

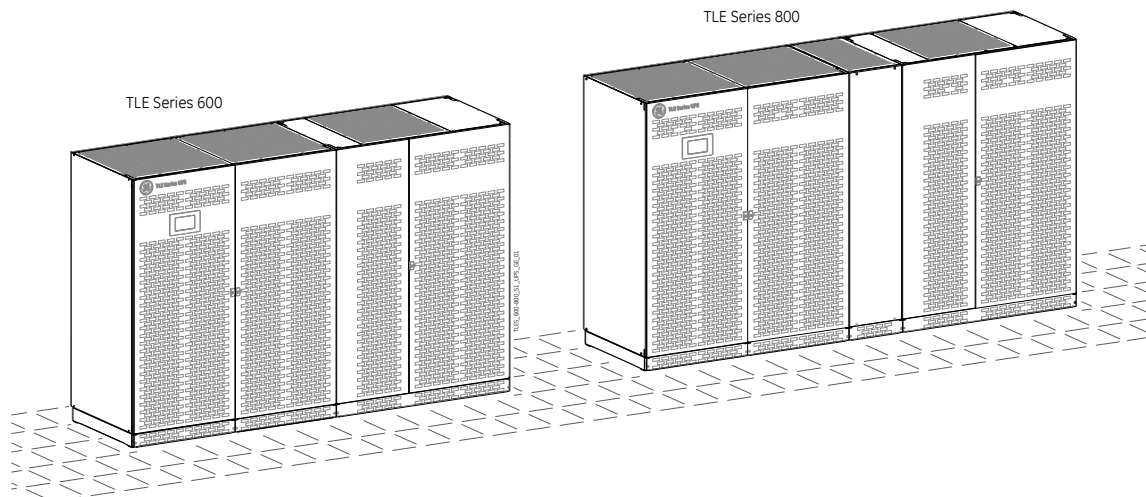
GE
Critical Power

Technical Data Sheet

Uninterruptible Power Supply

TLE Series 600 & 800

600 & 800 kVA/kW - 400 Vac CE - S1



GE Consumer & Industrial SA

General Electric Company
CH - 6595 Riazzino (Locarno)
Switzerland

T +41 (0)91 / 850 51 51

F +41 (0)91 / 850 52 52

www.gecriticalpower.com



imagination at work



Model: ***TLE Series 600 & 800 CE S1***

Issued by: Product Document Department – Riazzino - CH

Approved by: R & D Department – Riazzino - CH

Date of issue: 27.11.2015

File name: GE_UPS_TDS_TLE_SCE_M60_M80_1GB_V020

Revision: 2.0

Identification No.:

Up-dating		
Revision	Concern	Date
2.0	ECN 2311 (Efficiency tolerance & Ambient temperature & Overload capability)	27.11.2015

COPYRIGHT © 2015 by GE Consumer & Industrial SA

All rights reserved.

The information contained in this publication is intended solely for the purposes indicated.

The present publication and any other documentation supplied with the UPS system is not to be reproduced, either in part or in its entirety, without the prior written consent of GE.

The illustrations and plans describing the equipment are intended as general reference only and are not necessarily complete in every detail.

The content of this publication may be subject to modification without prior notice.

GENERAL DATA

Topology	VFI, double conversion		
Nominal output apparent power from PF=0.6 lag. to PF=0.9 lead.	kVA	600	800
Nominal output active power at PF=1	kW	600	800
Efficiency at 100% load PF=0.9 lag. / 1 in VFI & PF=1 in eBoost	%	VFI eBoost	96.3 / 96.1 98.7
Efficiency at 75% load PF=0.9 lag. / 1 in VFI & PF=1 in eBoost	%	VFI eBoost	96.5 / 96.3 98.6
Efficiency at 50% load PF=0.9 lag. / 1 in VFI & PF=1 in eBoost	%	VFI eBoost	96.5 / 96.6 98.3
Audible noise level	dB(A)	VFI	74
		eBoost	68
Battery type	Valve regulated lead-acid (VRLA), vented lead-acid, NiCd		
Operating temperature range	UPS: 0°C ÷ 40°C (up to 50°C subjected to conditions)		
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 internal live parts shrouded		
Transport	Cabinet suitable for handling by forklift		
Colour	RAL 9005 (black)		
Installation	Can be positioned against a wall and floor fixed		
Service access	Front and top access only		
External cable connections	Bottom or top of the cabinet		
Cooling	Enforced ventilation with fan failure detection and fan speed regulation		
Paralleling (RPA version)	Up to 6 units for redundancy or capacity in RPA configuration (option)		

RECTIFIER

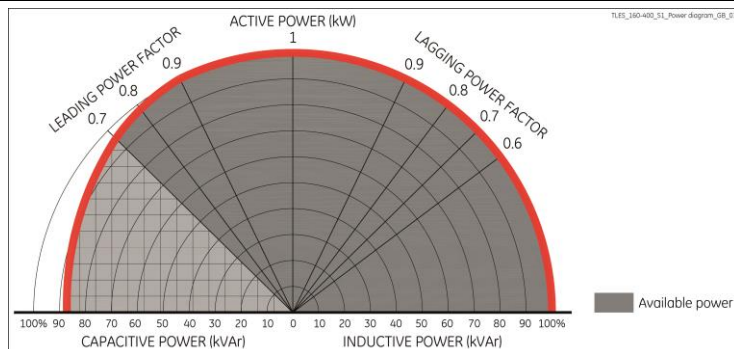
Rectifier bridge	Three phase, IGBT rectifier, overtemperature protection		
Standard input voltage	Nominal: 3 x 400V + N Programmable: 3 x 380 / 415V + N Rectifier accepted ph-ph voltage range: 340V ÷ 460V ¹⁾		
Other input voltages	On request		
Input frequency	50/60 Hz +/-10% (45 ÷ 66 Hz)		
Power factor	0.99		
Input current THD	<3%		
Inrush current	Limited by soft-start circuit		
Power walk-in	15 seconds		
Output voltage tolerance	+/- 1%		
Battery voltage ripple	<1%		
Battery 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	800
Input power at inverter nominal load and charged battery	at PF=0.9 lag.	kW	562
	at PF=1.0 lag.	kW	624
Max. input power at inverter nominal load and max. battery recharge current	kW	698	932
Max. battery charging current (programmable) at the beginning of battery recharge at nominal load	A	135	180

UPS OUTPUT POWER CAPABILITY

Output UPS power versus power factor for:

- Inductive loads
- Resistive loads
- Capacitive loads



¹⁾ Battery recharging is not ensured below 370V when running at full load

BATTERY							
Battery type	Valve regulated lead-acid (VRLA)-standard, Vented lead-acid, wet battery and NiCd						
Float voltage at 20°C	545V ÷ 600V (dependent on the number of cells)						
Number of cells	VRLA at 2.27V/cell: 240÷264 cells Vented lead acid at 2.23V/cell, no boostcharge: 244÷264 cells						
Min. discharge voltage (programmable)	396V (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						
Common battery in parallel system	Up to 3 units						
Battery power data	kVA	600			800		
DC power at full load		PF 0.8 lag.	PF 0.9 lag.	PF 1	PF 0.8 lag.	PF 0.9 lag.	PF 1
	kW	500	563	625	667	750	883
Maximum discharge current (1.65V/cell)	Amps	1263	1420	1578	1684	1894	2104
Matching battery cabinets	See option features on page 5						

INVERTER							
Nominal output apparent power from PF=0.6 lag. to 0.9 lead.	600 & 800 kVA						
Nominal output active power	600 & 800 kW						
Nominal output voltage (on site programmable)	3 x 380V / 400V / 415V + N						
Inverter bridge	Advanced Neutral Point Clamped three level IGBT technology						
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%	<20 ms						
- output voltage THD for 100% linear load	<3%						
- output voltage THD for 100% non-linear load (EN 62040)	<5%						
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)	105% - continuous, 110% - 10 minutes, 125% - 1 minute, 150% - 30 seconds						
Short-circuit characteristic	Electronic short-circuit protection, current limit to: 2.2 times In for 100ms between phase/phase and phase/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						

EBOOST™ OPERATION MODE (OPTION)				
eBoost Operation Mode characteristics	Output waveform		Continuously monitored	
	Inverter reaction time	ms	<2 (typical)	
	Steady-State RMS tolerance	Vrms	+/- 10	
Transfer limits in eBoost Operation Mode	Instantaneous voltage distortion	Magnitude	Vp	+/- 50
	(w.r.t. normal sine wave)	Duration	us	500
	Steady-State frequency tolerance	Hz	+/- 3	
	Instantaneous phase shift	rad	0.15	

BYPASS							
Input connection	Separate for rectifier and bypass input or common to the rectifier input						
Primary components	- Static switch (SCR) on bypass - Electromechanic contactors (backfeed protection) on bypass and inverter						
Voltage limits for inverter/bypass load transfers	+/- 10% (adjustable)						
Overload on bypass	150% for 1 minute & 22 times In for 10ms, non repetitive – 110% continuous						

INTERFACING							
RS232 serial port	Standard						
EPO - EMERGENCY POWER OFF (n/c contact, customer supplied)	Standard						
Customer Interface board	Standard						
6 programmable signalling voltage-free contacts	- Standard information for easy integration and signalling - 27 user settable signals						
(available on block terminals)	With adaptation cable for a serial port RS232 / sub DB9 connection						
Connector RJ45	With adaptation cable for a serial port RS232 / sub DB9 connection						
Input signals	- 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.



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) Touch Screen 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 OPTIONS:

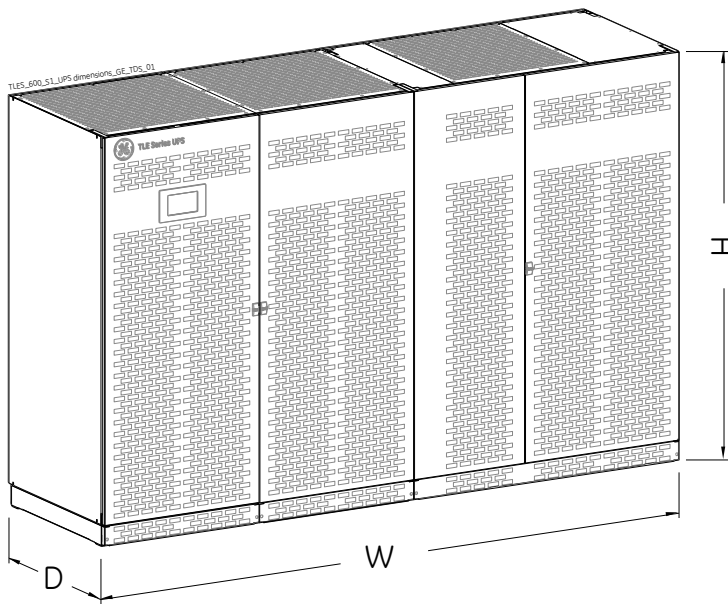
1. Additional Customer Interface Card
2. 3-ph SNMP/WEB plug-in Adapter
3. iUPS Guard
4. GE Data Protection

BUILT-IN UPS OPTIONS:

1. eBoost™ Operation Mode
2. IEMi Operation Mode
3. RPA kit (Redundant Parallel Architecture)

TECHNICAL DATA

TLE Series 600 & 800



WEIGHTS

	600 kVA	800 kVA
UPS standard	2200 Kg	2380 Kg
Floor loading	848 Kg/m ²	805 Kg/m ²

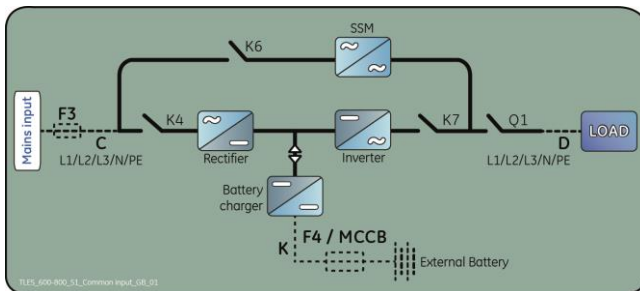
DIMENSIONS

(W x D x H)

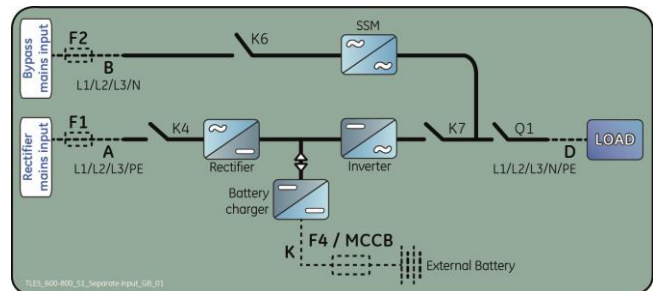
600 kVA	3000 x 865 x 1905 mm 118.12 x 34.06 x 75.00 inches
800 kVA	3420 x 865 x 1905 mm 134.65 x 34.06 x 75.00 inches

UPS BLOCK DIAGRAM, PROTECTIONS AND CABLE SECTIONS

Common input Rectifier & Bypass



Separated input Rectifier & Bypass



Line protections and cable sections

Protections for mains voltages				Battery protection	Cable sections (mm ²) IEC 60950-1			
	3 x 380V / 400V / 415 Vac			500 Vdc (Max. 240 cells) ¹⁾	Local Standard and cables installation disposal shall be applied			
kVA	F1	F2	F3	F4 / MCCB	A	B	C und D	K
600	3x1000A	3x1000A	3x1000A	1600A 2 x FKN36NT100SF / 800A ²⁾	3x(3x185)+2x150	4x(3x185)	4x(3x185)+2x150	2x[2x(2x240)+240]
800	3x1250A	3x1250A	3x1250A	2000A 2 x FKN36NT125SF / 1000A ²⁾	3x(3x240)+2x185	4x(3x240)	4x(3x240)+2x185	2x[2x(4x120)+2x120]

¹⁾ for higher cells use device fuse or breaker with suitable Vdc rating

²⁾ setting value: Ir – overload protection. Two parallel battery strings.

F1, F2, F3, F4/MCCB, A, B, C, D, (K): supplied by customer

K: supplied by GE only with battery

MCCB: can be supplied by GE

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 60634, IEC 61140, IEC 61557).

Separated input Rectifier & Bypass: connect a single input Neutral to Bypass Mains (inside the UPS, common neutral for Bypass and Rectifier).