

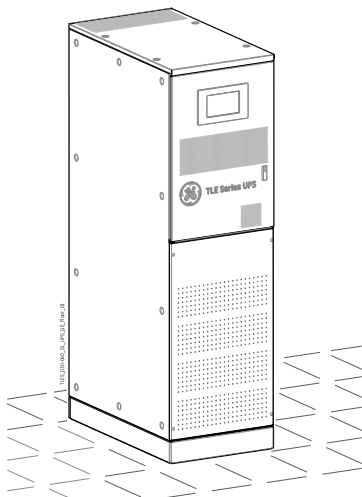
GE  
Critical Power

# Technical Data Sheet

Uninterruptible Power Supply

*TLE Series 30 & 40*

30 - 40 kVA/kW - 400 Vac CE - S1



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imagination at work



Model: **TLE Series 30 & 40 CE S1**

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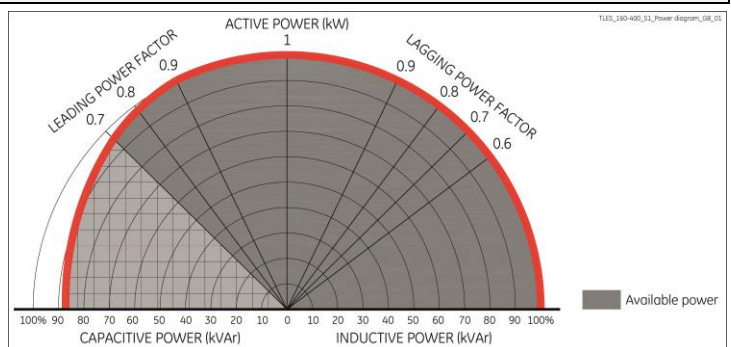
GENERAL DATA			
Topology	VFI, double conversion		
Nominal output apparent power from PF=0.6 lag. to PF=0.9 lead.	KVA	30	40
Nominal output active power at PF=1	kW	30	40
Efficiency at 100% load PF=0.9 lag. / 1 in VFI & PF=1 in SEM	%	VFI	95.2 / 95.1
		SEM	98.4
Efficiency at 75% load PF=0.9 lag. / 1 in VFI & PF=1 in SEM	%	VFI	95.3 / 95.3
		SEM	98.1
Efficiency at 50% load PF=0.9 lag. / 1 in VFI & PF=1 in SEM	%	VFI	95.1 / 95.1
		SEM	97.5
Audible noise level	dB(A)	60	
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 – IP30 on request)		
Standards	EN/IEC 62040, CE marking		
EMC (Electromagnetic Compatibility)	EN/IEC 62040-2 class C3 (Category C2 as option)		
Electrostatic discharge immunity	4kV contact / 8kV air discharge		
Internal protection	All internal live parts shrouded		
Transport	On pallet - Cabinet suitable for handling by forklift		
Colour	RAL 9005 (black)		
Installation	Can be positioned against a wall and floor fixed Fixed wheels on front and rear side of the cabinet		
Service access	Front and top access only		
External cable connections	Bottom at the rear of the cabinet. Front connection as option		
Cooling	Enforced ventilation with fan failure detection		
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		
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 (programmable)		
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		
<b>Input power data</b>		<b>kVA</b>	<b>30</b> <b>40</b>
Input power at inverter nominal load and charged battery	at PF=0.9 lag.	<b>kW</b>	<b>28.4</b> <b>37.9</b>
	at PF=1.0 lag.	<b>kW</b>	<b>31.6</b> <b>42.1</b>
Max. input power at inverter nominal load and max. battery recharge current		<b>kW</b>	<b>38.0</b> <b>46.9</b>
Standard battery charging current at the beginning of battery recharge at nominal load (programmable)		<b>A</b>	<b>16.0</b> <b>12.0</b>

**UPS OUTPUT POWER CAPABILITY**

Output UPS power versus power factor for:

- Inductive loads
- Resistive loads
- Capacitive loads



<b>BATTERY</b>			
Battery type	Valve regulated lead-acid (VRLA)-standard, Vented lead-acid, wet battery and NiCd		
Float voltage at 20°C	409V ÷ 490V (dependent on the number of cells)		
Number of cells	VRLA at 2.27V/cell: 180÷216 cells Vented lead acid at 2.23V/cell, no boostcharge: 195÷220 cells		
Min. discharge voltage (programmable)	297V ÷ 356V (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		
<b>Battery power data</b>	<b>kVA</b>	<b>30</b>	<b>40</b>
DC power at full load & PF=0.8 lag. / PF=0.9 lag. / PF=1	<b>kW</b>	<b>25.2 / 28.4 / 31.6</b>	<b>33.7 / 37.9 / 42.1</b>
Maximum discharge current (1.65V/cell)	<b>Amps</b>	<b>85 / 96 / 106</b>	<b>113 / 128 / 142</b>
Matching battery cabinets	See option features on page 5		

<b>INVERTER</b>			
Nominal output apparent power from PF=0.6 lag. to 0.9 lead.	30 - 40 kVA		
Nominal output active power	30 - 40 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% .....	<5 ms		
- output voltage THD for 100% linear load .....	<2.5%		
- 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: 30kVA: 2.9 times In for 100ms between phase/phase and phase/N/PE 40kVA: 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		

<b>BYPASS</b>	
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 - 2 manual switches for maintenance bypass
Voltage limits for inverter/bypass load transfers	+/- 10% (adjustable)
Overload on bypass	63A continuous - 87A for 1 minute & 1275A for 10ms, non repetitive

<b>INTERFACING</b>	
RS232 serial port	Standard
EPO - EMERGENCY POWER OFF	Standard
Customer Interface board	Standard
6 programmable signalling voltage-free contacts..... (available on block terminals)	- Standard information for easy integration and signalling - 27 user settable signals
Input signals .....	- GEN ON (emergency power supply ON, n/o contact, customer supplied) - 1 auxiliary signal, with settable functionality
Black Box	Standard Intelligent Diagnostic

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

**FRONT PANEL CONTROLS, SIGNALS AND ALARMS**



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/MODBUS/WEB plug-in Adapter
3. iUPS Guard
4. GE Data Protection

**BUILT-IN UPS OPTIONS**

1. SEM Operation Mode
2. IEMi Operation Mode
3. RPA kit (Redundant Parallel Architecture)
4. Front connection (note: internal battery runtime will be limited)
5. Rectifier or bypass or UPS input transformer
6. Battery (see table on page 6) \*)

**OPTIONS IN ADDITIONAL CABINETS**

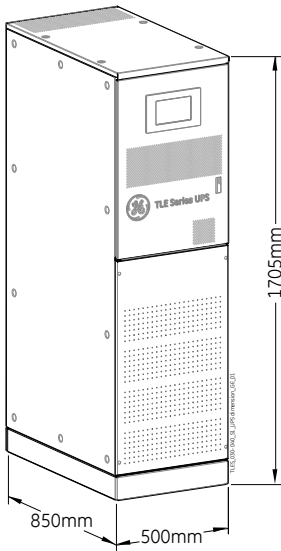
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|--|-------------------------|
| Dimensions (W x D x H):                        | ① 790 x 865 x 1630 mm   |
| 1. Special voltages: input and/or output       | On request              |
| 2. Empty battery cabinets                      | ①                       |
| 3. Battery cabinet 1x33Ah / 2x33Ah / 3x33Ah *) | ① (see table on page 6) |

**EXTERNAL ACCESSORIES**

- |  |            |
|--|------------|
| 1. Parallel output cabinet with centralized maintenance bypass | On request |
| 2. Battery fuse /MCCB box                                      | On request |

\*) 10 year design life batteries

**TECHNICAL DATA**



**TLE Series 30 & 40**

Dimensions  
(Width x Depth x Height):  
500 x 850 x 1705 mm

DIMENSIONS and WEIGHTS						
UPS (kVA)	UPS cabinet			Built-in UPS options		
	Dimensions (W x D x H / mm)	Weight (kg)	Floor loading (Kg/m <sup>2</sup> )	Optional Battery autonomy (0.8 PF full load)	Total Weight UPS & Battery (kg)	Floor loading UPS & Battery (Kg/m <sup>2</sup> )
30	500x850x1705	230	542	13 min.	530	1247
				17 min.	630	1483
				23 min.	730	1718
40	500x850x1705	230	542	13 min.	630	1483
				17 min.	730	1718

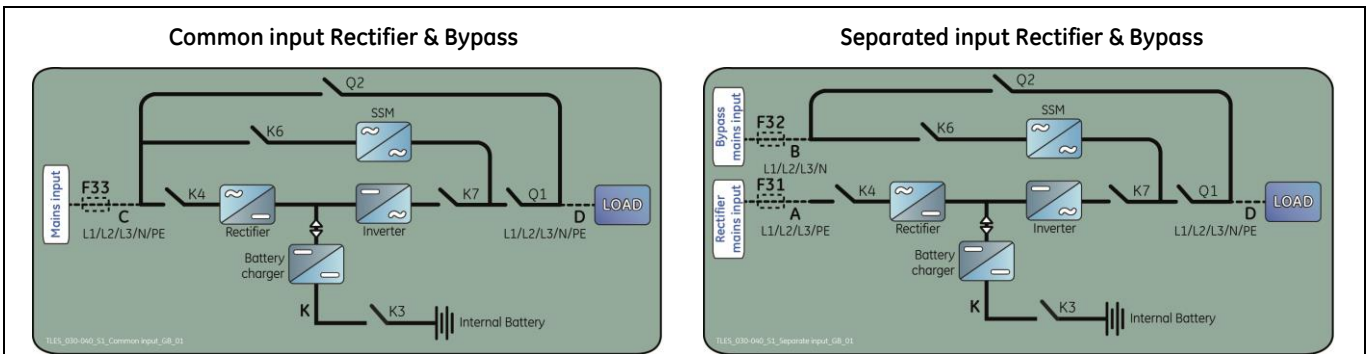
  

EXTERNAL BATTERY TABLE			
Battery autonomy (0.8 PF full load) *) 10 year design life batteries			
UPS (kVA)	1x33Ah *)	2x33Ah *)	3x33Ah *)
30	17 min.	38 min.	58 min.
40	12 min.	28 min.	43 min.

Battery cabinet			
Dimensions	790 x 865 x 1630 mm (W x D x H)		
Weight	610 Kg	1010 Kg	1410 Kg
Floor loading	893 Kg/m <sup>2</sup>	1478 Kg/m <sup>2</sup>	2064 Kg/m <sup>2</sup>

**UPS BLOCK DIAGRAM, PROTECTIONS AND CABLE SECTIONS**



Line protections and cable sections									
Protections for mains voltages			Battery protection (for external battery)	Cable sections (mm <sup>2</sup> ) IEC 60950-1 (Flexible conductors)					
kVA	F31	F32		F33	Local Standard and cables installation disposal shall be applied				
	A	B	C & D	K (for external battery)					
30	3 x 380V / 400V / 415 Vac	3 x 63A	3 x 63A	3 x 63A	2 x 80A	4 x 10	4 x 10	5 x 10	3 x 16
40		3 x 80A	3 x 80A	3 x 80A	2 x 125A	4 x 10	4 x 10	5 x 10	2 x 35 + 25

F31, F32, F33, A, B, C, D, (K): supplied by customer  
 External battery protection: can be supplied by GE

**IMPORTANT NOTE !**

The UPS is designed for TN System.