

SOLAR INVERTERS

ABB medium voltage housing

PVS800-MVH – 1.9 to 2.4 MVA



The ABB medium voltage housing is a plug-and-play solution designed for large-scale solar power generation and to be compatible with the PVS800 inverter station. It houses the medium voltage transformer and the switchgear equipment needed to rapidly install and connect the inverters to the medium voltage network of the photovoltaic plant.

01

01 ABB medium voltage housing, PVS800-MVH, for rapid MV network connection

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

Plug-and-play solution for PV power plants

The ABB medium voltage housing design capitalizes on ABB's long experience in developing and manufacturing compact secondary substations for utilities and major endusers worldwide in conventional power transmission installations. The housing contains an optimized transformer, MV switchgear and signaling interfaces for the PVS800 inverter station. PVS800 inverter stations together with the PVS800 medium voltage housing ensure easy and rapid connection of the PVS800 central inverters to a plant's medium voltage network and its monitoring and communication system.

Compact design for easy transportation

The steel-framed housing comes complete with a concrete foundation. The design enables operation in harsh temperature and humidity environments and is designed for at least 25 years of operation. All components used come from the ABB product range to ensure compatibility.

The ABB medium voltage housing weighs less than 15 metric tons. Together with the small footprint, the container is compact and easy to lift with a standard truck crane, thereby simplifying transportation and installation at the site.

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

ABB medium voltage housing

Housing

The housing is the result of decades of experience in manufacturing and delivering compact secondary substations for demanding customer projects all over the world. The housing 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 compartments are separate. Each compartment is optimized to provide proper air circulation for the transformer and switchgear, respectively. For harsh site conditions, the housing is available with increased corrosion protection as well as heavy duty air filters and designs with cooling fans.

The steel-framed housing is built on a hollow concrete foundation that serves as a leakage reservoir for the oil transformer and also has adequate space for cables. The double floor provides easy access for cabling and increased serviceability.

Transformer

The ABB medium voltage housing is available either with an ABB vacuum cast coil dry-type transformer or an ABB ONAN or ONAF type oil transformer. The transformer is designed and optimized for PVS800 central inverters and a 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 of the housing provide excellent mechanical and short-circuit characteristics. All ABB's transformers are manufactured in accordance with the most demanding industry and international standards.

Switchgear

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

The ABB medium voltage housing is equipped as standard with the widely proven ABB SafeRing SF₆-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 allows for a versatile switchgear configuration. As an option, different alarm and tripping signaling is available.

Technical data and types

| Type designation ¹⁾ PVS800-MVH- | -1900kVA-B-xx-yyy | -2200kVA-B-xx-yyy | -2200kVA-C-xx-yyy | -2400kVA-C-xx-yyy |
|---|---|-------------------|--------------------|-------------------|
| General | | | | |
| Inverter station compatibility | PVS800-IS-1750kW-B | | PVS800-IS-2000kW-C | |
| Nominal AC output power ($S_{N(AC)}$) | 1900 kVA | 2200 kVA | 2200 kVA | 2400 kVA |
| Nominal output voltage ($U_{N(AC)}$) | 12 kV to 36 kV ²⁾ | | | |
| Ambient temperature range (nominal ratings) ³⁾ | -25 °C to +40 °C | | | |
| Maximum altitude (above sea level) ⁴⁾ | 1000 m | | | |
| Housing | | | | |
| Width/Height/Depth, mm (installed) | W 3950/H 2700/D 2200 | | | |
| Width/Height/Depth, mm (transportation) ⁵⁾ | W 3900/H 2550/D 2050 | | | |
| Weight approx. | 13 t | | | |
| Degree of protection | IP44 for MV switchgear compartment, IP23d for transformer compartment | | | |
| Corrosion class | C4M (optional C4H) | | | |
| Relative humidity, not condensing | up to 95% | | | |
| Switchgear | | | | |
| Medium voltage switchgear type ⁶⁾ | SF ₆ -insulated RMU, ABB SafeRing DeV or CCV | | | |
| Protection relay ⁷⁾ | REJ603 protection relay (self-powered) | | | |
| Options ⁸⁾ | SF ₆ gas alarm, switch positions, plug-in type MV surge protection, automatic cut-off or reclose | | | |

¹⁾ Where xx-medium voltage level, yyy-oil- or dry-type transformer

²⁾ Nominal voltage 12 kV to 36 kV with oil transformer and 12 kV to 24 kV with dry-type transformer, from 6 kV on as option

³⁾ Extended range upon request

⁴⁾ Higher altitude upon request

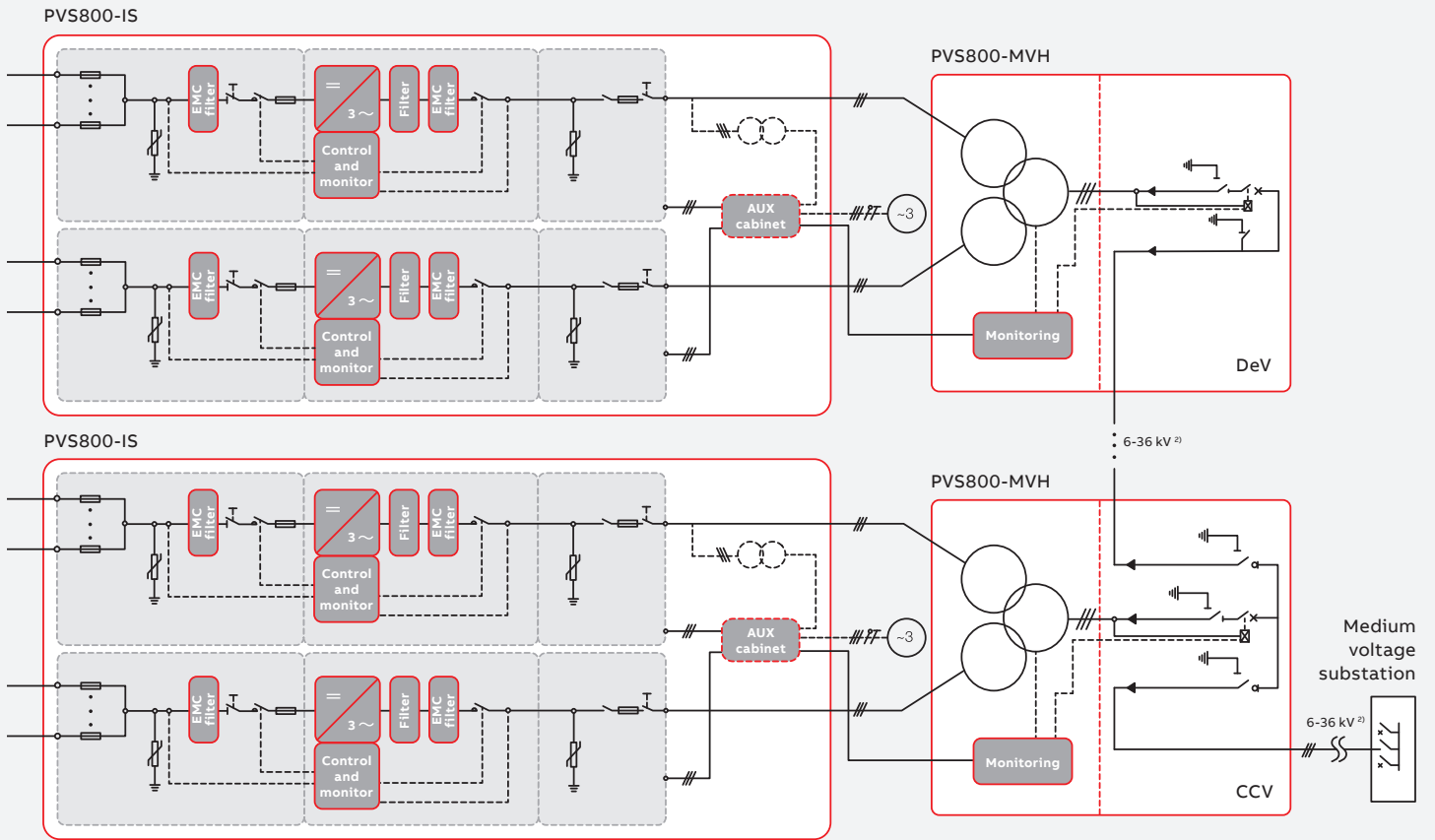
⁵⁾ When roof is removed for fitting into High Cube sea container for transportation

⁶⁾ Other ABB switchgear types available as an option

⁷⁾ Other relay types upon request

⁸⁾ Other options upon request

ABB medium voltage housing connected to inverter station and grid



Technical data and types

| Type designation ¹⁾ | -1900kVA-B-xx-yyy | -2200kVA-B-xx-yyy | -2200kVA-C-xx-yyy | -2400kVA-C-xx-yyy |
|---------------------------------|--------------------------------|-------------------|-------------------|-------------------|
| PVS800-MVH- | | | | |
| Oil type transformer | | | | |
| Transformer type ⁹⁾ | ABB Oil immersed ONAN | | | |
| Power rating | 1900 kVA | 2200 kVA | 2200 kVA | 2400 kVA |
| LV voltage level | 2 × 350 V | 2 × 350 V | 2 × 400 V | 2 × 400 V |
| MV voltage level | 12 kV to 36 kV ²⁾ | | | |
| Standard protection | 2 × temperature, gas, pressure | | | |
| Dry type transformer | | | | |
| Transformer type ¹⁰⁾ | ABB Vacuum cast coil dry-type | | | |
| Power rating | 1900 kVA | 2200 kVA | 2200 kVA | 2400 kVA |
| LV voltage level | 2 × 350 V | 2 × 350 V | 2 × 400 V | 2 × 400 V |
| MV voltage level | 12 kV to 24 kV ²⁾ | | | |
| Standard protection | temperature | | | |

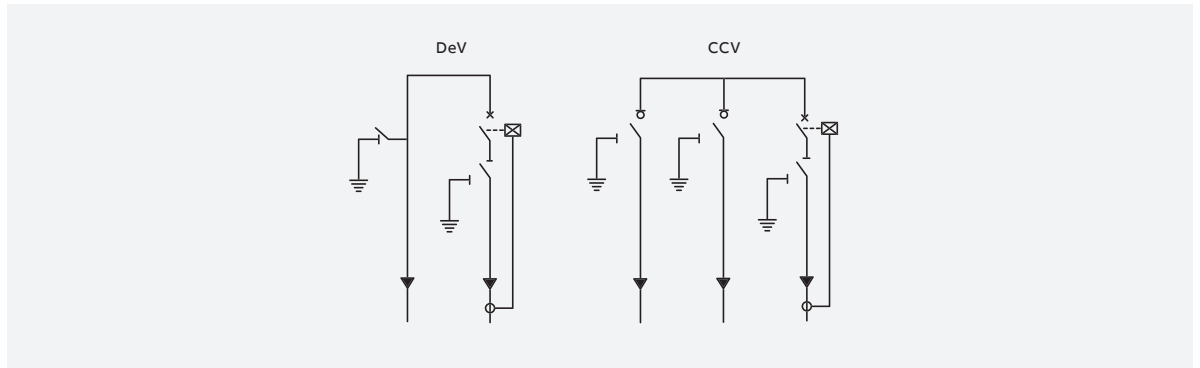
¹⁾ Where xx-medium voltage level, yyy-oil- or dry-type transformer

²⁾ Nominal voltage 12 kV to 36 kV with oil transformer and 12 kV to 24 kV with dry-type transformer, from 6 kV on as option

⁹⁾ Optional ONAF

¹⁰⁾ Optional cooling fan

MV switchgear standard configurations for ABB medium voltage housing



Accessories

- Surge protection for medium voltage side
- Warranty extensions
- Service contracts

Options

- ABB oil- or dry-type transformers
- Output voltage from 6 kV up to 36 kV
- Different MV switchgear configurations (e.g. CCV or DeV)
- Additional transformer and switchgear signaling options
- Heavy-duty air filtering and fan options for transformer compartment
- Increased corrosion protection for the housing

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

We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of ABB. Copyright © 2017 ABB. All rights reserved

