

## SmartOnline 208/240 & 120V 20kVA 18kW, Double-Conversion UPS, N+1, 14U, Network Card Slot, USB, DB9, Bypass Switch

MODEL NUMBER: SU20KRT-1TF



### Description

Tripp Lite SU20KRT-1TF 20,000VA / 20kVA / 18,000 watt online, double-conversion UPS system offers complete power protection for critical server, network and telecommunications equipment in a 14U rack/tower configuration. This system delivers complete N+1 redundancy when used at loads up to 10kVA, and non-redundant operation at loads between 10 and 20kVA. Fault-tolerant auto-bypass prevents unexpected service interruptions during UPS overload or internal fault conditions. Included parallel PDU with manual bypass switching enables hot-swappable replacement of all major UPS system components in both N+1 and combined operating modes. Enhanced availability, fault tolerance and simple hot-swap replacement options make this UPS ideal for advanced networking applications in data centers, computer rooms, network closets and rugged industrial locations.

### Features

- Tripp Lite SU20KRT-1TF 20kVA, 20,000VA / 18,000 watt on-line, double-conversion UPS system in 14U total rack/tower configuration
- Unique configuration offers 20kVA non-redundant operation and automatic N+1 redundancy at load levels of 10kVA and under
- Included Parallel PDU with manual bypass switch enables hot-swap replacement of power modules at any supported load level
- Hardwire input; 2 L6-30R (208/240v), 8 C19 (208/240v), 8 5-15/20R (120v) and 4 5-15R (120v) outlets
- Maintains full-time sine wave output within 2% of selectable 200/208/220/230/240V & 120V nominal
- Expandable runtime with optional external battery packs
- Some external battery configurations require the use of Tripp Lite's External Battery Configuration Software (see manual)
- Battery independent restart
- Intelligent battery management system with temperature-compensated charging extends battery life
- Highly efficient economy mode option

### Highlights

- 20kVA / 20,000VA / 18,000W on-line double-conversion UPS; 0.9 power factor
- 208/120V or 240/120V 60Hz output; 96% Efficient Economy-mode option
- Hot-swap power and battery modules, N+1 fault tolerance at loads up to 10kVA
- USB, RS232 & EPO ports; slot for network management card options
- Front panel LEDs with detailed LCD monitoring and control screen
- Expandable runtime with optional external battery packs
- Hardwire input (3 wire); L6-30R, C19, 5-15/20R & 5-15R outlets

### Package Includes

- Two SU10000RT3UPM UPS power modules
- Two BP240V10RT3U battery packs
- One SU6000XFMR2U 208/240V to 120V transformer
- SUPDMB20K parallel PDU with Bypass switch
- 4-post rackmount installation kit
- USB, DB9 & EPO cables



- Compatible with Tripp Lite UPS management card options TLNETCARD, WEBCARDLX, SNMPWEBCARD, MODBUSCARD and RELAYIOCARD
- Applications utilizing the optional network communications card require two accessories (install one per included power module)
- Also compatible with RELAYIOMINI module (RELAYIOMINI requires removal of USB interface module)
- HID-compliant USB interface
- USB & Serial ports enable data-saving unattended shutdown when used with Tripp Lite's PowerAlert software, available via FREE download from [www.tripplite.com/poweralert](http://www.tripplite.com/poweralert)
- Optional 2POSTRMKITHD supports installation in 2 post 19 inch racks (6 required)
- Optional 2-9USTAND supports upright tower placement (2 required)
- Supports Emergency Power Off (EPO) via built-in interface
- Front panel LEDs and LCD readout with scroll controls
- LED / LCD display panel rotates for viewing in rackmount or tower configurations
- External battery packs are field replaceable and hot swappable

## Specifications

| OUTPUT                                        |                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Output Volt Amp Capacity (VA)                 | 20000                                                                                                                                                                                                                                                                                                                  |
| Output kVA Capacity (kVA)                     | 20                                                                                                                                                                                                                                                                                                                     |
| Output Watt Capacity (Watts)                  | 18000                                                                                                                                                                                                                                                                                                                  |
| Output kW Capacity (kW)                       | 18                                                                                                                                                                                                                                                                                                                     |
| Output Capacity Details                       | Supports up to 105% load continuously in double conversion mode, 106 to 125% for 1 minute, 126% to 150% for 30 seconds; Loads over 150% trigger immediate bypass mode operation to support loads directly from mains power; Double conversion mode is automatically restored as load levels are reduced to 95% or less |
| Power Factor                                  | 0.9                                                                                                                                                                                                                                                                                                                    |
| Crest Factor                                  | 3:1                                                                                                                                                                                                                                                                                                                    |
| Nominal Output Voltage(s) Supported           | 120V; 208V; 240V                                                                                                                                                                                                                                                                                                       |
| Nominal Voltage Details                       | This configuration requires the Power Module be set to 208 or 240V output voltage; included step-down transformer supports 120V output (when the voltage-selection switch on the transformer module is set to match the 208 or 240V power module setting)                                                              |
| Frequency Compatibility                       | 60 Hz                                                                                                                                                                                                                                                                                                                  |
| Frequency Compatibility Details               | Output frequency regulation +/- 0.05Hz (free running)                                                                                                                                                                                                                                                                  |
| Output Voltage Regulation (Line Mode)         | +/- 2%                                                                                                                                                                                                                                                                                                                 |
| Output Voltage Regulation (Economy Line Mode) | +/- 10%                                                                                                                                                                                                                                                                                                                |
| Output Voltage Regulation (Battery Mode)      | +/- 2%                                                                                                                                                                                                                                                                                                                 |



**Tripp Lite**  
1111 W. 35th Street  
Chicago, IL 60609 USA  
Telephone: 773.869.1234  
www.tripplite.com

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|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Output Receptacles                           | (4) 5-15R; (8) 5-15/20R; (2) L6-30R; (8) C19                                                                                                                                                                                                                      |
| Output Receptacle Details                    | Total 120V output is limited to 4992 watts for 208V input and 5760 watts for 240V input. Additional 120V capacity is available by adding a second SU6000XFMR2U step-down transformer.                                                                             |
| Output Circuit Breakers                      | POWER MODULE: Two built-in 30A breakers protect one L6-30R outlet each, Eight built-in 20A breakers protect one C19 outlet each; TRANSFORMER MODULE: Two 15A breakers protect 2 5-15R outlets each, Two 20A breakers protect 4 5-15/20R outlets each              |
| Output AC Waveform (AC Mode)                 | Pure Sine wave                                                                                                                                                                                                                                                    |
| Output AC Waveform (Battery Mode)            | Pure Sine wave                                                                                                                                                                                                                                                    |
| <b>INPUT</b>                                 |                                                                                                                                                                                                                                                                   |
| Rated input current (Maximum Load)           | 108A (208V), 93.6A (240V)                                                                                                                                                                                                                                         |
| Nominal Input Voltage(s) Supported           | 208V AC; 240V AC                                                                                                                                                                                                                                                  |
| UPS Input Connection Type                    | Hardwire                                                                                                                                                                                                                                                          |
| UPS Input Connection Description             | 3 wire single phase input (L1, L2, G)                                                                                                                                                                                                                             |
| Recommended Electrical Service               | 125A @ 208V, or 240V (L1, L2, G)                                                                                                                                                                                                                                  |
| Input Phase                                  | Single-Phase                                                                                                                                                                                                                                                      |
| <b>BATTERY</b>                               |                                                                                                                                                                                                                                                                   |
| Full Load Runtime (min.)                     | 4.3 minutes (18,000 watts)                                                                                                                                                                                                                                        |
| Half Load Runtime (min.)                     | 12.5 minutes (9000 watts)                                                                                                                                                                                                                                         |
| Expandable Battery Runtime                   | Runtime is expandable with external battery packs                                                                                                                                                                                                                 |
| External Battery Pack Compatibility          | BP240V10RT3U; BP240V557C-1PH; BP240V787C-1PH; BP240V1037C-1PH; &nbsp;<a class="productLink" href="//www.tripplite.com/External-240V-Tower-Battery-Pack-for-Select-Tripp-Lite-UPS-Systems-BP240V1407C-1PH-BP240V1407C-1PH">BP240V1407C-1PH</a>&nbsp;               |
| Expandable Runtime Description               | For best results, add external batteries in multiples of two so that both included 10kVA power modules have an equal number and type of connected battery packs                                                                                                   |
| DC System Voltage (VDC)                      | 240                                                                                                                                                                                                                                                               |
| Battery Recharge Rate (Included Batteries)   | Less than 6 hours from 10% to 90% (typical, full load discharge)                                                                                                                                                                                                  |
| Battery Replacement Description              | Hot-swappable, user replaceable external battery packs                                                                                                                                                                                                            |
| Expandable Runtime                           | Yes                                                                                                                                                                                                                                                               |
| <b>VOLTAGE REGULATION</b>                    |                                                                                                                                                                                                                                                                   |
| Voltage Regulation Description               | 2% output voltage regulation in standard online, double-conversion mode                                                                                                                                                                                           |
| Overvoltage Correction                       | Corrects overvoltages up to 300V                                                                                                                                                                                                                                  |
| Undervoltage Correction                      | Corrects undervoltages as low as 100V                                                                                                                                                                                                                             |
| <b>USER INTERFACE, ALERTS &amp; CONTROLS</b> |                                                                                                                                                                                                                                                                   |
| Front Panel LCD Display                      | Selectable LCD display with scroll and selection buttons enables UPS control and detailed monitoring options; LED/LCD panel rotates for viewing in rack/tower formats; LCD Display supports ENGLISH, FRENCH, GERMAN, ITALIAN, SPANISH and PORTUGUESE (see manual) |



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| Switches                                                      | 2 Switches control off/on power status and alarm-cancel/self-test operation; 2 additional switches support set and execute scrolling LCD functions; bundled PDU includes bypass switch to enable hot-swap UPS power module replacement                                                                                                                                                                                                                                 |
| Alarm Cancel Operation                                        | Alarm cancel switch                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Audible Alarm                                                 | Unique audible alarms for all major UPS, environmental and power conditions (see manual)                                                                                                                                                                                                                                                                                                                                                                               |
| LED Indicators                                                | 6 LEDs indicate line power, online mode, economy/bypass mode, on-battery, charger and AC output status; LCD screen offers additional information and control options                                                                                                                                                                                                                                                                                                   |
| <b>SURGE / NOISE SUPPRESSION</b>                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| UPS AC Suppression Response Time                              | Instantaneous                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| EMI / RFI AC Noise Suppression                                | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>PHYSICAL</b>                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Included Mounting Accessory Description                       | 5 sets of adjustable 4 post rack rails included (one for each included 2U/3U module)                                                                                                                                                                                                                                                                                                                                                                                   |
| Installation Form Factors Supported with Optional Accessories | 2 post rackmount (2POSTRMKITHD); Tower (2-9USTAND)                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Optional Mounting Accessory Notes                             | Qty 5<br><a href="http://www.tripplite.com/2-Post-Rack-Mount-Installation-Kit-3U-Larger-UPS-Transformer-Battery-Pack-Components~2POSTRMKITHD">www.tripplite.com/2-Post-Rack-Mount-Installation-Kit-3U-Larger-UPS-Transformer-Battery-Pack-Components~2POSTRMKITHD</a><br>Qty 2<br><a href="http://www.tripplite.com/2U-9U-Tower-Stand-Kit-select-Rack-Mount-UPS-Systems~2-9USTAND">www.tripplite.com/2U-9U-Tower-Stand-Kit-select-Rack-Mount-UPS-Systems~2-9USTAND</a> |
| Primary Form Factor                                           | Rackmount                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| UPS Power Module Dimensions (hwd, in.)                        | 5.14 x 17.5 x 25.82                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| UPS Power Module Dimensions (hwd, cm)                         | 13.06 x 44.45 x 65.58                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Rack Height (U Spaces)                                        | 14                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Maximum Device Depth (in.)                                    | 32.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Minimum Required Rack Depth (inches)                          | 37.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Maximum Device Depth (cm)                                     | 82.55                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Minimum Required Rack Depth (cm)                              | 95.25                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| UPS Power Module Weight (lbs.)                                | 44.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| UPS Power Module Weight (kg)                                  | 20.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| UPS Dimensions Details                                        | Includes 2 SU10000RT3UPM UPS/Power modules, 2 BP240V10RT3U Battery packs, 1 SU6000XFMR2U transformer and SUPDMB20K parallel bypass PDU; Listed weights and dimensions for UPS/Power module, battery pack and transformer each refer to a single unit; MAXIMUM DEVICE DEPTH specification refers to the whole UPS installed depth with parallel bypass PDU installed                                                                                                    |
| Stepdown Transformer Dimensions (hwd / in.)                   | 3.5 x 17.5 x 21.8                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Stepdown Transformer Dimensions (hwd / cm)                    | 8.89 x 44.45 x 55.37                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Stepdown Transformer Weight (lbs.)                            | 72.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Stepdown Transformer Weight (kg)                              | 32.93                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |



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| Included Battery Pack Dimensions (hwd / in.)  | 5.25 x 17.5 x 25                                                                      |
| Included Battery Pack Weight (lbs.)           | 158.7                                                                                 |
| Included Battery Pack Weight (kg)             | 71.99                                                                                 |
| Shipping Dimensions (hwd / in.)               | 31.500 x 40.000 x 51.000                                                              |
| Shipping Dimensions (hwd / cm)                | 80.01 x 101.60 x 129.54                                                               |
| Shipping Weight (lbs.)                        | 781.0000                                                                              |
| Shipping Weight (kg)                          | 354.26                                                                                |
| Cooling Method                                | Fans                                                                                  |
| UPS Housing Material                          | Steel                                                                                 |
| Maximum Device Depth (mm)                     | 8,255                                                                                 |
| Stepdown Transformer Height (mm)              | 889                                                                                   |
| Stepdown Transformer Width (mm)               | 4,445                                                                                 |
| Stepdown Transformer Depth (mm)               | 5,537                                                                                 |
| Primary UPS Height (mm)                       | 1,306                                                                                 |
| Primary UPS Width (mm)                        | 4,445                                                                                 |
| Primary UPS Depth (mm)                        | 6,558                                                                                 |
| <b>ENVIRONMENTAL</b>                          |                                                                                       |
| Operating Temperature Range                   | +32 to +104 degrees Fahrenheit / 0 to +40 degrees Celsius                             |
| Storage Temperature Range                     | +5 to +122 degrees Fahrenheit / -15 to +50 degrees Celsius                            |
| Relative Humidity                             | 0 to 95%, non-condensing                                                              |
| AC Mode BTU / Hr. (Full Load)                 | 6830                                                                                  |
| AC Economy Mode BTU / Hr. (Full Load)         | 2559                                                                                  |
| Battery Mode BTU / Hr. (Full Load)            | 9185                                                                                  |
| AC Mode Efficiency Rating (100% Load)         | 90%                                                                                   |
| AC Economy Mode Efficiency Rating (100% Load) | 96%                                                                                   |
| Operating Elevation (ft.)                     | 0-3000m (0 to 10,000 ft.)                                                             |
| Audible Noise                                 | 60 dBA at front side 1 meter                                                          |
| Operating Elevation (m)                       | 0-3000 m                                                                              |
| <b>COMMUNICATIONS</b>                         |                                                                                       |
| Communications Interface                      | USB (HID enabled); DB9 Serial; EPO (emergency power off); Slot for SNMP/Web interface |
| Network Management Cards                      | SNMPWEBCARD; TLNETCARD; WEBCARDLX; MODBUSCARD; RELAYIOCARD                            |



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|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Network Monitoring Port Description                         | Applications utilizing any supported network management card option, require the use of two network cards of the same-model (install one card per included UPS power module); RELAYIOMINI installation requires removal of panel containing USB ports on each included UPS power module |
| PowerAlert Software                                         | For local monitoring via the UPS's built-in communication ports, download PowerAlert Local software at <a href="http://www.tripplite.com/poweralert">http://www.tripplite.com/poweralert</a>                                                                                            |
| Communications Cable                                        | USB, DB9 serial and EPO cables included                                                                                                                                                                                                                                                 |
| WatchDog Compatibility                                      | Supports Watchdog application, OS and hard-reboot restart options for remote applications                                                                                                                                                                                               |
| <b>LINE / BATTERY TRANSFER</b>                              |                                                                                                                                                                                                                                                                                         |
| Transfer Time                                               | No transfer time (0 ms.) in online, double-conversion mode                                                                                                                                                                                                                              |
| Transfer Time (Economy Mode)                                | 8 milliseconds typical power failure response in optional economy mode                                                                                                                                                                                                                  |
| Low Voltage Transfer to Battery Power (Setpoint)            | 100V                                                                                                                                                                                                                                                                                    |
| High Voltage Transfer to Battery Power (Setpoint)           | 300V                                                                                                                                                                                                                                                                                    |
| <b>SPECIAL FEATURES</b>                                     |                                                                                                                                                                                                                                                                                         |
| Cold Start (Startup in Battery Mode During a Power Failure) | Cold-start operation supported                                                                                                                                                                                                                                                          |
| Economy Mode Operation                                      | Optional economy mode enables high efficiency bypass operation with a maximum output voltage variation of +/-10%. Double conversion mode is automatically restored as mains voltage varies beyond +/-10% with less than 1 millisecond transfer time between modes.                      |
| High Availability UPS Features                              | Automatic inverter bypass; Hot swappable batteries; Hot swappable UPS power module; Manual bypass switch                                                                                                                                                                                |
| Green Energy-Saving Features                                | High efficiency economy mode operation; Support for daily startup and shutoff; Schedulable daily hours of economy mode operation                                                                                                                                                        |
| <b>CERTIFICATIONS</b>                                       |                                                                                                                                                                                                                                                                                         |
| UPS Certifications                                          | Tested to UL1778 (USA); Tested to CSA (Canada); Meets FCC Part 15 Category A (EMI); ROHS (Restriction of Hazardous Substances)                                                                                                                                                          |
| UPS Certification Details                                   | IEC 61000-4-5 1995 B Surge Immunity                                                                                                                                                                                                                                                     |
| <b>WARRANTY</b>                                             |                                                                                                                                                                                                                                                                                         |
| Product Warranty Period (Worldwide)                         | 2-year limited warranty                                                                                                                                                                                                                                                                 |
| Connected Equipment Insurance (U.S., Canada & Puerto Rico)  | \$250,000 <a class="insuranceLink" href="//www.tripplite.com/support/insurance-policy">Ultimate Lifetime Insurance</a>                                                                                                                                                                  |

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