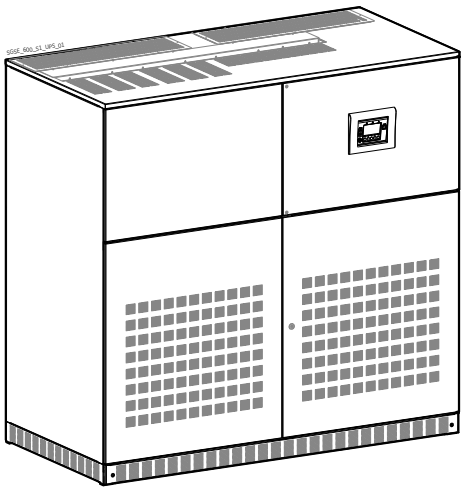
GE
Critical Power

Technical Data Sheet

Uninterruptible Power Supply

SG Series 600

600kVA / 400Vac CE / S2



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Certified
Quality System
ISO 9001

Model:	***SG Series 600 CE S2***
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Up-dating

Revision	Concern	Date
2.0	ECN 1628 (Input current THD)	06.12.2011
3.0	ECN 1825: Start-Up key & Update template	20.04.2013

GENERAL DATA

Topology	**VFI, double conversion with integrated transformer**		
Nominal output apparent power from PF=0.6 lag. to 0.9 lag. and at 0.9 leading	**KVA**	**600**	
Nominal output active power from PF=0.9 lag. to 0.9 leading	**kW**	**540**	
Overall efficiency at 100% load PF=0.9 lag. in VFI mode	**% (+/- 0.2%)**	**93.0%**	
Overall efficiency at 75% load PF=0.9 lag. in VFI mode		**93.6%**	
Overall efficiency at 50% load PF=0.9 lag. in VFI mode		**93.7%**	
Overall efficiency at 100% load in SEM mode	**% (+/- 0.2%)**	**98.4%**	
Heat dissipation at 100% load in VFI mode, PF=0.8 lag. & charged battery	**kW**	**36.13**	
Heat dissipation at 100% load in VFI mode, PF=0.9 lag. & charged battery		**40.65**	
Cooling air (25°C ÷ 30°C)	**m^3/h**	**10'540 (PF=0.8)**	**11'860 (PF=0.9)**
Audible noise level	**dB(A)**	**75**	
Battery type	**Valve regulated lead-acid (VRLA), vented lead-acid, NiCd**		
Operating temperature range	**UPS: 0°C ÷ 40°C**		
Storage temperature range	**UPS: -25°C ÷ +55°C**	**Battery: -20°C ÷ +40°C** (higher the temperature, shorter the storage time of the battery)	
Relative Humidity	**Max. 95% (non-condensing)**		
Max. altitude without power derating	**1000m**		
Power derating (according to EN/IEC 62040-3)	**1500m: -2.5% / 2000m: -5% / 2500m: -7.5% / 3000m: -10%**		
Protection degree	**IP 20 (IEC 60529)**		
Standards	**EN/IEC 62040, CE marking**		
EMC (Electromagnetic Compatibility)	**EN/IEC 62040-2**		
Electrostatic discharge immunity	**4kV contact / 8kV air discharge**		
Internal protection	**All live parts shrouded**		
Transport	**Cabinet suitable for handling by forklift**		
Colour	**RAL 9003 (white)**		
Installation	**Can be positioned against a wall and floor fixed**		
Service access	**Front and top access only**		
External cable connections	**Bottom at front of the cabinet (top as option)**		
Cooling	**Enforced ventilation with fan failure detection**		
Paralleling (RPA version)	**Up to 6 units parallelable for redundancy or capacity in RPA configuration (optional).**		

RECTIFIER

Rectifier bridge	**Three phase, 6 thyristors, overtemperature protection**	
Standard input voltage	**Nominal: 3 x 380V / 400V / 415V + N** **Rectifier accepted ph-ph voltage range: 340V ÷ 460V**	
Other input voltages	**On request**	
Input frequency	**50 Hz +/-10% (45 ÷ 55 Hz)**	
Power factor (at full load)	**0.9**	**0.92** with option 11th harmonic filter
Input current THD at nominal load (Typ)	**6%**	**5%** with option 11th harmonic filter
Inrush current	**Limited by soft-start circuit**	
Power walk-in	**15 seconds**	
Output voltage tolerance	**+/- 1%**	
DC voltage ripple	**<1%**	
DC current ripple	**Max. 5% the battery capacity [Ah], expressed in A**	
Battery charging characteristic	**IU (DIN 41773), T° compensated floating voltage**	
Battery charging current limit	**Programmable**	

Input power data		**kVA**	**600**
Input power at inverter nominal load and charged battery	at PF=0.8 lag. at PF=0.9 lag.	**kW**	**516.2** **580.6**
Max. input power at inverter nominal load and max. battery recharge current (programmable)		**kW**	**620**
Max. battery charging current (programmable) at the beginning of battery recharge at nominal load	at PF=0.8 lag. at PF=0.9 lag.	**A**	**265** **100**

BATTERY

Battery type	**Valve regulated lead-acid (VRLA)-standard, Vented lead-acid, wet battery and NiCd**
Float voltage at 20°C	**400V ÷ 436V (dependent on the number of cells)**
Number of cells	**VRLA at 2.27V/cell: 177÷192 cells** **Vented lead acid at 2.23V/cell, no boostcharge: 180÷195 cells** **Vented lead acid at 2.23V/cell, with boostcharge at 2.35 V/cell: 180÷185 cells** **NiCd at 1.41V/cell, no boostcharge: 284÷309 cells** **NiCd at 1.41V/cell, with boostcharge at 1.55 V/cell: 281 cells**
Min. discharge voltage (programmable)	**Up to 310V (dependent on the number of cells)**
Recharge time	**<5 hours up to 90% of battery capacity**
"Battery to earth" fault detection	**Standard**
Automatic and manual battery test	**Standard**

Battery power data	**kVA**	**600**
DC power at full load and PF=0.8 DC power at full load and PF=0.9	**kW**	**505** **569**
DC power at full typical computer load (PF=0.66)	**kW**	**417**

INVERTER

Nominal output apparent power from PF=0.6 lag. to 0.9 lag. & 0.9 lead.	**600 kVA**
Nominal output voltage (on site programmable)	**3 x 380V / 400V / 415V + N**
Inverter bridge	**SVM (Space Vector Modulation) and IGBT technology**
Output transformer (for galvanic separation)	**Standard**
Output waveform	**Sine wave**
Output voltage tolerance:	
- static	**+/- 1%**
- dynamic (at load step 0 – 100 – 0%)	**+/- 3%**
- dynamic (at load step 0 – 50 – 0%)	**+/- 2%**
- recovery time to +/-1%	**5 ms**
- output voltage THD for 100% linear load	**Max. 1%**
- output voltage THD for 100% non-linear load (EN 62040)	**Max. 3%**
Output voltage tolerance at 100% unbalanced load (Ph-N)	**+/- 3%**
Output frequency	**50/60 Hz (selectable)**
Output frequency tolerance:	
- free-running	**+/- 0.1%**
- with mains synchronisation adjustable to	**+/- 4%**
Phase displacement:	
- at 100% balanced load	**120°: +/- 1%**
- at 100% unbalanced load	**120°: +/- 3%**
Overload capability (at 25°C ambient temperature)	**125% - 10 minutes, 150% - 1 minute**
Short-circuit characteristic	**Electronic short-circuit protection, current limit to:** **2.7 times In for 200 ms between phase and phase** **4.0 times In for 200 ms between phase and N/PE**
MCCB clearance capability (selectivity)	**20% In within 5-10ms (with MCCB class C or magn. trip at max. 10In)**
Crest factor	**>3:1**

BYPASS

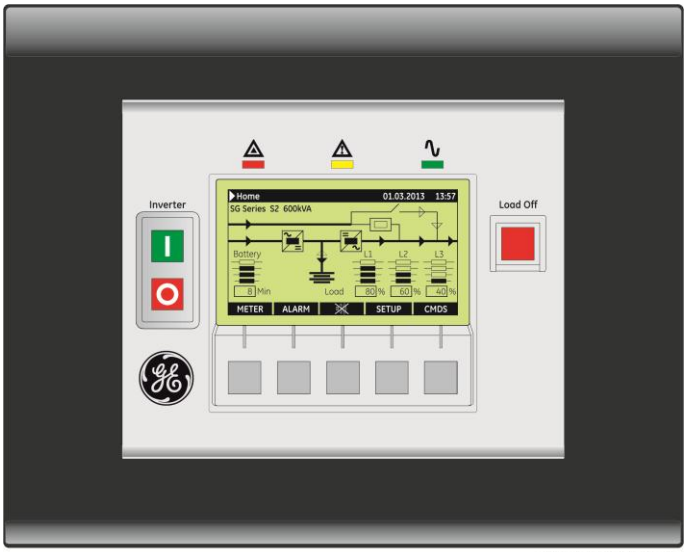
Input connection	**Separate for rectifier and bypass input or common to the rectifier input (option)**
Primary components	**- Static switch (SCR) on bypass** **- Electromechanic contactors (backfeed protection) on bypass and inverter** **- 2 manual switches for maintenance bypass**
Voltage limits for inverter/bypass load transfers	**+/- 10% (adjustable)**
Overload on bypass	**Up to 125%: continuous** **Up to 150%: 30 min.** **45 times In for 10 ms, non repetitive** **Up to 175%: 10 min.** **Up to 200%: 5 min.**

INTERFACING

6 programmable signalling voltage-free contacts (available on block terminals)	**- Standard information for easy integration and signalling** **- 27 user settable signals**
Connector RJ45	**Standard**
Input signals	**- EMERGENCY POWER OFF** (n/c contact, customer supplied) **- GEN ON** (emergency power supply ON, n/o contact, customer supplied) **- 1 auxiliary signal, with settable functionality**

Note: all indicated values are typical. Variations may be found from one unit to another.

FRONT PANEL CONTROLS, SIGNALS AND ALARMS



LCD_SG_600_S2_Front_GE_01GB

The control panel, positioned on the UPS front door, acts as the UPS user interface and comprises of the following elements:

- Back lit Graphic Display (LCD) with the following characteristics:
  - Multilanguage communication interface: English, German, Italian, Spanish, French, Finnish, Polish, Portuguese, Czech, Slovakian, Chinese, Swedish, Russian and Dutch;
  - Graphic diagram indicating UPS status.
- Command keys and parameters setting.
- UPS status control LED.

OPTIONS

COMMUNICATION:

1. Additional Customer Interface Card
2. 3-ph SNMP/WEB plug-in adapter
3. GE iUPSGuard
4. GE Data Protection
5. RSB - Remote Signalling Box (cable for connection to UPS not included)

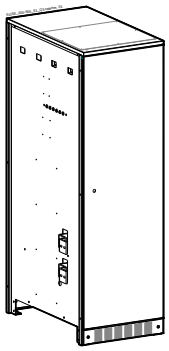
BUILT-IN UPS OPTIONS:

1. RPA kit (Redundant Parallel Architecture)
2. Kit for common input mains
3. Auxiliary Power Supply (APS) 24Vdc
4. Surge suppressors
5. 11th harmonic filter

OPTIONS IN ADDITIONAL CABINETS:

1. Battery isolator switch Q3 cabinet
2. Top entry cable cabinet
3. Battery isolator switch Q3 and Top entry cable cabinet

Dimensions (WxDxH):
570 x 950 x 1900mm

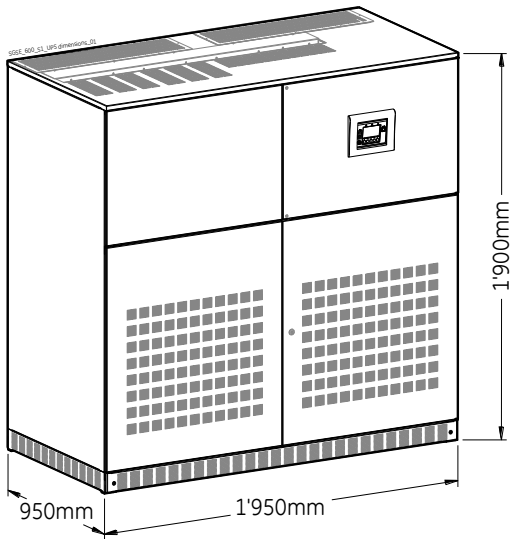


EXTERNAL ACCESSORIES:

1. ISM - Intelligent Synchronization Module	350mm x 190mm x 584mm
2. Parallel output cabinet with centralized maintenance bypass	On request
3. Battery fuses box	On request

TECHNICAL DATA

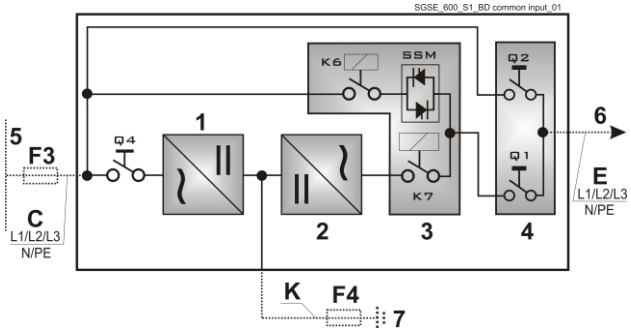
SG Series 600



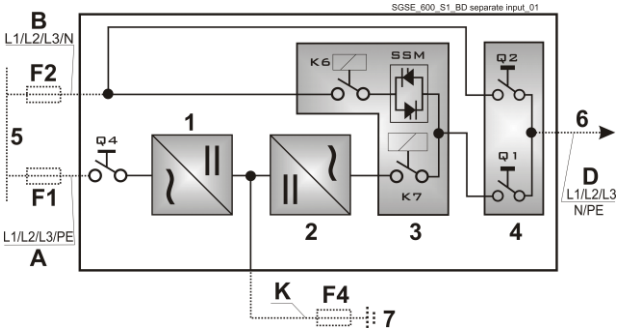
Dimensions and weights *SG Series 600*	
Dimensions UPS standard (WxDxH):	1950 x 950 x 1900 mm
Weight UPS standard:	2950 kg
Floor loading UPS standard:	1592 kg/m^2

UPS BLOCK DIAGRAM, PROTECTIONS AND CABLE SECTIONS

Common input Rectifier & Bypass



Separated input Rectifier & Bypass



1 = Rectifier
2 = Inverter
3 = Electronic Bypass
4 = Manual Bypass
5 = Mains
6 = Load
7 = External Battery
F4 = External Battery Fuses

Protections and cable sections									
Protections for mains voltages 380V, 400V, 415V Battery voltage 440Vdc					**Cable sections recommended by European Standards Alternatively, local standards to be respected**				
kVA	**Fuses gL/gG or equivalent MCCB**				**Cable sections (mm^2)**				
	F1	**F2**	**F3**	**F4**	**A**	**B**	**C & E**	**D**	**K**
600	3x1250A	3x1000A	3x1250A	2x1600A	3(3x240)+2x185	4(3x185)	4(3x240)+2x185	4(3x185)+2x120	2(4x240)+2x240

F1, F2, F3, F4, A, B, C, D, E, (K): supplied by customer K: supplied by *GE's Critical Power* only with battery F4 and Q3: can be supplied by *GE's Critical Power*

IMPORTANT NOTE !

The UPS is designed for TN System.
The input neutral shall be grounded at source and shall never be disconnected.
4 pole breaker shall not be used at the UPS input (see also IEC 60364, IEC 61140, IEC 61557).