

**FIMER**



# **Solar inverter**

# **PVS980-CS-US**

## **Compact Skid for US Market**

The FIMER compact skid is a plug-and-play solution designed for large-scale solar power generation using PVS980-58 high-power central inverters. It houses all the electrical equipment that is needed to rapidly connect a photovoltaic (PV) power plant to a medium voltage (MV) electricity grid.

**Up to 5000 kVA**

**Turnkey-solution for PV power plants**

The FIMER compact skid design capitalizes on FIMER's long experience in developing and manufacturing solutions for utilities and major end users worldwide in conventional power transmission installations.

A skid houses one 4348 to 5000kVA FIMER PVS980-58 central inverter, an optimized MV oil immersed transformer and all needed auxiliary services. The FIMER compact skid is used to connect a PV power plant to a MV electricity grid easily and rapidly. To meet the PV power plant's demanded capacity, several FIMER compact skids can be used.

**Compact design eases transportation**

The compact skid solution supports fast on-site installation with easy transportation to project sites. Transport of the skid can be done with a standard truck and can be set in place with a standard crane for a simple installation. Inverter's optimized air circulation and filtering system, together with hermetically sealed oil immersed transformer enable installations in various ambient conditions, from harsh desert

temperatures to cold and humid environments.

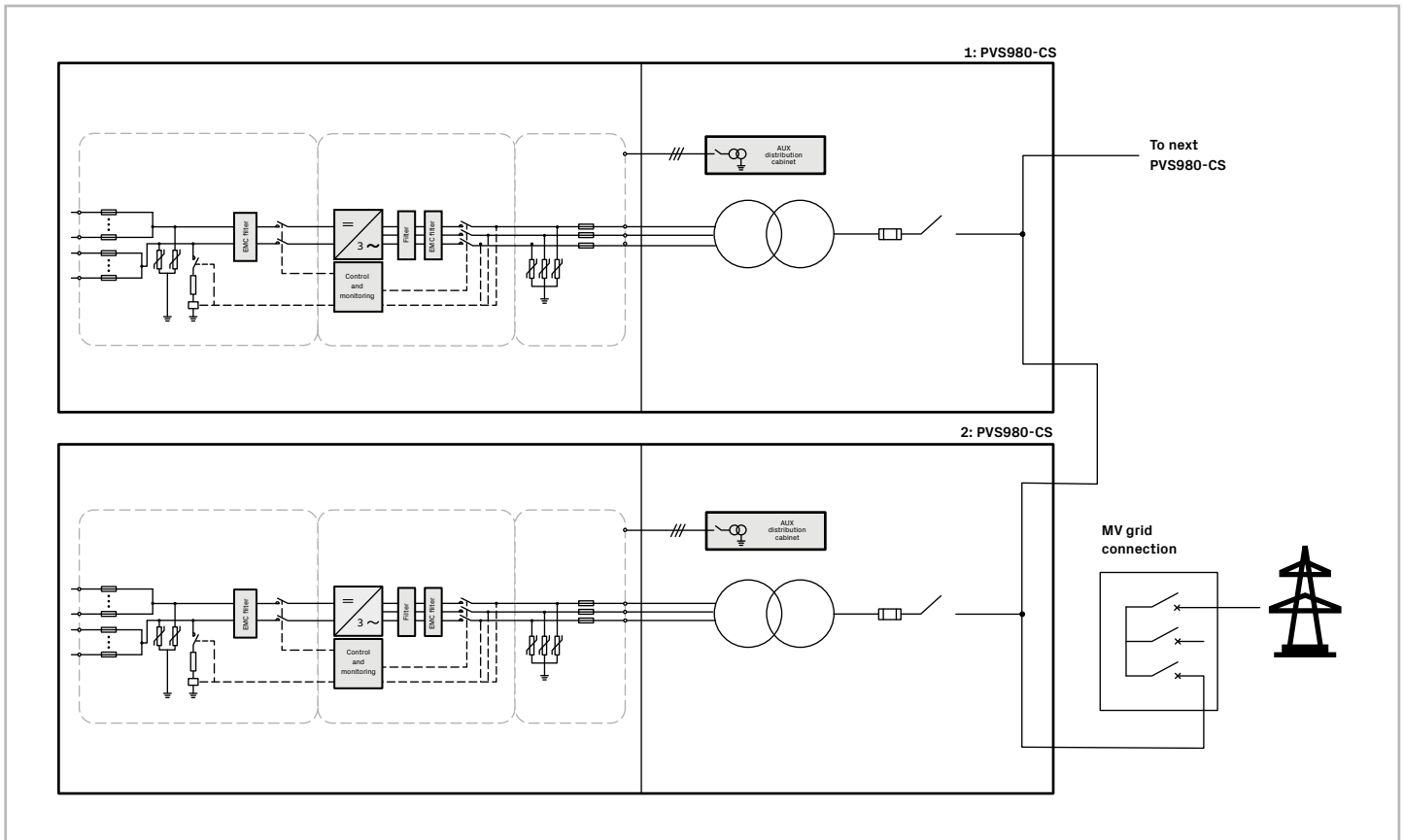
This skid mounted solution is pre-assembled on a factory built steel or concrete foundation. With pre-configured layout options a minimal footprint can be achieved.

The FIMER compact skid is designed for at least 25 years of operation.

**Highlights**

- Proven technology and reliable components
- Compact and robust design
- Outstanding endurance for outdoor use
- High DC input voltage up to 1500 V<sub>DC</sub>
- High total efficiency
- Extensive DC and AC side protection
- Self-contained cooling system for inverters
- Modular and serviceable system
- Embedded auxiliary power distribution system
- Extendable manufacturing footprint with fast deliveries
- Global life cycle services and support
- Arc-proof design

**Compact skid design and grid connection**



# PVS980-CS-US

## Solar inverters

The FIMER PVS980-58 inverter 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 PVS980-58 inverter is one of the most efficient and cost-effective ways of converting the direct current (DC) generated by solar modules into high quality and CO<sub>2</sub>-free alternating current (AC) that can be fed into the power distribution network. One FIMER central inverter is used in the FIMER compact skid. The inverter provides high conversion efficiency with low auxiliary power consumption, and low maintenance requirements.

LV connection is made with close coupling to inverter to minimize on-site installation. The design is optimized to provide cost-effective transportation as well as fast and easy installation on site.

The pre-designed skid type foundation layouts for the outdoor type transformer optimize the foot print needed and also minimize the cost of field installation. The compact skid structure can serve also as a leakage reservoir for the transformer oil.

## Transformer

The FIMER compact skid mounted solution is available with ANSI design 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 transformers are manufactured in accordance with the most demanding industry and ANSI standards.

## Technical data and type

| Type code                              | 4.3MVA   | 4.6MVA      | 4.8MVA      | 5.0MVA      |
|--|--|-------------|-------------|-------------|
| <b>Maximum rating in kVA</b>           | <b>4348</b>  | <b>4565</b> | <b>4782</b> | <b>5000</b> |
| <b>Inverter</b>                        |  |             |             |             |
| Inverter                               | PVS980-58, 4.3-5MVA  |             |             |             |
| Maximum operating DC input voltage     | 1500 V   |             |             |             |
| Number of protected DC inputs          | 24-36  |             |             |             |
| Number of inverters                    | 1  | 1           | 1           | 1           |
| Number of independent MPPT             | 1  | 1           | 1           | 1           |
| MPPT range @ 25° C in V                | 850-1350   | 893-1350    | 935-1350    | 978-1350    |
| MPPT range @ 35° C in V                | 850-1250   | 893-1250    | 935-1250    | 978-1250    |
| MPPT range @ 50° C in V                | 850-1100   | 893-1100    | 935-1100    | 978-1100    |
| AC output voltage                      | 600 V  | 630 V       | 660 V       | 690 V       |
| <b>MV transformer</b>                  |  |             |             |             |
| Transformer type                       | 3-phase Pad-Mounted, Oil Filled, UL Listed   |             |             |             |
| AC Power @ 25° C in kVA                | 4348kVA  | 4565        | 4782        | 5000        |
| AC Power @ 35° C in kVA                | 4229   | 4441        | 4652        | 4864        |
| AC Power @ 50° C in kVA                | 3845   | 4037        | 4229        | 4421        |
| Number of secondary windings           | 1  | 1           | 1           | 1           |
| Low voltage level                      | 600 V  | 630 V       | 660 V       | 690 V       |
| Medium voltage level range             | 12.47kV to 34.5kV  |             |             |             |
| LV terminals                           | 6-hole integral spade bushings, side mounted for close coupled connection                            |             |             |             |
| HV terminals                           | 600A dead-break bushings (dead front), loop feed or radial feed                                      |             |             |             |
| Rated frequency                        | 60 Hz  |             |             |             |
| Cooling Class <sup>1)</sup>            | ONAN   |             |             |             |
| Fluid <sup>2)</sup>                    | Mineral Oil  |             |             |             |
| Tap changer                            | ± 2 x 2.5%   |             |             |             |
| Winding material (primary / secondary) | Al / Al  |             |             |             |
| Protection <sup>3)</sup>               | Current Limiting Fuse & Weak Link Cartridge (based on HV kV rating)                                  |             |             |             |
| Eco efficiency optional                | Yes  |             |             |             |
| Switches                               | 2-Position 300A LBOR transformer switch  |             |             |             |
| Monitoring <sup>4)</sup>               | Pressure relief valve, liquid level, liquid temperature & pressure vacuum gauges with alarm contacts |             |             |             |
| Fittings                               | External drain valve in padlockable box  |             |             |             |

1) KNAN optional

2) Natural Ester Fluid Optional

3) Molded Vacuum Interrupter (MVI) optional below 34.5kV HV rating

4) Includes liquid temperature gauge and pressure vacuum gauge with 2 sets of alarm contacts

## Technical data and type

| Type code                               | 4.3MVA   | 4.6MVA | 4.8MVA | 5.0MVA |
|---|--|--------|--------|--------|
| <b>Auxiliary equipment</b>              |  |        |        |        |
| Power (Standard)                        | 1-phase output, 115-120VAC, 4 kVA power, 50 A disconnect switch for protection   |        |        |        |
| Power (Optional) <sup>5)</sup>          | 3-phase output, max 60 A, rated disconnect switch, auxiliary step-down transformer,<br>3-phase output, 208/120V, 10kVA customer auxiliary power output available |        |        |        |
| <b>Environmental</b>                    |  |        |        |        |
| Ambient temperature range <sup>6)</sup> | -20° C ... +50° C  |        |        |        |
| Altitude <sup>7)</sup>                  | up to 4000 m   |        |        |        |
| <b>Physical</b>                         |  |        |        |        |
| Base                                    | Open Steel Beam or Concrete  |        |        |        |
| Width/Height/Depth (approximate)        | 8'-6" x 9'-8" x 27'-10"  |        |        |        |
| Mounting                                | Pad-Mount or Pier Mount  |        |        |        |
| Environmental Protection Rating         | NEMA Type 3R   |        |        |        |

5) Voltage based on inverter output, rated power panelboard per customer specifications

6) Extend range -40C optional

7) Derating above 1000m

### Options

- Oil Containment, vault or built-in pan
- Additional transformer signaling options
- Auxiliary power supply up to 50kVA
- Surge protection for medium voltage side
- Fieldbus and Ethernet connections
- Warranty extensions for inverter
- Service Contracts

### Support and service

FIMER supports its customers with a dedicated global service network 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 FIMER representative or visit:

[fimer.com](http://fimer.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. FIMER 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 FIMER. Copyright© 2020 FIMER. All rights reserved.

