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SmartOnline SUT Series 3-Phase 208/120V 220/127V 20kVA 20kW On-Line Double- Conversion UPS, Tower, Extended Run, SNMP Option

MODEL NUMBER: **SUT20K**



3-phase UPS system protects mission-critical network equipment against downtime and data loss in data center, telecom, medical, industrial and financial environments.

Description

The SUT20K SmartOnline® SUT Series 3-Phase 208/120V 220/127V 20kVA 20kW On-Line Double-Conversion UPS provides complete protection against power interruptions and fluctuations that can contribute to equipment failures and data loss. It's recommended for critical data center, telecommunications, computer network, light industrial and financial applications.

The Voltage and Frequency Independent (VFI) design allows continuous operation at either 50 or 60 Hz. Zero transfer time from online to battery mode ensures no disruption to attached equipment loads. Offering an efficiency of 94% during normal operation and 98% in economy mode, the SUT20K reduces energy losses for cost-saving operation. Automatic bypass keeps connected equipment powered, even during overloads and many potential UPS fault conditions.

IGBT inverter technology produces output power with less than 2% total harmonic distortion (THDi) to keep connected equipment functioning at its peak. A 3:1 crest factor safely supports a variety of loads, even those with wildly fluctuating power demands.

Managing the SUT20K is simplified through the multi-language LCD interface, which displays critical operating conditions and diagnostic data, such as battery and load status. Four LEDs indicate AC, bypass, battery and fault modes. A built-in card slot supports optional remote management cards, such as WEBCARDLX, for comprehensive monitoring and control over a network.

Features

Highlights

- On-line double-conversion topology, VFI operation
- 1.0 unity power factor supports 20kVA/20kW capacity
- Up to 98% economy-mode efficiency option saves energy
- Internal batteries included with external battery pack options
- Parallel up to 4 units for increased capacity or N+1

Package Includes

- SUT20K SmartOnline SUT Series 3-Phase 20kVA 20kW On-Line Double-Conversion UPS
- RS-232 (DB9) cable
- Owner's manual

VFI True On-Line Double-Conversion 3-Phase UPS System

- Provides fully regulated sine wave AC output for critical data center, telecom, computer network, light industrial and financial applications
- +/-1% output voltage regulation in online and battery modes
- High 1.0 unity power factor with 20kVA/20kW output capacity offers higher capacity than competing 0.8 and 0.9 PF designs
- Supports 208/120V or 220/127V at 50/60 Hz
- Wide input voltage window (125–253V) minimizes battery use and prolongs battery life

Reliable Battery Backup with Expandable Runtime

- Supports half load for 15.4 min. and full load for 5.2 min. with standard internal batteries
- Optional BP288VEBP external battery packs provide additional runtime
- Sine wave output with zero transfer time compatible with all equipment types

IGBT Inverter Technology

- Produces output power with <2% THD to keep connected equipment functioning at its peak
- Low <4% full load THDi input rating and advanced IGBT rectifier enables 1:1 generator sizing, eliminating costly oversizing requirements for generators, breakers and cables

Paralleling Capability

- Connect up to 4 units in parallel configuration for N+1 fault tolerance or increased power capacity up to 80kVA

Automatic Bypass

- Maintains output power to connected equipment during a variety of potential UPS fault conditions

Economy Mode

- Increases operating efficiency levels as high as 98% when input line conditions are favorable

Remote Management Card Options

- Compatible with Tripp Lite UPS card accessories, such as WEBCARDLX, that enable comprehensive monitoring and control over a network

Communications Ports

- DB9 (RS-232) port enables data-saving unattended shutdown when used with PowerAlert® software (free download at www.tripplite.com/poweralert)
- EPO port supports Emergency Power Off shutdown

Standard Compliance

- Tested to UL 1778 5th Edition, CSA C22.2 No. 107.3, NOM, FCC Part 15 Class A (EMC), GB17626-2/IEC 61000-4-2 (Electrostatic Discharge) Level 4, GB17626-3 (Radio-Frequency Electromagnetic



Fields) Level 3, GB17626-4 (Fast Transient/Burst) Level 4, GB17626-5/IEC 61000-4-5 (Surge) Level 4
and RoHS

Specifications

| OVERVIEW | |
|---|--|
| UPC Code | 037332186690 |
| OUTPUT | |
| Output Volt Amp Capacity (VA) | 20000 |
| Output kVA Capacity (kVA) | 20 |
| Output Watt Capacity (Watts) | 20000 |
| Output kW Capacity (kW) | 20 |
| Output Capacity Details | Supports parallel connection of up to 4 SUT20K systems for 80kVA max capacity or N+1 fault tolerance; Supports up to 100% load continuously, 125% load for up to 10 minutes, 149% load for up to 1 minute and over 150% load for up to 0.5 seconds before transferring to bypass mode; Automatic inverter restart is available when the load level recovers to 95% or less after overload-related transfer to bypass |
| Power Factor | 1.0 |
| Crest Factor | 3:1 |
| Nominal Output Voltage(s) Supported | 120/208V 3-PH Wye; 127/220V 3-PH Wye |
| Nominal Voltage Details | Factory default output voltage is 120/208V; Less than 2% THD (full resistive load); Less than 0.1V Max DC Offset; Less than 2° Max Phase Angle Deviation; Less than 1% Max Voltage Unbalance Deviation |
| Frequency Compatibility | 50 / 60 Hz |
| Frequency Compatibility Details | Auto-selectable frequency configuration |
| Output Voltage Regulation (Line Mode) | ±1% |
| Output Voltage Regulation (Economy Line Mode) | ±10% |
| Output Voltage Regulation (Battery Mode) | ±1% |
| Output Receptacles | Hardwire |
| Output Circuit Breakers | Electronic AC output protection; Short-circuit protection |
| Output AC Waveform (AC Mode) | Pure Sine wave |
| Output AC Waveform (Battery Mode) | Pure Sine wave |
| INPUT | |
| Rated input current (Maximum Load) | 67.5A (120/208V); 63.5A (120/208V) |
| Nominal Input Voltage(s) Supported | 120/208V 3-PH Wye; 127/220V 3-PH Wye |



| | |
|--|--|
| Nominal Input Voltage Description | 3-Phase Wye, 4 wire (L1, L2, L3, N, G) |
| UPS Input Connection Type | Hardwire |
| Input Circuit Breakers | 75A 3 pole 240V breaker |
| Input Phase | 3-Phase |
| Power Factor (Input) | >0.99 (maximum resistive load) |
| THDi | <4% (maximum resistive load) |
| BATTERY | |
| Full Load Runtime (min.) | 5.2 minutes (20kW) |
| Half Load Runtime (min.) | 15.4 minutes (10kW) |
| Expandable Battery Runtime | Supports extended runtime with optional external battery packs |
| External Battery Pack Compatibility | BP288VEBP </td> |
| Expandable Runtime Description | External battery pack wiring is contractor supplied |
| DC System Voltage (VDC) | ±144VDC |
| Battery Recharge Rate (Included Batteries) | 3.2 hours from 10 to 90%; Battery charge current adjustable from 1 to 20A (5A factory default) |
| Expandable Runtime | Yes |
| VOLTAGE REGULATION | |
| Voltage Regulation Description | Online, double-conversion power conditioning maintains ±1% output voltage regulation |
| Overvoltage Correction | Maintains continuous operation without using battery power during overvoltages to 253V |
| Undervoltage Correction | Maintains continuous operation without using battery power during brownout/undervoltage conditions to 125V (63% load or less); 166V (100% load) |
| USER INTERFACE, ALERTS & CONTROLS | |
| Front Panel LCD Display | Front panel LCD with scroll and enter buttons offers display of UPS operating mode, site power and UPS condition monitoring and operating configuration options; LCD also reports alarm conditions, including Short circuit, Inverter fail and Over temperature; Supports English, French, German, Russian, Portuguese, Spanish, Turkish and Polish language options |
| Switches | ON button turns UPS system on; OFF button turns UPS system off; SELECT/ENTER UP and SELECT/ENTER DOWN buttons enable on-screen selection and navigation options; EPO (Emergency Power Off) button turns UPS output off and disables Bypass output |
| Alarm Cancel Operation | Power-fail alarm can be silenced using alarm-cancel switch |
| Audible Alarm | Alarms signal a variety of operational conditions: low-battery, overload, shutdown, bypass and more |
| LED Indicators | Four LEDs indicate AC mode (Green), Bypass (Yellow), Battery (Yellow) and Fault (Red) modes |
| SURGE / NOISE SUPPRESSION | |
| EMI / RFI AC Noise Suppression | Yes |
| AC Suppression Joule Rating | 9220 |
| AC Suppression Response Time | Instantaneous |



| PHYSICAL | |
|---|--|
| Installation Form Factors Supported with Included Accessories | Tower |
| Primary Form Factor | Tower |
| UPS Power Module Dimensions (hwd, in.) | 53.2 x 20.5 x 31.5 |
| UPS Power Module Dimensions (hwd, cm) | 135.13 x 52.07 x 80.01 |
| UPS Power Module Weight (lbs.) | 781 |
| UPS Power Module Weight (kg) | 354.26 |
| Shipping Dimensions (hwd / in.) | 76.33 x 30.14 x 61.27 |
| Shipping Dimensions (hwd / cm) | 193.88 x 76.56 x 155.63 |
| Shipping Weight (lbs.) | 1065.00 |
| Shipping Weight (kg) | 483.08 |
| Cooling Method | Fans |
| UPS Housing Material | Steel |
| Primary UPS Height (mm) | 1,351 |
| Primary UPS Width (mm) | 521 |
| Primary UPS Depth (mm) | 800 |
| ENVIRONMENTAL | |
| Operating Temperature Range | +32 to +104 degrees Fahrenheit / 0 to +40 degrees Celsius |
| Storage Temperature Range | +4 to +104 degrees Fahrenheit / -20 to +40 degrees Celsius |
| Relative Humidity | Up to 95%, non-condensing |
| AC Mode BTU / Hr. (Full Load) | 5250 |
| AC Economy Mode BTU / Hr. (Full Load) | 1210 |
| Battery Mode BTU / Hr. (Full Load) | 2112.4 |
| AC Mode Efficiency Rating (100% Load) | 93% |
| AC Economy Mode Efficiency Rating (100% Load) | 98% |
| Operating Elevation (ft.) | 0 to 10,000 feet |
| Audible Noise | Less than 65dBA at 1m front side |
| Operating Elevation (m) | 0 to 3000m |
| COMMUNICATIONS | |
| Communications Interface | DB9 Serial; Slot for SNMP/Web interface |



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|---|--|
| Network Management Cards | SNMPWEBCARD; WEBCARDLX; MODBUSCARD; RELAYIOCARD |
| Network Monitoring Port Description | Additional built-in set of INPUT and OUTPUT contacts support remote notification of Online Mode operation, Battery Mode operation, Bypass Mode operation, Abnormal Bypass Mode Source, Battery Test Failure and Low Battery conditions |
| PowerAlert Software | Available via free download from www.tripplite.com/poweralert |
| Communications Cable | DB9 cabling included |
| LINE / BATTERY TRANSFER | |
| Transfer Time | Online mode: No transfer time (0 ms.); Economy mode: 6 ms. (AC to battery), 1 ms. (Battery to AC) |
| Low Voltage Transfer to Battery Power (Setpoint) | Maintains continuous operation without using battery power during brownout/undervoltage conditions to 125VAC (under 63% load) / 160VAC (100% load). Below this point, output is maintained utilizing reserve battery power |
| High Voltage Transfer to Battery Power (Setpoint) | Maintains continuous operation without using battery power during overvoltages to 253VAC, reducing output within 1% of nominal. Above this point, output is maintained utilizing reserve battery power |
| SPECIAL FEATURES | |
| Grounding Lug | Yes |
| Cold Start (Startup in Battery Mode During a Power Failure) | Cold-start operation supported |
| High Availability UPS Features | Automatic inverter bypass; Hot swappable batteries |
| Green Energy-Saving Features | High efficiency economy mode operation; Schedulable daily hours of economy mode operation |
| CERTIFICATIONS | |
| UPS Certifications | Meets FCC Part 15 Category A (EMI); Tested to CSA (Canada); Tested to NOM (Mexico); Tested to UL1778 (USA) |
| UPS Certification Details | IEC 61000-4-2 (Electrostatic Discharge) Contact: 8KV, Air: 15K; IEC 61000-4-3 (Radio-Frequency Electromagnetic Fields) Field strength 10V/m; IEC 61000-4-4 (Fast Transient/Burst) Power Supply Port: 4KV 2.5KHz; IEC 61000-4-5 (Surges) Input Port: 4KV 1.2/50s Combination Wave |
| WARRANTY | |
| Product Warranty Period (U.S. & Canada) | 1-year limited warranty |
| Product Warranty Period (International) | 2-year limited warranty |
| Product Warranty Period (Mexico) | 1-year limited warranty |

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