

# SOLO 1000-D Series

PRELIMINARY 1000 kW  
CENTRAL INVERTER



## OVERVIEW

Woodward has developed a cutting edge patent pending booster technology with very high efficiency and an extremely small footprint. The inverter also has two MPPT (maximum power point tracker) inputs to optimize energy yield.

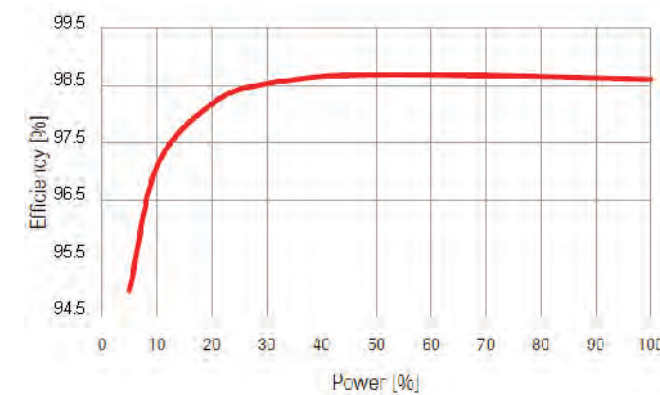
## FEATURES

- New technology (patent pending)
- Wide PV voltage input range: 500V to 1200V \*
- PV Inverter with high efficiency: 98.7%
- Minimal heat dissipation in the installation room
- Extended temperature range: -25°C to +55°C
- High elevation up to 3500m above sea level available
- Outdoor version with protection class IP 65
- Communication interface: EIA-485, Ethernet, SCADA (Modbus RTU and TCP/IP), GSM, PROFIBUS, or line modem
- Customer tailored service and maintenance contract
- Different PV grounding concepts possible
- Power limitation due to commands by grid operator

\* Note: Maximum PV voltage input in US is 1000V

## EFFICIENCY

Efficiency of SOLO 1000-D



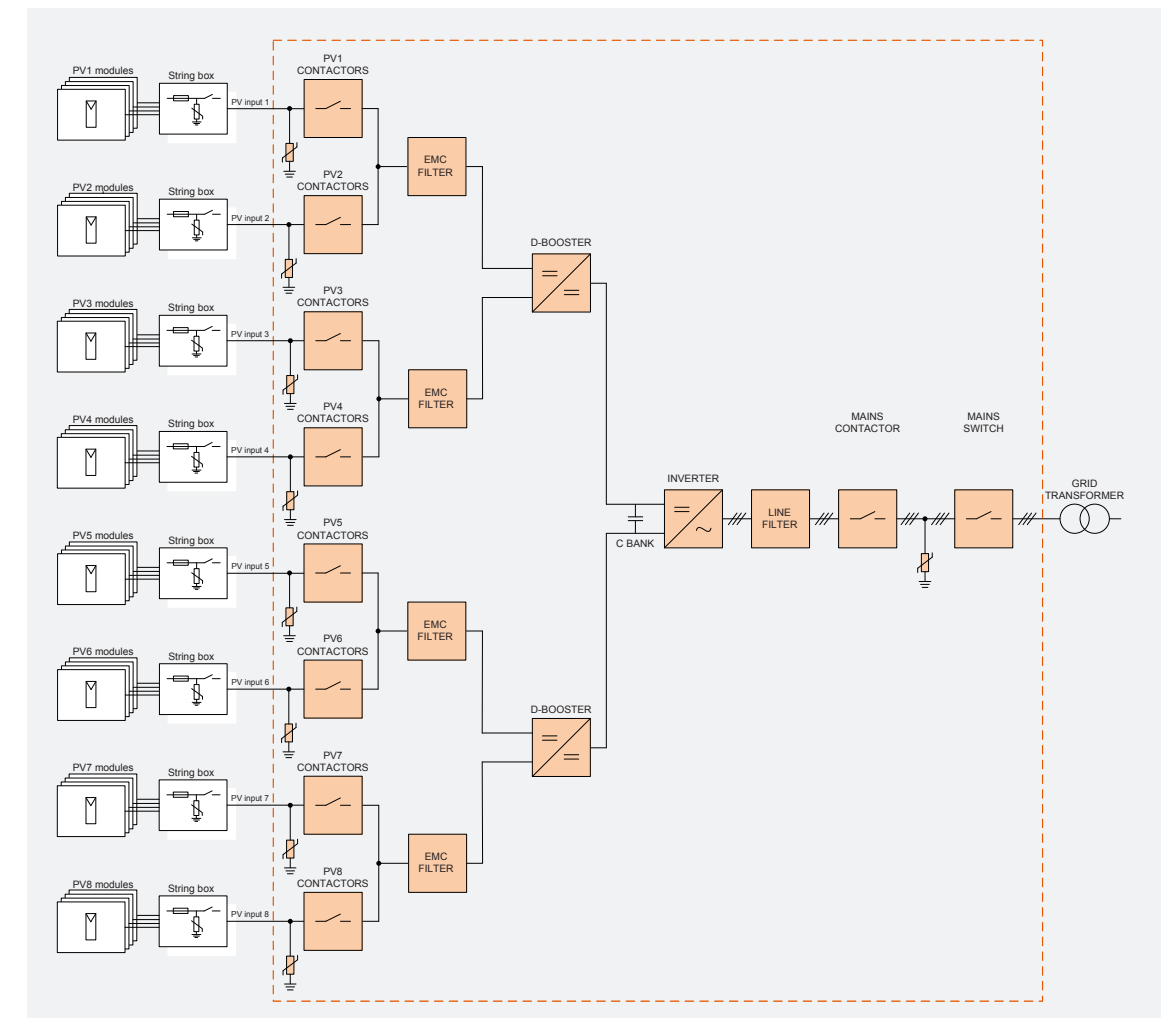
Max Efficiency: 98.7%

### Available Versions

Indoor Types	Outdoor Types	AC-Nominal Power	# of Inputs	# of MPP Trackers	Max. DC-Current per Input	Max. DC Current
SOLO 1000-D	SOLO 1000-D EXT	1000 kW	8	2	280 A	2240A

Inverters for 100 kW, 200kW, 250 kW and 500 kW for indoor and outdoor application are available. Woodward can deliver complete SOLO Inverter Stations for 500 kW, 750 kW, 1000 kW and 1500 kW.

## SOLO 1000-D



Note: For maximal efficiency the system should meet the following requirements: PV1 + PV2 = PV3 + PV4 and PV5 + PV6 = PV7 + PV8

Inverters

String Boxes

Solar Stations

Accessories

Warranty And Service

Transformers

Monitoring Systems

References

# SOLO 1000-D Specs

PRELIMINARY 1000 kW  
CENTRAL INVERTER

Type / Model	SOLO 1000-D / ISC-63-2x112	
<b>Grid Data</b>		
Nominal AC power ( $P_{AC}$ )	1000 kW	
Maximal AC power	1100 kW	At ambient temperature $T_{amb} < 45\text{ }^{\circ}\text{C}$
AC operating voltage ( $U_{AC}$ )	630 V	+10 % / -15 %
AC nominal current ( $I_{AC}$ )	920 A	
Grid frequency ( $f_{AC}$ )	50 Hz / 60 Hz	$\pm 10\text{ }%$
Grid structure	IT	
Surge protection	Yes	
Harmonic distortion (%THD $I_{AC}$ )	< 3 %	
Power factor ( $\cos \phi$ )	-0.9 to +0.9	0.9 capacitive to 0.9 inductive Note: Detailed capability curve on request
Efficiency	98.7 %	
Euro eta	98.3 %	
Auxiliary power supply (either external or generated internally)	3 x 400 V <sub>AC</sub> 3ph 50 / 60 Hz	+10 % / -15 % TN-S; surge protection type 2 * 480 V in US
Max. auxiliary power consumption	10 W / 2200 W	At standby / At full power Note: Depending on the type of the string boxes used, they may have additional consumption.
<b>Photovoltaic Data</b>		
Nominal PV power (PPV)	1013 kW	
Control strategy	MPPT	Maximum Power Point Tracking
Number of PV inputs Max. DC current on each PV input DC voltage range for MPPT	8 280 A 500 ... 1100 V <sub>DC</sub>	Four PV inputs have one common MPP tracker * Max DC voltage is 1000V in US
Max. permissible PV voltage (UPVmax) Maximum PV voltage for operation start	1200 V <sub>DC</sub> 1200 V <sub>DC</sub>	* Max DC voltage is 1000V in US
Voltage ripple $U_{PP}$ (PV input)	< 3 %	
Surge protection (PV input)	Type 2	Monitored
Grounding (PV input)	Floating *	Option: connection to PV(-) or PV(+) input *Floating ground not available in U.S. May have either PV(+) or PV(-) ground
<b>User Interface</b>		
External emergency stop Input	24 V <sub>DC</sub> ( $\pm 10\text{ }%$ ), 20 mA, active high	Connect to dry contact: Open -> E-stop active, closed -> E-stop inactive
Emergency stop Output	24 V, max. 1 A	Dry contact: Open -> E-stop active, closed -> E-stop inactive
Transformer ready Input	24 V <sub>DC</sub> ( $\pm 10\text{ }%$ ), 20 mA, active high	Connect to dry contact: Open -> not ready, closed -> ready
Transformer stand by Output	24 V, max. 1 A	Dry contact: Open -> stand by, closed -> operation
Inverter Start / Stop Input	24 V <sub>DC</sub> ( $\pm 10\text{ }%$ ), 20 mA, active high	Connect to dry contact: Open -> disabled, closed -> enabled
Communication interface	EIA-485, Ethernet	Others see under options
Data logger interface	Woodward Web Portal	Others see under options

Type / Model	SOLO 1000-D / ISC-63-2x112	
	Indoor	Outdoor
<b>Cabinet and Ambient Conditions</b>		
Dimensions (W x D x H)	1800 x 800 x 1920 mm	2650 x 1050 x 2240 mm
Weight (m) approx.	1950 kg	2200 kg
Ambient temperature range ( $T_{amb}$ )	-20 to +45 $^{\circ}\text{C}$ Option: -25 to +55 $^{\circ}\text{C}$	
Humidity	15 to 95 % Non condensing	
Enclosure type according to EN 60529	IP54	IP65 Option: IP65 outdoor type
Maximum elevation above sea level	2000 m Option: 3500 m (high altitude version)	
Cooling	Liquid cooled with external heat exchanger	
Coolant concentration	-25 $^{\circ}\text{C}$ Water 55 %, ethylene-glycol 45 %	
Static pressure of coolant(p)	2 bar ( $\pm 0.5$ bar) Above ambient, at 20 $^{\circ}\text{C}$	
<b>Heat Exchanger</b>		
Dimensions (W x D x H)	470 x 450 x 800 mm	N/A
Weight (m)	51 kg	N/A
Air inlet temperature range ( $T_{hex}$ )	-20 to +45 $^{\circ}\text{C}$ Option: -25 to +55 $^{\circ}\text{C}$	
Hose size (d) Max. hose length (l)	25 mm / 37 mm 10 m Inside diameter / Outside diameter Inverter to heat exchanger	
Max. elevation above inverter level (h)	9 m Heat exchanger top level – Inverter bottom level	
<b>Standards</b>		
CE conformity / EMC	Yes / EN 61000-6-2, EN 61000-6-4	
<b>Options</b>		
Power limitation control / BDEW directives: grid monitoring (VDE-AR-N 4105) or low voltage ride through (LVRT), fault ride through (FRT) / Potential Equalization Device (PED) for PV- or PV+ ground fault monitoring / Further on request		
Connecting PV(-) or PV(+) input to ground (inclusive earth current measurement) / High altitude version / Extended temperature range / Outdoor type		
Communication interface: TCP/IP, SCADA (Modbus RTU and Modbus TCP/IP) GSM or line modem		
Data logger: SolarLog, Meteocontrol, others on request		

