1000 Eaton Boulevard
Cleveland, OH 44122
United States

SmartOnline SVX Series 90kVA Modular, Scalable 3-Phase, On-line Double-Conversion 400/230V 50/60Hz UPS System

MODEL NUMBER: **SVX90KL**





Highlights

- 90kVA / 90kW modular, scalable, 3-phase, Large-Frame tower UPS
- Supports 3 phase 220/380, 230/400 or 240/415V AC, 50/60Hz, Wye; Scalable to 210kVA with N+1 redundancy
- High efficiency on-line UPS with DSP/IGBT technology and 1% output voltage regulation
- Pre-installed WEBCARDLX with latest version of PADM20 for enhanced remote management
- Batteries not included, External battery cabinets sold separate; Tested to CE for worldwide applications

Package Includes

- SVX90KL UPS System
- Instruction manual
- Warranty information

Description

The SVX90KL 90kVA/90kW SmartOnline® large-chassis UPS includes installed Input, Bypass and Output breakers, a Static Transfer Switch (STS) and three included 30kVA SVX30PM power modules. The system includes space for up to five additional user installable SVX30PM power modules to accommodate increased capacity up to 210kW with N+1 fault-tolerance.
Featuring modular, scalable design with high efficiency voltage and frequency independent / VFI operation, SVX Series SmartOnline UPS systems are ideal for the protection of a wide variety of critical IT systems. Scalable, modular configuration enables UPS capacity upgrades and hot-swap power supply maintenance without costly downtime. Over 95% efficient in standard online-mode and over 99% efficient in optional economy-mode enables reduced operating and cooling costs. Unity power factor configuration provides equal kVA and kW output ratings for up to 25% more wattage capacity than common 0.8 - 0.9 power factor competing designs. Network-grade sine-wave AC output with 1% output voltage regulation and less than 1.5% output total harmonic distortion. Advanced IGBT inverter with Digital Signal Processor (DSP) technology provides for less than 3% input total harmonic distortion (THDi) to support 1:1 generator sizing. Dual input hardwire design enables operation from one or two input power sources for enhanced system availability. N+1 fault-tolerance is supported anytime there is an "extra" SVX30PM 30kW power module installed beyond the minimum required quantity. Automatic and manual bypass options keep connected equipment operational during routine maintenance or critical power module failure. UPS batteries are not included, External ±240VDC battery cabinets sold separate.

Features

- SVX90KL 90kVA / 90kW SmartOnline UPS offers network-grade power protection in a highly-configurable large-chassis modular, scalable form factor
- Supports 220/380, 230/400 or 240/415V AC, 3-Phase Wye 4-Wire plus Earth Hardwire input and output wiring
- Tested to CE for worldwide applications
- Open slots for up to 5 additional SVX30PM 30kW power modules enables scalable capacity configurations up to 210kW with enhanced N+1 reliability
- Pre-installed WEBCARDLX with the latest version of PowerAlert Device Manager firmware (PADM20) provides enhanced remote management capabilities
- PADM20 and PowerAlert Element Manager (PAEM) form a powerful tool for expanding maintenance functions in large installations, including firmware update checks and backup and restoration of device configurations

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- Serial port enables unattended shutdown and UPS monitoring ability
- Modular configuration with hot-swappable power modules enables easy and fast maintenance with zero downtime
- Wide input voltage operating range enables full continuous online operation during brownouts as low as 120V (Ph-N) and overvoltages up to 276 (Ph-N)
- Narrow output voltage operating range regulates output voltage within 1% of the selected 220/230/240 nominal output voltage in online, double-conversion mode
- Over 95% efficient in online, double-conversion mode and over 99% efficient in optional economy-mode enables reduced operating and cooling costs
- Less than 3% input Total Harmonic Distortion (THDi) prevents the need to oversize generator systems relative to UPS capacity
- Dual hardwire input design enables operation from one or two input power sources
- N+1 fault tolerance is supported anytime there is an “extra” SVX30PM 30kW power module installed beyond the minimum required quantity (For example, this UPS provides N+1 fault-tolerance when loaded to 60kVA or less; Loads of 60-90kVA are fully supported, but without N+1 fault tolerance)
- Front panel combination LCD/LED display offers full UPS condition and status reporting plus additional configuration options

Specifications

OVERVIEW	
UPC Code	037332278685
UPS Type	On-Line
INPUT	
Input Phase	3-Phase
Rated input current (Maximum Load)	SVX90KL 90kVA Configuration: 165A; Maximum 210kVA Large Chassis Configuration: 385A; 40A maximum inrush current
Nominal Input Voltage(s) Supported	220/380V 3-PH Wye; 230/400V 3-PH Wye; 240/415V 3-PH Wye
Nominal Input Voltage Description	Set of two hardwire input connections enables 3-Phase Wye, 4 wire (3P, N, G) inputs from two separate power sources
UPS Input Connection Type	Hardwire
Input Circuit Breakers	MAIN and ALTERNATE AC inputs are each protected by 400A 3 pole magnetic breakers
Input Frequency	40 to 70Hz (online mode); 50/60Hz Auto-selectable
Power Factor (Input)	Greater than 0.99 (full load)
THDi	Less than 3% (full linear load)
OUTPUT	
Output Capacity (VA)	90000
Output Capacity (kVA)	90
Output Capacity (Watts)	90000
Output Capacity (kW)	90

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Output Capacity Details	OVERLOAD CAPABILITY: Supports 105-110% load for 1 hour, 111-125% load for 10 minutes, 126-150% for 1 minute and Over 150% for 200ms before switching to Bypass; Online operation resumes when load is reduced to 100% or less
Power Factor	1.0
Crest Factor	3:1
Nominal Voltage Details	Output THD full resistive load: <1.5%; Output THD non-linear load: <4%; Max DC offset: ±50mV; Max Phase angle deviation: 2°; Max Voltage unbalance deviation: 1%; Output short-circuit protection included
Frequency Compatibility	50 / 60 Hz; Supports 50 to 60 Hz and 60 to 50 Hz conversion
Frequency Compatibility Details	Auto-selectable, user adjustable
Output Circuit Breakers	400A 3 pole magnetic breaker
Output AC Waveform (AC Mode)	Pure Sine wave
Output AC Waveform (Battery Mode)	Pure Sine wave
Nominal Output Voltage(s) Supported	220/380V 3-PH Wye; 230/400V 3-PH Wye; 240/415V 3-PH Wye
Output Receptacles	Hardwire
Output Voltage Regulation	ONLINE, FREQUENCY CONVERSION, BATTERY MODE: 220/230/240V ±1% typical (balanced load); ±2% typical (unbalanced load); ECONOMY MODE: 220/230/240V ±15V; BYPASS MODE: +15% (default, adjustable to +10%, +15% or +20%), -20% (default, adjustable to -10%, -20%, -30%)
Output Frequency Regulation	ONLINE MODE: Output frequency is ±0.05Hz of input frequency when input is within ±4Hz* of the configured 50/60Hz output setting; Output frequency is ±0.05Hz the configured 50/60Hz output setting when input is outside ±4Hz* of the configured 50/60Hz output setting; BATTERY MODE: Output frequency is ±0.1Hz of the configured 50/60Hz output setting; FREQUENCY CONVERTER MODE: Output frequency is ±0.1Hz of the configured 50/60Hz output setting; ECONOMY MODE: Output frequency equals input frequency up to ±4Hz* of the configured 50/60Hz output setting (UPS switches to Online mode if frequency goes outside of this range); BYPASS MODE: Output frequency equals input frequency up to ±4Hz* of the configured 50/60Hz output setting (switches to STANDBY mode if frequency goes outside of this range). *The TRACKING RANGE is factory set to ±4Hz and is user adjustable to ±1Hz, ±2Hz or ±4Hz; The selected TRACKING RANGE setting controls frequency output tolerances as described above in Online, Economy and Bypass modes
Output Amp Capacity	137A (220/380V); 130A (230/400V); 125A (240/415V)
Individually Controllable Load Banks	No
Modular Upgrade Options	Includes 3 SVX30PM 30kVA power modules. Up to 5 additional SVX30PM 30kVA power modules can be added for additional capacity or N+1 availability; Add 1 SVX30PM for 120kVA capacity (or 90kVA with N+1 redundancy); Add 2 SVX30PM for 150kVA capacity (or 120kVA with N+1 redundancy); Add 3 SVX30PM for 180kVA capacity (or 150kVA with N+1 redundancy); Add 4 SVX30PM for 210kVA capacity (or 180kVA with N+1 redundancy); Add 5 SVX30PM for 210kVA total capacity with N+1 redundancy
BATTERY	
Expandable Runtime	Yes
Expandable Runtime Description	External battery pack wiring is contractor supplied. Supports extended runtime with optional external battery packs; 100A 3 pole 250VDC breaker recommended for external battery.
DC System Voltage (VDC)	±240VDC
Battery Recharge Rate (Included Batteries)	User selectable charging current of 1A to 8A (2A factory setting); Recharge rate is dependent on number of external battery packs connected and the selected charge current setting
Battery Replacement Description	Hot-swappable, replaceable batteries
VOLTAGE REGULATION	
Voltage Regulation Description	Online, double-conversion power conditioning

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Overvoltage Correction	Maintains continuous output in online mode, without using battery power, during overvoltages to 478V (Ph-Ph), reducing output to within 1% of selected 380/220V, 400/230V, 415/240V nominal output voltage
Undervoltage Correction	Maintains continuous output in online mode, without using battery power, during brownout/undervoltage conditions to 305V (Ph-Ph) at full load and to 208V (Ph-Ph) at 70% output load or less, increasing output to within 1% of selected 380/220V, 400/230V, 415/240V nominal output voltage
USER INTERFACE, ALERTS & CONTROLS	
Front Panel LCD Display	145mm front panel LCD display with directional scroll and select buttons offers complete operating status display, plus setting and selection options for all UPS functions
Switches	Front panel buttons include ESC (menu escape), UP/LEFT (menu up / left), DOWN/RIGHT (menu down / right), ENTER (confirm selection), HOME (return to home screen) and POWER (on/off power control); Also includes Manual Bypass switch
Alarm Cancel Operation	Audible alarms can be muted using on-screen prompts
Audible Alarm	Unique audible alarms for POWER ON / POWER OFF (alarm sounds for 2 seconds), BATTERY MODE (alarm sounds every 2 seconds), LOW BATTERY (alarm sounds every 0.5 seconds), UPS ALARM (alarm sounds every 1 second), UPS FAULT (continuous alarm)
LED Indicators	Front panel LED indicators represent INPUT (green), BYPASS (amber), INVERTER (green), BATTERY (red) and ALARM (red)
SURGE / NOISE SUPPRESSION	
EMI / RFI AC Noise Suppression	Yes
AC Suppression Joule Rating	2496
AC Suppression Joule Rating Details	2496 joules (Ph-Ph), 2496 joules (Ph-N), 1872 joules (N-E)
AC Suppression Response Time	Instantaneous
PHYSICAL	
Primary Form Factor	Tower
Cooling Method	Fans
Installation Form Factors Supported with Included Accessories	Tower
Primary UPS Depth (mm)	1,100
Primary UPS Height (mm)	2,010
Primary UPS Width (mm)	600
Shipping Dimensions (hwd / in.)	75.00 x 29.00 x 48.00
Shipping Dimensions (hwd / cm)	190.50 x 73.66 x 121.92
Shipping Weight (lbs.)	1055.00
Shipping Weight (kg)	478.54
UPS Housing Material	Steel
UPS Power Module Dimensions (hwd, cm)	200.99 x 59.99 x 109.98
UPS Power Module Dimensions (hwd, in.)	79.13 x 23.62 x 43.3

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UPS Power Module Weight (kg)	376.48
UPS Power Module Weight (lbs.)	830
Unit Weight (lbs.)	438.7
Unit Weight (kg)	198.99
ENVIRONMENTAL	
Operating Temperature Range	32° to 104°F (0° to 40°C); De-rates to 90% capacity at 95°F / 35°C and 80% capacity at 104°F / 40°C
Storage Temperature Range	5° to 140°F (-15° to 60°C)
Relative Humidity	0 to 95%, non-condensing
AC Mode BTU / Hr. (Full Load)	16276
AC Economy Mode BTU / Hr. (Full Load)	2103
AC Mode Efficiency Rating (100% Load)	95%
AC Economy Mode Efficiency Rating (100% Load)	99%
Battery Mode Heat Dissipation (BTU/Hr) @ Full Load	24676
Audible Noise	Less than 73 DBA front-side, 1m
Operating Elevation (m)	Up to 1000m (At elevations over 1000m, output de-rates by 1% per 100m)
COMMUNICATIONS	
Network Management Cards	WEBCARDLX; WEBCARDLXE ; MODBUSCARDSV ; RELAYCARDSV
Network Monitoring Port Description	Includes pre-installed Tripp Lite WEBCARDLX network interface
PowerAlert Software	For local monitoring via the UPS's built-in communication ports, download PowerAlert software at https://tripplite.eaton.com/products/power-alert
Communications Cable	DB9 cabling included
SNMP Compatibility	Includes pre-installed WEBCARDLX network interface card
Communications Interface	DB9 Serial; EPO (emergency power off); Pre-installed network card; Slot for SNMP/Web interface
LINE / BATTERY TRANSFER	
Transfer Time	No transfer time (0 ms.) in online, double-conversion mode; Less than 20 ms. transfer time in economy mode
Low Voltage Transfer to Battery Power (Setpoint)	Maintains continuous operation without using battery power during brownout/undervoltage conditions to 305V (Ph-Ph) Full load or 208V (Ph-Ph) 70% load or less; Below the low transfer voltage 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 478V (Ph-Ph), reducing output within 1% of nominal; Above this point, output is maintained utilizing reserve battery power
FEATURES & SPECIFICATIONS	

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Cold Start (Startup in Battery Mode During a Power Failure)	Cold-start operation supported
High Availability UPS Features	Automatic inverter bypass; Hot swappable batteries; Auto Probe Monitoring (included); Zero transfer time; On-Line/Double-Conversion
Green Energy-Saving Features	Greater than 95% efficiency - GREEN UPS; High efficiency economy mode operation; Schedulable daily hours of economy mode operation
IP68 Rated	Yes
IP20 Rated	No
APPLICATIONS	
UPS Applications	Mission Critical Applications
STANDARDS & COMPLIANCE	
Protection Rating	IP68
Product Certifications	IEC/EN 62040
Product Compliance	RoHS; CE (Europe); REACH
WARRANTY & SUPPORT	
Product Warranty Period (Worldwide)	See 3-Phase UPS Warranty Statement
Product Warranty Period (International)	2-year limited warranty
3-Phase Warranty Statement	Tripp Lite 3-Phase UPS Factory Warranty

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