

# SMART LV

SERIES

10-1000 kVA **3:3**

PHASE

ONLINE UPS



DATA CENTER



MEDICAL



TRANSPORT



INDUSTRY



EMERGENCY



UPS ONLINE



TOWER



POWER FACTOR



SERVICE



## Innovative 3 Level Technology

+ **SMART LV** Series with Innovative 3 Level Technology is a true on-line double conversion, three-phase UPS system that provides one of the highest level energy efficiencies in the industry.

+ Three level inverter & rectifier design **SMART LV** Series brings the newest power conversion technology and delivers efficiency up to 96% at 50-75% load operation which is the most common operating range.

- + True Three Level Rectifier and Inverter
- + Ultra High Energy Efficiency
- + Full Rated Power Factor kW=kVA



The **SMART LV** Series is certified by TÜV SÜD with regard to product safety (EN 62040-1)

BUREAU VERITAS  
Certification

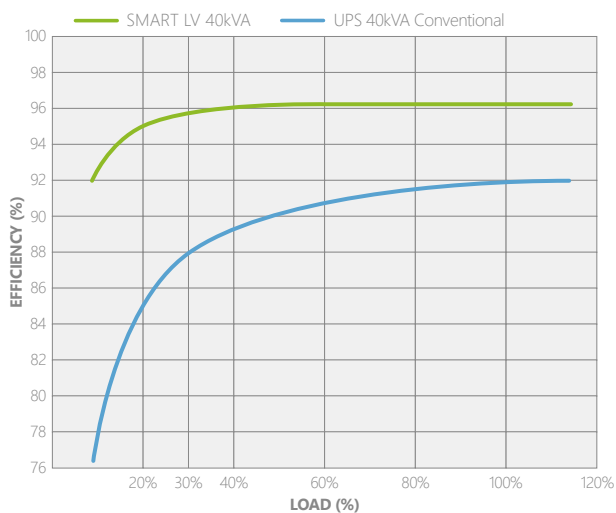


The **SMART LV** Series is attested by Bureau Veritas with regard to performance (EN 62040-3)



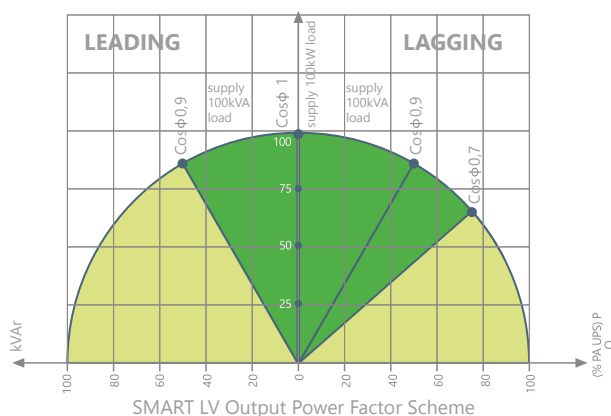
## High Efficiency & Low Total Cost of Ownership

- Less energy consumption to supply the loads thanks to high efficiency up to 96%.
- Reduced energy loss.
- Reduced electricity usage and air conditioning requirements.
- Reduction in operating cost of UPS.
- IGBT based power factor correction technology provides input power factor close to 1 ( $\geq 0,99$ ). The high input power leads to reduced electricity pay-out, minimizes cable, switchboard, fuse and generator requirements, thus reducing investment cost.
- Low input current total harmonic distortion (THDi) less than 3% helps to avoid the disturbance and expensive harmonic filters.
- Small footprint and easy maintenance.



## High Output Power Factor 1

- Output power factor of 1 (kVA=kW) rate provides up to 25% more active power than a traditional UPS.
- Suitable for modern power supply application with unit or capacitive power factor (e.g. new servers generation).
- No reduction in active power from 0,9 leading to 0,9 lagging.



## Maximum Availability

- Parallel configuration up to 8 units per redundancy (N+1) and power increase.
- Loop connection helps the UPS system to continue the operation when the connection cable is interrupted.

## Standard Electrical Features

- Dual Input
- Common Battery
- Backfeed Protection
- Cold Start (Optional)
- Advanced Battery Management
- Short Circuit and Overload Protection
- Parallel Ready
- Redundant Power Supply
- Power Walk-in for Progressive Rectifier Start-up when the Mains is Restored.
- Battery Temperature Sensor
- Static and Manual Bypass Operation

## Advanced Communication Features

- 500 Real Time Event Log with Detailed Parameters
- User Friendly Multilingual 320x240 Graphic Display Provides Operation Information
- Monitoring and Shutdown Software
- RS232 Serial and RS485 Ports
- Modbus RTU (Optional)
- 2 Communication Slots
- Remote Emergency Power Off (Optional)
- Remote Display Panel (Optional)
- Dry Contact (Optional)
- SNMP (Optional)
- ProfiBUS (Optional)

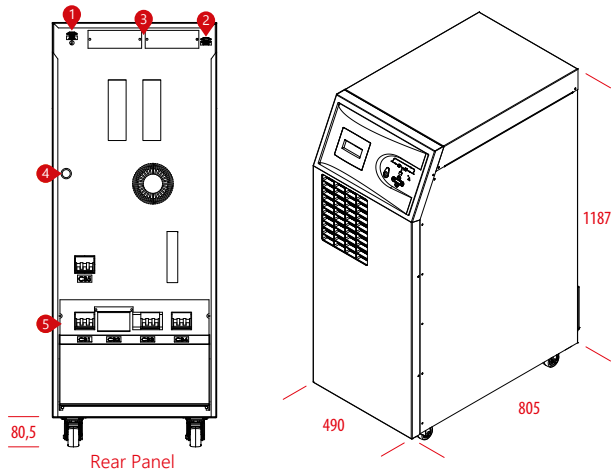
## Flexibility

- Temperature sensor for external battery cabinets for extended runtimes.
- External battery cabinets for different sizes of batteries to provide extended runtimes.
- Different sizes of 10-40kVA cabinets for larger capacity of internal batteries when long autonomy times are required.
- 3/1 Phase version is available for 10-30kVA power ratings
- Frequency converter mode.
- Isolation transformers to vary neutral connectivity in the event of separate power sources or for galvanic isolation between input and output.
- Compatible version with EN 50171 for supplying power to emergency lighting systems.

DETAILS

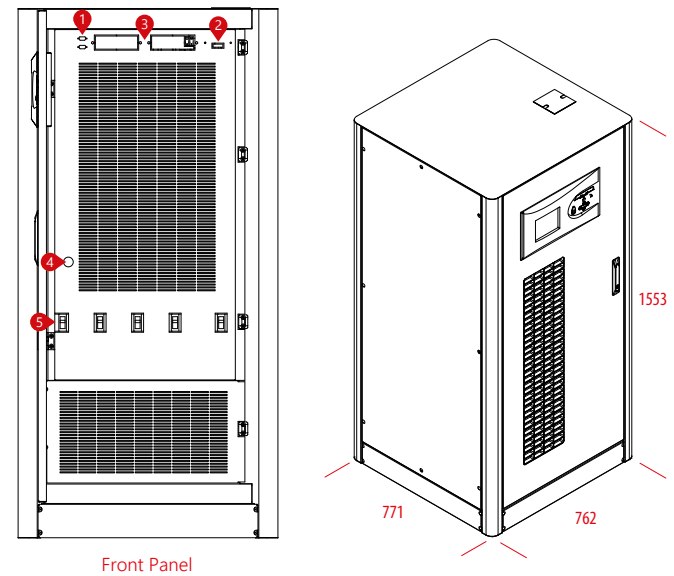
**SMART LV** SERIES 10-40 kVA

**SMART LV** SERIES 60 kVA (Power Factor 0.9)



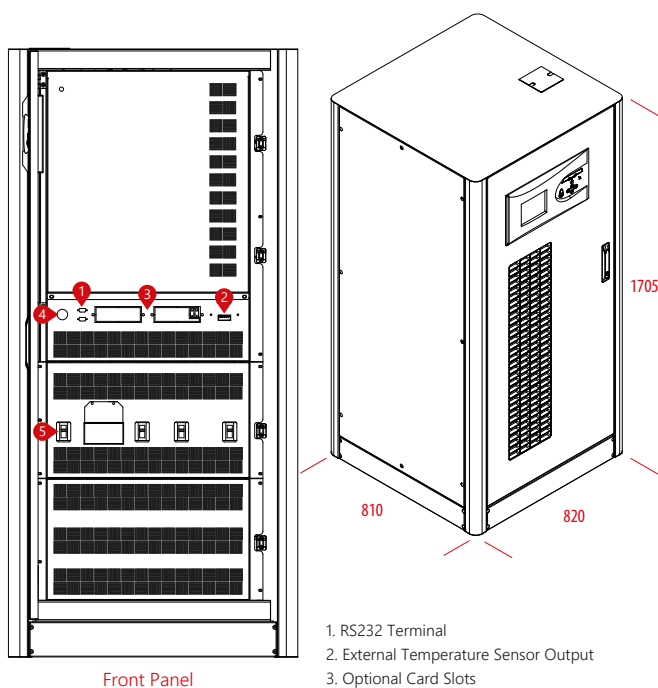
- 1. Parallel Port Terminal
- 2. RS232 Terminal
- 3. Optional Card Slots
- 4. DC Bus Ramping Up Button
- 5. Switch

**SMART LV** SERIES 60-80 kVA



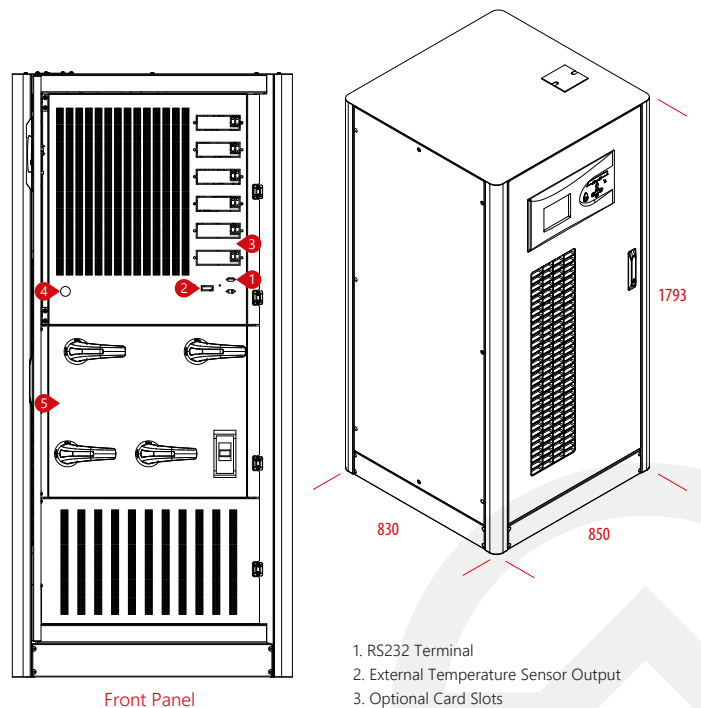
- 1. RS232 Terminal
- 2. External Temperature Sensor Output
- 3. Optional Card Slots
- 4. DC Bus Ramping Up Button
- 5. Switch

**SMART LV** SERIES 100-120 kVA



- 1. RS232 Terminal
- 2. External Temperature Sensor Output
- 3. Optional Card Slots
- 4. DC Bus Ramping Up Button
- 5. Switch

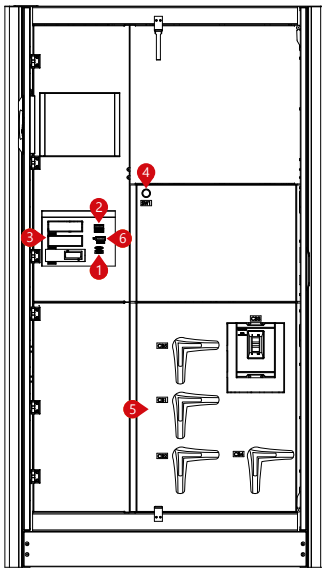
**SMART LV** SERIES 160-200-250 kVA



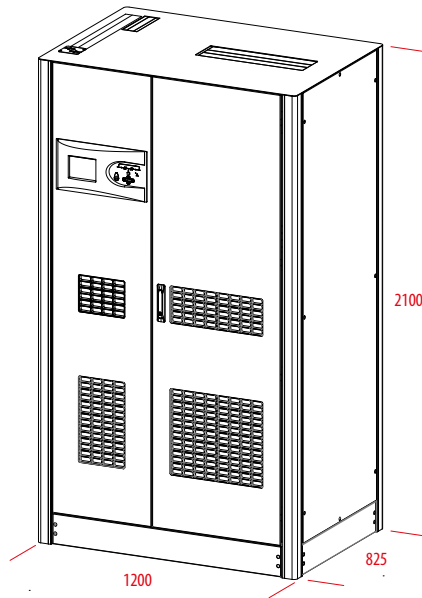
- 1. RS232 Terminal
- 2. External Temperature Sensor Output
- 3. Optional Card Slots
- 4. DC Bus Ramping Up Button
- 5. Switch

DETAILS

**SMART LV** SERIES 300-400-500 kVA

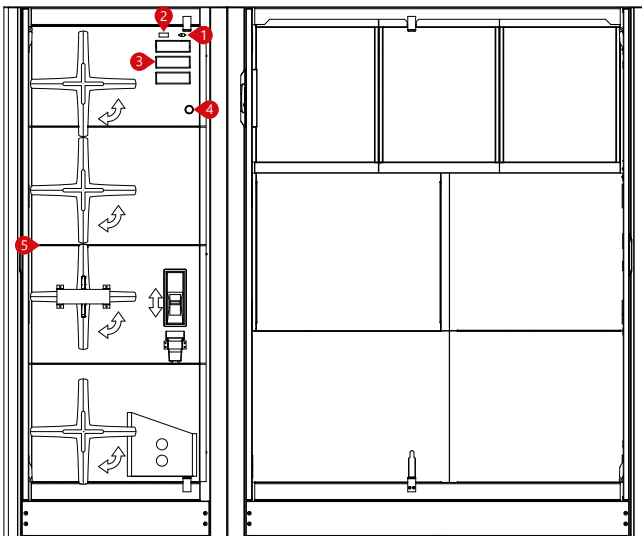


Front Panel

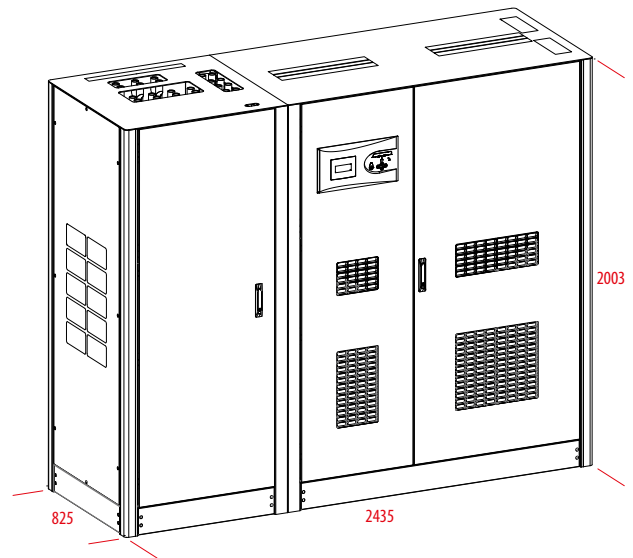


- 1. RS232 Terminal
- 2. External Temperature Sensor Output
- 3. Optional Card Slots
- 4. DC Bus Ramping Up Button
- 5. Switch
- 6. Optional Modbus

**SMART LV** SERIES 600-800-1000 kVA



Front Panel



- 1. RS232 Terminal
- 2. External Temperature Sensor Output
- 3. Optional Card Slots
- 4. DC Bus Ramping Up Button
- 5. Switch

MODEL																															
Capacity	10kVA	15kVA	20kVA	30kVA	40kVA	60kVA	80kVA	100kVA	120kVA	160kVA	200kVA	250kVA	300kVA	400kVA	500kVA	600kVA	800kVA	1000kVA													
Power Watt	10kW	15kW	20kW	30kW	40kW	60kW	80kW	100kW	120kW	160kW	200kW	225kW	270kW	360kW	450kW	540kW	720kW	900kW													
INPUT																															
Nominal Voltage	380/400/415 VAC 3 Phase +N (Optional 220/380 VAC -37% +22% 3P+N+PE)																														
Voltage Tolerance	-20% +15%																														
Frequency Tolerance	50 / 60 Hz ±10% (Selectable)																														
Power Factor	>0.99																														
Total Harmonic Distortion	THDi <3%																														
OUTPUT																															
Power Factor	1.0										0.9 (1 Optional)																				
Nominal Voltage	380/400/415 VAC 3 Phase + N																														
Voltage Tolerance	Static ±1, Dynamic ±3																														
Frequency Tolerance	50Hz / 60Hz ±0,01% (Battery Mode)																														
Output THD	Linear Load <1% / Non-Linear Load <3%																														
Crest Factor	3:1																														
Overload Capacity*	At 125% Load 10min, at 150% Load 1min																														
Efficiency (Online Mode)	96%																														
Efficiency (Eco Mode)	Up to 99%																														
BYPASS																															
Nominal Voltage	380/400/415 VAC 3 Phase + N																														
Voltage Tolerance	15% (Configurable from 10% to 30%)																														
Frequency Tolerance	±5 (Selectable)																														
BATTERY																															
Type	VRLA / GEL																														
Quantity (12V DC VRLA)	60																														
Charge Capacity	12,5% of Active Power (Nominal 0,1 C10, Adjustable)																														
Recharge Time	6-8 hours																														
Internal Battery	60 x 7Ah or 9Ah										External Battery Pack																				
ENVIRONMENTAL																															
Operating Temperature	For UPS 0°C/+40°C For Battery +15°C/+25°C																														
Storage Temperature	For UPS -15°C/+45°C For Battery 0°C/+30°C																														
Protection Class	IP20																														
Humidity	0-95% Without Condensation																														
Altitude	<1000m, Correction Factor 1. <2000m, Correction Factor >0.92, <3000m; Correction Factor >0.84																														
Noise Level	<53 dBA	<55 dBA	<60 dBA	<65 dBA	<72 dBA	<74 dBA	<75 dBA																								
COMMUNICATION																															
Communication Port	RS232 Standart, RS485 and SNMP Adapter Option																														
STANDARDS																															
Quality	ISO 9001, ISO 14001, ISO 18001, TSE-HYB																														
Performance	EN62040-3 (VFI-SS-111, Bureau Veritas Certified)																														
EMC/LVD	EN62040-2, EN62040-1, EN60950, (TÜV SÜD Certified)																														
DIMENSIONS & WEIGHT																															
Cabinet Dimensions (mm)	Width	490					763					810					830					1250					2345				
	Depth	805					771					820					870					845					485				
	Height	1190					1555					1705					1800					2102					2003				
Net Weight (kg)	125	126	131	146	173	323	331	353	368	475	490	553	850	850	850	1740	1740	1990													
	Width	600					900					900					1370					2445									
Packaging Dimensions (mm)	Depth	900					970					970					870					585									
	Height	1400					2040					2040					2040					2120					2250				
Gross Weight (kg)	145	146	151	166	193	353	361	383	398	505	520	583	890	890	890	1820	1820	2070													

\* under certain conditions.  
3 Phase in / 1 Phase Out Version is Available. (10 to 30kVA)

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