FIMER

Solar Inverter
PVS-20/30/33-TL
Quick Installation Guide

In addition to what is explained in this quick installation guide, the safety and installation information provided in the product manual must be read and followed. The technical documentation for the product is available at the website.
The device must be used in the manner described in the manual. If this is not the case the safety devices guaranteed by the inverter might be ineffective.

APPLY HERE THE COMMUNICATION IDENTIFICATION LABEL

1. Inverter models and components

This Quick Installation Guide is related to the following inverter models:

Inverter model	Input channels	DC switch	DC SPD	DC connection	AC SPD	AC connection
PVS-20-TL-SX	2	Yes	Type 2	4 string input	Type 2	Pluggable Terminal Block
PVS-20-TL-SXD **PVS-30-TL-SX** **PVS-33-TL-SX**	4	Yes	Type 2	8 string input	Type 2	Pluggable Terminal Block
PVS-20-TL-SY	2	Yes	Type 1+2	4 string input	Type 2	Pluggable Terminal Block
PVS-30-TL-SY **PVS-33-TL-SY**	4	Yes	Type 1+2	8 string input	Type 2	Pluggable Terminal Block
PVS-33-TL-SI	4	Yes	Type 2	8 string input	Type 2 (IT system)	Pluggable Terminal Block

The -SX inverter models can be equipped with the following options:

Option	Description
;APD inverter model suffix	• Inverter equipped with PID recovery functionality
;AFD inverter model suffix	• Inverter equipped with Arc Fault Detection functionality
;DISPLAY inverter model suffix	• Inverter equipped with display on the front cover

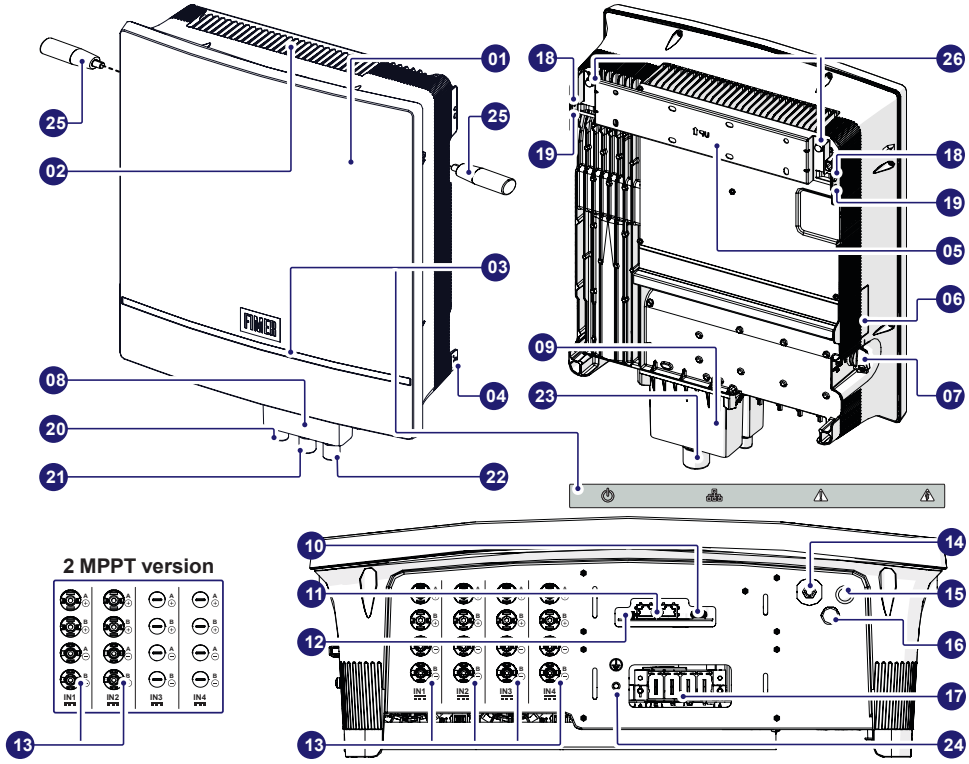
NOTE – Refer to inverter product manual for safety information related to ";APD", ";AFD" and ";DISPLAY" inverter model suffix.

NOTE – The inverter model should be chosen by a specialized technician who has a good knowledge of the installation conditions, the devices that will be installed externally, and whether it will eventually be integrated into an existing system.

1.1 Main inverter components

Inverter external view

01	Inverter	**10**	USB connector for accessories board	**19**	Padlock hole
02	Heatsink	**11**	Ethernet 1/2 connectors	**20**	Digital input cable gland (M20)
03	Synoptic	**12**	Digital input connector	**21**	Ethernet 1/2 cable gland (M25)
04	Protective earth (PE) external connection point	**13**	Quick fit input connectors	**22**	EXT cable gland (M25)
05	Mounting bracket	**14**	Wi-Fi antenna connector	**23**	AC cable gland (M40)
06	Fan tray	**15**	Smart button	**24**	Protective earth (PE) internal connection point
07	DC disconnect switch	**16**	Anti-condensation valve	**25**	Handles (optional)
08	Signals connection box	**17**	AC output connector	**26**	Rear anchor point
09	AC connection box	**18**	Side bracket screws (M5)		



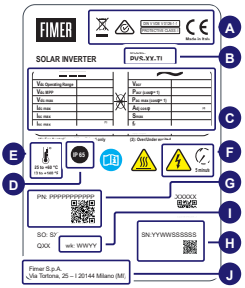
READ THE MANUAL – See the manual for details on the connection of the communication and control signals.

2. Labels and Symbols

The labels on the inverter show the conformity marking, main technical data and identification of the equipment and manufacturer.

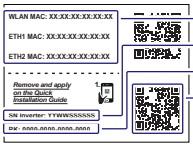
NOTE – The below labels are intended as an example only.

Regulatory and identification Label



A	A	Certification marks
B	B	Inverter model
C	C	Main technical data
D	D	IP protection rating
E	E	Operating temperature range
F	F	Discharge time
G	G	Inverter Part Number
H	H	Inverter Serial Number: • Inverter access point SSID: FIMER-YYWWSSSSSS • "Host Name": http://FIMER-YYWWSSSSSS.local • It is required to register the inverter in Aurora Vision.
I	I	Production date: WWYY where: WW (week) YY (year)
J	J	Manufacturer
L	L	WLAN (Wi-Fi) and ETH1/ETH2 (Ethernet) MAC addresses
M	M	Product Key. To be used: • as wireless access point password • to access to the Web UI as username and password in case of lost credentials to commission inverter using FIMER "Installer for Solar Inverters".
N	N	QR Code: To be used to commission inverter, using FIMER "Installer for Solar Inverters" app, for claiming process.

Communication identification label



ATTENTION – The labels placed on the equipment absolutely MUST NOT be removed, damaged, dirtied, hidden, etc.

In the manual and/or in some cases on the equipment, the danger or caution areas are indicated with signs, labels, symbols, icons.

Simbol	Descriprion
	Always refer to instruction manual
	General warning - Important safety information
	Dangerous voltage
	Hot surfaces
IP XX	Protection rating of equipment
	Temperature range
	Without insulation transformer
	Direct and alternating current, respectively
	Positive and negative pole of the input voltage (DC)
	Obligation to use protective clothing and/or personal protective equipment
	Point of connection of the protective ground
X'minutes	Risk of electric shock.The discharge time (quantified in the figure by the number XX) of the stored energy after de-energizing of the Inverter from both DC side and AC side.

3. Lifting and transporting

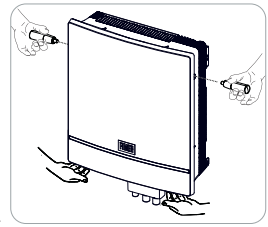
Transportation and relocation

The transportation of the device, in particular via land transportation, must be made with adequate means and ways to protect the parts from violent impacts, humidity, vibrations, etc.

ATTENTION – If the package is stored correctly, it can withstand a maximum load of 3 stacked units.

Lifting

The means used for lifting must be suitable to bear the weight of the equipment.



Weight of the equipment

Model	Weight
All models	50 Kg / 110 lbs

Unpacking and inspection

The packaging components must be removed and disposed of according to the applicable regulations of the country where the device is installed.
Upon opening the packaging, check the integrity of the equipment and verify that all the components are present.
If you notice defects or deterioration, stop the operations and call the carrier, as well as inform FIMER Service immediately.
Please keep the packaging in the event it has to be returned; the use of inadequate packaging will void the warranty.
Always store the Quick Installation Guide, all the supplied accessories in a safe place.

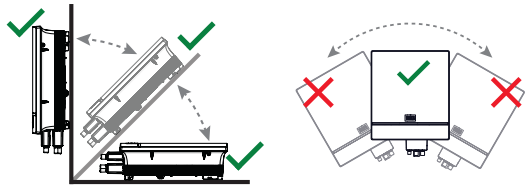
4. Installation planning

General recommendation on installation position

- Refer to Technical data table to check the required environmental conditions (protection rating, temperature, humidity, altitude, etc.).
- The installation location shall be easily accessible.
- Installation of the unit in a location exposed to direct sunlight is NOT acceptable. (Add awning in case of direct sunlight installation).
- Final installation of the device must not compromise access to any disconnection devices that may be located externally.
- Do not install in small closed rooms where air cannot circulate freely.
- Always ensure that the flow of air around the inverter is not blocked so as to prevent overheating.
- Do not install in locations where flammable substances or gases may be present (minimum distance 3 m).
- Do not install on wooden walls or other flammable supports.
- Install on a wall or strong structure suitable to bear the weight.
- Do not install in rooms where people live or where the prolonged presence of people or animals is expected, because of the high noise that the inverter produces during operation. The level of the sound emission is heavily influenced by where the appliance is installed (for example: the type of surface around the inverter, the general properties of the room, etc.) and the quality of the electricity supply.

Tilting admittance

The unit can be installed with an inclination between 0° (horizontal) and 90° (vertical) as indicated in the figures below.

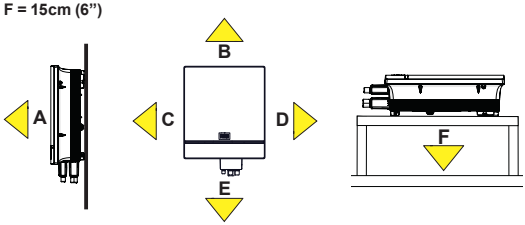


Distances

- Maintenance operations from FIMER service could entails removing the front cover. Always observe the required installation safety distances in order to allow routine check and maintenance operations.

- Provide a sufficient working space in front of the inverter that allows to removing the front cover (FIMER service only) and to allow wiring connections.
- Install at a height which takes into consideration the weight of the unit and in a position which is suitable for servicing, unless suitable means will be provided to carry out these mentioned operations.
- If possible, install at eye-level so to allow to easily check the synoptic **(03)**.
- Do not install any object (e.g. AC or DC cables) that could be damaged by overheating from outgoing hot air flow coming from top side (ΔT= +15 °C compared to ambient temperature). In case of this kind of installation needs, please evaluate the installation of a proper air deflector. Always respect the minimum distances required.
- Respect the minimum distances from surrounding objects that could prevent the inverter installation and restrict or block the air flow:

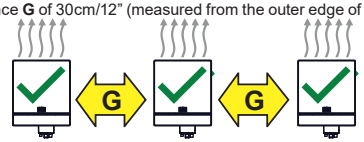
A = 70cm (27")
B = 50cm (20")
C = 20cm (8") (60cm/24" for fan replacement)
D = 20cm (8")
E = 15cm (6")
F = 15cm (6")



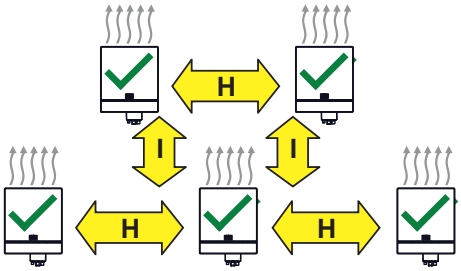
⚠ **ATTENTION –** Please check the manual for some particular scenarios that may vary the minimum clearance distances:

Installation of multiple units

- In case of installation of multiple units in the same place, position the inverter side by side paying attention to keep the minimum clearance distance **G** of 30cm/12" (measured from the outer edge of units).



If the space available does not allow this arrangement, position the inverters in a staggered arrangement so that heat dissipation is not affected by other inverters below. Respect the following minimum clearance distances **H** of 100cm/39" and **I** of 30cm/12".

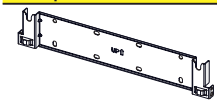
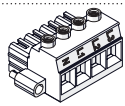
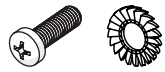
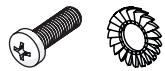


⚠ **ATTENTION –** Please check the product manual for "Wi-Fi signal environmental checks", "Installations at high altitudes" and "Installations with a high level of humidity".

NOTE – The final installation of the inverter must not compromise the access to any disconnection devices located outside.

NOTE – Refer to the warranty conditions to evaluate the possible exclusions related to an improper installation.

5. Supplied Component list

Component		Q.ty
	Vertical or horizontal mounting bracket **(05)**	1
	AC connector counterpart **(17)**	1
	Reducing seals for reducing the clamping ranges of the AC cable gland (M40) **(23)**.	1
	Eyelet cable lug for Protective earth (PE) internal connection point **(24)**	1
	M6 screw + M6 serrated lock washers to clamp the earth cable on the Protective earth (PE) internal connection point **(24)**	1 + 2
	M6 screw + M6 serrated lock washers to clamp the earth cable on the Protective Earth (PE) external connection point **(04)**	1 + 2
	Digital input connector **(12)** counterpart	1
	Wi-Fi antenna **(14)**	1
	M5 screws (with washers) for mechanically securing the inverter to the bracket **(18)**	2
	South Africa network standard label	1
	Technical documentation	1

6. Assembly instructions

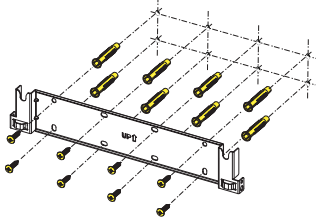
Bracket installation

The mounting bracket can be used to install the inverter on a vertical or horizontal support.

- Position the mounting bracket **(05)** perfectly level on the support and use it as drilling template.

NOTE – It is the installer's responsibility to choose an appropriate number and distribution of attachment points. The choice must be based on the type of support (wall, frame or other support), the type of anchors to be used, and their ability to support 4 times the inverter's weight (4x50Kg/110lbs=200Kg/440lbs for all models). Depending on the type of anchor chosen, drill the required holes (4 minimum) to mount the bracket. Put at least 2 screws in the upper side and at least 2 in the lower side.

- Attach the bracket **(05)** to the support.

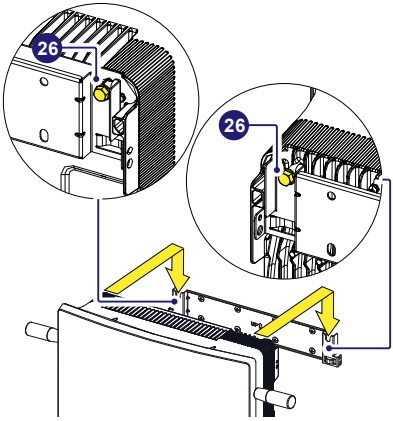


Assembly the Inverter to the bracket

⚠ **ATTENTION –** It is recommended to use the handles (that have to be ordered separately) to handle and safety install the inverter.

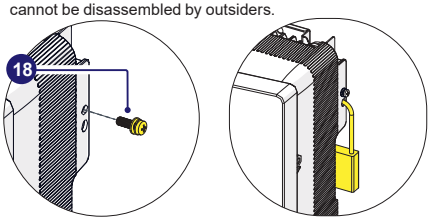
⚠ **ATTENTION –** Risk of injury due to the heavy weight of the equipment. Always consider the center of gravity of the enclosures while lifting.

- Lift the inverter up to the bracket **(05)** (using the handles **(25)** or M8 eyebolts) and insert the heads of the two rear anchor points **(26)** (placed on the rear part of the inverter) into the two slots ⊽ on the bracket **(05)**. Check that the rear anchor points **(26)** has been correctly inserted in the slots before releasing the inverter.



- Remove the handles **(25)** or eyebolts and tighten the supplied two side bracket screws **(18)** (Tightening torques 3.5 Nm) to avoid the tilting of the bottom part of the inverter.

- A padlock can be installed to lock the inverter to the bracket so that it cannot be disassembled by outsiders.



- Remove the protective cover from the connector of the Wi-Fi antenna located on the bottom side of the inverter.
  Install the Wi-Fi antenna by screwing it into the specific connector **(14)**.

- Remove the 2 protective adhesive films on the bottom side of the inverter.

⚠ **ATTENTION –** The protective adhesive films, positioned on the connection area, DO NOT guarantee the IP degree of the inverter. Do not perform incomplete installations. Install the Connection Box AC and signals also if the electrical connection is not made immediately.

⚠ **ATTENTION –** For connection to the network in South Africa: according to NRS097-2-1 requirements, at the end of installation it is mandatory to apply the label (supplied with the inverter) near to regulatory label.

7. AC grid output connection

7.1 Characteristics and sizing of the protective grounding cable

The earth connection can be made through the Protective Earth (PE) internal connection point **(04)**, Protective Earth (PE) external connection point **(24)** or both (this is required by regulations in force in certain countries of installation).

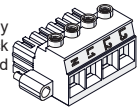
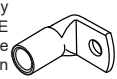
In compliance with standard IEC 62109 it is necessary to install a earthing cable in one of the protective earth terminal with a minimum section as indicated in the table below:

Cross-sectional area of phase conductors (S) (mm^2)	Minimum cross-sectional area of the protective earthing conductor (mm^2)
S ≤ 16	S
16 < S ≤ 35	16

⚠ **WARNING –** The minimum cross section of the protective earthing conductor must be:
- Copper wire = 10mm^2
- Aluminum wire = 16mm^2

7.2 Characteristics and sizing of the line cable

The AC cables must be connected to the AC output connector **(17)** using the specific terminal block supplied.

Conductor cable	
AC cable gland	22 - 32 mm - size M40
Cable diameter range	20...26 mm - size M40 with reducing seals (supplied) installed
Conductor cross section	• max 35mm^2 - accepted by the AC screw terminal block for L1(R), L2(S), L3(T) and neutral. 
	• max 25mm^2 - accepted by the cable lug supplied for PE connection on the Protective Earth (PE) internal connection point **(04)**. 
	NOTE – If is necessary to install a PE cable cross section greater than 25mm^2 can be used the Protective Earth (PE) external connection point **(24)**
Conductor material	copper or aluminum

7.3 Protection switch under load (AC switch) and differential protection

To protect the AC connection line of the inverter, it is recommended to install a protection device against overcurrent and earth leakages with the following features:

Load protection breaker	PVS-20-TL	PVS-30-TL	PVS-33-TL
Type	Automatic circuit breaker with thermal-magnetic protection		
Voltage/current rating	400Vac min63A (*)	400Vac min80A (*)	400Vac min80A (*)
Magnetic protection	Magnetic curve B/C		
Number of poles	3W (3 phases without neutral wire) or 4W (3 phases with neutral wire).		
Differential protection type	A/AC		
Differential sensitivity	300 mA		

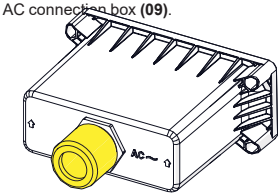
(*): please consider thermal and other derating when selecting the current rating of the protection equipment for your application.

7.4 AC output cables connection

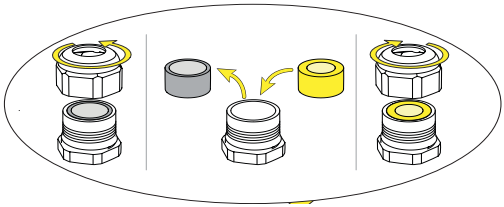
⚠ **ATTENTION –** Before carrying out any operation, check that any external AC switch downstream to the inverter (grid side) is in OFF position applying LOTO procedure on it.

The connection of the AC cable must be made on the AC output connector **(17)** located on the bottom side of the inverter by passing through the AC cable gland **(23)** installed on the AC connection box **(09)**.

- Unscrew the AC cable gland **(23)** installed on the AC connection box **(09)**.



• Pass the AC cable (diameter 22...32 mm) through the AC cable gland **(23).**



If the AC cable have a diameter between 20...26 mm should be installed the supplied reducing seal.

Based on the AC connection type could be possible 3 scenarious:

• Connection to the AC connector with PE on the Protective earth (PE) internal connection point **(24)**

• Connection to the AC connector with PE on the Protective earth (PE) external connection point **(04)**

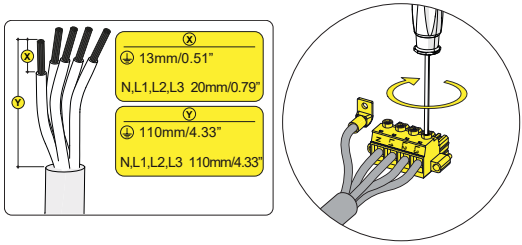
• Connection to the AC connector with 2xPE; one on the Protective earth (PE) internal connection point **(24)** and the second one on the Protective earth (PE) external connection point **(04)**

7.4.1 Connection on the AC connector

• Strip the cable.

• Install L1(R), L2(S), L3(T) and N (if provided) on the AC connector respecting the connections as indicated on the connector (Tightening torques 2.5 Nm if the wire ≤ 25 mm²; 4.5 Nm if the wire > 25 mm²).

⚠ **ATTENTION –** In case of a wrong phase sequence the inverter will not connect to the grid and it will provide an error state.



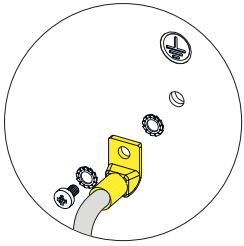
• Insert the AC connector and lock it in place by screwing the two lateral retaining screws.

7.4.2 Connection on the Protective earth (PE) internal connection point (24)

• Strip the cable.

• Install the supplied M6 cable lug on the earth cable.

• Install the earth wire on the Protective earth (PE) internal connection point **(24)** following the installation sequence (Tightening torques 4 Nm):
- Serrated washer
- Earth cable
- Serrated washer
- M6 screw

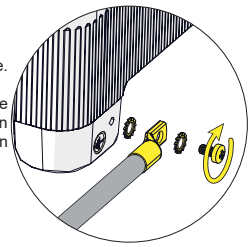


7.4.3 Connection on the Protective earth (PE) external connection point (04)

• Strip the cable.

• Install M6 cable lug on the earth cable.

• Install the earth wire on the Protective earth (PE) external connection point (04) following the installation sequence (Tightening torque 4 Nm):
- Serrated washer
- Earth cable
- Serrated washer
- M6 screw



7.4.4 Final operations

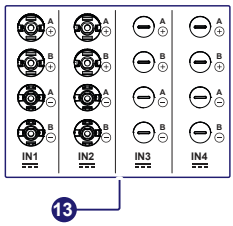
• Install the AC connection box **(09)** by tightening the 4 fixing screws (Tightening torques 3 Nm).
• Tighten the AC cable gland **(23)** (Tightening torques 8 Nm).

⚠ **ATTENTION –** Make sure the cable glands are properly sealed to ensure to keep IP protection degree.

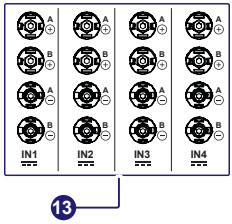
8. Input connection (DC)

For the string connections it is necessary to use the DC input quick fit connectors **(13)**, located on the bottom side of the inverter.

2 MPPT version



4 MPPT version



The input connectors are divided into:
• 4 groups (one group for each input channel), for the models with 4MPPT.
• 2 groups (one group for each input channel), for the models with 2MPPT.
For each channell 2 pairs of quick fit connectors are available.
Respect the Maximum DC input power for each MPPT as follow:

	IN1	IN2	IN3	IN4
2MPPT version	26A/12kW	26A/12kW		
4MPPT version	22A / 10kW	26A / 12kW	22A / 10kW	26A / 12kW

8.1 Preliminary operations to the connection of the PV generator

• Checking the correct polarity of the strings
• Checking of leakage to ground of the photovoltaic generator
• Checking of strings voltage
• Installation of quick-fit connectors

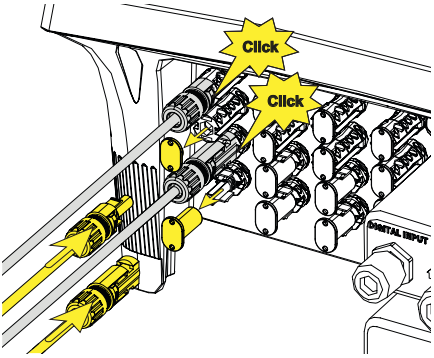
8.2 Connection of the input strings

⚠ **WARNING –** When the photovoltaic panels are exposed to sunlight they provide continuous DC voltage to the inverter. To avoid risks of electrical shock, all wiring operations must be carried out with the DC disconnect switches (internal **(07)** and external to the inverter) and external AC disconnect switches OFF.

• Connect all the strings required by the system by pushing the quick fit connectors in the right position.

⚠ **ATTENTION –** Using counterparts that are not compliant with the quick fit connector models on the inverter could cause serious damage to the unit and lead to invalidation of the warranty.

⚠ **ATTENTION –** Refer to document “String inverters - Product manual appendix” available at www.fimer.com to find out the manufacturer and model of quick fit connector used on the inverter.



⚠ **ATTENTION –** Check that protective caps are installed on unused connectors. This is necessary for the inverter seal and to avoid any damage to the unused connectors which may be used at a later time.

⚠ **ATTENTION –** The quick fit connectors must be properly installed. After the installation make sure the connectors are correctly locked through the clips.

9. Instruments

The synoptic **(03)** allows to view inverter status conditions to be analyzed in greater depth by consulting the manual.

POWER
Solid when the inverter is working correctly. Flashes when checking the grid or if there is insufficient sunlight.

WLAN
Indicates the status of the Wi-Fi or Ethernet communication lines.

ALARM
The inverter has detected an anomaly. The anomaly is shown on the “EVENTS” section of the internal webserver.

GFI
Ground fault on the DC side of the PV generator. The error is shown on the “EVENTS” section of the internal webserver.

NOTE – The icons, in various combinations, can indicate multiple conditions other than the original single condition; see the various descriptions on the product manual.

10. Commissioning

The inverter can be commissioned in a simple and intuitive way through the Installer for solar inverters APP for mobile devices.

NOTE – The commissioning can be done also via WebUI.
Once powered, the inverter will create a Wi-Fi network (SSID: FIMER-YYWWSSSSSS); connect to this Wi-Fi (use the Product Key as password; digit also the dash “-” characters).
Open an internet browser and enter the IP 192.168.117.1 to access the commissiong wizard.
Subsequently is possible to access the WebUI using the admin password 0010. For a more complete description of the procedure refer to the product manual available at www.fimer.com

- Supply the inverter with DC input voltage from the photovoltaic generator and via AC grid voltage.

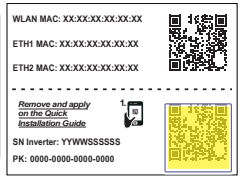
⚠ **ATTENTION –** The inverter configuration can be also performed with only one supply source (DC or AC).

⚠ **ATTENTION –** With DC supply, make sure that the irradiation is stable and adequate for the inverter commissioning procedure to be completed.

- Open the " Installer for solar inverters" APP.
- Login or Sign-In to Aurora vision account.
- Tap on "Commissioning wizard". A QR code scanner will be opened. Scan the QR code on the Communication identification label and connect to inverter network.

NOTE – The name of the Wi-Fi network created by the inverter will be: FIMER-ZZZZZZZZZZ (10 digit Inverter SN).

NOTE – After this step wait 10 seconds to allow the Wi-Fi connection



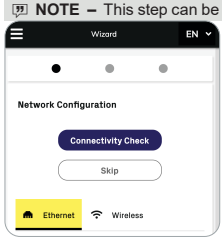
Once connected, the commissioning wizard will start.

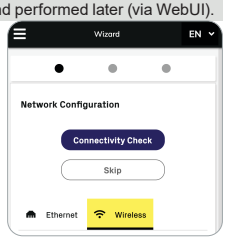
10.1 COMMISSIONING WIZARD

10.1.1 Network configuration.

- Choose the connection type (Ethernet or Wi-Fi) and set the related parameters.

NOTE – This step can be skipped and performed later (via WebUI).

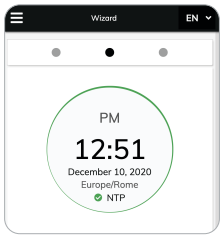




- Once network parameters were setted, tap on “Next”.

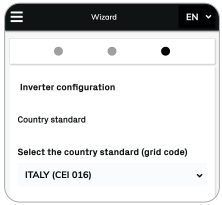
10.1.2 Date and Time.

- Set the Date, Time and Time zone (The inverter will propose these fields if connected to internet).
- Once date and time were setted, tap on “Next”.

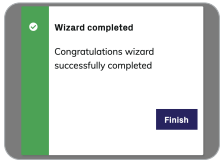


10.1.3 Inverter configuration.

Country standard
- Set the grid standard of the country in which the inverter is installed. Some Country standards have different grid voltage that should be setted during this step.



- Confirm the settings by clicking “Save”. The configuration wizard is complete and the inverter will reboot.



- If the outcome of the preliminary checks on the grid parallel is positive, the inverter connects to the grid and starts to export power to the grid. The “Power” LED remains fixed on while the “Alarm” and “GFI” LEDs are off.

NOTE – To address any problems that may occur during the initial stages of operation of the system and to ensure the inverter remains fully functional, you are advised to check for any firmware updates in the download area of the website www.fimer.com or at https://registration.solar.fimer.com (instructions for registering on the website and updating the firmware are given in the product manual).

11. Features and Technical Data

	PVS-20-TL (2MPPT)	PVS-20-TL	PVS-30-TL	PVS-33-TL
Input side				
Absolute maximum DC input voltage (Vmax,abs)	1100 V			
Start-up DC input voltage (Vstart)	250...500V (default 430V)			
Operating DC input voltage range (Vdcmin...Vdcmax)	200...1000 V			
Rated DC input voltage (Vdcr)	620V			
Rated DC input power (Pdcr)	20500 W	20500 W	30600 W	33700 W
Number of independent MPPT	2	4	4	4
Recommended maximum PV array power (PPV, max)	30000 Wp	34000 Wp	44000 Wp	48000 Wp
Maximum DC input current (Idcmax) for each MPPT	26A,26A	22A, 26A, 22A, 26A		
Maximum DC input power for each MPPT (PMPPT,max)	IN1=12000W@26A, IN2=12000W@26A	IN1=10000W@22A, IN2=12000W@26A, IN3=10000W@22A, IN4=12000W@26A		
MPPT input DC voltage range (VMPPTmin ... VMPPTmax) at Pacr	460-850V			
Maximum input short circuit current for each MPPT	40 A [7]			
Maximum return current (AC side vs DC side)	Negligible in normal operating conditions [8]			
Number of DC inputs pairs for each MPPT	2			
DC connection type	PV quick fit connector [3]			
Type of PV panels that can be connected at input according to IEC 61730	Class A			
Input protection				
Reverse polarity protection	Yes			
Input over voltage protection for each MPPT	SPD Type 2 / Type 1+2 (optional)			
Photovoltaic array isolation control	Yes, according to IEC 62109-2 or according to local regulation			
Residual current monitoring Unit (leakage current protection)	Yes, according to IEC 62109-2			
Input current monitoring	String level			
Output side				
AC Grid connection type	Three phase (3W+PE or 4W+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 [4]
Rated AC power (Pacr @cosf=1)	20000 W	20000 W	30000 W	33000 W
Maximum AC output power (Pacmax @cosf=1)	22000 W up to 30°C [9]	22000 W up to 30°C [9]	33000 W up to 30°C [11]	36300 W up to 30°C [9]
Maximum apparent power (Smax)	22000 VA up to 30°C [10]	22000 VA up to 30°C [10]	33000 VA up to 30°C [12]	36300 VA up to 30°C [10]
Maximum reactive power (Qmax)	20000 VAR	20000 VAR	30000 VAR	33000 VAR
Nominal power factor and adjustable range	> 0.995; 0…1 inductive / capacitive			
Rated AC grid voltage (Vac,r)	380V, 400V [1]			
Maximum AC output current (Iac,max)	33,4 A	33,4 A	50,1 A	55,1 A
Contributory fault current	Iac, máx. x 1,15			
Rated output frequency (fr)	50 Hz / 60 Hz			
Output frequency range (fmin...fmax)	47...53 Hz / 57…63 Hz [2]			
Total current harmonic distortion	<3%			
Max DC Current Injection (% of In)	< 0.5%*In			
Maximum AC cable	35 mm² copper/aluminum			
AC connection type	Pluggable Terminal Block			
Output protection				
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 2			
Operating performance				
Maximum Efficiency (ηmax)	98.4%	98.4%	98.4%	98.4%
Weighted Efficiency (EURO)	98.2%	98.2%	98.2%	98.2%
Environmental				
Operating ambient temperature range	-25...+60°C (-13...140 °F) with derating above 45 °C (113 °F)			
Storage temperature	-40°C...+85°C / -40°F...185°F			
Relative Humidity	4…100 % with condensation			
Sound pressure level, typical	75dB(A) @ 1m			
Maximum operating altitude	4000 m (13123 ft)	4000 m (13123 ft)	4000 m (13123 ft)	4000 m (13123 ft)[6]
Environmental pollution degree classification for external environments	3			
Environmental class	Outdoor			
Physical				
Environmental Protection Rating	IP65			
Cooling System	Forced air			
Dimension (H x W x D)	H = 675 mm / 26.57" (799,2mm / 31.46" with connection boxes); W = 591,8 mm / 23,3"; D = 227,5 mm / 8,95"			
Weight	50 Kg / 110lb			
Overvoltage rating as per IEC 62109-1	II (DC input) III (AC output)			
Safety				
Safety class	I			
Insulation Level	Transformerless			
Marking	CE [5]; RCM			

1. The AC voltage range may vary depending on specific country grid standards.
2. The Frequency range may vary depending on specific country grid standards.
3. Please refer to the document "String inverters – Product manual appendix" available at www.fimer.com for information on the quick-fit connector brand and model used in the inverter.
4. Available only with a dedicated version called "SI", with 33kW of power.
5. Hereby, FIMER S.p.A. declares that the radio equipments (radio module combined with the inverter), are in compliance with the Directive 2014/53/EU. The full text of the EU Declaration of Conformity is available at the following internet address: www.fimer.com
6. With output power [Pout] derating above 3000m (9842 ft). @ 4000m (45° C ambient temperature), the output power (Pout) is reduced by 10%.
7. 30A (each MPPT): for Australia and New Zealand only.
8. In the event of a fault, limited by the external protection envisaged on the AC circuit
9. By selecting the grid standard "GERMANY (VDE 4105: 2018 PNOM)" this value is limited to 20000W for PVS-20-TL and 33000W for PVS-33-TL
10. By selecting the grid standard "GERMANY (VDE 4105: 2018 PNOM)" this value is limited to 20000VA for PVS-20-TL and 33000VA for PVS-33-TL
11. By selecting the standard grid "GERMANY (VDE 4105: 2018 PNOM)" or "AUSTRALIA (AS / NZS 4777)" this value is limited to 30000W
12. By selecting the standard grid "GERMANY (VDE 4105: 2018 PNOM)" or "AUSTRALIA (AS / NZS 4777)" this value is limited to 30000VA

Features not specifically mentioned in this data sheet are not included in the product.

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

fimer.com