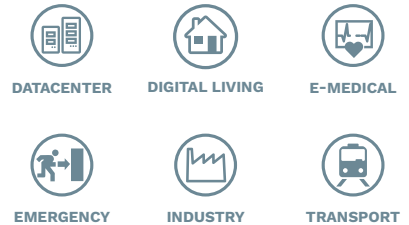


# Sentinel Dual SDH



1:1 1-3 kVA



ONLINE



Tower Rack



Energy Share



Hot swap battery



Plug & Play installation



USB plug



## HIGHLIGHTS

- **Power factor 0.9**
- **Simplified installation**
- **Installation versatility**
- **Reduced running costs**
- **Runtime expandability**
- **Low noise level**

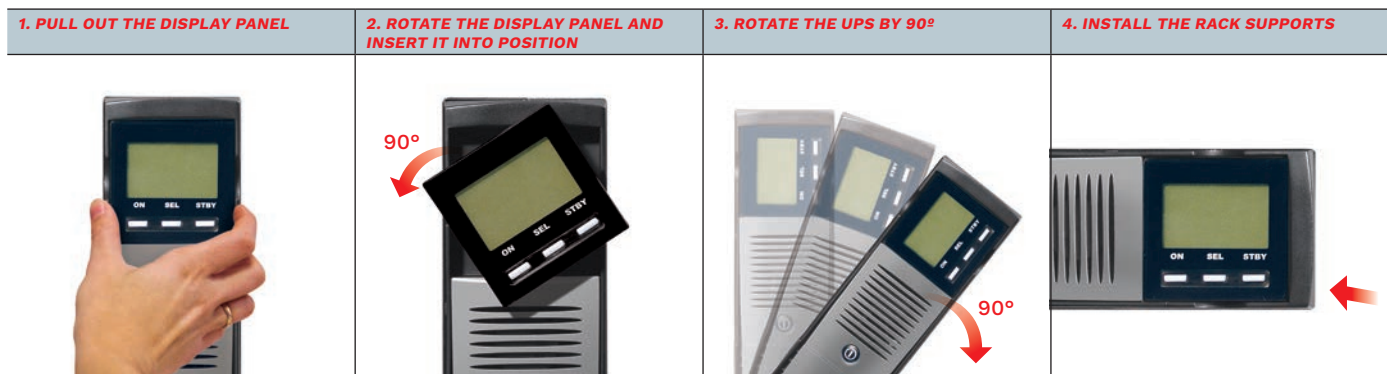
Sentinel Dual is the new range of high density double conversion ON LINE UPS suitable for powering a wide range of devices such as servers, storage systems, VoIP telephony equipment, network and medical systems as well as industrial applications.

It is also ideal for powering and protecting Blade Server systems with high input power factor. At only 2U, Sentinel Dual is ideal for 19" rack cabinet installations. Sentinel Dual has a practical, modern design and includes several performance advantages over traditional ON LINE UPS. All developed by the Riello UPS research and development team. The newly-designed inverter is one of the best energy conversion systems on the market, with a 0.9 output power factor and high

efficiency in ON LINE Mode. For business continuity applications requiring long battery runtimes, battery autonomy can be extended up to several hours using ER models fitted with more powerful battery chargers. With energy savings in mind, Sentinel Dual is also fitted with a shut-off button to reduce energy consumption to zero during prolonged periods of inactivity.

### SIMPLIFIED INSTALLATION

- Sentinel Dual can be installed as a tower or in 19" rack cabinets, by simply pulling out and rotating the display panel;
- Low noise (<40 dBA): can be installed in any environment thanks to its high frequency switching inverter and PWM load-dependent digitally controlled fan;
- Operation guaranteed up to 40 °C (the



components are designed for high temperatures and are thus subject to less stress at normal temperatures);

- On Sentinel Dual models, the output sockets can be programmed to disconnect less critical loads during blackouts (EnergyShare function).

#### INSTALLATION VERSATILITY

Sentinel Dual can be used in a tower or rack format, by simply turning the display and adding the supplied handles or optional runners.

#### REDUCED RUNNING COSTS

The UPS is highly flexible and easy to configure. Programmable functions can be set via software or manually via the front display panel. Sentinel Dual can be configured in the following operating modes:

- ON LINE: maximum load protection and output voltage waveform quality;
- ECO Mode: to increase efficiency (up to to 98%); allows you to select LINE INTERACTIVE technology;
- SMART ACTIVE: the UPS automatically decides the operating mode based on the mains power quality;
- STANDBY OFF: the UPS can be selected to function only when the mains power supply fails (emergency only mode);
- Frequency Converter: operation (50 or 60 Hz).

#### ADVANCED COMMUNICATIONS

Sentinel Dual offers maximum flexibility for integration with all types of communication systems.

- Multi-platform communication for all operating systems and network environments: PowerShield<sup>3</sup> supervision and shutdown software for Windows operating systems 11, 10, 8, Server 2022, 2019, 2016 and previous versions, Windows Server Virtualization Hyper-V, macOS, Linux, Citrix XenServer and other Unix operating systems;
- UPS Tools configuration and

customisation software supplied as standard;

- RS232 serial port and opto-isolated contacts;
- USB port;
- Slot for communications boards such as Modbus/Jbus, TCP/IP-SNMP and relay contacts.

#### EMERGENCY FUNCTION

This configuration ensures the operation of emergency systems that must be supplied 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.

Sentinel Dual is compliant for installation in medium-voltage transformer rooms in accordance with applicable legislation, for the power supply with reserve charge of medium-voltage coils.

#### 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 (ON LINE double conversion 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;
- Batteries are user replaceable without switching off equipment and without interruption to the load (Hot Swap);
- Unlimited extendible runtime using matching battery cabinets.

#### LOW NOISE LEVEL

Thanks to the use of high frequency components and load-based fan speed control, the noise produced by the UPS is less than 40 dBA.

#### OTHER FEATURES

- Output voltage can be selected via software (220/230/240 V);
- Auto-restart when mains power is restored (programmable via software);
- STANDBY ON bypass: when the machine is switched off, it automatically goes into bypass and battery charge mode;
- Minimum load switch-off;
- Battery discharge warning;
- Start up delay;
- Total microprocessor control;
- Automatic bypass without interruption;
- Status, measurements and alarms available on standard backlit display;
- UPS firmware updating via PC;
- Input protection via resettable thermal switch (versions up to 1500 VA);
- Backfeed protection standard: to prevent energy from being fed back to the network;
- Manual switching to bypass.

#### 2-YEAR WARRANTY

OPTIONS

SOFTWARE

PowerShield<sup>3</sup>  
PowerNetGuard

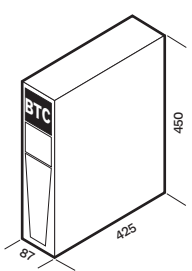
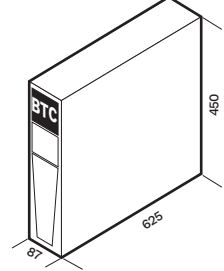
ACCESSORIES

NETMAN 208  
MULTICOM 302  
MULTICOM 352  
MULTICOM 372  
MULTICOM 384  
MULTICOM 411  
MULTICOM 421  
MULTI I/O  
MULTIPANEL  
Manual Bypass 16 A  
Manual Bypass 16 A Rack

PRODUCT ACCESSORIES

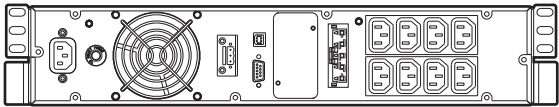
Universal rails for installation in rack cabinets

BATTERY CABINET

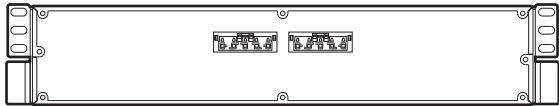
| MODELS          | BTC SDH 36V BB A3<br>BTC SDH 36V BB M1                                             | BTC SDH 72V BB A3<br>BTC SDH 72V BB M1                                              |
|-----------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Dimensions [mm] |  |  |

DETAILS

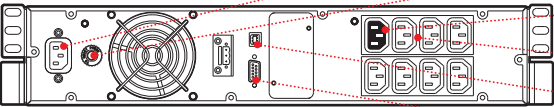
SDH 1000



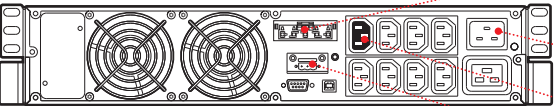
BTC



SDH 1500



SDH 2200-2200 ER  
SDH 3000-3000 ER



| MODELS                                                     | SDH 1000                                                                                                                                                                                                                                                                                | SDH 1500       | SDH 2200                                      | SDH 2200 ER    | SDH 3000       | SDH 3000 ER    |
|------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------------------------|----------------|----------------|----------------|
| POWER                                                      | 1000 VA/900 W                                                                                                                                                                                                                                                                           | 1500 VA/1350 W | 2200 VA/1980 W                                | 2200 VA/1760 W | 3000 VA/2700 W | 3000 VA/2400 W |
| INPUT                                                      |                                                                                                                                                                                                                                                                                         |                |                                               |                |                |                |
| Rated voltage [V]                                          | 220 / 230 / 240                                                                                                                                                                                                                                                                         |                |                                               |                |                |                |
| Voltage range without battery intervention [V]             | 140 <Vin <276 @ 50% load / 184 <Vin <276 @ 100% load                                                                                                                                                                                                                                    |                |                                               |                |                |                |
| Voltage tolerance [V]                                      | 230 ±20%                                                                                                                                                                                                                                                                                |                |                                               |                |                |                |
| Maximum permitted voltage [V]                              | 300                                                                                                                                                                                                                                                                                     |                |                                               |                |                |                |
| Rated frequency [Hz]                                       | 50 / 60 ±5                                                                                                                                                                                                                                                                              |                |                                               |                |                |                |
| Frequency tolerance [Hz]                                   | 50 ±5% / 60 ±5%                                                                                                                                                                                                                                                                         |                |                                               |                |                |                |
| Power factor                                               | >0.98                                                                                                                                                                                                                                                                                   |                |                                               |                |                |                |
| Current distortion                                         | ≤7%                                                                                                                                                                                                                                                                                     |                |                                               |                |                |                |
| BYPASS                                                     |                                                                                                                                                                                                                                                                                         |                |                                               |                |                |                |
| Voltage tolerance [V]                                      | 200 / 253                                                                                                                                                                                                                                                                               |                |                                               |                |                |                |
| Frequency tolerance [Hz]                                   | Frequency selected (from ±0.5 to ±5 configurable)                                                                                                                                                                                                                                       |                |                                               |                |                |                |
| Overload Times                                             | 125% for 4 s, 150% for 0.5 s                                                                                                                                                                                                                                                            |                |                                               |                |                |                |
| OUTPUT                                                     |                                                                                                                                                                                                                                                                                         |                |                                               |                |                |                |
| Voltage distortion with linear load / with non-linear load | <2% / ≤3.5%                                                                                                                                                                                                                                                                             |                |                                               |                |                |                |
| Frequency [Hz]                                             | Selectable: 50 or 60 or self-learning                                                                                                                                                                                                                                                   |                |                                               |                |                |                |
| Static variation                                           | ±1%                                                                                                                                                                                                                                                                                     |                |                                               |                |                |                |
| Dynamic variation                                          | ≤5% in 20 ms                                                                                                                                                                                                                                                                            |                |                                               |                |                |                |
| Waveform                                                   | Sinusoidal                                                                                                                                                                                                                                                                              |                |                                               |                |                |                |
| Current crest factor                                       | 3:1                                                                                                                                                                                                                                                                                     |                |                                               |                |                |                |
| Efficiency ECO and SMART ACTIVE Modes                      | 98%                                                                                                                                                                                                                                                                                     |                |                                               |                |                |                |
| BATTERIES                                                  |                                                                                                                                                                                                                                                                                         |                |                                               |                |                |                |
| Type                                                       | VRLA AGM maintenance-free lead based                                                                                                                                                                                                                                                    |                |                                               |                |                |                |
| Recharge time                                              | 2-4 h                                                                                                                                                                                                                                                                                   |                |                                               |                |                |                |
| OVERALL SPECIFICATIONS                                     |                                                                                                                                                                                                                                                                                         |                |                                               |                |                |                |
| Net weight [kg]                                            | 17.5                                                                                                                                                                                                                                                                                    | 18             | 30.5                                          | 15             | 31             | 15             |
| Gross weight [kg]                                          | 21                                                                                                                                                                                                                                                                                      | 21.5           | 35                                            | 19.5           | 35.5           | 19.5           |
| Dimensions (WxDxH) [mm]                                    | (T- 87x425x450) (R- 19"x425x2U)                                                                                                                                                                                                                                                         |                | (T- 87x625x450) (R- 19"x625x2U)               |                |                |                |
| Packaging dimensions (WxDxH) [mm]                          | 550x600x245                                                                                                                                                                                                                                                                             |                | 600x760x245                                   |                |                |                |
| Protection against overvoltage [J]                         | 300                                                                                                                                                                                                                                                                                     |                |                                               |                |                |                |
| Protections                                                | Overcurrent - short circuit - overvoltage - undervoltage - temperature - excessive low battery                                                                                                                                                                                          |                |                                               |                |                |                |
| Communications                                             | USB / DB9 with RS232 and contacts / Slot for communications interface                                                                                                                                                                                                                   |                |                                               |                |                |                |
| Input plugs                                                | 1x IEC 320 C14 (10 A)                                                                                                                                                                                                                                                                   |                | 1x IEC 320 C20 (16 A)                         |                |                |                |
| Output sockets                                             | 8x IEC 320 C13 (10 A)                                                                                                                                                                                                                                                                   |                | 8x IEC 320 C13 (10 A) + 1x IEC 320 C19 (16 A) |                |                |                |
| Standards                                                  | European directives: LV 2014/35/EU low voltage Directive EMC 2014/30/EU electromagnetic compatibility<br>Directive Standards: Safety IEC EN 62040-1; EMC IEC EN 62040-2; RoHS compliant<br>Classification in accordance with IEC 62040-3 (Voltage Frequency Independent) VFI - SS - 111 |                |                                               |                |                |                |
| Ambient temperature for the UPS                            | 0 °C - +40 °C                                                                                                                                                                                                                                                                           |                |                                               |                |                |                |
| Recommended temperature for battery life                   | +20 °C - +25 °C                                                                                                                                                                                                                                                                         |                |                                               |                |                |                |
| Relative humidity                                          | 5-95% non-condensing                                                                                                                                                                                                                                                                    |                |                                               |                |                |                |
| Colour                                                     | RAL 9005                                                                                                                                                                                                                                                                                |                |                                               |                |                |                |
| Noise level at 1 m (ECO Mode) [dBA]                        | <40                                                                                                                                                                                                                                                                                     |                |                                               |                |                |                |
| Standard equipment provided                                | Power cable, serial cable, USB cable, safety manual, quick start guide                                                                                                                                                                                                                  |                |                                               |                |                |                |