

PV



ES series grid connected inverters





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GE4ALL ES Series PV Grid-Connected Inverters

Features

- High DC input voltage range
- Anti-Islanding detection methods: frequency, voltage and utility impedance; VDE 0126-1-1
- Build-in MPPT (Maximum Power Point Tracking) function
- High efficiency with wide range operation
- Easy assembly in production line
- Easy replacement when servicing. The mean time of service is less than 20 minutes.
- Outdoor models dust and waterproof sealed (IP65)
- Neatly designed aluminium housing.
- Small form factor and lightweight for easy installation and commissioning.
- CE certified; EN 61000-6-2, EN 61000-6-3, EN 61000-3-2, EN 61000-3-3, EN 50178

Standard models

The following standard models are available.

Single phase output			
Model nr.	Indoor/outdoor type	DC voltage range	Nominal power
ES-2000 (no transformer)	Outdoor	100V ~ 500V	2.0 kW
ES-3000 (no transformer)	Outdoor	100V ~ 500V	3.0 kW
ES-4000 (no transformer)	Outdoor	100V ~ 500V	4.0 kW
ES-5000 (no transformer)	Outdoor	100V ~ 500V	5.0 kW





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Model ES-2000	
Input Parameters	Value
Isolation type	No transformer
Maximum input power of PV array	2200WP
Nominal input power of PV array	2000WP
Maximum array open-circuit voltage	500Vdc
MPPT voltage range	150 ~ 450Vdc
Nr of MPPT trackers	1 (dynamic)
Maximum array input current	14.6A
Maximum array short circuit current	25A
System start-up voltage	100Vdc
Output Parameters	Value
Maximum cont. output power	2200W
Nominal output power	2000W
Nominal AC output voltage	230VAC
Operating AC voltage range	180-265VAC, Germany 180-253/260VAC
Nominal output frequency	50Hz
Operational frequency range	45.5Hz~54.5Hz, Germany 47.5Hz~50.2Hz
Current THD	<3% (at nominal power)
Power factor	>0.99 (at nominal power)
Nominal output current	8.96 A
Maximum output current	9.56 A
Maximum output over-current protection	15.31 A
Maximum efficiency	96%
Anti Islanding	Yes, VDE 0126-1-1
Surge protection	Internal DC & AC protection, tested to 2kV
General Parameters	Value
Internal power consumption	<7W
Power consumption idle mode	<0.15W
Communication interface	RS-232, RS 485 and USB, optional TCP/IP
Protection class	IP65
Operating ambient temperature	-10°C ~ + 50°C
Noise	<30dBA
Cooling	Convection
Warranty	5 years
Dimension and weight parameters	Value
Size (W x H x D)	430 x 455 x 170 mm
Weight	27 kg



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Model ES-3000	
Input Parameters	Value
Isolation type	No transformer
Maximum input power of PV array	3300WP
Nominal input power of PV array	3000WP
Maximum array open-circuit voltage	500Vdc
MPPT voltage range	150 ~ 450Vdc
Nr of MPPT trackers	1 (dynamic)
Maximum array input current	22A
Maximum array short circuit current	30A
System start-up voltage	100Vdc
Output Parameters	Value
Maximum cont. output power	3500W
Nominal output power	3300W
Nominal AC output voltage	230VAC
Operating AC voltage range	180-265VAC, Germany 180-253/260VAC
Nominal output frequency	50Hz
Operational frequency range	45.5Hz~54.5Hz, Germany 47.5Hz~50.2Hz
Current THD	<3% (at nominal power)
Power factor	>0.99 (at nominal power)
Nominal output current	13.04 A
Maximum output current	14.34 A
Maximum output over-current protection	22.88 A
Maximum efficiency	96%
Anti Islanding	Yes, VDE 0126-1-1
Surge protection	Internal DC & AC protection, tested to 2kV
General Parameters	Value
Internal power consumption	<7W
Power consumption idle mode	<0.15W
Communication interface	RS-232, RS 485 and USB, optional TCP/IP
Protection class	IP65
Operating ambient temperature	-10°C ~ + 50°C
Noise	<30dBA
Cooling	Convection
Warranty	5 years
Dimension and weight parameters	Value
Size (W x H x D)	430 x 455 x 170 mm
Weight	27 kg



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Model ES-4000	
Input Parameters	Value
Isolation type	No transformer
Maximum input power of PV array	4200WP
Nominal input power of PV array	4000WP
Maximum array open-circuit voltage	500Vdc
MPPT voltage range	150 ~ 450Vdc
Nr of MPPT trackers	2 (dynamic)
Maximum array input current	2 * 14A
Maximum array short circuit current	45A
System start-up voltage	100Vdc
Output Parameters	Value
Maximum cont. output power	4200W
Nominal output power	4000W
Nominal AC output voltage	230VAC
Operating AC voltage range	180-265VAC, Germany 180-253/260VAC
Nominal output frequency	50Hz
Operational frequency range	45.5Hz~54.5Hz, Germany 47.5Hz~50.2Hz
Current THD	<3% (at nominal power)
Power factor	>0.99 (at nominal power)
Nominal output current	17.39 A
Maximum output current	18.26 A
Maximum output over-current protection	29.21 A
Maximum efficiency	96%
Anti Islanding	Yes, VDE 0126-1-1
Surge protection	Internal DC & AC protection, tested to 2kV
General Parameters	Value
Internal power consumption	<7W
Power consumption idle mode	<0.15W
Communication interface	RS-232, RS 485 and USB, optional TCP/IP
Protection class	IP65
Operating ambient temperature	-10°C ~ + 50°C
Noise	<30dBA
Cooling	Convection
Warranty	5 years
Dimension and weight parameters	Value
Size (W x H x D)	510 x 455 x 170 mm
Weight	29 kg



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Model ES-5000	
Input Parameters	Value
Isolation type	No transformer
Maximum input power of PV array	5300WP
Nominal input power of PV array	5000WP
Maximum array open-circuit voltage	500Vdc
MPPT voltage range	150 ~ 450Vdc
Nr of MPPT trackers	2 (dynamic)
Maximum array input current	2 * 17.67A
Maximum array short circuit current	55A
System start-up voltage	100Vdc
Output Parameters	Value
Maximum cont. output power	5300W
Nominal output power	5000W
Nominal AC output voltage	230VAC
Operating AC voltage range	180-265VAC, Germany 180-253/260VAC
Nominal output frequency	50Hz
Operational frequency range	45.5Hz~54.5Hz, Germany 47.5Hz~50.2Hz
Current THD	<3% (at nominal power)
Power factor	>0.99 (at nominal power)
Nominal output current	21.73 A
Maximum output current	23.04 A
Maximum output over-current protection	36.8 A
Maximum efficiency	96%
Anti Islanding	Yes, VDE 0126-1-1
Surge protection	Internal DC & AC protection, tested to 2kV
General Parameters	Value
Internal power consumption	<7W
Power consumption idle mode	<0.15W
Communication interface	RS-232, RS 485 and USB, optional TCP/IP
Protection class	IP65
Operating ambient temperature	-10°C ~ + 50°C
Noise	<30dBA
Cooling	Convection
Warranty	5 years
Dimension and weight parameters	Value
Size (W x H x D)	510 x 455 x 170 mm
Weight	29 kg