Sentinel Dual
High Power

SOHO **DATACENTER** **E-MEDICAL**

INDUSTRY **TRANSPORT** **EMERGENCY**

VFI TYPE
ONLINE

1:1 **3:1** 3,3-10 kVA

6 ECO LEVEL

USB plug

Hot swap battery

Energy share

HIGHLIGHTS

- **Simplified installation**
- **Operating mode selection**
- **High quality output voltage**
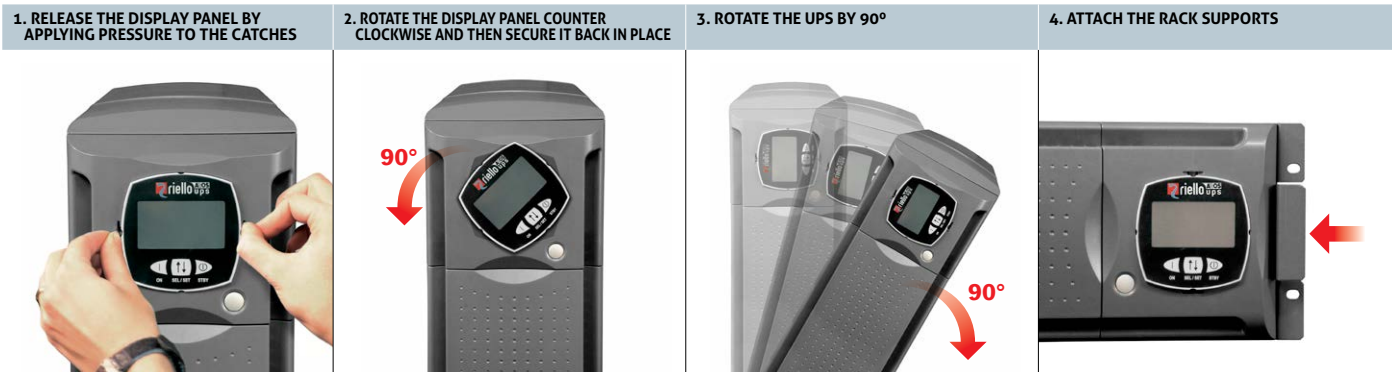- **High battery reliability**
- **Emergency function**

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 Sentinel Dual suitable for many different applications from IT to security.

Sentinel Dual can be installed on the floor or in rack cabinets for networking applications. The Sentinel Dual range is available in 3.3-4-5-6-8-10 kVA 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 Economy Mode and Smart Active Mode functions. Diagnostics: Standard digital display, RS232 and USB interfaces with PowerShield³ software included, 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 (<40 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 (5-6-8-10 kVA SDL)
- Operation guaranteed up to 40°C (the components are designed for high temperatures and are thus subject to less stress at normal temperatures)
- Two built-in IEC output sockets with thermal protection (5-6-8-10 kVA SDL)
- On the 5-6-8-10 kVA models, it is also possible to program two 10 A output sockets when the mains power supply fails (PowerShare function).

Operating mode selection

Functions can be programmed via software or manually via the front display panel.
- **On line**
- **Economy Mode:** 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).
- **Frequency converter** 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

(VFI compliant 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 <40 ms (high hold up time) or when the input supply is between 84 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.

EnergyShare (5-10 kVA versions)

Two 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)
- Auto-restart when mains power is restored (programmable via software)
- Bypass on: 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 control
- Automatic bypass without interruption
- Use of IMS modules (Insulated Metallic Substrates)
- Status, measurements and alarms available on standard backlit display
- UPS digital updating (flash upgradeable)
- Input protection via resettable thermal switch
- Back-feed protection standard: to prevent energy from being fed back to the network
- Manual switching to bypass.

Advanced communications

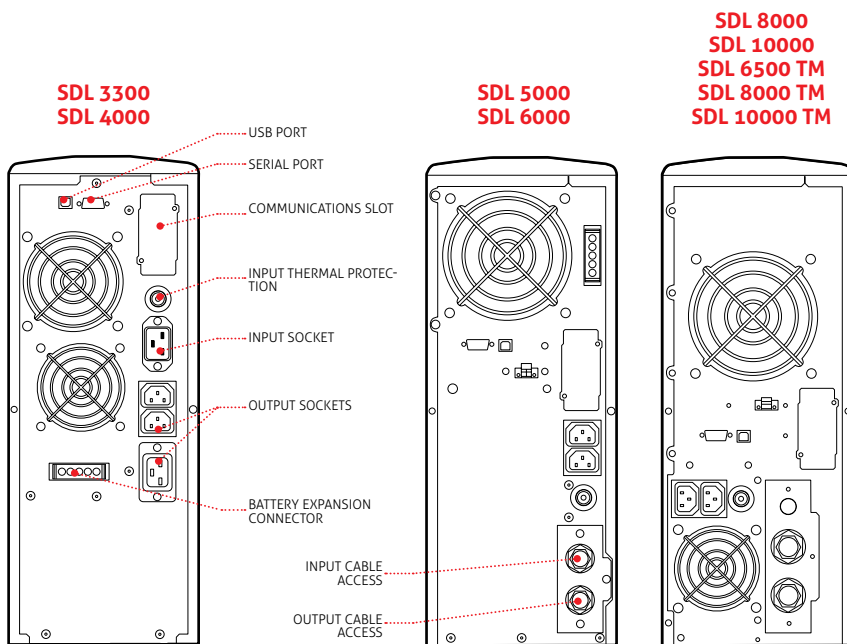- Advanced multi-platform communications for all operating systems and network environments: PowerShield[3] monitoring and shutdown software for Windows operating systems 8, 7, 2008, Vista, 2003, XP, Linux, Mac OS X, Sun Solaris, Linux, VMWare ESX and other Unix operating systems
- Plug and play function
- USB port
- RS232 serial port
- Slot for installation of communications boards.

2-YEAR WARRANTY

BATTERY BOX

MODELS	BB SDL 108-A4 / BB SDL 108-M1	BB SDL 192-A3/ BB SDL 192-A6	BC SDL 108-B1
Dimensions (mm)	455 / 175 / 520 — 4 U / 19" / 520	455 / 175 / 660 — 4 U / 19" / 660	630 / 215 / 655

DETAILS

SDL 3300
SDL 4000

- USB PORT
- SERIAL PORT
- COMMUNICATIONS SLOT
- INPUT THERMAL PROTECTION
- INPUT SOCKET
- OUTPUT SOCKETS
- BATTERY EXPANSION CONNECTOR

SDL 5000
SDL 6000

SDL 8000
SDL 10000
SDL 6500 TM
SDL 8000 TM
SDL 10000 TM

- INPUT CABLE ACCESS
- OUTPUT CABLE ACCESS

OPTIONS

SOFTWARE
PowerShield³
PowerNetGuard

ACCESSORIES
NETMAN 101 PLUS
NETMAN 102 PLUS
NETMAN 202 PLUS
MULTICOM 301
MULTICOM 302
MULTICOM 351
MULTICOM 352
MULTICOM 372
MULTICOM 382
MULTICOM 401

MULTI I/O
Interface kit AS400
MULTIPANEL
RTG 100
Manual Bypass 16 A Ⓛ
Manual bypass 16 A Rack Ⓛ
Automatic bypass 16 A Ⓛ
Automatic bypass 16 A Rack Ⓛ

PRODUCT ACCESSORIES
Universal rails for installation in rack cabinets

Note: Ⓛ 3300-4000 VA

MODELS	SDL 3300	SDL 4000	SDL 5000	SDL 6000	SDL 8000	SDL 10000
POWER	**3300 VA/2300 W**	**4000 VA/2400 W**	**5000 VA/3500 W**	**6000 VA/4200 W**	**8000 VA/7200 W**	**10000 VA/9000 W**
INPUT						
Nominal voltage	220-230-240 Vac					
Minimum voltage	164 Vac @ 100% load / 84 Vac @ 50% load					
Nominal frequency	50/60 Hz ±5Hz					
Power factor	> 0.98					
Current distortion	≤7%					
BYPASS						
Voltage tolerance	180 - 264 Vac (selectable in Economy Mode or Smart Active Mode)					
Frequency tolerance	Selected frequency ±5% (selectable by user)					
OUTPUT						
Nominal voltage	220-230-240 Vac selectable					
Voltage distortion	< 3% with linear load / < 6% 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					
OVERLOAD TIMES						
100% < Load < 110%	1 minute					
110% < Load < 150%	4 seconds					
Load > 150%	0.5 seconds					
OTHER FEATURES						
Net weight (kg)	38	40	62	64	94	95
Gross weight (kg)	42.5	44.5	70	72	102	103
Dimensions (WxDxH) (mm)	175 x 520 x 455 tower 19" x 520 x 4U rack		175 x 660 x 455 tower 19" x 660 x 4U rack		2 x (175 x 660 x 455) tower 2 x (19" x 660 x 4U) rack	
Packaged dimensions (WxDxH) (mm)	540 x 620 x 280		720 x 530 x (270+15)		780 x 555 x (270+15)	
Efficiency Line-interactive/Smart Active	98%					
Protections	Overcurrent - short-circuit - overvoltage - undervoltage - temperature - excessive low battery					
Communications	USB / RS232 + slot for communications interface					
Input plugs	1 IEC 320 C20		Terminal board			
Output sockets	2 IEC 320 C13 + 1 IEC 320 C20		Terminal board + 2 IEC 320 C13			
Standards	EN 62040-1 EMC EN 62040-2 Directives 73/23 - 93/68 - 2004/108 EC EN 62040-3					
Operating temperature	0 °C / +40 °C					
Relative humidity	< 95% non-condensing					
Colour	Dark grey RAL 7016					
Noise level at 1 m	< 40 dBA		< 45 dBA			
Standard equipment provided	2 10 A cables; 1 IEC-16 A plug; software; serial cable; keys for releasing display panel; handles kit		2 cable guides; cable tips; software; serial cable; keys for releasing display panel; handles kit			

MODELS	SDL 6500 TM	SDL 8000 TM	SDL 10000 TM
POWER	**6500 VA/5850 W**	**8000 VA/7200 W**	**10000 VA/9000 W**
INPUT			
Nominal voltage	400 Vac three-phase + N		
Minimum voltage (F + N)	164 Vac @ 100% load / 84 Vac @ 50% load		
Nominal frequency	50/60 Hz ±5 Hz		
Power factor	> 0.95		
BYPASS			
Voltage tolerance	180 - 264 Vac (selectable in Economy Mode or Smart Active Mode)		
Frequency tolerance	Selected frequency ±5% (selectable by user)		
OUTPUT			
Nominal voltage	220-230-240 Vac selectable		
Voltage distortion	< 3% with linear load / < 6% 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		
OVERLOAD TIMES			
100% < Load < 110%	1 minute		
110% < Load < 150%	4 seconds		
Load > 150%	0.5 seconds		
OTHER FEATURES			
Net weight (kg)	91	94	95
Gross weight (kg)	99	102	103
Dimensions (WxDxH) (mm)	2 x (175 x 660 x 455) tower / 2 x (19" x 660 x 4U) rack		
Packaged dimensions (WxDxH) (mm)	780 x 555 x (270+15)		
Smart Active efficiency	up to 98%		
Protections	Overcurrent - short-circuit - overvoltage - undervoltage - temperature - excessive low battery		
Communications	USB / RS232 + slot for communications interface		
Input plugs	Terminal board		
Output sockets	Terminal board + 2 IEC 320 C13		
Standards	EN 62040-1 EMC EN 62040-2 Directives 73/23 - 93/68 - 2004/108 EC EN 62040-3		
Operating temperature	0 °C / +40 °C		
Relative humidity	< 95% non-condensing		
Colour	Dark grey RAL 7016		
Noise level at 1 m	< 45 dBA		
Standard equipment provided	2 cable guides; cable tips; software; serial cable; keys for releasing display panel; handles kit		

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