ABB bidirectional converters
PVS980-58BC – 1454 to 2091 kVA

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ABB bidirectional converter, PVS980-58BC is aimed at large-scale grid connected energy storage applications.
The converters are available from 1454 kVA up to 2091 kVA.
PVS980-58BC bidirectional converter is based on the world's leading converter platform used also in ABB solar inverters and frequency converters, ensuring high performance, reliability and availability of global service support.

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01 ABB bidirectional converter, PVS980-58BC

World's leading converter platform
Like ABB central inverters, the PVS980 bidirectional converter 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 the PVS980 series.

PVS980-58BC bidirectional converter from ABB
ABB PVS980-58BC bidirectional converters are ideal for multi-megawatt energy storage systems, providing maximum grid stability for power plants with intermittent energy sources. For power plants combining photovoltaics and energy storage, the common platform shared with PVS980 bidirectional converter and PVS980 central inverter brings synergies in both the availablity of service and support personnel and the spare part logistics.
The high DC input voltage, high efficiency, proven components, compact and modular design and a host of life cycle services available ensure ABB PVS980 bidirectional converters provide a rapid return on investment.

Highlights
- High total performance
- Outstanding endurance for outdoor use
- Full four quadrant active power and reactive power support
- High DC input voltage up to 1500 V_{DC} for minimizing system cost
- Self-contained cooling system suitable for harsh environments
- Compact, modular product design
- Life cycle service and support through ABB's extensive global service network

ABB bidirectional converters

PVS980-58BC – 1454 to 2091 kVA

Technical data and types

Type designation	PVS980-58BC-1454kVA-E	PVS980-58BC-1575kVA-F	PVS980-58BC-1696kVA-G	PVS980-58BC-1818kVA-J	PVS980-58BC-1909kVA-J	PVS980-58BC-2000kVA-K	PVS980-58BC-2091kVA-L
Input (DC)							
Full power DC voltage range, (U_{DC}) at 50 °C [1]	680 to 1100 V	737 to 1100 V	794 to 1100 V	850 to 1100 V	893 to 1100 V	935 to 1100 V	978 to 1100 V
DC voltage operating range, (U_{DC}) [1]	680 to 1500 V	737 to 1500 V	794 to 1500 V	850 to 1500 V	893 to 1500 V	935 to 1500 V	978 to 1500 V
Maximum DC voltage ($U_{max\,(DC)}$)	1500 V	1500 V	1500 V	1500 V	1500 V	1500 V	1500 V
Maximum DC current ($I_{max\,(DC)}$) at 35 °C	2400 A	2400 A	2400 A	2400 A	2400 A	2400 A	2400 A
Maximum DC current ($I_{max\,(DC)}$) at 50 °C	2182 A	2182 A	2182 A	2182 A	2182 A	2182 A	2182 A
Number of DC inputs	8 inputs, as option 12 inputs or 16 inputs (+/-) and DC input current measurement						
Max DC short circuit withstand	73 kApeak, 17 MA^2s, external aR fuses required between converter and BES						
DC grounding	Floating only						
DC surge arrestor	Type 2 as standard. High Energy Type 1 as option						
DC disconnector	as option						
Output (AC)							
Output power ($S_{max(AC)}$) at 50 °C	1454 kVA	1575 kVA	1696 kVA	1818 kVA	1909 kVA	2000 kVA	2091 kVA
Nominal power ($S_{N(AC)}$) at 35 °C	1600 kVA	1733 kVA	1866 kVA	2000 kVA	2100 kVA	2200 kVA	2300 kVA
Maximum AC current ($I_{max\,(AC)}$) at 50 °C	1750 A	1750 A	1750 A	1750 A	1750 A	1750 A	1750 A
Maximum AC current ($I_{max\,(AC)}$) at 35 °C	1925 A	1925 A	1925 A	1925 A	1925 A	1925 A	1925 A
Nominal output voltage ($U_{N(AC)}$) [2]	480 V	520 V	560 V	600 V	630 V	660 V	690 V
Output frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Harmonic distortion, current [3]	< 3%	< 3%	< 3%	< 3%	< 3%	< 3%	< 3%
Distribution network type	IT	IT	IT	IT	IT	IT	IT
Power factor	Four quadrant						
AC disconnector / AC breaker	as option						
AC surge arrestor	Type 2 as standard. High Energy Type 1 as option						
Efficiency							
Maximum [4]	98.8%	98.8%	98.8%	98.8%	98.8%	98.8%	98.8%
Auxiliary power consumption							
Max. own consumption in operation	2500 W	2500 W	2500 W	2500 W	2500 W	2500 W	2500 W
Standby operation consumption	235 W	235 W	235 W	235 W	235 W	235 W	235 W
Auxiliary voltage source	External, 1 phase auxiliary power input [5]						

[1] Minimum DC ($U_{DC,min}$) for $U_{N(AC)}$ and power factor=1. The minimum DC voltage depends on AC voltage and power factor. The AC dependency follows formula $U_{DC,min} = U_{AC} * \sqrt{2}*1.002$ with PF=1. Contact ABB for more information.

[2] ±10%

[3] At nominal power

[4] Without auxiliary power consumption at min U_{DC}

[5] As option internal auxiliary power (internal transformer from inverter output)

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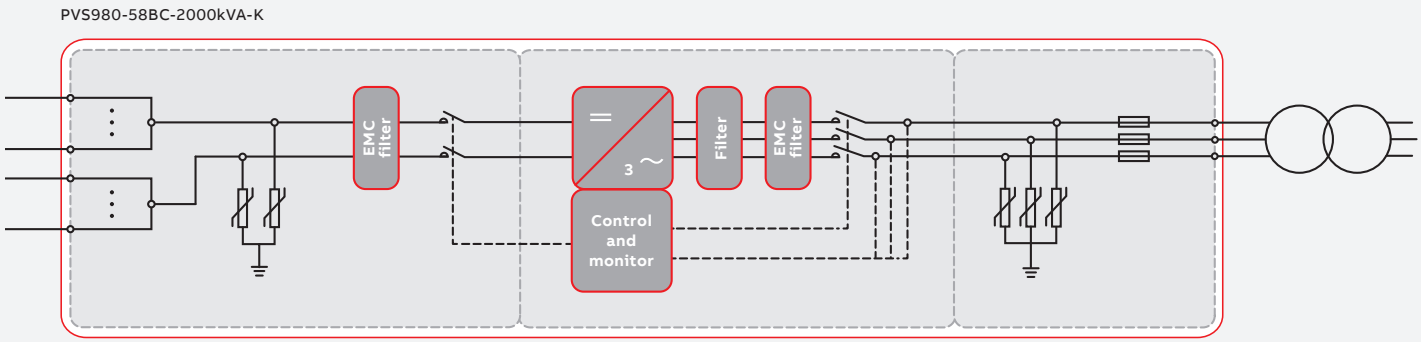
ABB PVS980-58BC bidirectional converter block diagram



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Technical data and types

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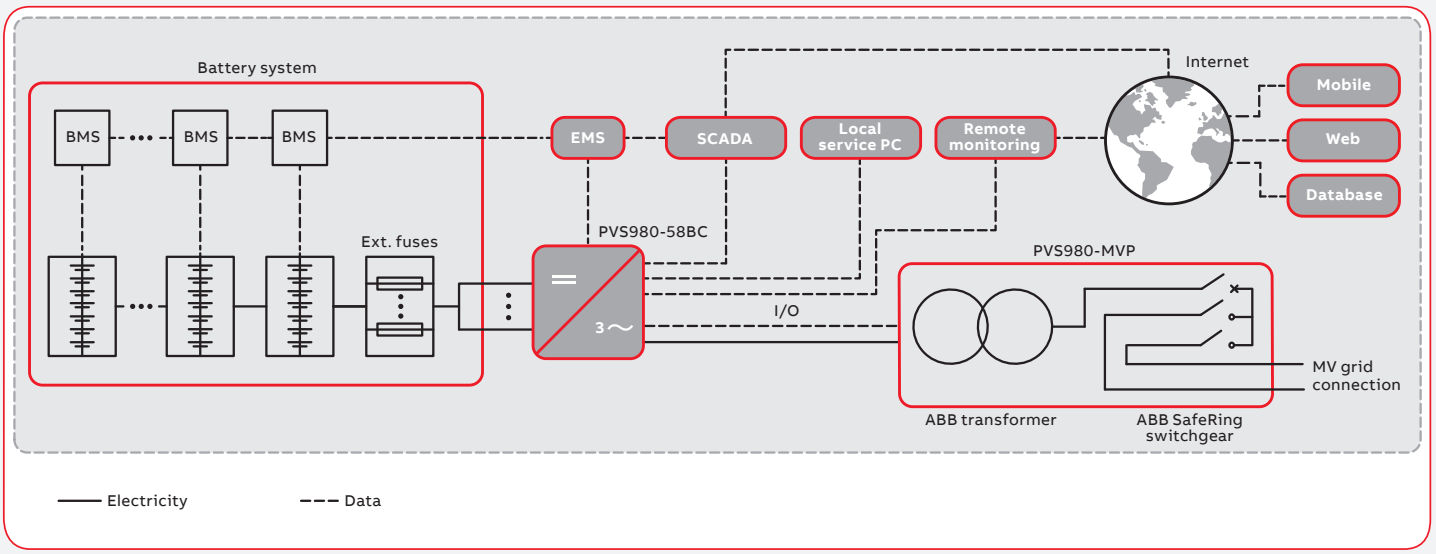
Dimensions and weight							
Width/Height/Depth, mm (W/H/D)	3180/2443/1522						
Weight appr.	3500 kg						
Environmental limits							
Degree of protection [6]	IP66/UL Type 3R						
Ambient temp. range (nom. ratings) [7]	-20 °C to +50 °C						
Maximum ambient temperature [8]	+60 °C						
Relative humidity	5% to 100%						
Maximum altitude (above sea level) [9]	4000 m						
Maximum noise level [10]	88 dBA						
Protection							
Ground fault monitoring	Yes						
Grid monitoring	Yes						
Anti-islanding	Yes						
DC reverse polarity	Yes						
AC/DC short circuit and overcurrent [11]	Yes						
AC/DC overvoltage and temperature	Yes						
Energy Storage firmware							
PQ setpoints	Yes						
Start and stop sequence for battery energy storage system	Yes						
User interface and communications							
Local user interface	ABB local control panel						
Analog inputs	2 as standard						
Digital inputs/relay outputs	7/1 as standard						
Fieldbus connectivity [12]	Modbus, Profinet, Ethernet						
Product compliance [13]							
IEC design	CE according to LV and EMC directives						
UL design	UL1741, UL1741.SA, UL62109, IEEE1547, pending				UL62109, pending		
Grid support and grid functions	Reactive power compensation, Power reduction, LVRT, HVRT, FqRT, Anti-islanding						

[6] IP66 excluding under pressure testing, IP56 with under pressure
[7] -40 °C as option
[8] Power derating after 50 °C
[9] Derating above 1000 m, as option above 2000 m
[10] At partial power typically < 75 dBA
[11] DC short circuit protection with external aR fuses
[12] More communication options as engineered option
[13] Approvals pending, contact ABB for more information

Battery energy storage system example with ABB PVS980-58BC bidirectional converters



Options

- AC breaker
- AC disconnector switch
- DC disconnector switch
- Heavy duty (Type 1) surge protection
- AC busbar interface
- Internal auxiliary power supply
- Fieldbus and Ethernet connections
- High altitude version
- Low temperature version
- Warranty extensions
- Converter care contracts

Related products

- Medium voltage station (transformer and switchgear) as outdoor or containerised solution
- 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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