

# ABB medium voltage pad mounted solution

## PVS980-MVP – 2.0 to 4.6 MVA



The ABB medium voltage pad mounted solution is a cost efficient and robust solution designed for large-scale solar power generation and to be compatible with the PVS980 outdoor inverters. It combines the medium voltage transformer and the switchgear equipment needed to connect the inverters to the medium voltage network of the photovoltaic plant.

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01 ABB medium voltage pad mounted solution, PVS980-MVP, for single PVS980 central inverter

**All the components within this medium voltage pad come from ABB's product portfolio to meet the performance and quality standards required for solar applications.**

**Cost efficient solution for PV power plants**

The ABB medium voltage pad mounted design capitalizes on ABB's long experience in developing and manufacturing medium voltage components for utility scale solutions for major end-users worldwide in conventional power transmission installations.

The solution contains an optimized transformer, MV switchgear and signaling interfaces for the PVS980 inverter. PVS980 inverter together with the PVS980 medium voltage pad mounted solution ensure easy and rapid connection of the inverters to a plant's medium voltage grid and its communication network.

**Compact and robust design for harsh environments**

This pad mounted solution is to be assembled on an onsite built concrete foundation. The design enables operation in harsh temperature and humidity environments and is designed for at least 25 years of operation.

The ABB medium voltage pad mounted solution supports fast on-site installation and it is easy to transport. Lifting of components can be done with a standard truck crane, which simplifies the installation. Together with pre-configured layout options a minimal footprint and optimum cabling can be achieved.

**Highlights**

- Reliability – proven components from one supplier
- Transportability – compact and robust design
- Plug-and-play – integrated signaling interfaces
- Increased uptime – modular and serviceable system
- Bankable solution – global life cycle services and support

## PVS980-MVP

— 02 ABB medium voltage pad mounted solution, PVS980-MVP, with two PVS980 central inverters

### Solution

The solution is the result of decades of experience in manufacturing and delivering compact secondary substations and other medium voltage solutions for demanding customer projects all over the world. The solution is made to meet the safety and electrical installation standards of a wide range of markets. All components used are from the ABB product range to ensure compatibility.

The transformer and switchgear are delivered separate as outdoor versions. The design is optimized to provide easy transportation as well as fast and easy installation on site.

The pre-designed pad type concrete foundation layouts for the outdoor type transformer and switchgear optimize the foot print needed and also minimize the cost and on-site works needed. The foundation serves also as a leakage reservoir for the transformer oil.

### Transformer

The ABB medium voltage pad mounted solution is available with an ABB ONAN type oil transformer. The transformer is designed and optimized for PVS980 central inverters and for photovoltaic plant load profile to provide the best performance throughout the lifetime of the plant. The transformer is also designed to meet the reliability, durability, and efficiency required in PV applications.

Transformers are available in standard sizes that are based on optimized power ratings to meet different climatic conditions and inverter station sizes. The transformers as well as the general design provide excellent mechanical and short-circuit characteristics. All ABB's transformers are manufactured in accordance with the most demanding industry and international standards.

### Switchgear cabinet

ABB offers a complete range of medium voltage switchgear for secondary distribution, including air-insulated and gas-insulated switchgear.

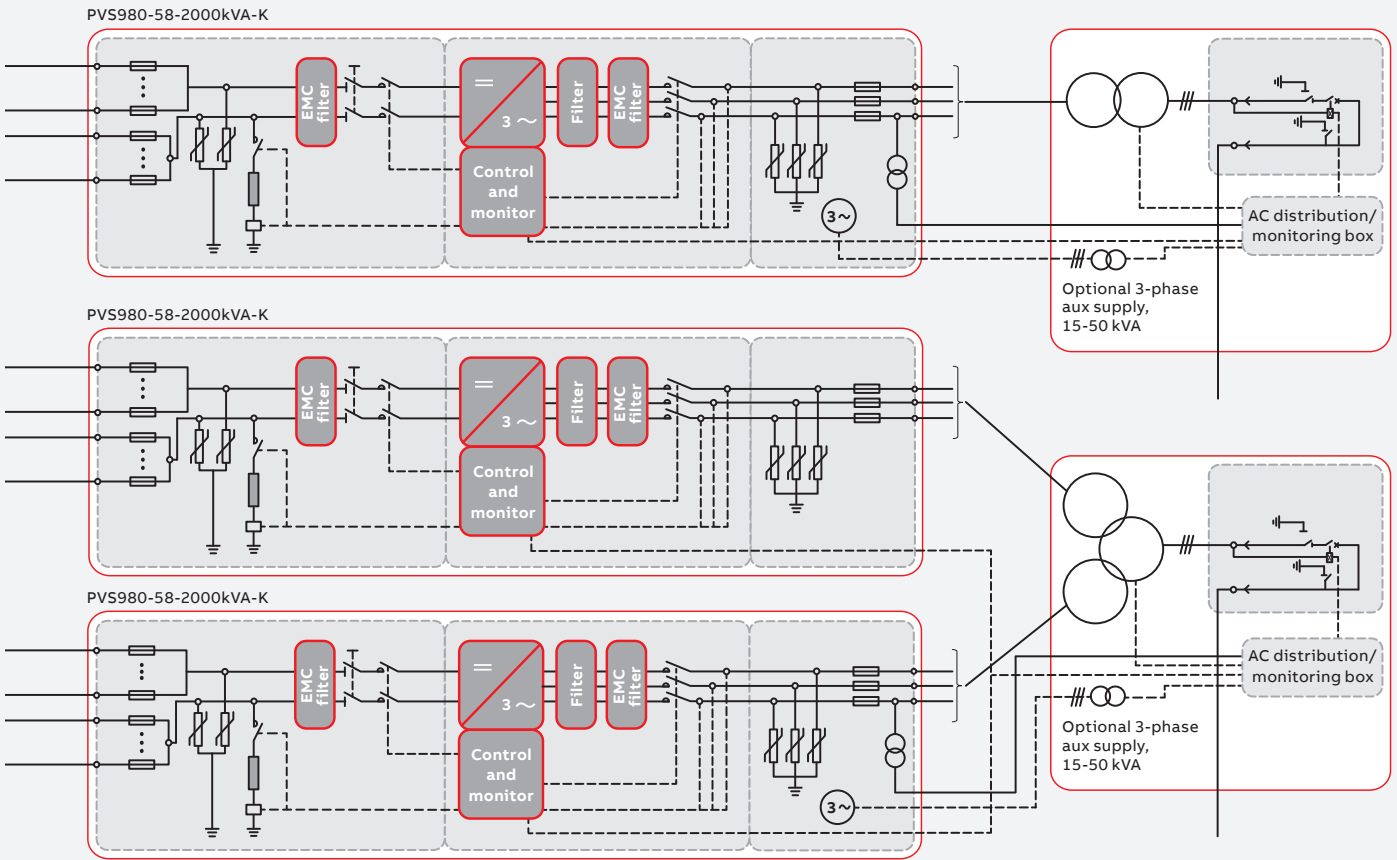
The ABB medium voltage pad mounted solution is equipped as standard with the widely proven ABB SafeRing SF<sub>6</sub>-insulated switchgear. A sealed steel tank with constant atmospheric conditions ensures a high level of reliability as well as personnel safety. The virtually maintenance-free system comes in a compact and flexible design that has a wide range of signalling and protection options.

The switchgear comes installed in an IP54 outdoor enclosure that is suitable for harsh environments. The outdoor housing provides easy access for switch manouvers and increased serviceability. For humid conditions the switchgear can be equipped with hygostat and heater for removal of condensation.

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ABB medium voltage pad mounted solution connected to inverter station and grid



Technical data and types

Type designation <sup>1)</sup>	-1818kVA- I-xx	-1909kVA- J-xx	-2000kVA- K-xx	-2091kVA- L-xx	-3636kVA- I-xx	-3818kVA- J-xx	-4000kVA- K-xx	-4182kVA- L-xx
<b>General</b>								
Inverter compatibility	PVS980-58-xxxx				2 x PVS980-58-xxxxx			
Nominal AC output power ( $S_{N(AC)}$ ) @ 50 °C (122°F)	1818 kVA	1909 kVA	2000 kVA	2091 kVA	3636 kVA	3818 kVA	4000 kVA	4182 kVA
Maximum AC output power ( $S_{MAX(AC)}$ ) @ 35 °C (122°F)	2000 kVA	2100 kVA	2200 kVA	2300 kVA	4000 kVA	4200 kVA	4400 kVA	4600 kVA
Nominal output voltage ( $U_{N(AC)}$ )	12 kV to 36 kV <sup>2)</sup>							
Ambient temperature range (nominal ratings) <sup>3)</sup>	-25 °C to +50 °C							
Maximum altitude (above sea level) <sup>4)</sup>	1000 m							
<b>Switchgear</b>								
Medium voltage switchgear type <sup>5)</sup>	SF <sub>6</sub> -insulated RMU, ABB SafeRing DeV or CCV, rated 540 A at 50 °C (nominal 630 A)							
Enclosure	Painted Aluzinc coated steel outdoor enclosure, IP54							
Protection relay <sup>6)</sup>	REJ603 protection relay (self-powered)							
Options <sup>7)</sup>	SF <sub>6</sub> gas alarm, switch positions, plug-in type MV surge protection, automatic cut-off or reclose							
<b>Transformer</b>								
Transformer type	ABB Oil immersed ONAN, outdoor design							
Power rating	1818 kVA	1909 kVA	2000 kVA	2091 kVA	3636 kVA	3818 kVA	4000 kVA	4182 kVA
LV voltage level	600 V	630 V	660 V	690 V	2 x 600 V	2 x 630 V	2 x 660 V	2 x 690 V
MV voltage level	12 kV to 36 kV <sup>2)</sup>							
LV terminals	3 flag type terminals <sup>8)</sup>				2 x 3 flag type terminals <sup>8)</sup>			
MV terminals	bolted C-type							
Standard protection	2 x temperature, gas, pressure							

<sup>1)</sup> Where xx-medium voltage level

<sup>2)</sup> Nominal voltage 12 kV to 36 kV, from 6 kV as option

<sup>3)</sup> Extended range upon request

<sup>4)</sup> Higher altitude upon request

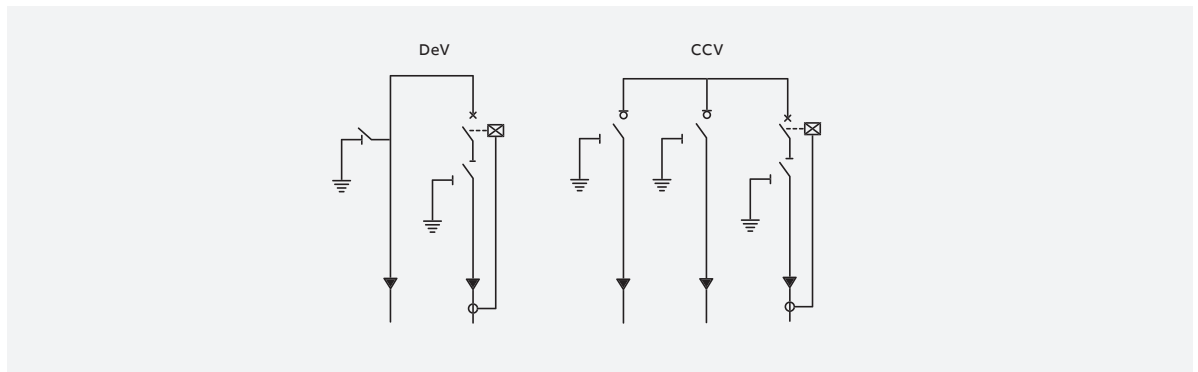
<sup>5)</sup> Other ABB switchgear types available as an option

<sup>6)</sup> Other relay types upon request

<sup>7)</sup> Other options upon request

<sup>8)</sup> LV terminal box available as an option

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**MV switchgear standard configurations for ABB medium voltage pad mounted solution**



**Accessories**

- Surge protection for medium voltage side
- Hygrostat and heater for medium voltage switchgear
- Transformer LV side terminal box
- Warranty extensions
- Service contracts

**Options**

- Output voltage from 6 kV up to 36 kV
- Different MV switchgear configurations (e.g. CCV or DeV)
- Additional transformer and switchgear signaling options
- LV cable set between inverters and transformer
- MV cable set between transformer and medium voltage switchgear

**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.

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 For more information please contact your local ABB representative or visit:

**[www.abb.com/solarinverters](http://www.abb.com/solarinverters)**  
**[www.abb.com](http://www.abb.com)**

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