

SOLAR INVERTERS

ABB string inverters

PVS-100/120-TL



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PVS-100/120-TL
three-phase outdoor
string inverter

This platform, for extreme high power string inverters with power ratings up to 120 kW, maximizes the ROI for decentralized ground mounted and large rooftop applications. With six MPPT energy harvesting is optimized even in shading situations.

Extreme power with high integration level

The extreme high power module up to 120 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/AC disconnection, 24 string connections, fuses and surge protection no additional boxes are required.

Ease of installation

The horizontal and vertical mounting possibility creates flexibility for both ground mounted and rooftop installations. Covers are equipped with hinges and locks that are fast to open and reduce the risk of damaging the chassis and interior components when commissioning and performing maintenance actions.

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 installer mobile APP, available for Android/iOS devices, further simplifies multi-inverter installations.

The design supports both copper and aluminum

The PVS-100/120-TL is ABB's cloud connected three-phase string solution for cost efficient decentralized photovoltaic systems for both ground mounted and large commercial applications.

cabling even up to 185 mm² 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.

ABB plant portfolio integration

Monitoring your assets is made easy as every inverter is capable to connect to ABB plant portfolio manager to secure your assets and profitability in long term.

Design flexibility and shade tolerance

The double stage conversion topology and six MPPT guarantee maximum flexibility for the system design on rooftops or hilly ground. With this technological choice energy harvesting is optimized even in shading situations.

Highlights

- 6 independent MPPT
- Transformerless inverter
- 120 kW for 480 Vac and 100 kW for 400 Vac
- 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
- Double stage topology for a wide input range
- Both vertical and horizontal installation
- Separate wiring compartment for fast swap and replacement
- IP66 Environmental protection
- Maximum efficiency up to 98.9%

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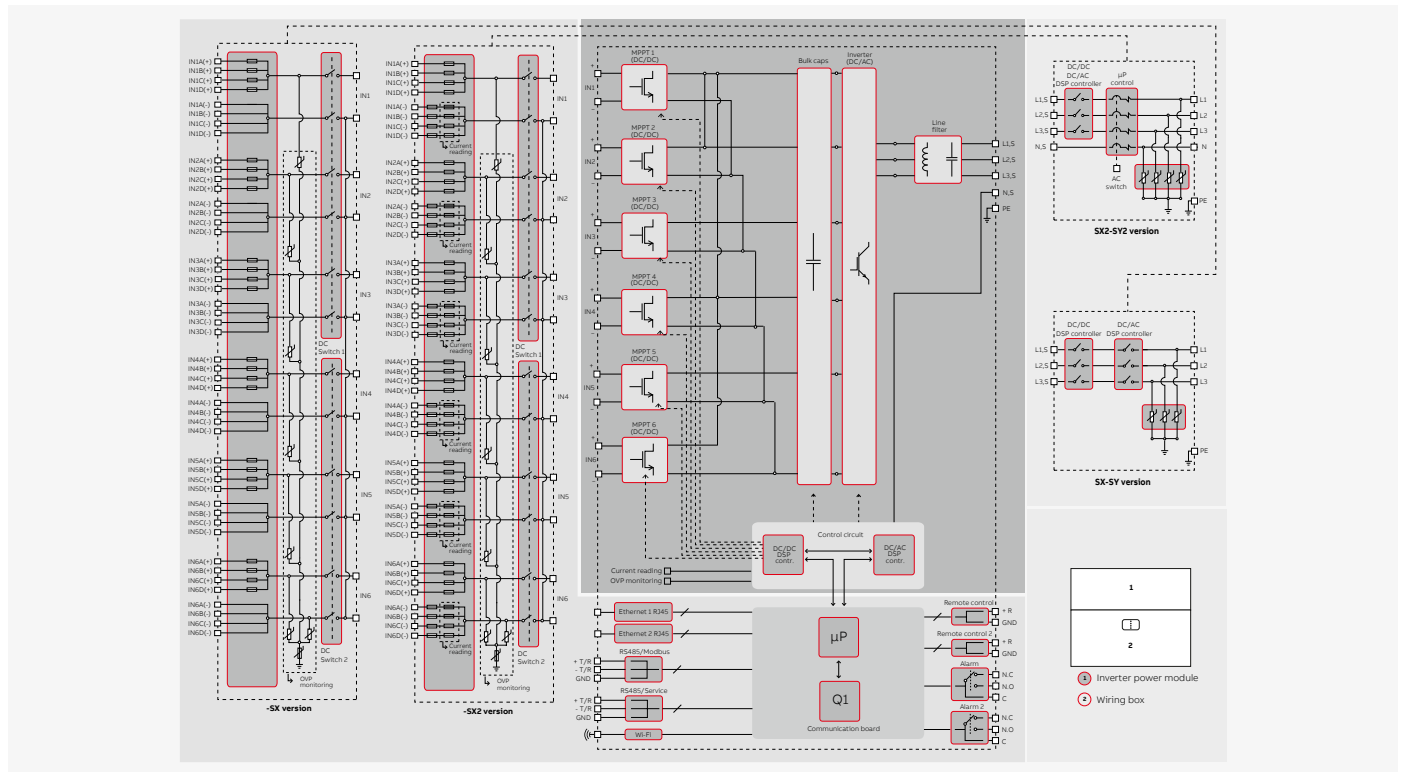
100 to 120 kW



Technical data and types

Type code	PVS-100-TL	PVS-120-TL
Input side		
Absolute maximum DC input voltage ($V_{max,abs}$)	1000V	
Start-up DC input voltage (V_{start})	420V (400...500 V)	
Operating DC input voltage range ($V_{dcrmin}...V_{dcrmax}$)	360...1000 V	
Rated DC input voltage (V_{dcr})	620V	720V
Rated DC input power (P_{dcr})	102 000W	123 000W
Number of independent MPPT	6	
MPPT input DC voltage range at ($V_{MPPTmin}...V_{MPPTmax}$) at P_{acr}	480...850V	570...850V
Maximum DC input power for each MPPT ($P_{MPPT,max}$)	17500 W [$480V \leq V_{MPPT} \leq 850V$]	20500 W [$570V \leq V_{MPPT} \leq 850V$]
Maximum DC input current for each MPPT ($I_{dcr,max}$)	36 A	
Maximum input short circuit current ($I_{sc,max}$) for each MPPT	50 A ¹⁾	
Number of DC input pairs for each MPPT	4	
DC connection type	PV quick fit connector ²⁾	
Input protection		
Reverse polarity protection	Yes, from limited current source	
Input over voltage protection for each MPPT - replaceable surge arrester	Type II with monitoring only for SX and SX2 versions; Type I+II with monitoring only for SY and SY2 versions	
Photovoltaic array isolation control	as per IEC62109	
DC switch rating for each MPPT	50 A / 1000 V	
Fuse rating (versions with fuses)	15 A / 1000 V ³⁾	
String current monitoring	SX2, SY2: (24ch) Individual string current monitoring; SX, SY: (6ch) Input current monitoring per MPPT	
Output side		
AC Grid connection type	Three phase 3W+PE or 4W+PE	
Rated AC power ($P_{acr}@cos\phi=1$)	100 000 W	120 000 W
Maximum AC output power ($P_{ac,max}@cos\phi=1$)	100 000 W	
Maximum apparent power (S_{max})	100 000 VA	
Rated AC grid voltage ($V_{acr,r}$)	400 V	480 V
AC voltage range	320...480 V ⁴⁾	384...576 ³⁾
Maximum AC output current ($I_{ac,max}$)	145 A	
Rated output frequency (f _r)	50 Hz / 60 Hz	
Output frequency range (f _{min} ...f _{max})	45...55 Hz / 55...65 Hz ⁵⁾	
Nominal power factor and adjustable range	> 0.995, 0...1 inductive/capacitive with maximum S_{max}	
Total current harmonic distortion	< 3%	
Maximum AC cable	185mm ² Aluminum and copper	
AC connection type	Provided bar for lug connections M10, single core cable glands 4xM40 and M25, multi core cable gland M63 as option	
Output protection		
Anti-islanding protection	According to local standard	
Maximum external AC overcurrent protection	225 A	
Output overvoltage protection - replaceable surge protection device	Type 2 with monitoring	
Operating performance		
Maximum efficiency (η_{max})	98.4%	98.9%
Weighted efficiency (EURO)	98.2%	98.6%
Communication		
Embedded communication interfaces	1x RS485, 2x Ethernet (RJ45), WLAN (IEEE802.11 b/g/n @ 2,4 GHz)	
User interface	4 LEDs, Web User Interface	
Communication protocol	Modbus RTU/TCP (Sunspec compliant)	
Commissioning tool	Web User Interface, Mobile APP/APP for plant level	
Remote monitoring services	Aurora Vision® monitoring portal	
Advanced features	Embedded logging, direct telemetry data transferring to ABB cloud	
Environmental		
Ambient temperature range	-25...+60°C / -13...140°F with derating above 40°C / 104 °F	

ABB PVS-100/120-TL string inverter block diagram



Technical data and types

Type code	PVS-100-TL	PVS-120-TL
Relative humidity	4%...100% condensing	
Sound pressure level, typical	68dB(A) @ 1m	
Maximum operating altitude without derating	2000 m / 6560 ft	
Physical		
Environmental protection rating	IP 66 (IP54 for cooling section)	
Cooling	Forced air	
Dimension (H x W x D)	869x1086x419 mm / 34.2" x 42.8" x 16.5"	
Weight	70kg / 154 lbs for power module ; ~55kg / 121 lbs for wiring box Overall max 125 kg / 276 lbs	
Mounting system	Mounting bracket vertical & horizontal support	
Safety		
Isolation level	Transformerless	
Marking & EMC	CE conformity according to LV and EMC directives	
Safety	IEC/EN 62109-1, IEC/EN 62109-2	
Grid standard (check your sales channel for availability)	CEI 0-16, CEI 0-21, IEC 61727, IEC 62116, IEC 60068, IEC 61683, JORDAN IRR-DCC-MV, AS/NZS4777.2, VDE-AR-N 4105, VDE V 0-126-1-1, VFR 2014, Belg C10-C11, UK59/3, P.O. 12.3, ITC-BT-40, EN50438 Generic +Ireland, CLC-TS 50549-1/2	

Available products variants

Inverter power module	PVS-100-TL-POWERMODULE-400	PVS-120-TL-POWERMODULE-480
Input with 24 quick fit connectors pairs + String fuses (both positive and negative pole) + DC disconnect switches + AC disconnect switch + AC and DC overvoltage surge arresters (Type II) + individual string monitoring (24 ch.)	WB-SX2-PVS-100-TL	WB-SX2-PVS-120-TL
Input with 24 quick fit connectors pairs + String fuses (positive pole) + DC disconnect switches + AC and DC overvoltage surge arresters (Type II) + MPPT level input current monitoring (6 ch.)	WB-SX-PVS-100-TL	WB-SX-PVS-120-TL
Input with 24 quick fit connectors pairs + String fuses (positive pole) + DC disconnect switches + AC and DC overvoltage surge arresters (Type II for AC and Type I+II for DC) + MPPT level input current monitoring (6 ch.)	WB-SY-PVS-100-TL	WB-SY-PVS-120-TL
Input with 24 quick fit connectors pairs + String fuses (both positive and negative pole) + DC disconnect switches + AC disconnect switch + AC and DC overvoltage surge arresters (Type II for AC and Type I+II for DC) + individual string monitoring (24 ch.)	WB-SY2-PVS-100-TL	WB-SY2-PVS-120-TL

Optional available

Support for multi core AC cable M63 + M25 (PE)	AC output panel M63 for wiring box
AC multicore cable gland plate	Supports M63 Ø 37...53mm + M25 Ø 10...17mm

- 1) Maximum number of opening 5 under overloading
 - 2) Please refer to the document "String inverters – Product manual appendix" available at www.abb.com/solarinverters for information on the quick-fit connector brand and model used in the inverter
 - 3) Maximum fuse size supported 20A. Additionally two strings input per MPPT supports
 - 4) The AC voltage range may vary depending on specific country grid standard
 - 5) Frequency range may vary depending on specific country grid standard
- Remark. Features not specifically listed in the present data sheet are not included in the product

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

www.abb.com/solarinverters
www.abb.com

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