# ABB turnkey stations PLUS-STATION 530 to 1200 MV



Turnkey solutions using 67 kW modular inverters. These solutions are for managing large solar installations directly connected to the medium voltage grid, with nominal outputs up to 1.2 MW.

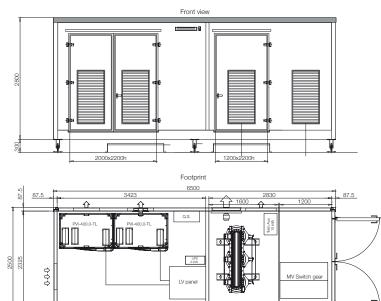
These compact and reliable products are not only highly scalable, but also have a high power density, thanks to the series of central inverters. Furthermore, the use of LV/MV low-loss transformers ensures maximum levels of efficiency and return on investment. The ease of maintenance of the complete solution is ensured by the optimum layout of the components, making them easily accessible for repairs, as well as by the modular structure of the central inverters.

# Highlights

- Turnkey solution for managing large solar installations
- Nominal output up to 1.2 MW
- Extremely compact design, thanks to the use of the series of 67 kW inverters
- Maximized energy collection, thanks to the modular structure of the inverters and the use of low-loss medium-tension transformers
- Modular inverters giving maximum flexibility



## Footprint PLUS-STATION-800.0



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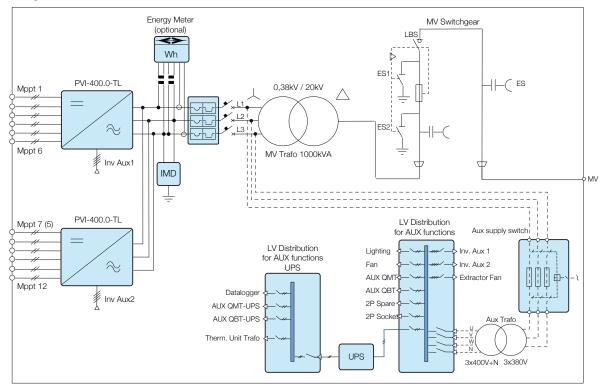
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# Technical data and types

Type code	PLUS-STATION-530.0	PLUS-STATION-665.0	PLUS-STATION-800.0
Inverter <sup>(1)</sup>	PVI-267.0-TL	PVI-400.0-TL	PVI-400.0-TL
Inverter (*)	PVI-267.0-TL	PVI-267.0-TL	PVI-400.0-TL
Input parameters (DC)			
Absolute maximum input voltage (V <sub>dc,max</sub> )	1000 V	1000 V	1000 V
MPPT input voltage range (V <sub>MPPTmin</sub> ,, V <sub>MPPTmax</sub> )	570 - 850 V	570 - 850 V	570 - 850 V
MPPT input voltage range at full power (V <sub>MPPTmin,f</sub> ,, V <sub>MPPTmax,f</sub> )	570 - 800 V	570 - 800 V	570 - 800 V
Number of independent MPPT in multi-master configuration (2)	8	10	12
Number of independent MPPT in multi-master/slave configuration <sup>(2)</sup>	4	6	6
Number of independent MPPT in master/slave configuration (3)	2	2	2
Fotal maximum input current (I <sub>dcmax</sub> )	984 A	1230 A	1476 A
Number of DC input pairs	8	10	12
Max. DC input wire section (each polarity) (4)	4x185mm <sup>2</sup> + 4x300mm <sup>2</sup> (M10) or 16x 120mm <sup>2</sup> (M10)	5x185mm <sup>2</sup> + 5x300mm <sup>2</sup> (M10) or 20x 120mm <sup>2</sup> (M10)	6x185mm <sup>2</sup> + 6x300mm (M10) or 24x 120mm <sup>2</sup> (M
Standard equipment-input			
Reverse polarity and backfeed current protection (each input)		Yes, with series diode	•
nput fuse overcurrent protection (each input/both polarities) <sup>(5)</sup>	125A/1000V	125A/1000V	125A/1000V
_oad-breaking DC switch (each input) <sup>(5)</sup>	200A/1000V	200A/1000V	200A/1000V
nput overvoltage protection - varistors	11	for each MPPT channel Typ	e II
Dutput parameters (AC) at medium voltage			
Rated output power (Pac.r)	528 kW	660 kW	792 kW
Rated output current (I <sub>ac.r</sub> )	15,2 A	19,0 A	22,8 A
Rated output voltage (V <sub>ac.r</sub> ) <sup>(6)</sup>	20 kV	20 kV	20kV
Rated output frequency (fr)	50 Hz	50 Hz	50Hz
Rated power factor (cos )	>0,995 (adj. ±0,90)	>0,995 (adj. ±0,90)	>0,995 (adj. ±0,90)
Tap changer (4)	± 2 x 2,5% / 380V	± 2 x 2,5% / 380V	± 2 x 2,5% / 380V
Current harmonic distorsion (THD%) (7)	< 3% (@ P <sub>ac,r</sub> )	< 3% (@ P <sub>ac,r</sub> )	< 3% (@ P <sub>ac,r</sub> )
nverter Performance	• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •	•
Peak efficiency (nmax) <sup>(8)</sup>	98,0%	98,0%	98,0%
Euro efficiency $(\eta_{euro})^{(8)}$	97,7%	97,7%	97,7%
nverter switching frequency	18 kHz	18 kHz	18 kHz
Night time losses (10)	<66 W	<80 W	<94 W
V distribution panel			
AC output circuit breaker		Yes	
Device for insulation permanent control		Yes, with alarm	
Energy meters (optional) (13)	Four guadrant, MID ce	ertified with MODBUS/RS48	35 communication port
Auxiliary supply			
Auxiliary supply voltage		3x400Vac + N, 50Hz	
Maximum consumption in operation (9)	······································		<0.18% of Pac.r
ow voltage distribution for auxiliary functions	Yes (includes dedicated and protected supply lines for: inverter.		/ lines for: inverter,
,	datalo	ogger, lighting, AC socket, s	spare).
Cooling			
Cooling type		thermally-controlled fan (int	
Required air cooling volume (inverter compartment)	8000 m	10600 m	11200 m
Air filter		Integrated in the inverter	
Environmental parameters			
ull power operating temperature range	-10°C +40°C		
Relative humidity (non-condensing)	≤ 95%		
Maximum operating altitude without derating (11)		1000	
Communication/user interface and system monitoring			
Communication port (PC / Datalogger)		1 x RS485 (RS485_USR)	-
Communication to String Combiner boxes (PVI-STRINGCOMB)		1 x RS485 (RS485_2)	
Remote communication (optional)	PVI-AEC-EVO (Ethernet, GSM/GPRS, Wireless)		
User interface	2-lines	display (on each inverter n	nodule)

#### Electrical diagram of PLUS-STATION-800.0



#### Technical data and types

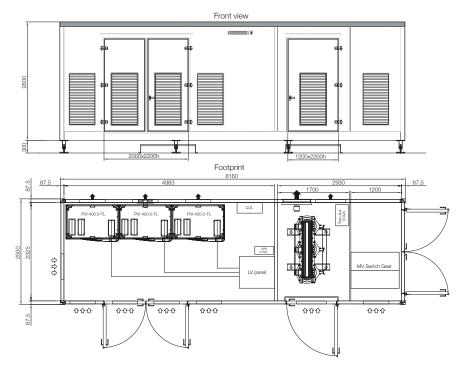
Type code	PLUS-STATION-530.0	PLUS-STATION-665.0	PLUS-STATION-800.0
Inverter <sup>(1)</sup>	PVI-267.0-TL	PVI-400.0-TL	PVI-400.0-TL
	PVI-267.0-TL	PVI-267.0-TL	PVI-400.0-TL
Medium-voltage transformer			
Construction		Oil/dry	
Rated power oil/dry	630kVA / 800 kVA	800kVA / 800 kVA	1000kVA /1000kVA
Number of secondary windings		1 (2 for GND version)	
Cooling	ONAN (oil type) / air (dry type)		e)
Vector group		Dyn11	
Short circuit voltage		6%	
Losses class (according EN 50541-1) (Oil/Dry)	BoBk	AoBk with no positive toll	erance
MV switchgear	· ·	÷	
Configuration	Singl	e feeder (double feeder op	tional)
Trafo protection (12)	Fuses and disconnector 24kV, 16kA (1s) / 630A		(1s) / 630A
Auxiliary supply transformer for inverters and ancillary compone	ents		
Construction		Dry	
Rated power (voltage)	10kVA (320/400V)		
Cooling	Air		
Vector group	Dyn11		
On load losses	400W		
Disconnect switch for AUX transformer	Yes		
UPS			
Integrated AUX supply UPS for protection and monitoring system		2kVA	
Mechanical characteristics (floating and grounded version)			
Dimensions (WxHxD)	6500 x 2800(*) x 2500 mm		
(*) Overall height pier mounted	3100 mm		
Body material	Sandwich technology		
Oil collecting tank	Yes		
Environmental protection rate	IP43 (IP54 optional)		
Approvals			
Certifications		CE	
EMC end safety	EN 61000-6-2, EN 61000-6-4; EN 61000-3-11; EN 61000-3-12; EN58178		
Grid connection		CEI 0-16, BDEW, RD1663	i
<ol> <li>For further details please refer to the specific datasheet for the individual comp.</li> <li>Not available in grounded configuration</li> <li>For this configuration an external DC protection is suggested (not provided)</li> <li>Cable crimped with reduced size terminal ring:</li> </ol>	8. Conversion efficie 9. Not including the	ion <2% ncy, not including auxiliary supp auxiliary transformer losses : medium-voltage transformer lo	

4. Cable crimped with reduced size terminal ring:
- For cable up to 185mmq: use terminal ring for M10 screw and max width 30mm
- For cable up to 300mmq: use terminal ring for M10 screw and max width 40mm
5. In case of master/slave configuration, an external panel with fuses is suggested (not provided)
6. Other medium voltage levels available on request

Not including the medium-voltage transformer losses
 Not including the medium-voltage transformer losses
 Contact ABB for application at higher altitudes
 MV Switchgear is included in the station
 Energy meter is included in the LV compartment
 In case of grounded version a meter for each inverter will be installed

Optional	PLUS-STATION
Energy meter	0
LV distribution panels for auxiliary functions	•
10KVA auxiliary transformer (incl. switch)	•
Insulation monitoring system	•
Double feeder switchgear with line and ground disconnect in each feeder	0
Monitoring system PVI-AEC-EVO	0
UPS 2kVA for monitoring and protection system	•

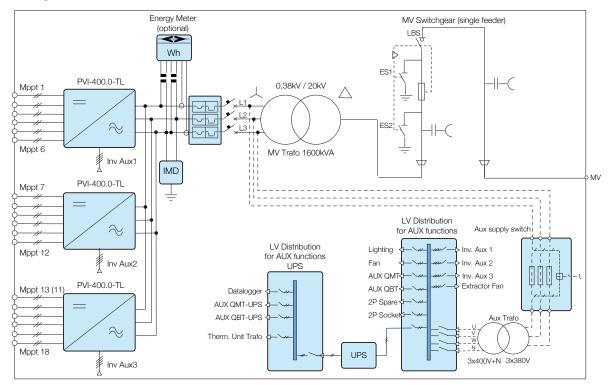
## Footprint PLUS-STATION-1200.0



# Technical data and types

Inverter (1)1xPVI-400.0-TL 2xPVI-267.0-TLInput parameters (DC)2xPVI-267.0-TLAbsolute maximum input voltage ( $V_{dc,max}$ )1000 VMPPT input voltage range ( $V_{MPPTmax}$ ), $V_{MPPTmax}$ )570 - 850 VMPPT input voltage range at full power ( $V_{MPPTmax}$ ), $V_{MPPTmax}$ )570 - 800 VNumber of independent MPPT in multi-master configuration (2)14Number of independent MPPT in multi-master/slave configuration (2)7Number of independent MPPT in master/slave configuration (3)3Total maximum input current ( $I_{dcmax}$ )1722 ANumber of DC input pairs14Max. DC input wire section (each polarity) (4)7x185mm2 + 7x300m (M10)Standard equipment-input Reverse polarity and backfeed current protection (each input) Input tuse overcurrent protection (each input/both polarities) (5)125A/1000VLoad-breaking DC switch (each input) (6)200A/1000V200A/1000VInput overvoltage protection - varistors924 kWRated output current ( $I_{dcn}$ )20kV26,7 ARated output current ( $I_{dcn}$ )20kV20kVRated output current ( $I_{dcn}$ )20kV20kVRated output regreence920 kW20kVRated output regreence98,0%20,995 (adj. ±0,90Total maximum (input (in elsions) (THD%) (7)98,0%Inverter performance98,0%21,7%Peak efficiency ( $\eta_{max}$ ) (6)98,0%21,3 WV distribution panel<113 WVV distribution panel<113 W	(M10) Yes, with series diode 125A/1000V 200A/1000V 1 for each MPPT channel Typ 1056 kW 30,4 A 20kV 50Hz	3xPVI-400.0-TL 1000 V 570 - 850 V 570 - 800 V 18 6 3 2214 A 18 9x185mm <sup>2</sup> + 9x300mm <sup>2</sup> (M10) 125A/1000V 200A/1000V 200A/1000V a 20, 20kV 50Hz >0,995 (adj. ±0,90)	
Input parameters (DC)2xPVI-267.0-1LAbsolute maximum input voltage ( $V_{dc,max}$ )1000 VMPPT input voltage range ( $V_{MPPTmin}$ ,, $V_{MPPTminx}$ )570 - 850 VMPPT input voltage range at full power ( $V_{MPPTminx}$ ,, $V_{MPPTmax}$ )570 - 800 VNumber of independent MPPT in multi-master configuration (2)14Number of independent MPPT in multi-master/slave configuration (2)14Number of independent MPPT in multi-master/slave configuration (3)3Total maximum input current ( $I_{dcmax}$ )1722 ANumber of DC input pairs14Max. DC input wire section (each polarity) (4)7x185mm² + 7x300mStandard equipment-input(M10)Reverse polarity and backfeed current protection (each input)125A/1000VInput fuse overcurrent protection (each input/both polarities) (5)125A/1000VLoad-breaking DC switch (each input) (5)200A/1000VInput overvoltage protection - varistors924 kWRated output power ( $Pa_{c.}$ )924 kWRated output voltage ( $V_{ac.}$ ) (6)20kVRated output frequency (f,50HzRated output frequency (f,50HzRated output frequency (f,50HzRated power factor (cos $\phi$ )>0,995 (ad), ±0,90Tap changer (4) $\pm 2 \times 2,5\%$ / 380VCurrent harmonic distorsion (THD%) (7) $< 3\%$ (@ $Pa_{c.}$ )Inverter performance98,0%Peak efficiency ( $\eta_{max}$ ) (6)98,0%Euro efficiency ( $\eta_{max}$ ) (7)18 kHzNight time losses (10)<113 W	1000 V 570 - 850 V 570 - 800 V 16 8 3 1968 A 16 8x185mm <sup>2</sup> + 8x300mm <sup>2</sup> (M10) Yes, with series diode 125A/1000V 200A/1000V 1 for each MPPT channel Typ 1056 kW 30,4 A 20kV 50Hz	1000 V 570 - 850 V 570 - 800 V 18 6 3 2214 A 18 9x185mm <sup>2</sup> + 9x300mm <sup>2</sup> (M10) 125A/1000V 200A/1000V	
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Number of DC input pairs14Max. DC input wire section (each polarity) (4) $7x185mm^2 + 7x300m (M10)$ Standard equipment-inputReverse polarity and backfeed current protection (each input)Input fuse overcurrent protection (each input/both polarities) (5) $125A/1000V$ Load-breaking DC switch (each input) (5) $200A/1000V$ Input overvoltage protection - varistors $0$ Output parameters (AC) at medium voltage $924 kW$ Rated output power ( $P_{ac,r}$ ) $924 kW$ Rated output current ( $I_{ac,r}$ ) $26,7 A$ Rated output requency ( $f_r$ ) $50Hz$ Rated power factor (cos $\phi$ ) $>0,995$ (adj. $\pm 0,90$ Tap changer (4) $\pm 2 \times 2,5\%$ / $380V$ Current harmonic distorsion (THD%) (7) $< 3\%$ (@ $P_{ac,r}$ )Inverter performance $98,0\%$ Peak efficiency ( $\eta_{max}$ ) (6) $97,7\%$ Inverter switching frequency $18 kHz$ Night time losses (10) $<113 W$ LV distribution panel $<113 W$	16 m <sup>2</sup> 8x185mm <sup>2</sup> + 8x300mm <sup>2</sup> (M10) Yes, with series diode 125A/1000V 200A/1000V 1 for each MPPT channel Typ 1056 kW 30,4 A 20kV 50Hz	18 9x185mm <sup>2</sup> + 9x300mm <sup>2</sup> (M10) 125A/1000V 200A/1000V be II 1118 kW 32,2 A 20kV 50Hz	
Max. DC input wire section (each polarity) (4) $7x185mm^2 + 7x300m$ (M10)         Standard equipment-input       Reverse polarity and backfeed current protection (each input)         Input fuse overcurrent protection (each input/both polarities) (5) $125A/1000V$ Load-breaking DC switch (each input) (5) $200A/1000V$ Input overvoltage protection - varistors $200A/1000V$ Maxed output power ( $P_{acc}$ ) $924 kW$ Rated output current ( $I_{acc}$ ) $26,7 A$ Rated output requency ( $f_0$ ) $20kV$ Rated output frequency ( $f_0$ ) $50Hz$ Rated power factor (cos $\phi$ ) $>0,995$ (ad]. $\pm 0,90$ Tap changer (4) $\pm 2 \times 2,5\%$ / $380V$ Current harmonic distorsion (THD%) (7) $< 3\%$ (@ $P_{ac,t}$ )         Inverter performance       98,0%         Euro efficiency ( $\eta_{max}$ ) (8) $97,7\%$ Inverter switching frequency $18 kHz$ Night time losses (10) $<113 W$ LV distribution panel $<113 W$	m <sup>2</sup> 8x185mm <sup>2</sup> + 8x300mm <sup>2</sup> (M10) Yes, with series diode 125A/1000V 200A/1000V 1 for each MPPT channel Typ 1056 kW 30,4 A 20kV 50Hz	9x185mm <sup>2</sup> + 9x300mm <sup>2</sup> (M10) 125A/1000V 200A/1000V be II 1118 kW 32,2 A 20kV 50Hz	
Max. DC input wire section (each polarity) (*)       (M10)         Standard equipment-input         Reverse polarity and backfeed current protection (each input)       Input fuse overcurrent protection (each input/both polarities) (5)         Input fuse overcurrent protection (each input/both polarities) (5)       125A/1000V         Load-breaking DC switch (each input) (5)       200A/1000V         Input overvoltage protection - varistors       0utput parameters (AC) at medium voltage         Rated output power (Pac,r)       924 kW         Rated output voltage (Vac,r)       924 kW         Rated output voltage (Vac,r)       26,7 A         Rated output frequency (fr,)       20kV         Rated power factor (cos $\phi$ )       >0,995 (ad], ±0,90         Tap changer (4)       ± 2 x 2,5% / 380V         Current harmonic distorsion (THD%) (7)       < 3% (@ Pac,r)	(M10) Yes, with series diode 125A/1000V 200A/1000V 1 for each MPPT channel Typ 1056 kW 30,4 A 20kV 50Hz	(M10) 125A/1000V 200A/1000V be II 1118 kW 32,2 A 20kV 50Hz	
Reverse polarity and backfeed current protection (each input)         Input fuse overcurrent protection (each input/both polarities) <sup>(5)</sup> 125A/1000V         Load-breaking DC switch (each input) <sup>(5)</sup> 200A/1000V         Input overvoltage protection - varistors       200A/1000V         Output parameters (AC) at medium voltage       924 kW         Rated output power (P <sub>acr.</sub> )       924 kW         Rated output voltage (V <sub>acr.</sub> ) <sup>(6)</sup> 20kV         Rated output voltage (V <sub>acr.</sub> ) <sup>(6)</sup> 20kV         Rated output frequency (fr,)       50Hz         Rated power factor (cos $\phi$ )       >0,995 (adj. ±0,90)         Tap changer <sup>(4)</sup> ± 2 x 2,5% / 380V         Current harmonic distorsion (THD%) <sup>(7)</sup> < 3% (@ P <sub>acr.</sub> )         Inverter performance       98,0%         Euro efficiency (η <sub>max</sub> ) <sup>(6)</sup> 97,7%         Inverter switching frequency       18 kHz         Night time losses <sup>(10)</sup> <113 W	125A/1000V 200A/1000V 1 for each MPPT channel Typ 1056 kW 30,4 A 20kV 50Hz	200A/1000V be II 1118 kW 32,2 A 20kV 50Hz	
Input fuse overcurrent protection (each input/both polarities) (5)125A/1000VLoad-breaking DC switch (each input) (5)200A/1000VInput overvoltage protection - varistors200A/1000VOutput parameters (AC) at medium voltage924 kWRated output power ( $P_{ac,r}$ )924 kWRated output current ( $I_{ac,r}$ )26,7 ARated output voltage ( $V_{ac,r}$ ) (6)20kVRated output requency ( $f_r$ )50HzRated output requency ( $f_r$ )50HzRated power factor (cos $\phi$ )>0,995 (adj. ±0,90)Tap changer (4)± 2 x 2,5% / 380VCurrent harmonic distorsion (THD%) (7)< 3% (@ $P_{ac,r}$ )Inverter performance98,0%Euro efficiency ( $\eta_{max}$ ) (6)97,7%Inverter switching frequency18 kHzNight time losses (10)<113 W	125A/1000V 200A/1000V 1 for each MPPT channel Typ 1056 kW 30,4 A 20kV 50Hz	200A/1000V be II 1118 kW 32,2 A 20kV 50Hz	
Load-breaking DC switch (each input) <sup>(5)</sup> 200A/1000V         Input overvoltage protection - varistors       0         Output parameters (AC) at medium voltage       924 kW         Rated output power ( $P_{ac,r}$ )       924 kW         Rated output current ( $I_{ac,r}$ )       26,7 A         Rated output voltage ( $V_{ac,r}$ ) <sup>(6)</sup> 20kV         Rated output frequency ( $f_r$ )       50Hz         Rated power factor (cos $\phi$ )       >0,995 (adj. ±0,90)         Tap changer <sup>(4)</sup> ± 2 x 2,5% / 380V         Current harmonic distorsion (THD%) <sup>(7)</sup> < 3% (@ P_{ac,r})	200A/1000V 1 for each MPPT channel Typ 1056 kW 30,4 A 20kV 50Hz	200A/1000V be II 1118 kW 32,2 A 20kV 50Hz	
Input overvoltage protection - varistors         Output parameters (AC) at medium voltage         Rated output power ( $P_{acc}$ )       924 kW         Rated output current ( $I_{acc}$ )       26,7 A         Rated output voltage ( $V_{acc}$ )       20kV         Rated output frequency (fr)       50Hz         Rated power factor (cos $\phi$ )       >0,995 (adj. ±0,90)         Tap changer (4)       ± 2 x 2,5% / 380V         Current harmonic distorsion (THD%) (7)       < 3% (@ Pac.r)	1 for each MPPT channel Typ 1056 kW 30,4 A 20kV 50Hz	e II 1118 kW 32,2 A 20kV 50Hz	
Output parameters (AC) at medium voltage           Rated output power ( $P_{ac,r}$ )         924 kW           Rated output current ( $I_{ac,r}$ )         26,7 A           Rated output voltage ( $V_{ac,r}$ )         26,7 A           Rated output voltage ( $V_{ac,r}$ )         20kV           Rated output frequency ( $f_r$ )         50Hz           Rated power factor (cos $\phi$ )         >0,995 (adj. ±0,90)           Tap changer ( $^{40}$ ± 2 x 2,5% / 380V           Current harmonic distorsion (THD%) ( $^{70}$ < 3% (@ $P_{ac,r}$ )           Inverter performance         98,0%           Euro efficiency ( $\eta_{max}$ ) ( $^{80}$ 98,0%           Euro efficiency ( $\eta_{max}$ ) ( $^{80}$ 97,7%           Inverter switching frequency         18 kHz           Night time losses ( $^{10}$ )         <113 W	1056 kW 30,4 A 20kV 50Hz	1118 kW 32,2 A 20kV 50Hz	
Rated output power ( $P_{acr}$ )       924 kW         Rated output current ( $I_{acr}$ )       26,7 A         Rated output voltage ( $V_{acr}$ )       26,7 A         Rated output voltage ( $V_{acr}$ )       20kV         Rated output frequency ( $f_r$ )       50Hz         Rated power factor (cos $\phi$ )       >0,995 (adj. ±0,90)         Tap changer (A)       ± 2 x 2,5% / 380V         Current harmonic distorsion (THD%) (7)       < 3% (@ P_{acr})	30,4 A 20kV 50Hz	32,2 A 20kV 50Hz	
Rated output current ( $I_{ac,r}$ )       26,7 A         Rated output voltage ( $V_{ac,r}$ )       20kV         Rated output frequency ( $f_r$ )       50Hz         Rated power factor (cos $\phi$ )       >0,995 (adj. ±0,90)         Tap changer ( <sup>A)</sup> ± 2 x 2,5% / 380V         Current harmonic distorsion (THD%) ( <sup>7</sup> )       < 3% (@ P <sub>ac,r</sub> )         Inverter performance       98,0%         Euro efficiency ( $\eta_{max}$ ) ( <sup>6</sup> )       97,7%         Inverter switching frequency       18 kHz         Night time losses ( <sup>10</sup> )       <113 W	30,4 A 20kV 50Hz	32,2 A 20kV 50Hz	
Rated output voltage (V <sub>ac.1</sub> ) (6)       20kV         Rated output frequency (fr)       50Hz         Rated power factor (cos $\phi$ )       >0,995 (adj. ±0,90)         Tap changer <sup>(4)</sup> ± 2 × 2,5% / 380V         Current harmonic distorsion (THD%) <sup>(7)</sup> < 3% (@ P <sub>ac.</sub> )         Inverter performance       98,0%         Euro efficiency (η <sub>euro</sub> ) <sup>(6)</sup> 97,7%         Inverter switching frequency       18 kHz         Night time losses <sup>(10)</sup> <113 W	20kV 50Hz	20kV 50Hz	
Rated output frequency (fr)     50Hz       Rated power factor (cos $\phi$ )     >0,995 (adj. ±0,90)       Tap changer <sup>(4)</sup> ± 2 × 2,5% / 380V       Current harmonic distorsion (THD%) <sup>(7)</sup> < 3% (@ P <sub>acr</sub> )       Inverter performance     98,0%       Euro efficiency (η <sub>max</sub> ) <sup>(8)</sup> 97,7%       Inverter switching frequency     18 kHz       Night time losses <sup>(10)</sup> <113 W	50Hz	50Hz	
$\begin{tabular}{ c c c c c c } \hline Rated power factor (cos $$$$$$$$$$$$$>0,995 (adj. $\pm 0,90$) fap changer $$$$$$$$$>0,995 (adj. $\pm 0,90$) fap changer $$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$			
$\begin{tabular}{ c c c c c c } \hline Tap changer (4) & \pm 2 \times 2,5\% / 380V \\ \hline Current harmonic distorsion (THD%) (7) & < 3\% (@ P_{ac,t}) \\ \hline Inverter performance & & & \\ \hline Peak efficiency (\eta_{max}) (B) & & 98,0\% \\ \hline Euro efficiency (\eta_{euro}) (B) & & 97,7\% \\ \hline Inverter switching frequency & & 18 \ \text{kHz} \\ \hline Night time losses (10) & & <113 \ \text{W} \\ \hline LV distribution panel & & & \\ \hline \end{array}$	>0,995 (adj. ±0,90)	>0.995 (adj. ±0.90)	
$\begin{tabular}{ c c c c c } \hline Current harmonic distorsion (THD%) (7) & < 3% (@ P_{ac,r}) \\ \hline Inverter performance & & & & & & & \\ \hline Peak efficiency (\eta_{max})^{(8)} & & & & & & & & \\ Peak efficiency (\eta_{max})^{(8)} & & & & & & & & \\ Euro efficiency (\eta_{max})^{(8)} & & & & & & & & & \\ \hline Inverter switching frequency & & & & & & & & & \\ Inverter switching frequency & & & & & & & & & & \\ Inverter switching frequency & & & & & & & & & & & & & \\ Inverter switching frequency & & & & & & & & & & & & & & & & & \\ Night time losses (10) & & & & & & & & & & & & & & & & & & &$			
$\begin{tabular}{ c c c c c } \hline Inverter performance & & & & & & & & \\ \hline Peak efficiency (\eta_{max})^{(6)} & & & & & & & & & \\ \hline Euro efficiency (\eta_{euro})^{(6)} & & & & & & & & \\ \hline Inverter switching frequency & & & & & & & & \\ \hline Inverter switching frequency & & & & & & & & & \\ \hline Inverter switching frequency & & & & & & & & & \\ \hline Inverter switching frequency & & & & & & & & & \\ \hline Inverter switching frequency & & & & & & & & & & & & \\ \hline Inverter switching frequency & & & & & & & & & & & & & \\ \hline Inverter switching frequency & & & & & & & & & & & & & & & & & & \\ \hline Inverter switching frequency & & & & & & & & & & & & & & & & & & &$	± 2 x 2,5% / 380V	± 2 x 2,5% / 380V	
$\begin{array}{c c} Peak \mbox{efficiency} (\eta_{max})^{(8)} & 98,0\% \\ \hline Euro \mbox{efficiency} (\eta_{euro})^{(8)} & 97,7\% \\ \hline Inverter \mbox{switching frequency} & 18 \mbox{ kHz} \\ \hline Night \mbox{time losses} \mbox{$^{(10)}$} & <113 \mbox{ W} \\ \hline \mbox{LV distribution panel} \end{array}$	< 3% (@ P <sub>ac,r</sub> )	< 3% (@ P <sub>ac,r</sub> )	
Euro efficiency (η <sub>euro</sub> ) <sup>(8)</sup> 97,7%           Inverter switching frequency         18 kHz           Night time losses <sup>(10)</sup> <113 W		× · · · · ·	
Inverter switching frequency     18 kHz       Night time losses <sup>(10)</sup> <113 W	98,0%	98,0%	
Inverter switching frequency     18 kHz       Night time losses <sup>(10)</sup> <113 W	97,7%	97,7%	
LV distribution panel	18 kHz	18 kHz	
	<127 W	<141 W	
	· · ·	•	
AC output circuit breaker	Yes		
Device for insulation permanent control	Yes, with alarm		
Energy meters (optional) (13) Four Quadrant, M	D certified with MODBUS/RS4	85 communication port	
Auxiliary supply			
Auxiliary supply voltage	3x400Vac + N, 50Hz		
Maximum consumption in operation <sup>(9)</sup> <0.18% of Pacr	<0.18% of Pac,r	<0.18% of Pac.r	
Low voltage distribution for auxiliary functions Yes (includes	Yes (includes dedicated and protected supply lines for: inverter,		
	atalogger, lighting, AC socket,	spare).	
Cooling			
	by thermally-controlled fan (int		
Required air cooling volume (inverter compartment) 13600 m	15200 m	16800 m	
Air filter	Integrated in the inverter		
Environmental parameters			
Full power operating temperature range	-10°C +40°C		
Relative humidity (non-condensing)	≤ 95%		
Maximum operating altitude without derating (11)	1000		
Communication/user interface and system monitoring			
Communication port (PC / Datalogger)			
Communication to String Combiner boxes (PVI-STRINGCOMB)	1 x RS485 (RS485_USR)	1 x RS485 (RS485_2)	
	1 x RS485 (RS485_2)	S Wireless)	
User interface 2-	1 x RS485 (RS485_2) EC-EVO (Ethernet, GSM/GPRS		

#### Electrical diagram of PLUS-STATION-1200.0



#### Technical data and types

Type code	PLUS-STATION-930.0	PLUS-STATION-1065.0	PLUS-STATION-1200.0	
Inverter <sup>(1)</sup>	1xPVI-400.0-TL	2xPVI-400.0-TL	3xPVI-400.0-TL	
	2xPVI-267.0-TL	1xPVI-267.0-TL	3XPVI-400.0-1L	
Medium-voltage transformer				
Construction		Oil/dry	-	
Rated power oil/dry	1250kVA / 1250 KVA	1250kVA / 1600 KVA	1600kVA / 1600 kVA	
Number of secondary windings	1 (3 for GND version)			
Cooling	ONAN (oil type) / air (dry type)			
Vector group		Dyn11		
Short circuit voltage		6%		
Losses class (according EN 50541-1) (Oil/Dry)	BoBk	AoBk with no positive tolle	erance	
MV switchgear				
Configuration	Single feeder (double feeder optional)			
Trafo protection (12)		disconnector 24kV, 16kA (	(1s) / 630A	
Auxiliary supply transformer for inverters and ancillary compone	ents			
Construction		Dry		
Rated power (voltage)	10kVA (320/400V)			
Cooling	Air			
Vector group	Dyn11			
On load losses	400W			
Disconnect switch for AUX transformer	Yes			
UPS				
Integrated AUX supply UPS for protection and monitoring system		2kVA		
Mechanical characteristics (floating and grounded version)				
Dimensions (WxHxD)	8160 x 2800(*) x 2500 mm			
(*) Overall height pier mounted	3100 mm			
Body material	Sandwich technology			
Oil collecting tank	Yes			
Environmental protection rate	IP43 (IP54 optional)			
Approvals				
Certifications	CE			
EMC end safety	EN 61000-6-2, EN 61000-6-4			
,	EN 61000-3-11; EN 61000-3-12; EN58178			
Grid connection		CEI 0-16, BDEW, RD1663		

For further details please refer to the specific datasheet for the individual components
 Not available in grounded configuration
 For this configuration an external DC protection is suggested (not provided)
 Cable crimped with reduced size terminal ring:

 For cable up to 185mmg: use terminal ring for M10 screw and max width 30mm
 For cable up to 300mmg: use terminal ring for M10 screw and max width 40mm
 In case of master/slave configuration, an external panel with fuses is suggested (not provided)
 Other medium voltage levels available on request

7. AC voltage distortion <2%</li>
8. Conversion efficiency, not including auxiliary supply consumption
9. Not including the auxiliary transformer losses
10. Not including the medium-voltage transformer losses
11. Contact ABB for application at higher altitudes
12. MV Switchgear is included in the station
13. Energy meter is included in the LV compartment
In case of grounded version a meter for each inverter will be installed

Optional	PLUS-STATION
Energy meter	0
LV distribution panels for auxiliary functions	•
10KVA auxiliary transformer (incl. switch)	•
Insulation monitoring system	•
Double feeder switchgear with line and ground disconnect in each feeder	0
Monitoring system PVI-AEC-EVO	0
UPS 2kVA for monitoring and protection system	•

#### Support and service

ABB supports its customers with dedicated, global service organization in more than 60 countries and strong regional and national technical partner networks providing complete range of life cycle services.

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

www.abb.com/solarinverters

www.abb.com

