication options, including remote monitoring
- Life cycle service and support through ABB's extensive global service network

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Maximum energy revenues

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02 ABB medium voltage pad mounted solution, PVS980-MVP, installed on site

ABB central inverters have a high total efficiency. Precise, optimized system control and maximum power point tracking (MPPT) combine with the unit's highly efficient power converter design to deliver the maximum energy from the PV modules to the power distribution network. For end users, this generates the highest possible revenues from the energy sales.

Self-contained, low-maintenance cooling system
PVS980 inverters feature a proven closed loop cooling system used in other ABB industrial applications. This innovative, truly low-maintenance cooling solution is designed for demanding applications and harsh environments, cutting maintenance costs and ensuring outstanding endurance.

Compact and modular design
PVS980 inverters are designed for fast and easy installation. The industrial design and modular platform provide a wide range of options, such as remote monitoring, fieldbus connection and modular and flexible DC input connections.
The integrated DC saves space and costs as the solar array junction boxes can be connected directly to the fused busbars in the DC cabinet.
PVS980 inverters are customized for the needs of end users and will be available with short delivery times.

Versatile design for large-scale PV plants to minimize system costs
ABB's PVS980 central inverter enables system integrators to design PV power plants that use the optimum combination of inverters with different power ratings. Equipped with extensive electrical and mechanical protection, the inverters are engineered to provide a long and reliable service life of at least 25 years.

Advanced grid support features
The PVS980 software includes all the latest grid support and monitoring features, including active power limitation, fault ride through (FRT) with current feed-in and reactive power control.
Active and reactive power output can be controlled by an external control system or automatically by the inverter.

All grid support functions are parameterized, allowing easy adjusting for local utility requirements. ABB central inverters are also able to support grid stability at night by providing reactive power with the DC input disconnected.

ABB central inverters

PVS980 – 1818 to 2091 kVA

High total performance
- High efficiency
- Low auxiliary power consumption
- Innovative controlled cooling
- Efficient maximum power point tracking
- Long and reliable service life of at least 25 years

ABB self-contained cooling system
- Closed loop cooling system based on phase transition and thermosiphon technology
- Liquid-cooled inverter power ratings with the simplicity of air cooling
- No fillable liquids, pumps, valves, inhibitors or leaks
- Low maintenance

Outstanding endurance for outdoor use
- Water- and dustproof outdoor enclosure
- Designed to withstand the toughest environments
- Long and reliable service life following the ABB life cycle model

Versatile design for largescale PV plants
- Integrated DC connection with variable number of inputs
- Wide standard option palette for tailoring
- Versatile AC connection methods

Modular industrial design
- Compact and easy-to-maintain product design
- Fast and easy installation
- Integrated and flexible DC input section

Minimizes system costs
- 1500 V_{DC} system voltage
- Wide ranged and highly efficient MPPT algorithm
- Integrated protection to minimize external components
- Fast and easy installation and commissioning

Life cycle service and support
- ABB's extensive global service network
- Extended warranties
- Service contracts
- Technical support throughout the service life

Wide communication options
- Complete range of industrial data communication options for SCADA connections
- Ethernet/Internet Protocol
- Remote monitoring

ABB central inverters

PVS980 – 1818 to 2091 kVA

Technical data and types

Type designation	PVS980-58-1818kVA-I	PVS980-58-1909kVA-J	PVS980-58-2000kVA-K	PVS980-58-2091kVA-L
Input (DC)				
Maximum recommended PV power ($P_{PV, max}$) [1]	2910 kWp	3055 kWp	3200 kWp	3346 kWp
Maximum DC current ($I_{max (DC)}$)	2400 A	2400 A	2400 A	2400 A
DC voltage range, mpp ($U_{DC, mpp}$) at 35 °C	850 to 1500 V	893 to 1500 V	935 to 1500 V	978 to 1500 V
DC voltage range, mpp ($U_{DC, mpp}$) at 50 °C	850 to 1100 V	893 to 1100 V	935 to 1100 V	978 to 1100 V
Maximum DC voltage ($U_{max (DC)}$)	1500 V	1500 V	1500 V	1500 V
Number of MPPT trackers	1	1	1	1
Number of protected DC inputs	8 [2] to 24 (+/-)	8 [2] to 24 (+/-)	8 [2] to 24 (+/-)	8 [2] to 24 (+/-)
Output (AC)				
Maximum power ($S_{max (AC)}$) [3]	2000 kVA	2100 kVA	2200 kVA	2300 kVA
Nominal power ($S_{N(AC)}$) [4]	1818 kVA	1909 kVA	2000 kVA	2091 kVA
Maximum AC current ($I_{max (AC)}$)	1925 A	1925 A	1925 A	1925 A
Nominal AC current ($I_{N(AC)}$)	1750 A	1750 A	1750 A	1750 A
Nominal output voltage ($U_{N(AC)}$) [5]	600 V	630 V	660 V	690 V
Output frequency [5]	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Harmonic distortion, current [6]	< 3%	< 3%	< 3%	< 3%
Distribution network type [7]	TN and IT	TN and IT	TN and IT	TN and IT
Efficiency				
Maximum [8]	98.8%	98.8%	98.8%	98.8%
Euro-eta [8]	98.6%	98.6%	98.6%	98.6%
CEC efficiency [9]	98.0%	98.5%	98.5%	98.5%
Power consumption				
Self consumption in normal operation	≤ 2500 W	≤ 2500 W	≤ 2500 W	≤ 2500 W
Standby operation consumption	235 W	235 W	235 W	235 W
Auxiliary voltage source [10]	External, 1-phase	External, 1-phase	External, 1-phase	External, 1-phase

[1] DC/AC ratio over 1.6 might decrease maintenance intervals
[2] As standard
[3] At 35 °C
[4] At 50 °C
[5] ±10%
[6] At nominal power
[7] Inverter side must be IT type
[8] Without auxiliary power consumption at min U_{DC}
[9] With auxiliary power included
[10] Internal as option

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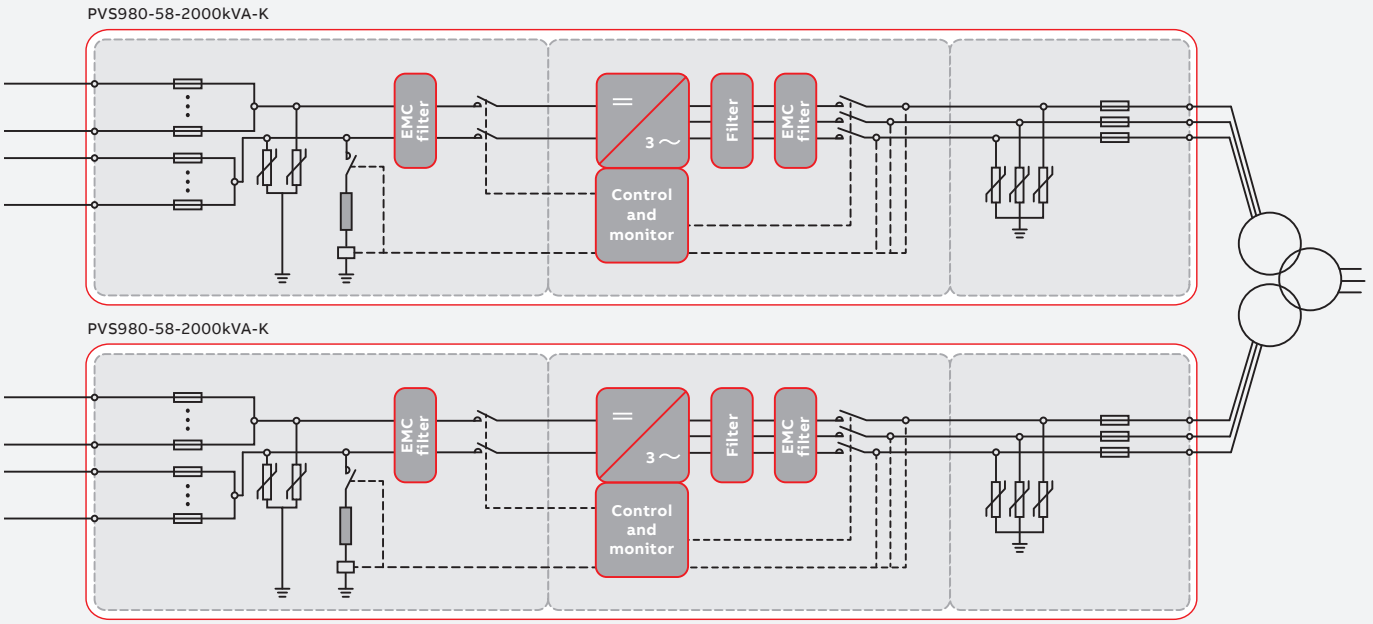
ABB PVS980 central inverter block diagram



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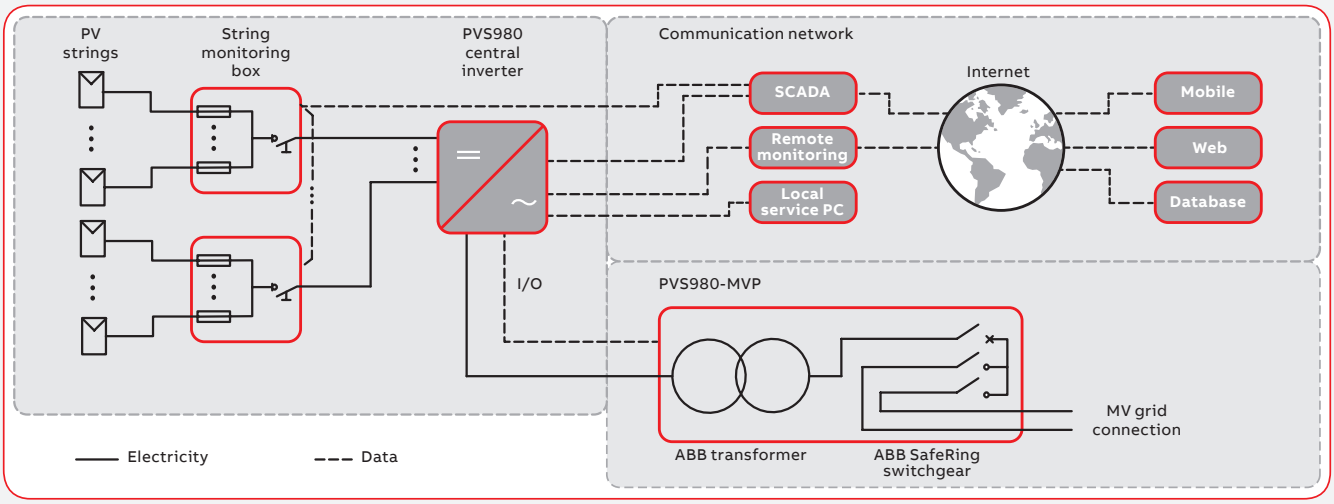
Technical data and types

Type designation	PVS980-58-1818kVA-I	PVS980-58-1909kVA-J	PVS980-58-2000kVA-K	PVS980-58-2091kVA-L
Environmental limits				
Degree of protection	IP66 [11] / UL Type 3R			
Ambient temp. range (nom. ratings) [12]	-20 °C to +50 °C			
Maximum ambient temperature [13]	+60 °C			
Relative humidity	5% to 100%			
Maximum altitude (above sea level)	4000 m [14]			
Maximum noise level	88 dBA [15]			
Protection				
Ground fault monitoring	Yes			
Grid monitoring	Yes			
Anti-islanding	Yes			
DC reverse polarity	Yes			
AC and DC short circuit and overcurrent	Yes			
AC and DC overvoltage and surge	Yes			
User interface and communications				
Local user interface	ABB control panel			
Analog inputs	2 as standard			
Digital inputs/relay outputs	7/1 as standard			
Fieldbus connectivity	Modbus, Profinet, Ethernet [16]			
Product compliance				
Safety and EMC [16]	CE conformity according to LV and EMC directives			
Certifications and approvals [17]	IEC, UL, RCM, IEEE, BDEW, CEI, SAGC, FCC			
Grid support and grid functions	Reactive power compensation [18], Power reduction, LVRT, HVRT, FqRT			
Dimensions and weight				
Width/Height/Depth, mm (W/H/D)	3180/2443/1522	3180/2443/1522	3180/2443/1522	3180/2443/1522
Weight appr.	3500 kg	3500 kg	3500 kg	3500 kg

[11] Excluding underpressure testing, IP56 with underpressure
[12] -40 °C as option
[13] Power derating after 50 °C
[14] Power derating above 1000 m
[15] At partial power typically < 75 dBA
[16] More communication options as engineered option
[17] Additional certifications and approvals pending, contact ABB for more information
[18] Also at night

Data communication principle for ABB PVS980 central inverters



Options

- Integrated and flexible DC input extension
- AC breaker
- AC disconnector switch
- DC disconnector switch
- Heavy duty (Type 1) surge protection
- AC busbar interface
- Internal auxiliary power supply
- DC grounding, positive
- Floating DC
- Fieldbus and Ethernet connections
- Current measurement to each DC input
- High altitude version
- Low temperature version
- Warranty extensions
- Solar inverter care contracts

Related products

- Medium voltage station (transformer and switchgear) as outdoor or containerised solution
- String monitoring junction boxes
- Remote monitoring solutions

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/solarinverters
www.abb.com

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