FIMER

Solar inverter PVM-75/100/110/125-TL

With four power sizes (75 kW, 100 kW, 110 kW and 125 kW) and up to 12 MPPT, which can be paralleled according to project requirements, FIMER PVM-75/125-TL is a high-power three-phase inverter for commercial and industrial application with integrated management for AC-coupled storage systems.

From 75 to 125 kW

This platform, for extreme high power string inverters with power ratings up to 125 kW, maximizes the ROI for decentralized ground mounted and large rooftop applications. With up to twelve MPPT, energy harvesting is optimized even in shading situations.

Extreme power with high integration level
The extreme high power module up to 125 kW saves installation resources as less units are required. Due to its compact size further savings are generated in logistics and in maintenance. Thanks to the integrated DC disconnection, 24 string connections, surge protection no additional boxes are required.
DC-Switch level Arc Fault Detection is integrated.

Ease of installation
The horizontal and vertical mounting possibility creates flexibility for both ground mounted and rooftop installations. The IP66 rated power compartment is completely segregated from AC Wiring Box. Both DC and AC connections are accessible from outside reducing the risk of humidity and water contamination when commissioning and maintenance actions are performed.

Standard wireless access from any mobile device makes the configuration of inverter and plant easier and faster. Improved user experience thanks to a build in User Interface (UI) enables access to advanced inverter configuration settings.

The design supports both copper and aluminum cabling even up to 240 mm^2 cross section to minimize the energy losses.

Fast system integration
Industry standard Modbus/SUNSPEC protocol enables fast system integration. Two ethernet ports enable fast and future proof communication for PV plants.

Plant portfolio integration
Monitoring your assets is made easy as every inverter is capable to connect to Aurora Vision cloud platform to secure your assets and profitability in long term.

Design flexibility and shade tolerance
Available in different versions, thanks to the double stage conversion topology and the modular design, PVM-75/125-TL guarantees maximum flexibility for the system design on rooftops or hilly ground. Available with different number of independent MPPTS parallelable in according to project requirements, allows the inverter to satisfy any plant condition and any customer need, including revamping.
With this technological choice energy harvesting is optimized even in shading situations.

Highlights
- Up to 12 independent MPPTs
- Transformerless inverter
- 75 kW, 100 kW, 100 kW and 125 kW @ 400 Vac
- Double stage topology for a wide input range
- Up to 150% DC/AC ratio
- Built-in Arc Fault Detection and DC-Link Precharging
- Wi-Fi as standard for configuration
- Two ethernet ports for plant level communication
- Large set of specific grid codes available which can be selected directly in the field
- Both vertical and horizontal installation
- IP66-rated Power Compartment
- IP65-rated AC Wiring Box
- Maximum efficiency up to 98.8%
- Energy management without an external controller (Self-consumption, peak shaving, and export limitation via direct monitoring of the meter to be installed at delivery point

Maximum configuration flexibility
- 1, 2, 3, 4, 6, and 12 MPPTs channels.
- “Custom” configurations.

Easy to install and maintain
- Fuse-free design.
- Optimized weight and size.

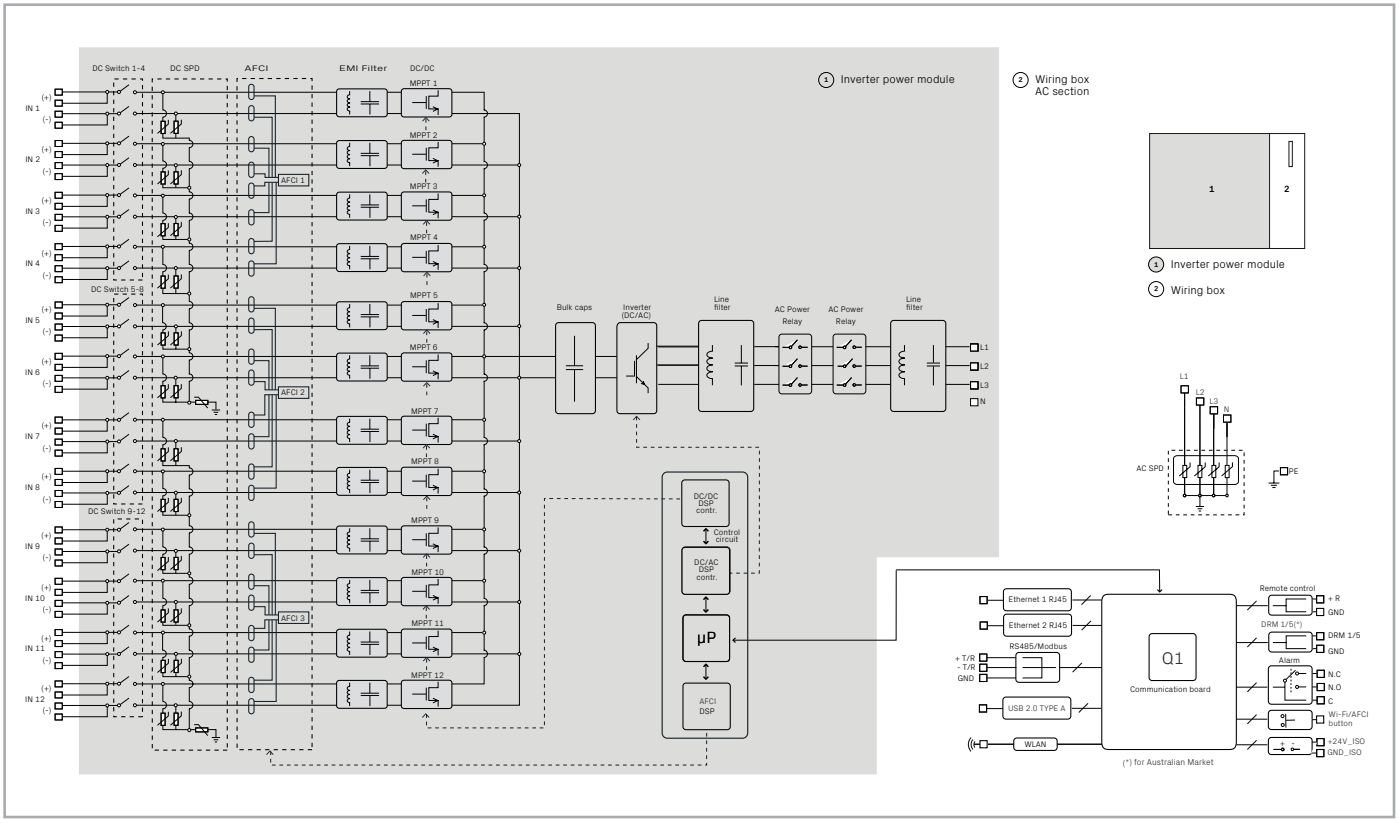
Full control
- Remote monitoring at no extra cost.

Advanced Diagnostics
- Real-time I-V curve for immediate detection of anomalies.

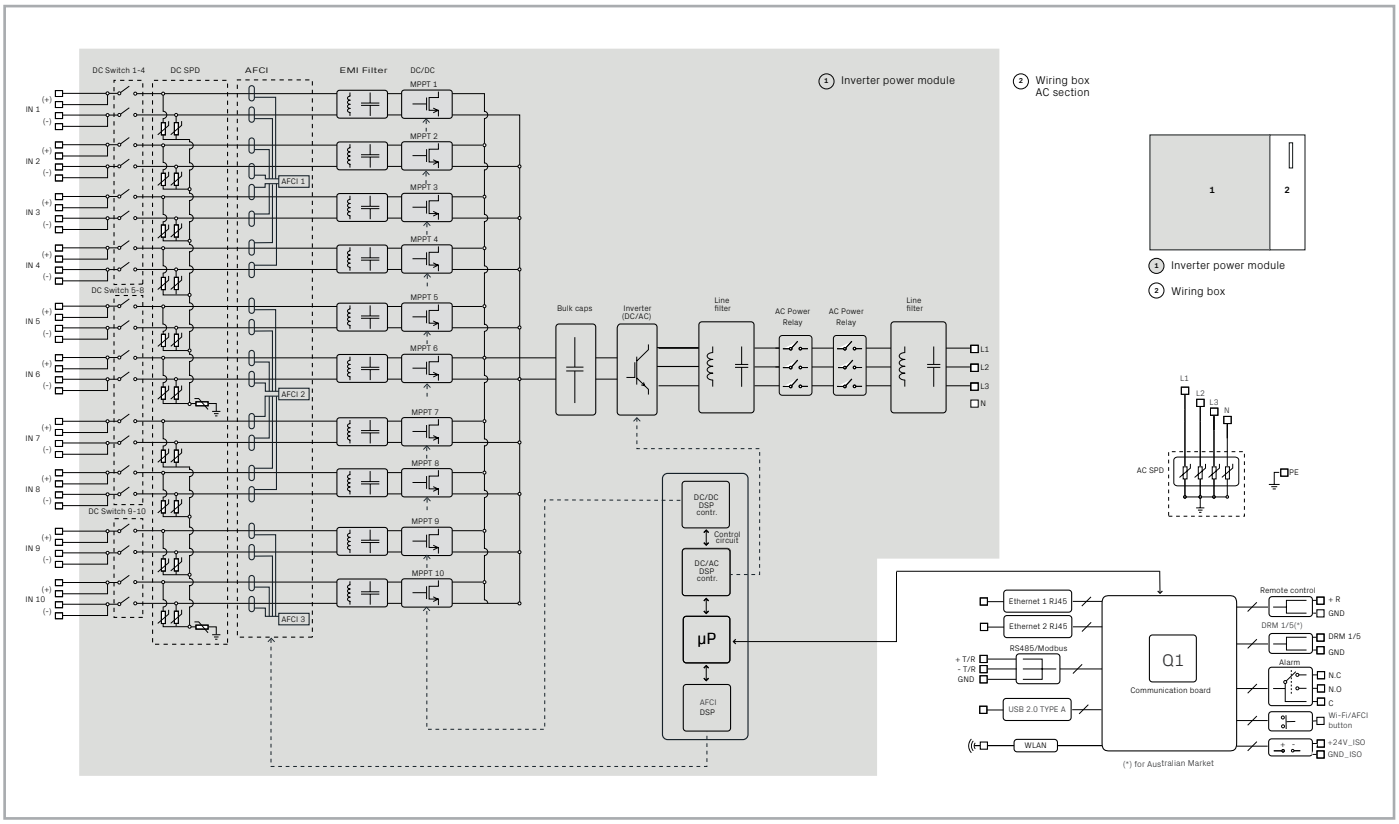
Commissioning & Live monitoring

Built–in Arc Fault Detection (AFD)

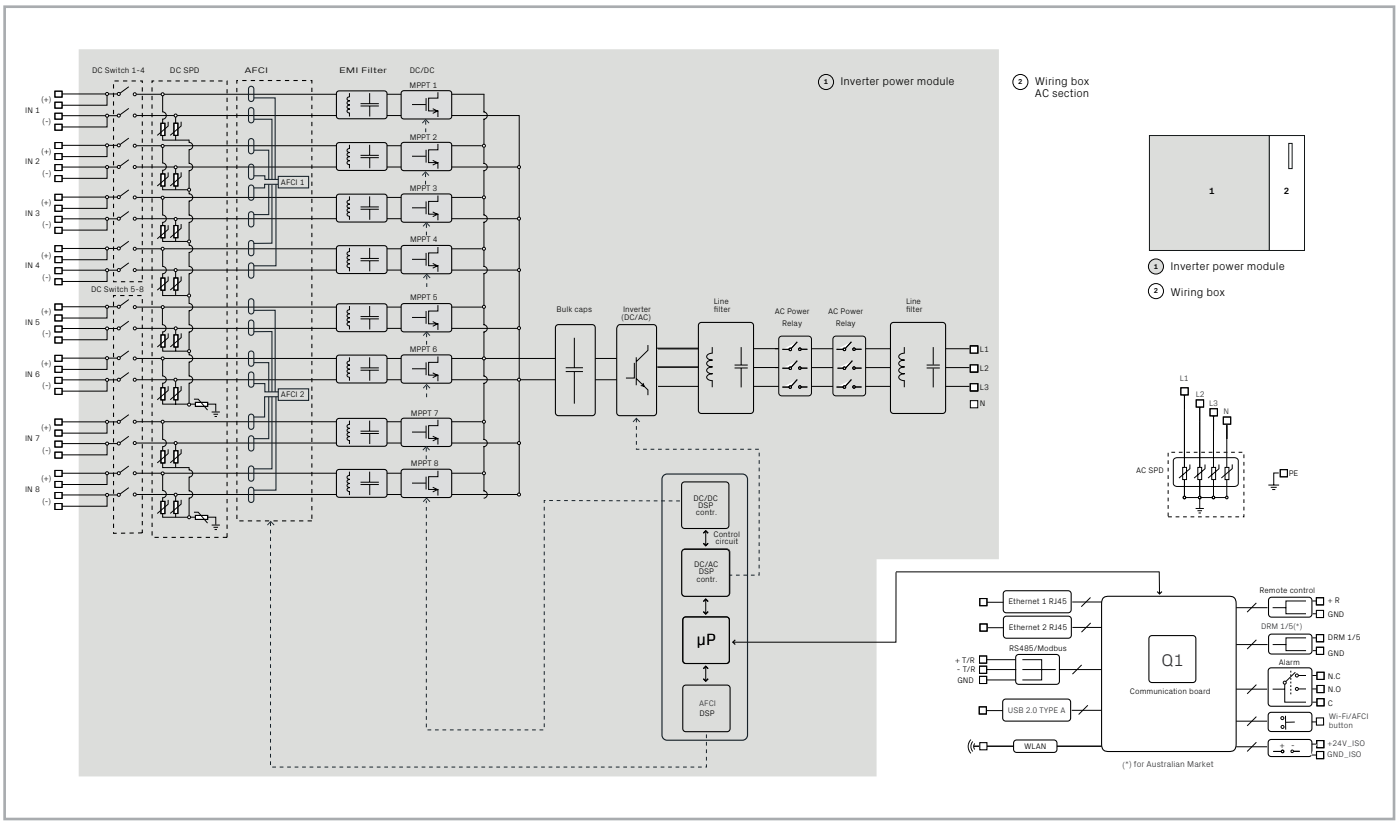
Schematic diagram of PVM-125-TL in configuration 12 independent MPPTs



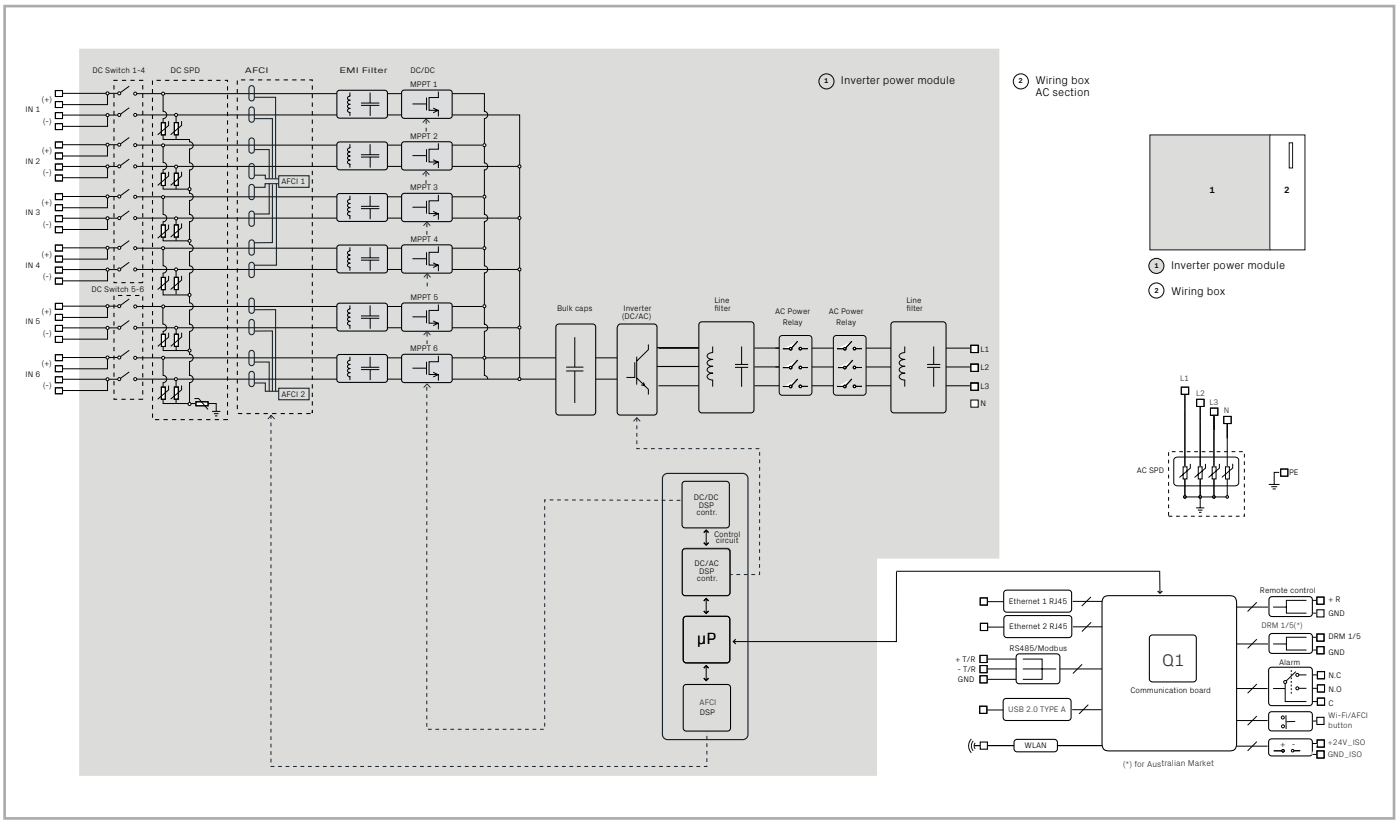
Schematic diagram of PVM-110-TL in configuration 10 independent MPPTs



Schematic diagram of PVM-100-TL in configuration 8 independent MPPTs



Schematic diagram of PVM-75-TL in configuration 6 independent MPPTs



Technical data and types

Type code	PVM-75-TL	PVM-100-TL	PVM-110-TL	PVM-125-TL
Input side				
Absolute maximum DC input voltage ($V_{max,abs}$)	1100 V			
Start-up DC voltage (V_{start})	250...500V (default 430V)			
Operating DC voltage range (V_{dcmin}...V_{dcmax})	200-1000 V			
Rated DC voltage (V_{dcr})	620 V			
Rated DC power (P_{dcr})	76500 W	102000 W	112200 W	127500 W
Recommended maximum PV array power ($P_{PV,max}$) [1]	116000 Wp	155000 Wp	170500 Wp	193000 Wp
Number of independent MPPT	6	8	10	12
Maximum DC power for each MPPT ($P_{MPPT,max}$) [1]	20000W			
DC voltage range of MPPT ($V_{MPPT,min}$ ... $V_{MPPT,max}$) at P_{acr}	460-850V			
Maximum DC current ($I_{dc,max}$) for each MPPT ($I_{MPPT,max}$)	32 A			
Maximum short circuit current for MPPT	50 A			
Number of DC inputs pairs for each MPPT	2			
DC connection type	Quick fit PV connector [2]			
Input protection and function				
Reverse polarity protection	Yes, from limited current source			
Over voltage protection for each MPPT - varistor	SPD Type II / Type I+II (optional)			
Photovoltaic array isolation control	Yes, according to local standard			
Arc Fault detection (AFCI)	Yes			
Single string monitoring	Yes			
AC Output				
AC Grid connection type	Three-phase (3W+PE or 3W+N+PE)			
Earthing system	TN-S, TN-C, TN-Cs, TT and IT			
Rated AC power (P_{acr} @cosφ=1)	75000 W	100000 W	110000 W	125000 W
Maximum AC output power (P_{acmax} @cosφ=1)	75000 W	100000 W	110000 W	125000 W
Maximum apparent power (S_{max})	75000 VA	100000 VA	110000 VA	125000 VA
Maximum reactive power (Q_{max})	45000 VAR	60000 VAR	66000 VAR	75000 VAR
Rated AC grid voltage ($V_{ac,r}$)	380V / 400V [2]			
Maximum AC output Current at Vac 400 ($I_{ac,r}$)	108.3 A	144.4 A	158.8 A	180.5 A
Maximum AC Current ($I_{ac,max}$)	114 A	152 A	167.2 A	190 A
Contributory fault Current	114 A	152 A	167.2	190 A
AC output short time withstand current	2250 A, 10 ms (I_{cw}), 4500 A (I_{pk})			
Rated frequency (f_r)	50 Hz / 60 Hz			
Frequency range (f_{min}...f_{max}) [3]	45 ... 55 Hz / 55 ... 65 Hz			
Nominal power factor and adjustable range	> 0.995; adj. ±0.8 ... 1 (over/under exited)			
Total current harmonic distortion	<3% of $I_{ac,max}$ (typical 0,25% on sinusoidal voltage reference)			
Maximum DC injection current (% di $I_{ac,r}$)	<0,5% *$I_{ac,r}$			
AC connection type	Terminal block			
Maximum AC cable	240 mm^2 Copper and Aluminium			
Grid connected output protection				
Anti-islanding protection	According to local standard			
Minimum external AC overcurrent protection	300 A			
Output overvoltage protection – replaceable surge protection device	SPD Type II [4]			
Efficiency				
Maximum efficiency (η_{max})	98,8%			
Euro efficiency	98,5%			
MPPT efficiency	99.99 %			
Embedded Communication				
Embedded physical interfaces	WLAN [5], Dual Ethernet, RS-485			
Embedded Communication protocols	Modbus TCP Sunspec, Modbus RTU Sunspec			
User interface	LEDs, Internal Web User Interface (WEB UI)			
Cloud services	Aurora Vision® Plant Portfolio Manager, Rest API			
Advanced features	Export limitation control [6], Embedded data logger			
Environmental				
Ambient temperature range	-25...+60 °C (-13...140 °F) with derating above 30 °C (86 °F)			
Relative humidity	4...100 % condensing			

Technical data and types

Type code	PVM-75-TL	PVM-100-TL	PVM-110-TL	PVM-125-TL
Environmental pollution degree	PD3			
Maximum operating altitude	4000 m (13123 ft) with derating above 3000 m (9842 ft)			
Acoustic noise emission level (worst case)	< 77,9 dBA @ 1 m			
Ambient storage/transport temperature	-40 °C ... +85 °C			
Humidity storage/transport	4 % ÷ 100 %			
Environmental classification	4K6 (IEC 62477-1:2022) / 4K26 (IEC 60721-3-4:2019)			
Vibrations	4M1			
Chemically active substances	4C2			
Mechanically active substances	4S2			
Physical				
Inverter typology	Grid connected, Double stage, Transformerless			
Environmental Protection Rating	IP66 (Power Box) / IP65 (Wiring Box)			
Cooling	Forced Air			
Dimension (H x W x D)	715 x 965 x 380 mm			
Weight	83 kg	87 kg	90 kg	93 kg
Mounting system	Mounting bracket (vertical or horizontal installation)			
Safety				
Marking	CE, RCM			
Isolation level	Transformerless			
Protective class	Class I			
Safety and EMC standards	IEC/EN 62109-1, IEC/EN 62109-2, IEC 62477-1, EN 61000-6-2, EN 61000-6-3, EN 61000-3-2, EN 61000-3-3, EN 61000-3-11, EN61000-3-12			
Grid standards (check your sales channel for availability) [7]	CEI 0-16, CEI 0-21, DIN V VDE V 0126-1-1, VDE-AR-N 4105 / 4110 / 4120, UK G99-1, Ireland, NTS 631, AS/NZS 4777.2, C10/11, EN 50549, IEC 61727, IEC 62116, MEA, PEA			
Other features				
Battery ready	Yes, AC coupled BESS [8]			
Available product versions				
Input with quick fit connectors + DC disconnect switches + AC and DC overvoltage surge arresters (Type II) + MPPT level input current monitoring and ARC fault detection	PVM-75-TL-SX	PVM-100-TL-SX	PVM-110-TL-SX	PVM-125-TL-SX
Input with quick fit connectors + DC disconnect switches + AC and DC overvoltage surge arresters (Type II for AC and Type I+II for DC) + MPPT level input current monitoring and ARC fault detection	PVM-75-TL-SY	PVM-100-TL-SY	PVM-110-TL-SY	PVM-125-TL-SY
Input with quick fit connectors + DC disconnect switches + AC and DC overvoltage surge arresters (Type II) + MPPT level input current monitoring and ARC fault detection + ANTI-PID	PVM-75-TL-SX;APID	PVM-100-TL-SX;APID	PVM-110-TL-SX;APID	PVM-125-TL-SX;APID
Input with quick fit connectors + DC disconnect switches + AC and DC overvoltage surge arresters (Type II for AC and Type I+II for DC) + MPPT level input current monitoring and ARC fault detection + ANTI-PID	PVM-75-TL-SY;APID	PVM-100-TL-SY;APID	PVM-110-TL-SY;APID	PVM-125-TL-SY;APID
Accessories				
PVM-75/125 Grounding Kit	Allow to connect the negative input pole to ground [9]			
PVM-75/125 String Expander/Combiner	DC Wiring Box to parallel multiple independent MPPT (integrated protection fuses) [10]			
PVM-75/125 USB to Ethernet Add-on	Accessory board to add 2 additional Ethernet ports for AC Coupled BESS management [11]			
PVM-75/125 Fan filter	Optional Fan filter for heavy dusty environmental			
PVM-75/125 Central Bracket	Additional central bracket for pole mounting			
PVM-75/125 Installation kit	Installation kit containing lifting eyebolts and handles and key to open the wiring box door			

1) Value subject to derating; refer to the product documentation for further details.
2) Refer to the document "PVM-75/100/110/125-TL User Product Manual" available at www.fimer.com to know the brand and the model of the quick fit connector.
3) The Frequency range may vary depending on specific country grid standards.
4) As per test defined in EN/IEC 61643-11.
5) As per IEEE 802.11 b/g/n standard.
6) Please refer to the document "Meter supported by FIMER string inverters and the VSN700-05 data logger".
7) Further grid standards will be added, please refer to FIMER Solar page for further details.
8) Compatible with FIMER PVX Energy Storage Family.
9) When PVM-125/75 Grounding kit is installed, Residual Current Monitoring do not fully operate. Inverter must be installed and operate in "restricted areas (access limited to qualified personnel)" according to IEC 62109-2.
10) For further information refer to PVM-125/75 String Expander/Combiner Manual available at www.fimer.com.
11) For further information refer to PVM-125/75 USB to Ethernet Add-on manual available at www.fimer.com.

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

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For more information
please contact
your local MA Solar Italy
representative or visit:

fimer.com

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FIMER_PVM-75/100/110/125-TL_EN_Rev_D 31.07.2026