

Preliminary Data Sheet

FLEXINVERTER IEC Power Station



for DC Coupled applications with PV Optimizers

GE has accumulated more than 5 gigawatts of total global installed base for its solar inverter technology and was the first to introduce 1,500-volt to the solar market.

The **FLEXINVERTER** is one of the industry's leading 1500V developments and is GE's latest evolution in renewable power electronics. Building on expertise in the renewables industry, GE now offers its latest power conversion technology for efficient, cost effective and dispatchable solar power.

FLEXINVERTER DC Coupled Features:

- 5 MVA, high power density design
- 900 Vac rating for optimum value
- Up to 1500 Vdc operation
- Advanced grid features and reactive power control day and night for grid stabilization
- IEC and UL compliance
- 20ft container for simplified logistics
- Digital ready



SPECIFICATIONS		UNITS	1590
INPUT DATA			
DC Input Range at Full Power Operation ¹	Vdc		1275 - 1450
Max Permissible DC Voltage	Vdc		1500
Max DC Current (up to 40°C / at 50°C)	Adc		4200 / 3700
Max DC Short Circuit Interrupt Rating	Adc		12000 ²
Number of MPPTs			1
Number of DC Inputs & cables			Up to 24 inputs; Cables: 2 x 350 kcmil (185 mm ²) or 1 x 700 kcmil (350 mm ²) per DC input
OUTPUT DATA - MEDIUM VOLTAGE			
Transformer HV/LV Connection			Delta / Wye
Rated Output Power (at 52°C & 0.92 PF)	MVA		4.11
AC Output Power (up to 40°C / at 50°C) ⁴	MVA		5.05 / 4.46
AC Output Voltage (+10% / -10%) ⁴	kVac		33
Max AC Current (up to 40°C)	Aac		88
Max AC Current (at 50°C)	Aac		78
Grid Frequency ±5%	Hz		50 / 60
Power Factor (PF) Range			0 - 1 leading & lagging ⁴
Current Harmonic Distortion (TDD)	%		<3
Medium Voltage Cable			Designed for 630 mm ² / 1250 MCM max
EFFICIENCY & AUXILIARY POWER			
System Efficiency ((Max / EU / CEC) ⁵			97.8 / 97.6 / 97.7
Inverter Efficiency (Max / EU / CEC) ⁶	%		98.9 / 98.6 / 98.7
Nighttime Aux Power ⁷	W		≤700
INTERFACES			
Plant Control Interface / PLC			Modbus TCP, EGD
Programming / Diagnostic Interface			Modbus TCP
Extra Analog and Digital I/O			Option
Power Station Connections			Internal: CAT7 <30m / External: Fiber Optic
FEATURES			
Cooling			Air Cooled
Local Shut Down			Included
Mounting Options			Piers / Pad / Gravel
Configurations Supported			Floating BESS and PV optimizer power plants
Customer Aux Power Loads ⁸			Option (up to 45 kVA)
Nighttime VAR Function			Option
Insulation Monitoring			Included
Power Disconnect AC Side			Motorized MVAC Circuit Breaker
Switch-Disconnect DC Side			Motorized DC Switch
Overvoltage Protection, DC and AC			Included – IEC 61643-1 Class II / UL 1449
Weather Station			Option
Noise (at 1m / 10m) ⁹	dB(A)		≤85 / ≤75
Weight	kg / lbs		approx. 17000 / 37480
Dimensions (L x W x H)	m / ft		6.1 x 2.4 x 2.9 / 20.0 x 8.0 x 9.5

SPECIFICATIONS

UNITS

1590

PROTECTION RATING AND AMBIENT CONDITIONS

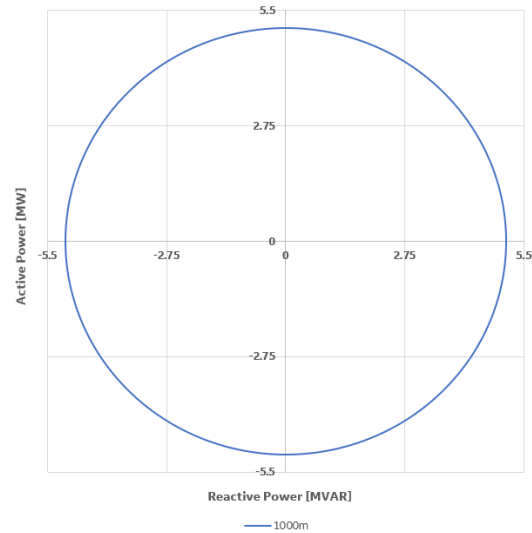
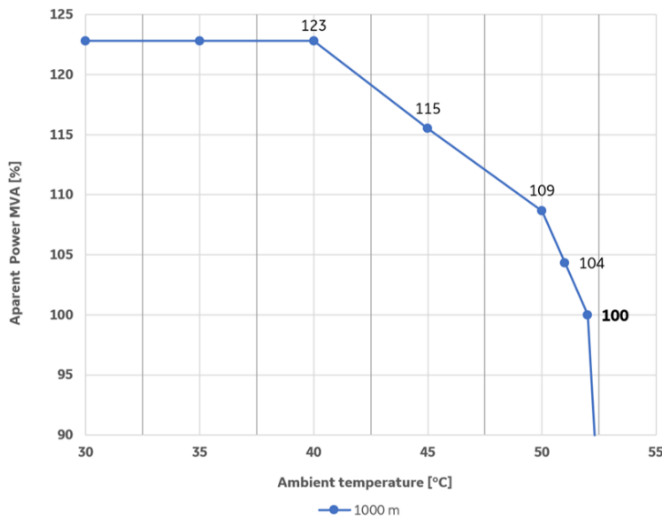
Operating Temperature Range	°C / °F	Standard -10 to +55 / +14 to +131, Option -25 to +55 / -13 to +131
Storage Temperature Range	°C / °F	-40 to +65 / -40 to +149
Cold Weather Option ¹⁰	°C / °F	Down to -35 / -31
Humidity	%	5 to 100 (rated for outdoor installation)
Maximum Altitude Without Derating ¹⁰	m / ft	1000 / 3281
Seismic		Zone 2B ASCE 7 / IBC
Maximum Wind Speed ¹²	kph / mph	250 / 155
Snow Load		ASCE 7
NEMA Rating / IP Class		NEMA 3 / IP54 (inverter & RMU) NEMA 3R / IP23 (Transformer)

STANDARDS

Electromagnetic Compatibility (EMC)		EN 61000-6-2, 62920 / CISPR 11
Certifications		IEC, CE & UL 1741 SA planned

- At nominal grid voltage and PF=1, derating according to PQ curves
- Up to 5 times per lifetime
- AC power is valid for grid voltage \geq nominal voltage
- Derating will apply according to PQ
- Preliminary efficiencies for solar/discharging mode, includes auxiliary power losses, EU Reg. No. 584/2014 available as option
- Preliminary efficiencies for solar/discharging mode, includes auxiliary power losses
- No heating, no cooling, without environmental controls enabled & DC link de-energized
- Customer Aux Power demand reduces total AC output power
- At 10m in front of enclosure and 1m up from the ground
- Cold weather option on request
- Higher altitudes (with derating) on request
- Maximum wind speed without derating 81 kph / 50 mph

Power / Temperature Derating Curve¹³ & Sample PQ Diagram¹⁴



13 Applicable for grid voltage \geq nominal voltage, altitudes >1000m on request

14 Sample PQ diagram for FLEXINVERTER 1590 at nominal grid voltage, 1300 Vdc and 35°C ambient

