



# Solar inverter

## **PVS-20/30/33-TL**

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The PVS-20/30/33-TL is the new FIMER three-phase string inverter solution, ideal for the optimization of installation and operational costs in commercial and industrial PV plants.

**From 20 to 33 kW**

## String inverter PVS-20/30/33-TL

This new PVS string inverter family, with power ratings of up to 33 kW, has been designed with the objective to maximize the ROI in commercial and industrial applications such as rooftop plants, carports and trackers.

### Ease of installation and maintenance

The compact design of the product allows savings on installation costs. The installation is quick and easy, without the need to open the front cover. Moreover, being fuse-free, this inverter guarantees further savings on maintenance costs and time, reducing on site interventions to a minimum.

### Maximum flexibility and integration

The input voltage range and all DC-side specs as a whole allow for the greatest plant design flexibility within both new and existing installations.

This new inverter family guarantees maximum integration with the latest PV technologies, including bifacial modules.

### Advanced communication

Fast commissioning thanks to the Solar Inverters installer app which enables a quick multi-inverter installation, saving up to 70% of commissioning time.

The single string current monitoring allows to keep the status of the PV generator under control and to detect potential faults in real time.

The built-in FIMER Export Limitation solution allows to comply with any power export constraints established by utilities, without any additional device to be installed.

### Integrated PID recovery function

Inverters equipped with PID (Potential Induced Degradation) recovery

function are able to restore the optimal conditions of the PV module in order to prevent performance losses which could be caused by the PID during standard operation. Such functionality allows to maintain the highest level of performance and to maximize the working life of the plant, hence, optimizing the return on investment.

### Integrated Arc Fault Circuit Interrupter

The Integrated Arc Fault Circuit Interrupter allows to recognize and immediately interrupt the electric arcs which may occur on the PV system. Thanks to such functionality the inverter is able to offer a reliable fire prevention mechanism wherever required for roof mounted installations.

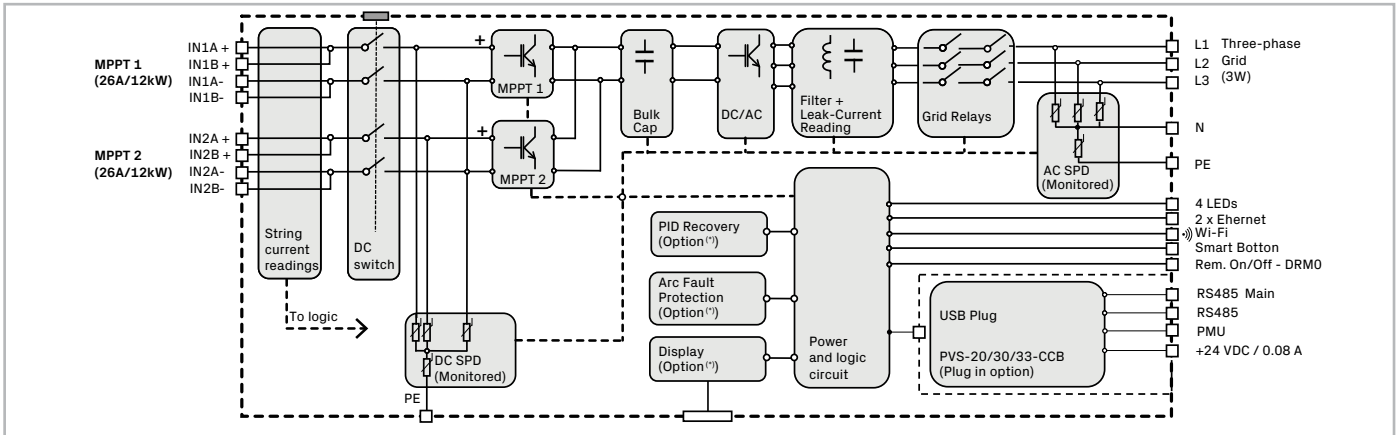
### RSD compatibility

PVS-10/33 is tested for operation in PV systems equipped with Rapid Shutdown systems (RSD) and/or with I-V optimizers installed at module level (contact FIMER for a complete list of compatible systems).

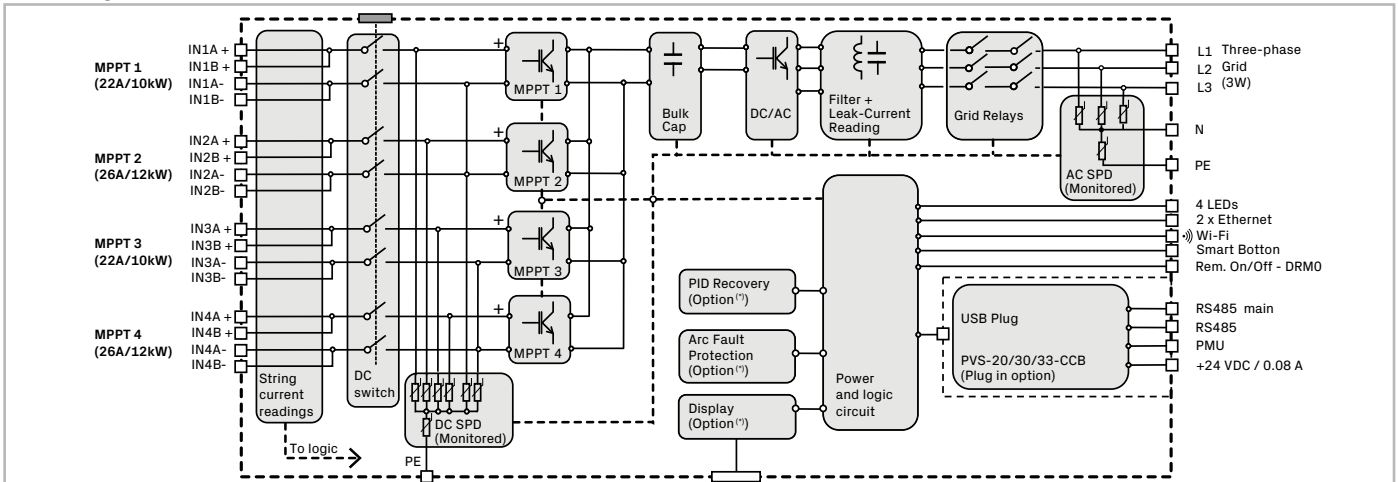
### Highlights

- Communication active during the night
- High DC/AC power oversizing capability
- Compact inverter suitable for vertical and horizontal installation
- Fuse-free design
- Installation on new and existing plants
- Maximum string voltage 1100 Vdc
- High-current PV module support
- Integrated Export Limitation function
- Single string current monitoring

### Block diagram PVS-20-TL (2MPPT)



### Block diagram PVS-20-TL (4MPPT) and PVS-30/33-TL



(\*): Option available only for SX version. Not available for SY, SI and SXD versions

## Technical data and types

| Type code  | PVS-20-TL (2MPPT)  | PVS-20-TL (4MPPT)                 | PVS-30-TL                         | PVS-33-TL                               |
|--|--|-----------------------------------|-----------------------------------|---|
| <b>Input side</b>  |  |                                   |                                   |   |
| Absolute maximum DC input voltage ( $V_{max,abs}$ )                        | 1100V  |                                   |                                   |   |
| Start-up DC input voltage ( $V_{start}$ )                                  | 250...500V (default 430V)  |                                   |                                   |   |
| Operating DC input voltage range ( $V_{dcmin}...V_{dcmax}$ )               | 200-1000 V   |                                   |                                   |   |
| Rated DC input voltage ( $V_{dcr}$ )                                       | 620V   |                                   |                                   |   |
| Rated DC input power ( $P_{dcr}$ )   | 20500 W  | 20500 W                           | 30600 W                           | 33700 W                                 |
| Maximum photovoltaic power recommended ( $P_{PV,max}$ )                    | 34000 Wp   | 34000 Wp                          | 44000 Wp                          | 48000 Wp                                |
| Number of independent MPPT   | 2  | 4                                 | 4                                 | 4                                       |
| Maximum DC input current ( $I_{dcr,max}$ ) for each MPPT                   | 2x26A  | 2x26A + 2x22A                     | 2x26A + 2x22A                     | 2x26A + 2x22A                           |
| Maximum DC input power for each MPPT ( $P_{MPPT,max}$ )                    | 2x12000W   | 2x12000W + 2x10000W               | 2x12000W + 2x10000W               | 2x12000W + 2x10000W                     |
| MPPT input DC voltage range ( $V_{MPPTmin} ... V_{MPPTmax}$ ) at $P_{dcr}$ | 460-850V   |                                   |                                   |   |
| Maximum input short circuit current for each MPPT                          | 40A <sup>1)</sup>  |                                   |                                   |   |
| Number of DC inputs pairs for each MPPT                                    | 2  |                                   |                                   |   |
| DC connection type   | PV quick fit connector   |                                   |                                   |   |
| <b>Input protection</b>  |  |                                   |                                   |   |
| Reverse polarity protection  | Yes  |                                   |                                   |   |
| Input over voltage protection for each MPPT                                | SPD Type II / Type I+II (optional)   |                                   |                                   |   |
| Isolation control  | Yes, according local regulation  |                                   |                                   |   |
| <b>Output side</b>   |  |                                   |                                   |   |
| AC grid connection type  | Three-phase (3W+PE or 3W+N+PE)   |                                   |                                   |   |
| Earthing system  | TN-S, TN-C, TN-CS, TT  | TN-S, TN-C, TN-CS, TT             | TN-S, TN-C, TN-CS, TT             | TN-S, TN-C, TN-CS, TT, IT <sup>2)</sup> |
| Rated AC power ( $P_{acr} @ \cos\phi=1$ )                                  | 20000 W  | 20000 W                           | 30000 W                           | 33000 W                                 |
| Maximum AC output power ( $P_{ac,max} @ \cos\phi=1$ )                      | 22000 W up to 30°C <sup>3)</sup>   | 22000 W up to 30°C <sup>3)</sup>  | 33000 W up to 30°C <sup>5)</sup>  | 36300 W up to 30°C <sup>3)</sup>        |
| Maximum apparent power ( $S_{max}$ )                                       | 22000 VA up to 30°C <sup>4)</sup>  | 22000 VA up to 30°C <sup>4)</sup> | 33000 VA up to 30°C <sup>6)</sup> | 36300 VA up to 30°C <sup>4)</sup>       |
| Maximum reactive power ( $Q_{max}$ )                                       | 20000 VAR  | 20000 VAR                         | 30000 VAR                         | 33000 VAR                               |
| Nominal power factor and adjustable range                                  | > 0.995; 0...1 inductive/capacitive  |                                   |                                   |   |
| Rated AC grid voltage ( $V_{ac,r}$ )                                       | 380V, 400V   |                                   |                                   |   |
| Maximum AC output current ( $I_{ac,max}$ )                                 | 33,4 A   | 33,4 A                            | 50,1 A                            | 55,1 A                                  |
| Rated output frequency ( $f_r$ )   | 50 Hz / 60 Hz  |                                   |                                   |   |
| Output frequency range ( $f_{min}...f_{max}$ )                             | 47...53 Hz / 57...63 Hz  |                                   |                                   |   |
| Total current harmonic distortion  | <3%  |                                   |                                   |   |
| Maximum AC cable   | 35 mm <sup>2</sup> copper/aluminum   |                                   |                                   |   |
| AC connection type   | Detachable Terminal Block  |                                   |                                   |   |
| <b>Output protection</b>   |  |                                   |                                   |   |
| Anti-islanding protection  | According to local standard  |                                   |                                   |   |
| Maximum external AC overcurrent protection                                 | 63 A   | 63 A                              | 80 A                              | 80 A                                    |
| Output overvoltage protection  | SPD Type II  |                                   |                                   |   |
| <b>Operating performance</b>   |  |                                   |                                   |   |
| Maximum efficiency ( $\mu_{max}$ )   | 98,4%  | 98,4%                             | 98,4%                             | 98,4%                                   |
| Euro efficiency  | 98,2%  | 98,2%                             | 98,2%                             | 98,2%                                   |
| <b>Communication</b>   |  |                                   |                                   |   |
| Embedded communication interfaces  | Dual Ethernet port, WLAN, advanced RS-485 port (optional)  |                                   |                                   |   |
| Communication protocol   | Modbus TCP Sunspec, Modbus RTU Sunspec (optional)  |                                   |                                   |   |
| User Interface   | LEDs, Web User Interface, Installer APP, Display (optional)  |                                   |                                   |   |
| Cloud services   | Aurora Vision® Plant Management Platform, Rest API   |                                   |                                   |   |
| Advanced functions   | Embedded export limitation control (in combination with external meter), 24h self consumption monitoring |                                   |                                   |   |

## Technical data and types

| Type code  | PVS-20-TL (2MPPT)   | PVS-20-TL (4MPPT) | PVS-30-TL           | PVS-33-TL  |
|--|---|-------------------|---------------------|--|
| <b>Input side</b>  |   |                   |                     |  |
| <b>Environmental</b>   |   |                   |                     |  |
| Ambient temperature range  | -25...+60°C (-13...140 °F) with derating above 45 °C (113 °F)   |                   |                     |  |
| Relative humidity  | 4%... 100% condensing   |                   |                     |  |
| Maximum operating altitude   | 4000 m  | 4000 m            | 4000 m              | 4000 m (13123 ft) with derating above 3000 m (9842 ft) |
| <b>Physical/General</b>  |   |                   |                     |  |
| Inverter typology  | Grid connected, double stage, transformerless   |                   |                     |  |
| Environmental protection rating  | IP65  |                   |                     |  |
| Environmental classification   | 4K26 (IEC 60721-3-4)  |                   |                     |  |
| Cooling  | Forced air  |                   |                     |  |
| Dimension (H x W x D)  | 675 (799,2 with connection boxes) x 591,8 x 227,5 mm  |                   |                     |  |
| Weight   | 50 Kg   |                   |                     |  |
| Mounting system  | Single mounting bracket (vertical or horizontal installation)   |                   |                     |  |
| <b>Safety</b>  |   |                   |                     |  |
| Marking  | CE, RCM   |                   |                     |  |
| Safety, EMC and RED standard   | IEC/EN 62109-1, IEC/EN 62109-2, EN 61000-6-1, EN 61000-6-2, EN 61000-3-11, EN 61000-3-12, EN 62311, EN 301 489-1, EN 301 489-17, EN 300 328   |                   |                     |  |
| Grid standard (check your sales channel for availability)                    | IEC 61683, EN 50530, IEC 62116, IEC 61727, AS/NZS 4777.2, VDE-AR-N 4105, VDE-AR-N 4110, VDE V 0124-100, DIN VDE V 0126-1-1, VFR 2019, UTE C15-712-1, CEI 0-21, CEI 0-16, PEA, MEA, EN 50438, EN 50549-1/-2, DRRG (DUBAI), CLC/TS 50549-1/-2, G99, Synergrid C10/11, RD 413, RD 1565, RD244, P.O. 12.3, NTS 631, UNE 206006 IN (ITC-BT-40), PPDS-priloha, Denmark Type A/B, IRR-DCC-MV, ABNT NBR 16149, ABNT NBR 16150, NRS 097-2-1, SII, ISO/IEC Guide 67, Netherlands Type A, EIFS Type A, Ireland |                   |                     |  |
| <b>Available product versions</b>  |   |                   |                     |  |
| Inverter equipped with SPD Type 2 on the DC and AC side                      | PVS-20-TL-SX  | PVS-20-TL-SXD     | PVS-30-TL-SX        | PVS-33-TL-SX   |
| Inverter equipped with SPD Type 1+2 on the DC side and Type 2 on the AC side | PVS-20-TL-SY  | -                 | PVS-30-TL-SY        | PVS-33-TL-SY   |
| Inverter equipped with SPD Type 2 on the DC and AC side for IT system        | -   | -                 | -                   | PVS-33-TL-SI   |
| <b>Available ordering options</b>  |   |                   |                     |  |
| PID recovery   | Only for SX version   | -                 | Only for SX version | Only for SX version                                    |
| AFCI (Arc Fault Circuit Interrupter)   | Only for SX version   | -                 | Only for SX version | Only for SX version                                    |
| Display  | Only for SX version   | -                 | Only for SX version | Only for SX version                                    |
| <b>Additional plug-in option</b>   |   |                   |                     |  |
| PVS-20/30/33-CCB   | Available   | Available         | Available           | Available  |

- 30 A for Australia and New Zealand
- Available only with a dedicated version called "SI", with 33kW of power
- Selecting the grid code "GERMANY (VDE 4105:2018 PNOM)" this value is limited to 20000W for PVS-20-TL and 33000W for PVS-33-TL
- Selecting the grid code "GERMANY (VDE 4105:2018 PNOM)" this value is limited to 20000VA for PVS-20-TL and 33000VA for PVS-33-TL

- Selecting the grid code "GERMANY (VDE 4105:2018 PNOM)" or "AUSTRALIA (AS/NZS 4777)" this value is limited to 30000W
- Selecting the grid code "GERMANY (VDE 4105:2018 PNOM)" or "AUSTRALIA (AS/NZS 4777)" this value is limited to 30000VA

#### Remarks:

- Designed and manufactured in Italy
- Features not specifically listed in the present data sheet are not included in the product



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

[fimer.com](http://fimer.com)

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