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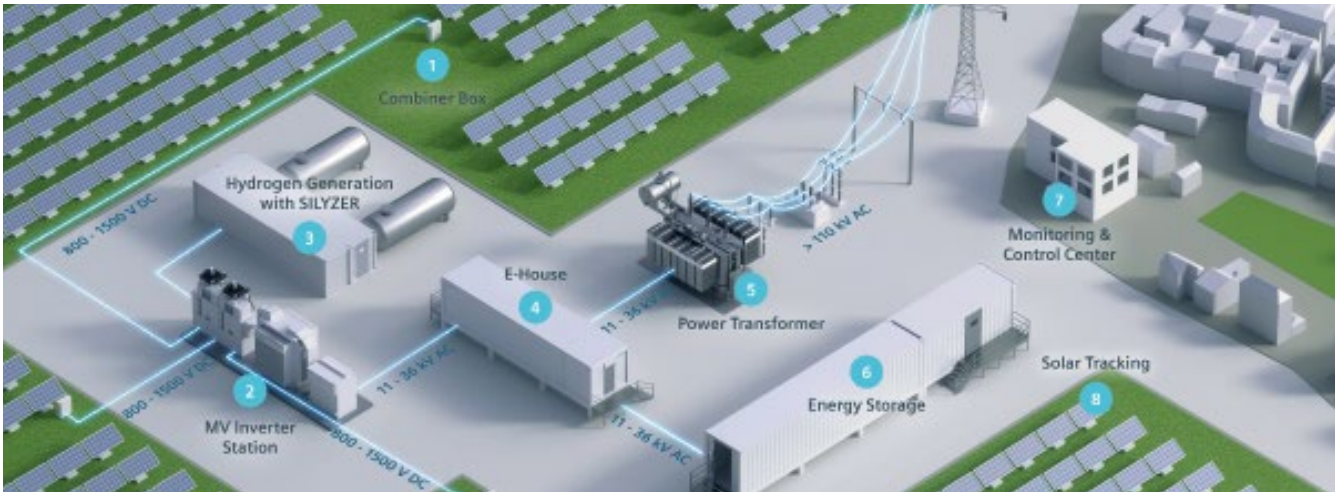
SINACON PV

Photovoltaic Central Inverter

Technical data 01 / 2020

The SINACON PV inverter is used in medium and large utility-scale photovoltaic power plants to achieve high efficiency. It is equipped with 3-level IGBT modules for input voltages of up to DC 1,500 V to maximize energy efficiency. The integrated DC and AC distribution makes the SINACON PV inverter cost efficient. Standardized interfaces for easy plug and play reduce engineering hours.

- Designed for harsh environments
- IP65 without humidity limits
- Liquid cooling (-40 °C ... +60 °C possible)
- Late power derating over 40 °C
- Extreme high quality standards



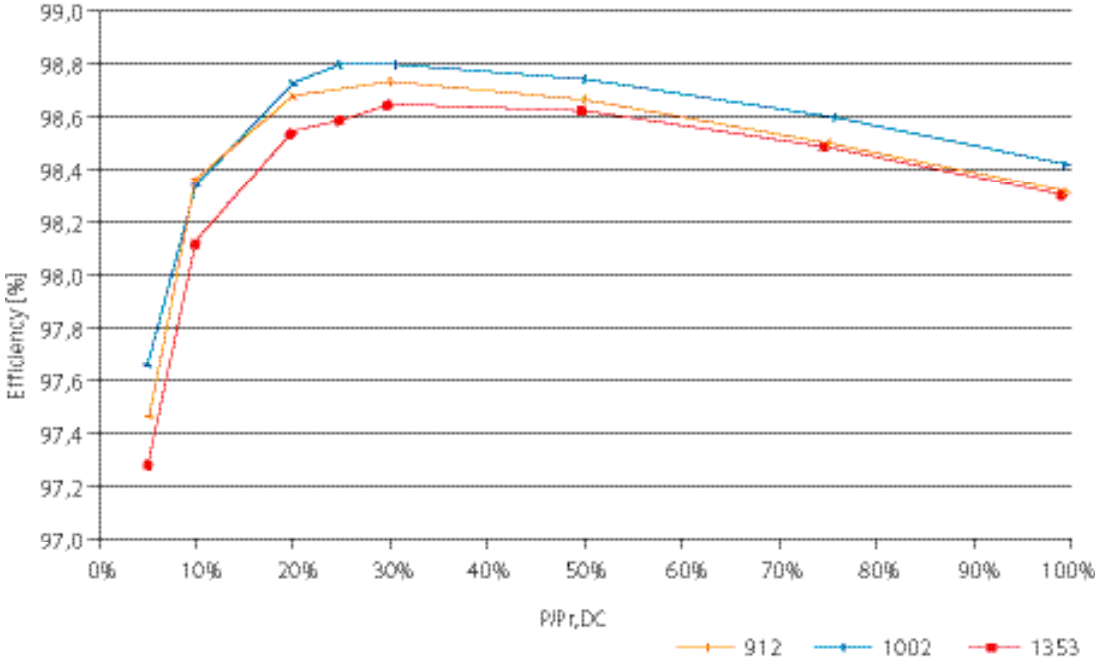
The SINACON PV inverter is part of the MV-Inverter Station with the transformer and RMU (Ring Main Unit) in the eBoP solution (electrical Balance of Plant).

Storage, transportation and operation				
Temperature			-40 °C ... +60 °C	
Relative humidity			0% ... 100%	
Maximum altitude of installation site without derating			< 1,500 m above MSL	
Cooling				
Cooling method	Forced cooling by means of fans and liquid cooling			
Applicable standards and conformity				
BDEW (Germany)	BDEW Guideline, FGW TG3, TG4 and TG8			
IEC 61683 (efficiency)	IEC 61683: 1999			
IEC 62116 (anti islanding)	IEC 62116: 2014 (at 50 Hz)			
EMC Emission	IEC 61000-6-4: 2007 + A1: 2011			
EMC Immunity	IEC 61000-6-2: 2005			
Electrical Safety	IEC 62109-1: 2010, IEC 62109-2: 2011, IP65 according to IEC 60529: 1989			
Degree of protection: IP65 (cabinet only)	IEC 60529			
General data				
Control strategy	MPPT			
Efficiency (PV 5000)	(97.6|98.5|98.9|98.9|99.0|98.9|98.8|98.7)%		For (5|10|20|25|30|50|75|100)% power at 1,006 V_{DC} without self-consumption for cooling	
EU and CEC efficiency	98.8%		Without internal consumption	
Infeed starts from	260 W ... 2,500 W		Depending on cooling	
Standby loss	80 W ... 150 W		–	
Max. self-consumption for cooling	5,000 W		Without cabinet heating	
Mechanical data				
Mounting position	Vertical		–	
Type of mounting	Floor mounting		–	
				
Number of Power Units	1	2	3	4
SINACON PV series	PV1000 ... PV1250	PV2000 ... PV2500	PV3000 ... PV3750	PV4000 ... PV5000
Dimensions (without pallet, with heat exchanger); (W x H x D)	2,120 x 3,760 x 1,170 mm		3,690 x 3,760 x 1,170 mm	
Weight[1)]	< 1,600 kg	< 2,200 kg	< 3,300 kg	< 3,900 kg
Color	RAL 7035			
Input data (DC)				
Independent inputs	1 ... 2		Depending on configuration	
Nominal voltage	min. MPP voltage		–	
DC voltage (max. MPP)	1,500 V		Depending on application	
DC voltage (min. MPP)	802 V / 882 V (AC 550 V) 838 V / 922 V (AC 575 V) 875 V / 962 V (AC 600 V) 919 V / 1,010 V (AC 630 V) 962 V / 1,058 V (AC 660 V) 1,006 V / 1,107 V (AC 690 V)		For 100 % / 110 % nominal grid voltage	
DC current (max.)	1 ... 4 x 1,200 A		–	
Short-circuit current (max.)	6,4 kA / 7 kA		250 A /315 A DC fuses	
Nominal power	1 ... 4 x 1,016 kW 1 ... 4 x 1,062 kW 1 ... 4 x 1,108 kW 1 ... 4 x 1,159 kW 1 ... 4 x 1,209 kW 1 ... 4 x 1,270 kW		–	
Capacitance to ground (max.)	2,000 µF		Per IT system	

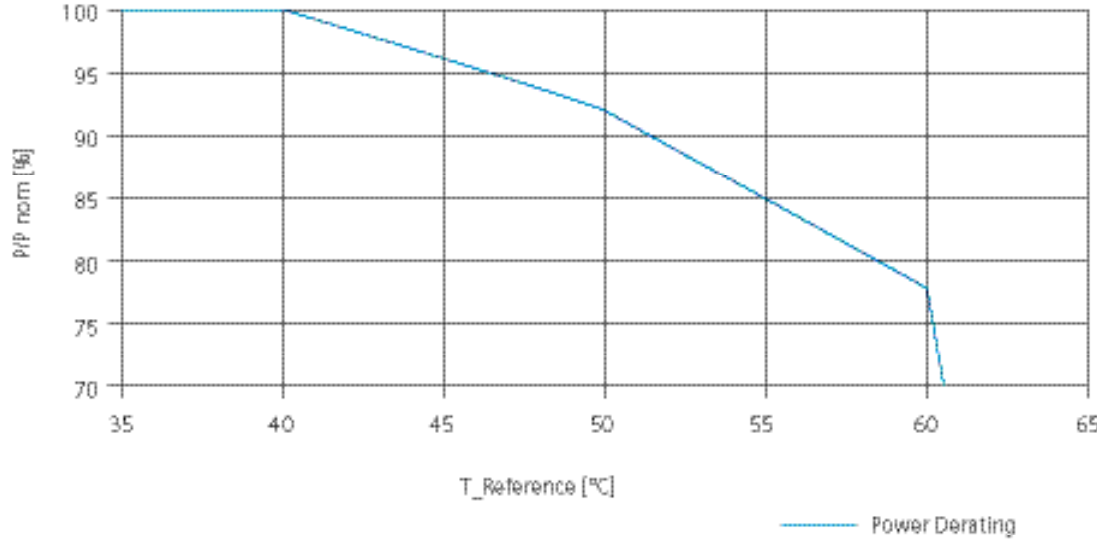
[1)] The weight refers to a complete system without extra options.

Output data (AC)		
Apparent power (max.) and nominal power	PV1000 ... PV4000 kVA (AC 550 V) PV1045 ... PV4180 kVA (AC 575 V) PV1090 ... PV4360 kVA (AC 600 V) PV1140 ... PV4560 kVA (AC 630 V) PV1200 ... PV4800 kVA (AC 660 V) PV1250 ... PV5000 kVA (AC 690 V)	With nominal grid voltage, cos φ = 1
Number of independent systems	1 ... 2	–
Grid voltage	550 ... 690 V (±10% at $U_{n\,(AC)}$)	–
Nominal frequency	50 Hz / 60 Hz (±10%)	–
Output current (max.)	1 ... 4 x 1,050 A	–
Short-circuit current (max.)	50 kA	–
Power factor cos φ	–	Adjustable to local requirements
Harmonic distortion	< 3%	–

Measured values[2)] without internal consumption for AC 600 V (PV4360)



Derating



[2)] Messured by Fraunhofer ISE

Order information – The order number consists of several digits depending on the configuration.

Description	1.	2.	3.	4.	5.	6.	7.	–	8.	9.	10.	11.	12.	–	13.	14.	15.	16.
SINACON PV inverter for medium voltage supply	6	S	P	1														
Number of power units																		
• 1 power unit					1													
• 2 power units					2													
• 3 power units					3													
• 4 power units					4													
Input connections (per power unit on plus and minus)																		
• 7 x M10 bolt and nut						0												
Initial current measurement at DC input																		
• Each + input measured							1											
Minimum operating ambient temperature																		
• Up to -10 °C									0									
• Up to -25 °C, with cabinet heating									1									
• Up to -40 °C, with cabinet heating and insulation									2									
Applied standards																		
• IEC with external AC connection										E								
• UL with external AC connection										U								
Network- / optical fiber switch connection																		
• Singlemode unmanaged											S							
• Multimode unmanaged											M							
• RJ45											R							
Seismic design																		
• Without seismic design												0						
• With seismic design												1						
Frequency																		
• 50 Hz													5					
• 60 Hz													6					
Inverter output AC voltage																		
• 550 V (PV1000 ... PV4000)															4			
• 575 V (PV1045 ... PV4180)															5			
• 600 V (PV1090 ... PV4360)															6			
• 630 V (PV1140 ... PV4560)															7			
• 660 V (PV1200 ... PV4800)															8			
• 690 V (PV1250 ... PV5000)															9			
Grounding / Insulation monitoring																		
• Insulation monitoring internal																I		
• Negative-pole grounding without isolation monitoring																N		
Inverter options																		
• None																	N	
• AC precharge																	A	
Additional internal transformer																		
• 63 A fuse																		2
• Transformer with 8 kVA, AC 400 V																		3
• none																		9
Example:	6	S	P	1	4	0	1	–	0	E	S	0	5	–	6	N	N	3

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