SIEL Energy Systems

POWER PROTECTION SOLUTIONS
For mission critical applications & essential services

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Sentinel Dual
SDU-UPS System

1:1 4 kVA
5-10 kVA/kW

3:1 8-10 kVA/kW

VFI TYPE ONLINE

RACK/TOWER

6 ECO LEVEL

USB plug

Hot swap battery

Energy share

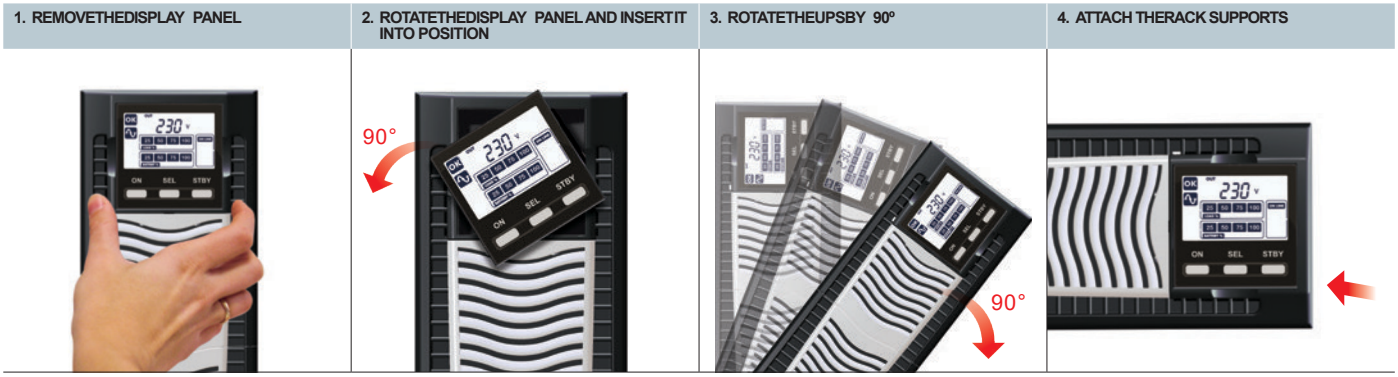
HIGHLIGHTS

- Power factor 1 kW = kVA*
- Parallelable up to 3 unit
- Simplified installation
- Operating mode selection
- High quality output voltage
- High battery reliability

Sentinel Dual is the best solution for powering mission critical applications and electro-medical devices requiring maximum power reliability.
Flexibility of installation and use (digital display, user-replaceable battery set), as well as the many communication options available, makes the Sentinel Dual suitable for many different applications from IT to security.
Up to 3 Sentinel Dual can be operated in parallel in either capacity or N+1 redundant configuration offering increased reliability for critical system. The Sentinel Dual can be installed as Tower (floor standing) or Rack, ideal for network and server rack applications.
The Sentinel Dual range is available in 4 kVA and 5-6-8-10 kVA/kW models with on-line double conversion technology (VFI): the load is powered continuously by the inverter which supplies a sinusoidal voltage, filtered and stabilised in terms of voltage, form and frequency. In addition, the input and output filters significantly increase the load's immunity to mains disturbances and lightning strikes.
Technology and performance: selectable Eco Mode and Smart Active Mode functions.
Diagnostics: Standard digital display, RS232 and USB interfaces with PowerShield[3] software downloadable, communications slot for connectivity accessories.

Simplified installation

- Can be installed on the floor (tower version) or in rack mount cabinets (rack version). The display panel can be rotated (using the key supplied).



- Low noise (<45 dBA):can be installed in any environment thanks to its high frequency switching inverter and PWM load-dependent digitally controlled fan
- External bypass option for maintenance with interruption-free switching
- Operation guaranteed up to 40°C (the components are designed for high temperatures and are thus subject to less stress at normal temperatures)
- Built-in IECoutput sockets with thermal protection.

Operating mode selection

Functions can be programmed via software or manually via the front display panel.

- **On line:** efficiency up to 95%
- **EcoMode**: to increase efficiency (up to to 98%), allows for the selection of Line Interactive technology (VI) to power low priority loads from the mains supply
- **Smart Active**: the UPS automatically decides upon the operating mode (VI or VFI) based on the quality of the mains power supply
- **Emergency**:the UPS can be selected to function only when the mains power supply fails (emergency only mode).
- **Frequencyconverter** operation (50 or 60 Hz).

High quality output voltage

- Even with non-linear loads (IT loads with a crest factor of up to 3:1)
- High short circuit current on bypass
- High overload capacity: 150% by inverter (even with mains failure)
- Filtered, stabilised and reliable voltage (double conversion on-line technology (VFIcompliant with EN62040-3), with filters for the suppression of atmospheric disturbances.
- Power factor correction: UPS input power factor close to 1 and sinusoidal current uptake.

High battery reliability

- Automatic and manual battery test
- Reduced ripple component (detrimental to the batteries) using a low ripple current discharge (LCRD) system
- Batteries are user replaceable without switching off equipment and without interruption to the load (Hot Swap)
- Unlimited extendible runtime using matching Battery Boxes
- The batteries do not cut in during mains failures of <20 ms (high hold up time) or when the input supply is between 184 V to 276 V.

Emergency function

This configuration ensures the operation of those emergency systems that require continuous, reliable and long-lasting power supply in the event of a mains power failure, such as emergency lighting, fire detection/ extinguishing systems and alarms. When the mains power supply fails, the inverter begins powering the loads with a progressive start-up (Soft Start) in order to prevent overload.

Battery optimisation

The wide input voltage range and a high hold-up time minimise battery usage and increase efficiency and battery life; for smaller power breaks, energy is drawn from a group of appropriately-sized capacitors.

Runtime expandability

Optional battery extension packs can be connected to increase UPS runtime. In addition the Sentinel Dual range includes ER versions with no internal batteries and more powerful battery chargers for longer runtimes.

EnergyShare

10 A configurable IEC output sockets allow for runtime optimisation by programming the switching off of low priority loads on mains failure; alternatively, emergency loads that are normally not powered when mains is present can be activated.

Other features

- Selectable output voltage (220-230-240 V)
- Dual input supplies configuration (SDU 10000 DI and SDU10000 DI ER)
- Auto-restart when mains power is restored (programmable via software)
- Bypasson: when the machine is switched off, it automatically goes into bypass and battery charge mode
- Minimum load switch-off
- Low battery warning
- Start-up delay
- Total microprocessor and DSPcontrol
- Automatic bypass without interruption
- Use of custom power modules
- Status, measurements and alarms available on standard backlit display
- UPS digital updating (flash memory upgradeable)
- Output sockets protected with resettable thermal switch
- Back-feed protection standard: to prevent energy from being fed back to the network
- Manual switching to bypass.

Advanced communications

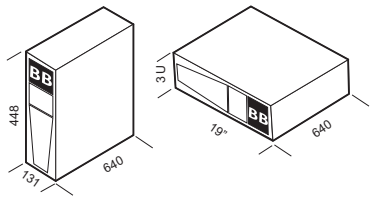
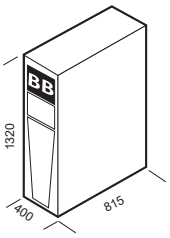
- Advanced multi-platform communications for all operating systems and network environments: PowerShield³ monitoring and shutdown software for Windows operating systems 10, 8, 7, Hyper-V, 2019, 2016, 2012, and previous versions, Mac OS X, Linux, VMWare ESXi, Citrix XenServer and other Unix operating systems
- Plug and play function
- USB port
- RS232 serial port
- Slot for installation of communications boards.

Unity Power Factor*

- More power delivered
- More real output power (W)

** SDU4000 has 3600 W*

BATTERY BOX

MODELS	BBSDU096V A5 / SDU096V M4 BBSDU180V A3 / BBSDU240V A3	BBSDU180V B1 BBSDU240V B1
Dimensions (mm)		

OPTIONS

SOFTWARE
PowerShield[3]
PowerNetGuard

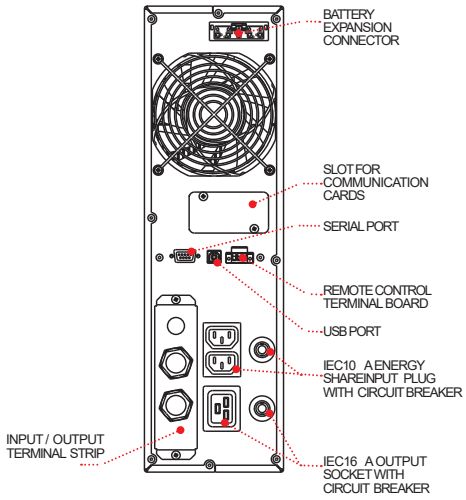
ACCESSORIES
NETMAN204
MULTICOM302
MULTICOM352
MULTICOM372
MULTICOM384
MULTICOM411
MULTI I/O
MULTIPANEL

PRODUCT ACCESSORIES
Universal rails for installation in rack cabinets
Parallel card*
Distribution Box

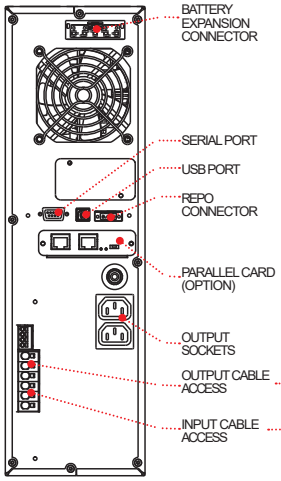
**not suitable for SDU4000*

DETAILS

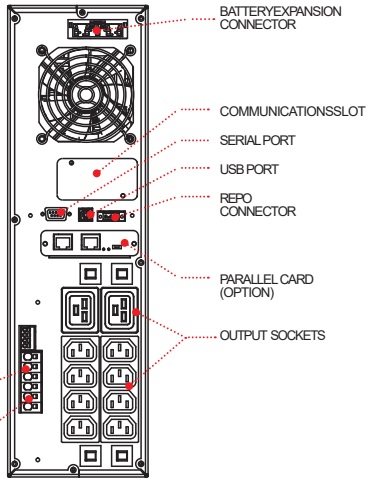
SDU4000



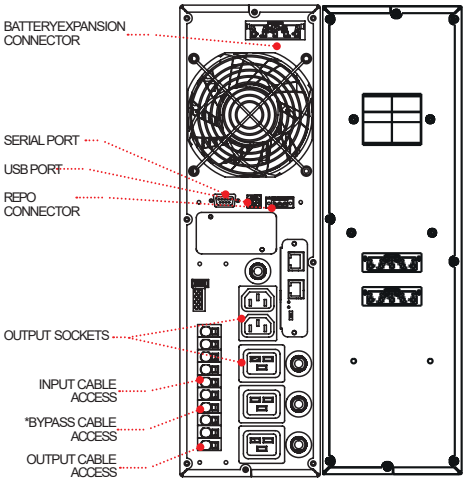
SDU5000 SDU6000



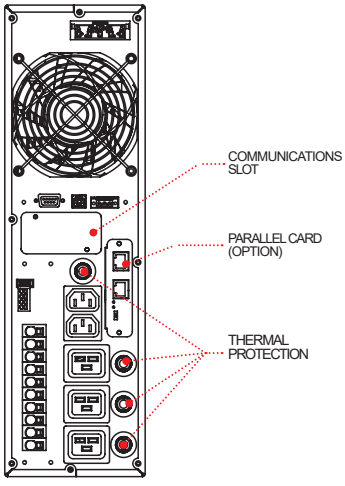
SDU5000 PDIST SDU6000 PDIST/ SDU6000 ER*



SDU8000 / SDU8000 TM SDU10000 / SDU10000 TM SDU10000 DI*



SDU10000 DI ER*



* DI = DUAL INPUT
ER =EXTENDED RECHARGE

MODELS	SDU4000	SDU5000 SDU5000 PDIST	SDU6000 SDU6000 PDIST	SDU6000 ER	SDU8000	SDU 10000	SDU 10000 DI	SDU 10000 DI ER	SDU8000 TM	SDU 10000 TM
INPUT										
Dual Input	no						yes		no	
Nominal voltage	220-230-240 Vac								380 - 400 - 415 Vac (3W+N+PE) 220 - 230 - 240 Vac (1W+N+PE)	
Voltage tolerance	230 Vac ± 20%								400 Vac ± 20% 230 Vac ± 20%	
Minimum voltage	184 Vac								318 Vac / 184 Vac	
Nominal frequency	50/60 Hz ±5Hz									
Power factor	> 0.98									
Current distortion	≤5%									
BYPASS										
Voltage tolerance	180 - 264 Vac (selectable in EcoMode or SmartActive Mode)									
Frequency tolerance	Selected frequency ±5% (selectable by user)									
Overload Times	< 110% continuous, 130% for 1 hour, 150% for 10 minutes, over 150% for 3 seconds									
OUTPUT										
Nominal power (VA)	4000	5000	6000	6000	8000	10000	10000	10000	8000	10000
Active power (W)	3600	5000	6000	6000	8000	10000	10000	10000	8000	10000
Nominal voltage	220-230-240 Vac selectable									
Voltage distortion	< 1% with linear load / < 3% with non-linear load									
Frequency	50/60 Hz selectable									
Static variation	1.5%									
Dynamic variation	≤ 5% in 20 ms									
Waveform	Sinusoidal									
Crest factor	3 : 1									
BATTERIES										
Type	VRLA/AGM maintenance-free lead based									
Recharge time	4-6 hours									
OTHER FEATURES										
Net weight (kg)	38	45	46	20	19+53	20+62		21	19+53	20+62
Gross weight (kg)	43	53	54	28	83	93		25	83	93
Dimensions (WxDxH) (mm)	131 x 640 x 448 tower 19" x 640 x 3U rack				2 x (131 x 640 x 448) tower - 2 x (19" x 640 x 3U) rack ERversion (131 x 640 x 448) tower - (19" x 640 x 3U) rack					
Packaged dimensions (WxDxH) (mm)	780 x 555 x (270+15)				2 x (780 x 555 x 270) + H 15 ER version (780 x 555 x (270+15)					
Efficiency	up to 95% on line mode, 98% eco mode									
Protections	Overcurrent - short-circuit - overvoltage - undervoltage - temperature - excessive low battery									
Parallel Operation	no	Optional Parallel Card								
Communications	USB/ RS232/ slot for communications interface / REPO+Input contact									
Input Connection	Terminal block									
Output sockets	Terminal block + 2 IEC 320 C13 + 1 IEC 320 C19	Terminal block + 2 IEC320 C19 PDIST: Terminal block + 8 IEC 320 C13 + 2 IEC320 C19			Terminal block + 2 IEC320 C13 + 3 IEC320 C19					
Standards	EN62040-1 EMC EN62040-2 Directives 2014/35/EU - 2014/30/EU EN62040-3									
Operating temperature	0 °C/ +40 °C									
Relative humidity	< 95% non-condensing									
Colour	Black RAL9005									
Noise level at 1 m (ECOMode)	< 48 dBA									
Standard equipment provided	USB cable; handles kit									

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