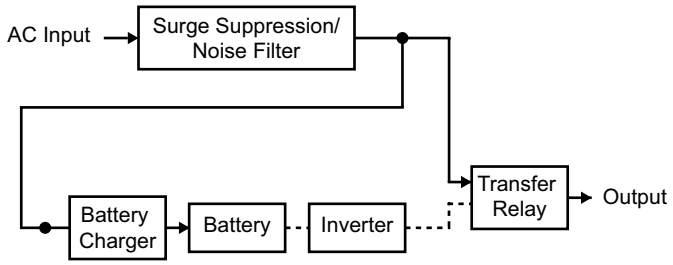
Selecting a UPS

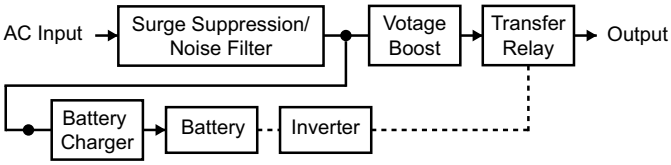
The SolaHD UPS product line consists of four topologies and classes of power protection:

DC topology provides cost effective, efficient back-up power for 24 V DC applications. The SolaHD DC UPS will support the load during AC power loss or power supply failure.

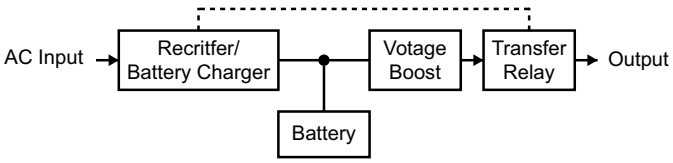
Off–Line topology (also called stand-by) is a cost-effective UPS choice for small, less critical, stand-alone applications such as isolated PLC, PCs and peripherals. Network communications are a useful option.



Line–Interactive topology provides highly effective power conditioning plus battery back-up. This is particularly applicable in areas where power outages are rare, but where there are frequent power fluctuations. Network communications are available and sometime necessary.



The **On–Line** alternative provides the highest levels of power protection, conditioning and power availability. True on-line topology is accomplished with double conversion technology. Network communications are often necessary to protect mission-critical applications.



How to choose the appropriate UPS for your application:

1. Add up the maximum electrical power requirements for all equipment to be protected. To obtain the power rating, multiply: Volts x Amps = VA. Volt and Amp ratings can be found on the nameplate of your equipment.

Equipment to be Protected	Volts	Amperes	VA (Volts x Amperes)
		Subtotal (VA)	
		Future Growth (VA)*	
		Total VA (Subtotal (VA) + Future Growth (VA))	
		Total Watts **	
		Appropriate Model (Based on both Total VA and Watts Calculations)	

2. Choose the level of protection appropriate to your application from Table 1.

3. Turn to the page indicated at the bottom of the matrix for sizes, specifications and other ordering information.

* When sizing the UPS, allow for future expansion. If not available, it is recommended to allow for at least 25% growth.

** Total Watt = Total VA x Power Factor (P.F.) for AC Power only. If power factor is not available, simply multiply VA by 0.7.

If you have any questions about sizing, contact our Technical Services group at (800) 377-4384 or via e-mail at tech@sola-hevi-duty.com.

Table 1: Selection by Technology

Feature	Benefits	DC	Off–Line		Line–Interactive	On–Line	
		SDU DC	SDU AC	S1K	S3K	S4K	S5K
Battery Back–up	Stop power interruptions from destroying data and work in progress	•	•	•	•	•	•
Surge Protection & Filtering	Prevent surges, spikes and noise from damaging your hardware		•	•	•	•	•
Voltage Regulation	Keep working during power sags, brownouts and high line voltage without draining your battery.			• (on 320, 520 & 1500 VA models only)	•	•	•
Sinewave Output	More compatible with sensitive loads				•	•	•
Extended Battery Option	Work through the longest blackouts with the extended battery option	•				•	•
Hardwired Input & Output Possible	Easy, permanent installation with less chance of "accidental" misuse.	•	•			•	•
On–Line "Zero Transfer Time" Performance	Mission-critical work requires on-line premium power protection.	•				•	•
Page Number		**58**	**62**	**64**	**66**	**68**	**81**

Table 2: Selection by Power Rating

VA	Series	Page	VA	Series	Page
240-480 VA DC	SDU DC	58	700-1440 VA	S3K	68
500-850 VA	SDU AC	62	700 VA - 10 kVA	S4K	68
320-1500 VA	S1K	64	4 kVA - 20 kVA	S5K	81

Table 3: Power Quality Problems

Power Problem	Description	Effect	Solution
Blackouts	Total loss of utility power	**Disruption:** Power interruptions stop work in progress and typically result in loss of time and valuable data.	SolaHD UPS
Brownouts (Sags/Swells)	Short-term reductions in utility voltage levels, lasting from a few moments to many hours. Causes include heavy start-up power requirements of nearby loads, and occasional overloading of the utility power system.	**Degradation:** Working in an electrically "dirty" environment reduces the accuracy, effectiveness and life span of all electronic equipment. Productivity and quality of work suffer.	SolaHD UPS
Surges, Spikes and Noise	Disturbances in utility power caused by a variety of sources, such as lightning, utility power switching, nearby noisy loads, electric motors, etc.	**Destruction:** Electrical disturbances typically cause the instantaneous or eventual destruction of valuable systems, data and work in progress.	SolaHD UPS

SDU Series, Direct Current Uninterruptible Power Supply (DC UPS) System

The SDU DIN Rail DC UPS is an advanced 24 Vdc uninterruptible power system that combines an industry leading design with a wide operational temperature range and unique installation options. The SDU DC UPS is a powerful, microprocessor controlled UPS that provides protection from power interruptions. With an input voltage range of 22.5 to 30.0 Vdc, the DC UPS is the ideal power back-up solution for your critical connected loads.

These units were designed specifically for use with SolaHD's popular SDN Series of power supplies. SolaHD's external battery module is the only one on the market that allows you to seal the electronics in the panel and maintain safety by placing the battery outside of a non-ventilated enclosure.

These units include easy to wire screw terminations for critical devices needing battery back-up. The SDU DC UPS includes an automatic self-test feature that checks the UPS and battery functions. Battery charging occurs automatically when input DC power is applied. When power fails, the DC UPS will switch to battery back-up. If the battery is no longer useful, the UPS will sound an alarm and an LED indicator will illuminate.

Back-up power protection in modern industrial applications depends mainly on AC UPS. AC is converted to DC, and converted back to AC in the AC UPS, then converted back to DC in the protected equipment power supply. By applying the new SolaHD SDU DIN Rail DC UPS, you avoid the inefficiencies of all these conversions. This design maximizes system up-time flexibility, and optimizes reliability assurance.

Applications

- Industrial/Machine Control
- Automation Process Control
- Computer-based Control Systems
- Conveying Equipment
- Material Handling
- Packaging Machines
- Semiconductor fabrication equipment
- DeviceNet™
- Amusement Park Equipment
- Pharmaceutical Applications
- Control Rooms

c UL us LISTED IND. CONT. EQ

c UL us E137632 I.T.E.

CE FC

Features

- Modular, rugged industrial grade design
- Microprocessor based controls
- Automatic self-test feature for UPS function and battery management check
- Power module wide operation temperature range (-20 to +50°C)
- Flexible batteries back-up expansion capabilities
- Overload protection in normal and battery modes
- User replaceable batteries
- Both power and battery modules are UL508 Listed
- IP-20 rated input and output screw terminals
- No internal fan, no extra cooling required
- Sturdy, reliable all metal DIN Rail mounting connector
- LED Status Indicators
- Universal Dry Contact Relay terminals provide remote signaling
- Monitoring, diagnostics, and remote turn-on and shut-off capabilities
- Limited two-year warranty

Related Products

- SDN-P Series DIN Rail Power Supplies
- SDN-C Series DIN Rail Power Supplies
- STV 25K Series Surge Protective Devices

Selection Table

Catalog Number	Description	Approx. Ship Weight lbs (kg)
SDU 10-24	240 VA, 24V/10A DIN Rail DC UPS power module, battery module is required	1.65 (0.65)
SDU 20-24	480 VA, 24V/20A DIN Rail DC UPS power module, battery module is required	1.65 (0.65)
SDU 24-BAT	24V DIN Rail/Panel Mount Battery Module (cable included)	12.0 (5.33)
SDU 24-BATEM	24V External Mount Battery Module (cable included)	16.0 (7.11)
SDU 24EXTBC6	Optional 6 ft. Battery Module cable to 24V DC UPS	0.5 (0.22)
SDU 24-DB9	Optional interface kit to convert relay contacts signals to DB9 signals	1.0 (0.45)
SDU-PMBRK	Optional chassis mount brackets to secure UPS to wall, panel, or enclosure	0.5 0(.22)

There are three individual hardware products when putting an SDU DC UPS system into operation:

1. 24 Vdc Power Supply (Recommended SolaHD SDN Series)
2. 24 Vdc SDU DC UPS Power Module
3. 24 Vdc SDU DC UPS Battery Module; or 24 Vdc SDU DC UPS External Battery Module

There are two models of the SDU DC UPS Power Module:

1. SDU 10-24, 24 Vdc/10amp (battery modules are required)
2. SDU 20-24, 24 Vdc/20amp (battery modules are required)

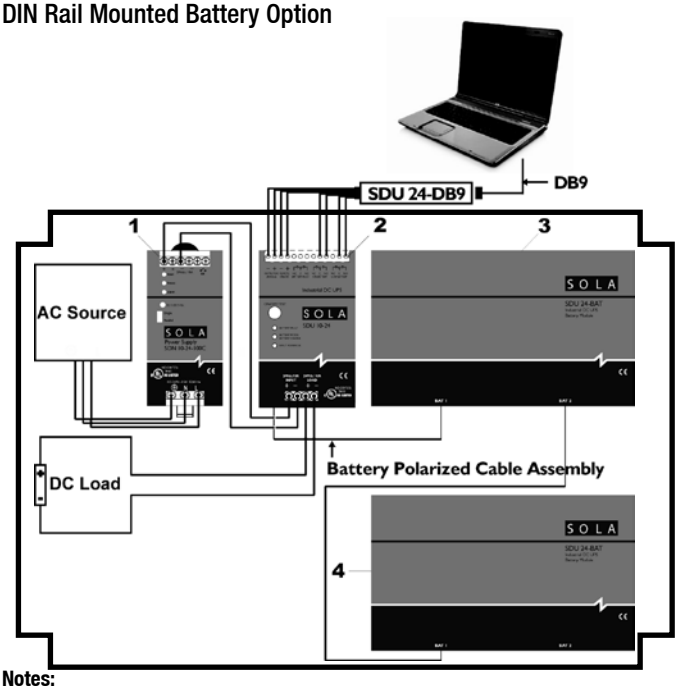
There are two models* of the SDU DC UPS Battery Modules:

1. SDU 24-BAT, DIN Rail/Panel mount for installation in ventilated enclosure, up to 4 battery modules can be connected to the SDU DC UPS.

2. SDU 24-BATEM, Panel mount, alternate battery module for external installation of non-ventilated enclosures, only 1 battery module can be connected to the SDU DC UPS.

*Can not use a combination of both models of the battery modules, only one model of the battery module can be connected to the SDU DC UPS.

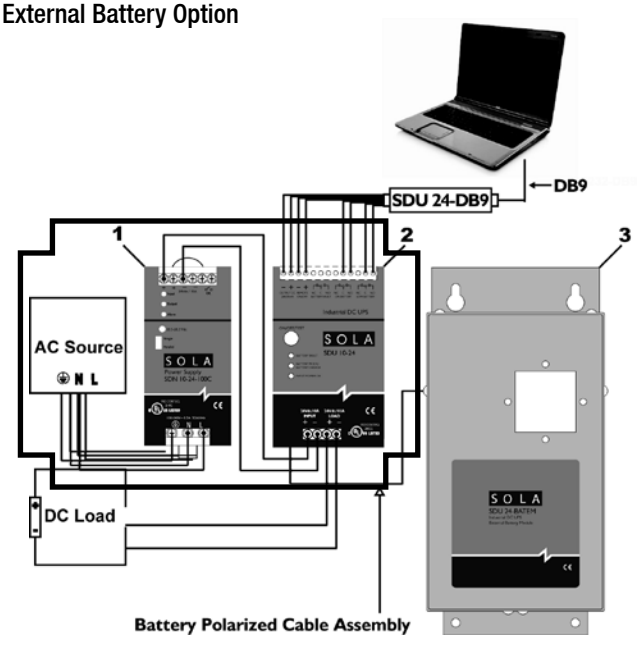
DIN Rail Mounted Battery Option



Notes:

1) AC/DC Power Supply
2) Power Module: SDU 10-24 or SDU 20-24
3) Battery Module: SDU 24-BAT
4) Optional battery module for extended Back-up.

External Battery Option



Notes:

1) AC/DC Power Supply
2) Power Module: SDU 10-24 or SDU 20-24
3) Battery Module: SDU 24-BATEM

SDU DC UPS Power Modules Specifications

Specification	SDU 10-24	SDU 20-24
Input		
Nominal Input Voltage	24 Vdc	
Input Voltage Range	22.5 - 30 Vdc	
Input Fuse	DC Fuse 30A	
Output		
Nominal Output Voltage	24 Vdc	
Output Voltage Range	22.5 - 30 Vdc	
Output Current	10A	20A
Current Limit	12A	22A
Protection		
Input Protection	Fuse for overload & short circuit protection	
Overload Protection	Electrical Circuit Protection	
Short Circuit	UPS output cut off immediately	
Battery Module		
Type	Sealed, maintenance-free lead acid batteries.	
Charging Current	0.5 A	
Typical Recharge Time (to 90% of full capacity)	8 Hours for 1 Battery Module 24 Hours for 2 Battery Module 12 Hours for each additional Battery Module	
Back–up Time (full load)[1]	14 minutes	4 minutes
Protection	UPS Shutdown when battery voltage drops below 22V, to prevent the complete depletion of the battery, short circuit protection by a 30A fuse.	
Physical		
Net Weight – lbs (kg)	1.65 (0.75)	
Dimensions H x W x D – in. (mm)	4.88 x 3.02 x 4.55 (124 x 77 x 116)	
Alarm		
Battery Low	Rapid Audible Indicator every 1 second	
Overload	Continuous Audible Indicator	
Environment		
Audible Noise	<40 dBA (1 meter from surface)	
Power Module Operating Temperature	-20°C to +50°C	
Storage Temperature	-20°C to +70°C	
Humidity	0-95%	
Max Elevation	3500 meters (11,483 feet)	
Shock & Vibration	According to ISTA 2A	
DC UPS System[2] Safety		
US Standard	UL 60950-1, UL508, FCC Part 15, Subpart B, Class A	
Canadian Standard	CAN/CSA C22.2 No 107.1-01, CAN/CSA C22.2 No. 60950-1	
CE	Low Voltage Directive IEC 60950-1 (CB Scheme)	
	Directive 2004/108/EC: EN 62040-2 Category C2 EN 55022 Class A + A1 + A2, CISPR 22 Class A (2005), IEC 61000-3-2, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6 + A1, IEC 61000-4-8, IEC 61000-2-2	
General		
MTBF	> 200,000 Hours, MIL-STD 217F	
Installation		
Output	Outputs are capable of providing high currents for short periods of time for inductive load startup or switching. Fusing may be required for wire/loads if 2x Nominal O/P current rating cannot be tolerated. Continuous current overload allows for reliable fuse tripping	
Mounting	Simple snap-on system for DIN Rail TS35/7.5 or TS35/15 or chassis-mounted, optional screw mounting set SDU-PMBRK.	
Connections	Input & Output: IP20-rated screw terminals, connector size range: 16-12 AWG (0.5-4 mm²) for copper conductors rated 90°.	
Relay Contact Terminal Connections	IP20 screw terminals; connector size range: 24-16 AWG (0.34-4mm²)	
Case	Fully enclosed metal housing with ventilation grid to keep out small particles.	
Free Space	20 mm above and 35 mm below, 20 mm left and right, 10 mm in front	

Notes:
1. See Battery Back-up Times on next page.
2. DC UPS System includes one power module (SDU 10-24 or SDU 20-24) and one or more battery modules (SDU 24-BAT or SDU 24BATEM)

SDN DC UPS Battery Module Specifications

Parameter	SDU 24-BAT	SDU 24-BATEM
Nominal Voltage	24 Vdc	
Protection	Fuse: 30A	Circuit Breaker: 24V, 25A
Charging Current	0.5A	0.8A
Enclosure Dimension in. (mm)	4.88 x 8.27 x 4.55 (124 x 210 x 116)	11.5 x 5.57 x 4.57 (292 x 142 x 116)
Enclosure Type	IP20	NEMA 1
Terminal Connector Type	Polarized Powerpole Connectors	
Batteries	Replaceable Batteries	
Accessories	1 ft. polarized battery cable	6 ft. polarized battery cable
Operating Temperature	-20° to +50°C	
Storage Temperature	-20° to +40°C	
Humidity	95% no condensation	
Safety Standard For DC UPS System*	UL60950-1, IEC 60950-1, UL508, CE CAN/CSA C22.2 No 107.1-01 CAN/CSA C22.2 No 60950-1	
Weight – lbs (kg)	12 (5.33)	16 (7.11)
Mounting	Simple snap-on system for DIN Rail TS35/7.5 or TS35/15 or chassis-mounted, optional screw mounting set **SDU–PMBRK**.	Wall/Chassis Mounting

SDU DC UPS Back-Up Times (Typical)

SDU 10–24 with SDU 24–BAT					
Load	**20% (2A)**	**40% (4A)**	**60% (6A)**	**80% (8A)**	**100% (10A)**
1 unit	113	45	30	21	14
2 units	247	114	74	48	38
3 units	396	178	117	80	58
4 units	531	233	148	111	81
SDU 10–24 with SDU 24–BATEM					
1 EBP	135	52	28	19	14
SDU 20–24 with SDU 24–BAT					
Load	**20% (4A)**	**40% (8A)**	**60% (12A)**	**80% (16A)**	**100% (20A)**
1 unit	46	21	10	06	04
2 units	116	50	28	17	10
3 units	178	80	46	31	20
4 units	237	113	65	43	31
SDU 20–24 with SDU 24–BATEM					
1 EBP	48	17	9	6	4

SDU Series, DIN Rail AC UPS

The SDU DIN Rail UPS combines an industry leading compact design with a wide operation temperature range and unique installation options. The SDU series provides economical protection from damaging impulses and power interruptions. These units include easy to wire screw terminations for critical devices needing battery back up such as computer based control systems.

UL 1778
Ind. Application
E179213

Features

- Lightweight, compact industrial design
- Wide operation temperature range (0-50°C)
- Cold start capability
- Phone/dataline surge protection
- Software and cable included for easy installation
- Simulated sinewave output
- RS232 Communication Port
- USB Communication Port (optional)
- Form C Dry Contact Relay (optional)
- Panel/Wall mounting brackets (optional)
- Remote turn-on and shut-off capabilities NEW
- Limited two-year warranty

Approvals

- 120V models are UL1778 recognized for industrial applications without derating.
  - No derating required in UL508 applications.
- 230V models are CE marked.

Applications

- Programmable Logic Controllers
- Factory Automation
- Robotics
- Conveying Equipment
- Computer-based Control Systems

Related Products

- Portable MCR Power Conditioners
- STV Surge Protective Devices
- SDN DIN Rail Power Supplies
- STFV Plus Active Tracking® Filters

Selection Table

Capacity (VA/W)	Catalog Number	Volts, Frequency In/Out	Typical Back–up Time (minutes)*	Input/Output Connections	Approx. Ship Weight – lbs (kg)
500/300	**SDU 500**	120 Vac, 50/60 Hz	4	IP20 touch proof, screw terminals. Wire range: 10 ~ 24 AWG.	10.7 (4.7)
850/510	**SDU 850**		2		11.4 (5.0)
500/300	**SDU 500-5**	230 Vac, 50/60 Hz	4		11.5 (5.2)
850/510	**SDU 850-5**		2		11.9 (5.4)

* At full load.

SDU Accessories

Catalog Number	Description	Approx. Ship Weight – lbs (kg)
RELAYCARD-SDU	Dry contact I/O relay box, IP20 touch proof screw terminals, wire size range 12~22 AWG (IEC 2.5mm); N.O./N.C. form "C" contact. Relay contact signal for "On Battery", "Low Battery" and "UPS Shutdown".	1.0 (0.45)
UPSMON-USB	RS232 to USB adapter cable	1.0 (0.45)
SDU-PMBRK	Mounting brackets to secure UPS to wall, back of panel or enclosure.	1.0 (0.45)

Specifications

Catalog Number	SDU 500	SDU 850	SDU 500-5	SDU 850-5
Capacity (VA/Watts)	500/300	850/510	500/300	850/510
Load Power Factor	0.6			
Dimensions – inches (mm)				
Unit (H x W x D)	4.88 x 11.1 x 4.55 (124 x 281 x 116)			
Weight – lbs (kg)	10.7 (4.7)	11.4 (5.0)	11.5 (5.2)	11.9 (5.4)
Input Parameters				
Voltage	120 V (+10%, -20%)		230 V (+/- 20%)	
Frequency	50 +/- 5 Hz or 60 Hz +/- 6 Hz (auto sensing)			
Output AC Parameters				
Voltage (Battery Mode)	Step sinewave			
	+/- 5%			
Frequency (On Battery)	50 or 60 Hz			
	+/- 0.3 Hz			
Overload Protection	UPS automatic shutdown if overload exceeds 105% of nominal at 20 seconds, 120% at 10 seconds, 130% at 3 seconds			
Short Circuit	UPS output cut off immediately			
Battery Parameters				
Battery Type	Sealed, non-spillable, maintenance-free lead acid batteries			
Transfer Time	4 - 6 ms typical			
Back–up Time* (minutes)	4.5/18	2.5/10	4.5/18	2.5/10
Recharge Time	8 hours to 90% capacity after full discharge			
Environmental				
Operating Temperature	32°F to 122°F (0°C to 50°C)			
Storage Temperature	5°F to 140°F (-15°C to 60°C)			
Relative Humidity	1% to 95%, non-condensing			
Ambient Operation	1-95% humidity non-condensing, 0-50°C up to 5,000 ft. (1500m)			
Audible Noise	< 40dBA (1 meter from surface)			
Standards				
Safety	UL 1778 Recognized components for industrial applications in accordance with UL508 without derating. CAN/CSA C22.2 No 107.1-01. Overvoltage Category 3, pollution degree 3. FCC Part 15, Subpart B, Class A		CE Marked; LVD: EN62040-1-1; EMC: EN50091-2, EN61000-3-2, EN61000-3-3, IEC60801-2, IEC60801-3, IEC60801-4, IEC61000-2-2.	
Elevation	5000 ft. without derating			
Shock & Vibration	According to the International Safe Transit Association standard ISTA 2A.			
Mounting	To be mounted on DIN TS35/7.5 or TS35/15 rail system. Chassis mounting permissible via optional brackets. Unit handles normal shock and vibration of industrial use and transportation without coming off rail.			

* At full load/half load.

S1K Mini-Tower Off-line UPS

The S1K series provides economical protection from damaging impulses and power interruptions. These units include two types of outlets; three for critical devices needing battery back-up and surge protection such as the CPU and one surge protected only outlet for non-critical devices like printers and fax machines. The S1K is ideal for point of sale and office applications.

E179213

Features

- Lightweight, compact design
- 4 NEMA 5-15R outlets, (3 Battery, 1 Surge)
- Data-line surge protection for phone or network included on every unit.
- DB9 Communications Interface
- Software and cable included
- Step sinewave output
- Limited two-year warranty

Applications

- PCs
- Workstations
- Computer Terminals

Related Products

- Surge Protective Devices
- Active Tracking® Filters
- Portable MCR Power Conditioners

Selection Table

Capacity (VA/W)	Catalog Number	Volts, Frequency In/Out	Typical Back–up Time (minutes)*	Input Plug/ Output Receptacle	Approx. Ship Weight lbs (kg)
320/240	**S1K320**	115 Vac, 50 or 60 Hz	10	5-15P / 5-15R (3) Battery (1) Surge	8.8 (4.0)
520/340	**S1K520**		15		11.6 (5.3)
650/390	**S1K650**		15		8.1 (3.7)
850/600	**S1K850**		25		10.8 (4.9)
1200/720	**S1K1200**		30		10.8 (4.9)
1500/900	**S1K1500**		70	5-15P / 5-15R (4) Battery	30.0 (13.6)

* For a typical PC with a 15" monitor.

S1K Accessory

Hardware for Wall/Panel Mount (order part number separately)

Catalog Number	Description	Approx. Ship Weight lbs (kg)
S1K-PMBRK*	Wall/panel mount bracket kit for S1K (320VA~1200VA) UPS	1.0 (0.45)

* Not applicable to S1K1500

Visit our website at www.solahd.com or
contact **Technical Services** at **(800) 377-4384** with any questions.

Specifications

Catalog Number	S1K320	S1K520	S1K650	S1K850	S1K1200	S1K1500
Capacity (VA/Watts)	320/240	520/340	650/390	850/600	1200/720	1440/900
Dimensions – inches (mm)						
Unit (H x W x D)	5.3 x 3.8 x 10.4 (135 x 97 x 264)	5.3 x 3.8 x 12.6 (135 x 97 x 320)	5.3 x 3.8 x 10.4 (135 x 97 x 264)		5.3 x 3.8 x 12.6 (135 x 97 x 320)	7.5 x 5.11 x 15 (191 x 130 x 381)
Weight – lbs (kg)	8.8 (4.0)	11.6 (5.3)	8.1 (3.7)		10.8 (4.9)	30 (13.6)
Input Parameters						
Voltage	115V + 20% / -25%		115V +/-15%			115V +/-25%
Frequency	50 or 60 Hz ± 10% (auto sensing)					
Input Power Cord	6 ft. with NEMA 5-15P					
Output AC Parameters						
Voltage (Battery Mode)	Step sinewave at 115V					
	±10%		±5%			
Frequency (On Battery)	50 or 60 Hz					
	±1 Hz		±0.3 Hz			±1 Hz
Auto Voltage Regulation (AVR function under Normal Mode)	AVR automatically increases output voltage 15% above input voltage if 91% to 75% of nominal. AVR decrease output voltage 13% below input voltage if 109% to 125% of nominal		N/A			AVR (See first column for definition)
Overload Protection	UPS automatic shutdown if overload exceeds 105% of nominal at 20 seconds, 120% at 10 seconds, 130% at 3 seconds					UPS automatic shutdown if overload exceeds 110% of nominal at 60 seconds, 130% at 3 seconds
Short Circuit	UPS output cut off immediately					
Battery Parameters						
Battery Type	Sealed, maintenance-free lead acid batteries					
Transfer Time	4 milliseconds, Typical					
Back–up Time* (minutes)	10-20	15-25	15-30	25-40	30-45	70-80
Recharge Time	4 hours		6 hours			
Environmental						
Operating Temp.	32°F to 104°F (0°C to 40°C)					
Storage Temp.	5°F to 122°F (-15°C to 50°C)					
Relative Humidity	0% to 90%, non-condensing					
Ambient Operation	0-95% humidity non-condensing, 0-40°C up to 10,000 ft. (3000m)					
Audible Noise	< 40dBA (1 meter from surface)					
Standards						
Safety	UL 1778, $_{c}UL_{us}$ Listed, FCC Part 15, Subpart B, Class A					
Surge Protection	Meets IEEE C62.41, Category A					

* For a typical PC with a 15” monitor.

S3K Mini-Tower Line-Interactive UPS

The S3K is an economical choice for those applications requiring the performance of a sinewave output, line interactive UPS with the mini-tower shape for cabinet installations. The S3K Series protects against most severe power disturbances through state-of-the-art, line-interactive technology. Most power disturbance corrections are accomplished without transferring to the internal battery. Utility power is continually protected by the S3K Series UPS's and internal battery life is optimized.

The UPS has built in protection for under and over voltage conditions including low-energy lightning surges introduced on the input power source. All S3K Series UPS are provided with an input circuit protector and surge protected data line connectors. The S3K Series UPS's are provided with a battery test function. Should the battery fail this test, the UPS will display a warning to indicate that the battery needs to be replaced.

E179213

Features

- Mini-Tower design for control cabinet installation.
- Automatic Voltage Regulation (AVR) topology saves battery power for deep voltage sag situations.
- Sine wave output
- User replaceable, "hot swappable" batteries (Downtime for battery replacement not required).
- RS-232 Communications port
- Built-in surge protection
- Cold start capability (DC power on)
- Telephone/Modem spike protection
- Power Management software is included (UPSMON).
- 50/60 Hz auto sensing
- Fully digitized, microprocessor controlled
- Protects against most adverse power conditions including:
  - Frequency variations
  - Sags
  - Blackouts
  - Surge
  - Spike
  - Over and under voltages
- Limited two-year warranty

Applications

- Workstations
- PLCs
- Robotics and Process Control
- Industrial Automation Systems
- Automatic Service & Dispensing Equipment

Related Products

- Portable MCR Power Conditioners
- Surge Protective Devices
- Active Tracking® Filters

Battery Back-up Times Chart

Load %	S3K700	S3K1000	S3K1600
20	45	37	27
40	21	18	12
50	14	13	10
70	9	8	6
100	5	4	3

Note:

Back–up times are at 25ºC, 77ºF, with 100% capacity batteries and resistive loads.

Selection Table

Capacity (VA/W)	Catalog Number	Volts, Frequency (In/Out)	Typical Back–up Time (minutes)*	Input Plug/Output Receptacle	Approx. Ship Weight lbs (kg)
700/480	**S3K700**	120/120, 50/60 Hz	5/14	(Detached) 5-15P / (4)5-15R	34.1 (15.5)
1000/750	**S3K1000**	120/120, 50/60 Hz	4/13	(Detached) 5-15P / (4)5-15R	37.0 (16.8)
1440/1200	**S3K1600**	120/120, 50/60 Hz	3/10	(Attached) 5-15P / (6)5-15R	70.4 (32.0)

* Full/Half Load (in minutes).

Visit our website at www.solahd.com or
contact **Technical Services** at **(800) 377-4384** with any questions.

Specifications

Catalog Number	S3K700	S3K1000	S3K1600
Power Rating (VA/Watts)	700/480	1000/750	1440*/1200
Dimensions inches (mm)			
Unit (H x W x D)	8.3 x 5.5 x 17.2 (210 x 140 x 436)		8.9 x 6.7 x 17.7 (226 x 170 x 450)
Shipping (H x W x D)	11.75 x 10.5 x 19.2 (300 x 265 x 492)		14.0 x 12.0 x 22.25 (358 x 307 x 581)
Approx. Shipping Weight – lbs (kg)	34.1 (15.5)	37 (16.8)	70.4 (32)
Input AC Parameters			
Voltage Range	103-132 Vac		
Plug	6 ft. detachable with NEMA 5-15P		Attached 5-15P
Line to Boost Transfer	Maintains output to 120 Vac; -14%, when input is 120 Vac, -25%		
Line to Buck Transfer	Maintains output to 120 Vac; +10%, when input is 120 Vac, +23%		
Frequency	45-55 Hz or 55-65 Hz; auto sensing		
Output AC Parameters			
Voltage	103 Vac to 132 Vac		
Receptacles	(4) NEMA 5-15R		(6) NEMA 5-15R
Frequency	50 Hz or 60 Hz ±0.5%		
Waveform	Sine wave		
Overload Warning	100-110% Nominal		
Overload Shutdown	200% Nominal		
Battery Parameters			
Type	Valve-regulated, non-spillable, lead acid		
Battery Time (mins) (FL/HL)	5/14	4/13	3/10
Qty. x Voltage x Rating	4 x 12 V x 7 AH		6 x 12 V x 7 AH
Transfer Time	2-4 ms typical		
Back–up Time	See Battery Back-up Times Charts		
Recharge Time	4 Hours to 90% rated capacity, after full discharge into resistive load		
Environmental			
Operating Temperature	+32°F to +104°F (0°C to +40°C)		
Storage Temperature	+5°F to +122°F (-15°C to +50°C)		
Relative Humidity	0% to 95%, non-condensing		
Operating Elevation	Up to 10,000 ft. (3000 m) at 35°C without derating		
Audible Noise	<40 dBA, (beyond 1 m)		<45 dBA, (beyond 1 m)
Agency			
Safety	UL 1778, cULus Listed		
Emissions	FCC Part 15, Subpart B, Class A		
Immunity	IEC 60801-2, Level 4 / IEC 60801-4, Level 4 / ANSI C62.41 Category A & B		

* Note: 1200W at 0.75 power factor equals 1600VA. Line cord limits total load to 1440 VA (max).

S4K2U-C and S4K2U-5C Industrial On-Line UPS

The new SolaHD S4KC is a single-phase, on-line (double-conversion) UPS system available in 500-3000VA, 120V and 230V. On-Line design means zero transfer time from external to internal power. When utility power fails, your critical load remains supported by a seamless flow of power. Rack or tower configurable, the SolaHD S4KC UPS offers customers a higher power factor, longer battery life, higher reliability and reduced cost of ownership. Housed in a slim 2U package, the SolaHD S4KC protects equipment from virtually all power disturbances due to blackouts, brownouts, sags, surges or noise interference. The UPS includes internal batteries. Optional, matching external battery cabinets, also in a slim 2U (3.5") size, offer extended battery runtime.

The LED display indicates battery capacity, percentage of UPS load, battery operation, bypass operation and UPS fault condition.

The rack-tower models are also supplied with securing flanges and rack slide mounting hardware. Units can be easily hardwired by removing the attached line cord and receptacle plate. All units include a conduit knockout cover in the box.

E179213

Features

- Hardwire capability for permanent installation
- Small 2U height maximizes available space
- Input and output noise suppression
- Higher Output Power Factor of 0.90
- PWM inverter reduces output voltage distortion
- Add on batteries for extended back-ups
- Integral sealed non-spillable batteries
- Hot swappable user replaceable battery
- Automatic restart
- Automatic and manual battery test
- Rack-mount or Stand-alone tower mounting
- Units are field configurable with a PC as a frequency converter (bypass will be disabled)
- Integral dynamic bypass reduces shutdowns
- Compatible with most standby generators
- Two-year limited warranty

Note:

The securing flanges do not support the weight of the UPS. Rack slides or shelves are required (sold separately).

Applications

- Industrial Automation Systems
- Critical Microprocessors and PC Based Systems
- Robotics and Process Control
- Programmable Logic Controllers (PLC)
- Mission Critical and High Speed Networks
- Enterprise Telecommunication Systems
- Pharmaceutical and Medical Diagnosis Equipment
- Printing and Publishing Machinery

Selection Table - S4K2U-C & S4K2U-5C Tower/Rack-Mount Models

Capacity (VA/W)	Catalog Number	Typical Back–up Times (minutes)*	Input Plug/Output Receptacle	Approx. Ship Weight – lbs (kg)
120 Vac, 50/60 Hz Models				c UL us
700/630	**S4K2U700-C**	6/14	5-15P / (6) 5-15R	52.9 (24)
1000/900	**S4K2U1000-C**	5/15	5-15P / (6) 5-15R	
1500/1350	**S4K2U1500-C**	5/16	5-15P / (6) 5-15R	57.3 (26)
2000/1800	**S4K2U2000-C**	4/11	5-20P / (6)5-20R (15/20 amp type)	61.7 (28)
3000/2700	**S4K2U3000-C**	4/14	L5-30P / (5)5-20R (15/20 amp type): (1) L5-30R	70.5 (32)
230 Vac, 50/60 Hz International Models				CE
1000/900	**S4K2U1000-5C**	5/15	IEC 320-C14 / (6) IEC 320/C13	44.0 (20)
2000/1800	**S4K2U2000-5C**	4/11	IEC 320-C20 / (6) IEC 320-C13	61.7 (28)
3000/2700	**S4K2U3000-5C**	4/14	IEC 320-C20 / (6) IEC 320-C13 (1) IEC 320-C19	70.5 (32)

* Full/Half Load (in minutes).

S4K2U-C, 120 Vac, 50/60 Hz Tower/Rack-Mount Models Specifications

Catalog Number	S4K2U700–C	S4K2U1000–C	S4K2U1500–C	S4K2U2000–C	S4K2U3000–C
Dimensions, D x W x H, in. [mm]					
Unit	19.7 x 16.9 x 3.4 [497 x 430 x 85]				23.7 x 16.9 x 3.4 [602 x 430 x 85]
Shipping	25.5 x 23.9 x 10.6 [647 x 607 x 270]				29.4 x 23.4 x 10.6 [747 x 5607 x 270]
Weight, lb. [kg]					
Unit	37.0 [16.8]		51.1 [23.2]	51.1 [23.2]	71.4 [32.4]
Shipping	44.1 [20.0]		57.3 [26.0]	57.3 [26.0]	79.4 [36.0]
Input AC Parameters					
Voltage Range (typical)	120 Vac nominal; variable based on output load				
90% to 100% Loading	90 Vac/140 Vac		102 Vac/140 Vac		
70% to 90% Loading	86 Vac/140 Vac		96 Vac/140 Vac		
30% to 70% Loading	77 Vac/140 Vac		84 Vac/140 Vac		
0% to 30% Loading	60 Vac/140 Vac		60 Vac/140 Vac		
Power Factor	0.99				
Frequency	40 Hz to 70 Hz; auto sensing				
Input Power Cord [1]	10 ft. attached with NEMA 5-15P plug			10 ft. attached with NEMA 5-20P plug	10 ft. attached with NEMA L5-30P plug
Output AC Parameters					
Output Receptacles [1]	5-15R x 6			5-20R x 6	L5-30R x 1 + 5-20R x 6
Voltage	110/115/120/127 Vac (user-configurable) ±3%				
Waveform	Sine wave				
Utility (Vac) Mode Overload	200% for 2 seconds; 150% for 50 seconds with transfer to bypass				
Power Factor	0.90				
Battery					
Type	Valve-regulated, non-spillable, lead acid				
Qty x V x Rating	4 x 12 V x 5.0 Ah		4 x 12 V x 7.2 Ah	4 x 12 V x 9.0 Ah	6 x 12 V x 9.0 Ah
Battery Mfr./Part Number	YUASA/NPH5-12; CSB/HR 1221W		Panasonic/UP-RW1236; CSB/GP 1272	Panasonic/UP-RW1245; CSB/HR 1234W F2	
Backup Time [2]	6/14	5/15	5/16	4/11	4/14
Recharge Time	3 hours to 90% capacity after full discharge with 100% load until UPS auto shutdown (internal batteries only)				
Environmental Requirements					
Operating Temperature	0°C to +40°C [+32°F to +104°F]; See Operating Temperature Parameters				
Storage Temperature	-15°C to +50°C [+5°F to +122°F]				
Relative Humidity	0% to 95%, non-condensing				
Operating Elevation	Up to 10,000 ft. [3,000 m] at +40°C [+104°F] without derating				
Storage Elevation	50,000 ft. [15,000 m] max.				

Notes:

1. Full/half load (in minutes.) See selection table for more information.
2. Input power cord and receptacles can be removed for hardwired applications.

S4K2U-C, 120 Vac, 50/60 Hz Tower/Rack-Mount Models Specifications cont.

Catalog Number	S4K2U700–C	S4K2U1000–C	S4K2U1500–C	S4K2U2000–C	S4K2U3000–C
Audible Noise	<43 dBA max. @ 3 ft. [1 m] front & sides; <46 dBA max. @ 3 ft. [1 m] rear	<45 dBA max. @ 3 ft. [1 m] front & sides; <50 dBA max. @ 3 ft. [1 m] rear	<46 dBA max. @ 3 ft. [1 m] front & sides; <45 dBA max. @ 3 ft. [1 m] rear	<48 dBA max. @ 3 ft. [1 m] front & sides; <48 dBA max. @ 3 ft. [1 m] rear	
Agency					
Safety	UL1778, cUL Listed				
RFI/EMI	FCC Part 15, Class A = CISPR22 Class B				
Surge Immunity	IEC62040-2 2nd Ed.				
Transportation	ISTA Procedure 1A				

Operating Temperature Parameters			
Ambient temperature	+25°C to +30°C [+77°F to +86°F]	+30°C to +35°C [+86°F to +95°F]	+35°C to +40°C [+95°F to +104°F]
Maximum output power factor derating at maximum load	100% to 93%	93% to 86%	86% to 79%

S4K2U-5C, 230 Vac, 50/60 Hz Tower/Rack-Mount Models Specifications

Catalog Number	S4K2U1000–5C	S4K2U2000–5C	S4K2U3000–5C
Dimensions, D x W x H, in. [mm]			
Unit	497 x 430 x 85 [19.6 x 16.9 x 3.3]		602 x 430 x 85 [23.7 x 16.9 x 3.3]
Shipping	717 x 570 x 262 [28.2 x 22.4 x 10.3]		717 x 570 x 262 [28.2 x 22.4 x 10.3]
Weight, lb. [kg]			
Unit	37.0 [16.8]	51.1 [23.2]	71.4 [32.4]
Shipping	44.1 [20.0]	57.3 [26.0]	79.4 [36.0]
Input AC Parameters			
Voltage Range (typical)	230 Vac nominal; variable based on output load		
90% to 100% Loading	177 Vac/280 Vac		196 Vac/280 Vac
70% to 90% Loading	168 Vac/280 Vac		184 Vac/280 Vac
30% to 70% Loading	150 Vac/280 Vac		161 Vac/280 Vac
0% to 30% Loading	115 Vac/280 Vac		115 Vac/280 Vac
Power Factor	0.99		
Frequency	40 Hz to 70 Hz; auto sensing		
Input Power Receptacle [1]	IEC 320 C14	IEC 320 C20	
Output AC Parameters			
Output Receptacles [1]	IEC 320 C13 x 6		IEC 320 C13 x 6; IEC 320 C19 x 1
Voltage	220/230/240 Vac (user-configurable) ±3%		
Frequency	50 Hz or 60 Hz		
Waveform	Sine wave		
Overload	200% for 2 seconds; 150% for 1 minute with transfer to bypass	200% for 2 seconds; 150% for 50 seconds with transfer to bypass	200% for 2 seconds; 150% for 55 seconds with transfer to bypass
Power Factor	0.90		
Battery			
Type	Valve-regulated, non-spillable, lead acid		
Qty x V x Rating	4 x 12 V x 5.0 Ah	4 x 12 V x 9.0 Ah	6 x 12 V x 9.0 Ah
Battery Mfr./Part Number	YUASA/NPH5-12; CSB/HR 1221W	Panasonic/UP-RW1245; CSB/HR 1234W F2	
Backup Time [2]	5/15	4/11	4/14
Recharge Time	3 hours to 90% capacity after full discharge with 100% load until UPS auto shutdown (internal batteries only)		
Environmental Requirements			
Operating Temperature	0°C to +40°C [+32°F to +104°F]; See Operating Temperature Parameters		
Storage Temperatures	-15°C to +50°C [+5°F to +122°F]		
Relative Humidity	0% to 95%, non-condensing		
Operating Elevation	Up to 3,000 m [10,000 ft.] at +40°C [+104°F] without derating		
Storage Elevation	15,000 m [50,000 ft.] max.		

Notes:
1. Full/half load (in minutes.) See selection table for more information.
2. Input power cord and receptacles can be removed for hardwired applications.

S4K2U-5C, 230 Vac, 50/60 Hz Tower/Rack-Mount Models Specifications

Catalog Number	S4K2U1000–5C	S4K2U2000–5C	S4K2U3000–5C
Audible Noise	<43 dBA max. @ 1 m [3 ft.] front & sides; <46 dBA max. @ 1 m [3 ft.] rear	<48 dBA max. @ 1 m [3 ft.] front & sides; <48 dBA max. @ 1 m [3 ft.] rear	
Agency			
Safety	EC/EN/AS 62040-1-1:2008		
RFI/EMI	IEC/EN/AS 62040-2 2nd Ed. = CISPR22 Class A		
Surge Immunity	IEC62040-2 2nd Ed.		
Transportation	ISTA Procedure 1A		

Operating Temperature Parameters			
Ambient temperature	+25°C to +30°C [+77°F to +86°F]	+30°C to +35°C [+86°F to +95°F]	+35°C to +40°C [+95°F to +104°F]
Maximum output power factor derating at maximum load	100% to 93%	93% to 86%	86% to 79%

External Battery Cabinets Specifications

Catalog Numbers	S4K2U48BATC	S4K2U96BATC
Used with UPS models	S4K2U700C, S4K2U1000C (-5), S4K2U1500C, S4K2U2000C (-5)	S4K2U3000C (-5)
Dimensions, D x W x H, in. [mm]		
Unit	19.7 x 16.9 x 3.4 [497 x 430 x 85]	23.7 x 16.9 x 3.4 [602 x 430 x 85]
Shipping	24.3 x 22.4 x 10.3 [617 x 570 x 262]	28.2 x 22.4 x 10.3 [717 x 570 x 262]
Weight, lbs. [kg]		
Unit	70.5 [32.0]	93.5 [42.4]
Shipping	77.2 [35.0]	101.4 [46.0]
Battery		
Type	Valve-regulated, non-spillable, lead acid	
Qty x V x Rating	2 x 4 x 12 V x 9.0 Ah	2 x 6 x 12 V x 9.0 Ah
Battery Mfr./Part Number	Panasonic/UP-RW1245; CSB/HR 1234W F2	
Backup Time	Battery Back-up Times Chart	
Environmental Requirements		
Operating Temperature	0°C to +40°C [+32°F to +104°F]	
Storage Temperatures	-15°C to +50°C [+19°F to +122°F]; High ambient temperatures will reduce battery life	
Relative Humidity	0% to 95%, non-condensing	
Operating Elevation	Up to 10,000 ft. [3,000 m] at +40°C [+104°F] without derating	
Storage Elevation	50,000 ft. [15,000 m] max.	
Agency		
Safety	UL1778, cUL Listed	
RFI/EMI	FCC Part 15, Class A = CISPR22 Class B	
Surge Immunity	IEC62040-2 2nd Ed.	
Transportation	ISTA Procedure 1A	

S4K2U-C and S4K2U-5C Battery Back-up Times[1]

Number of Batteries	Model VA[1]	Backup Time (minutes) at Load (watts)[2]												
		200 W	400 W	600 W	800 W	1000 W	1200 W	1400 W	1600 W	1800 W	2000 W	2500 W	100% Load	
		Minutes											Min.	W
Internal battery	700	26	14	6	--	--	--	--	--	--	--	--	6	630
	1000	28	15	9	5	--	--	--	--	--	--	--	4	900
	1500	--	26	16	10	8	5	--	--	--	--	--	4	1350
	2000	--	--	20	11	10	8	6	5	4	--	--	4	1800
	3000	--	--	--	25	20	14	10	9	8	5	4	4	2700
Internal battery + 1 external battery cabinet	700	126	78	54	--	--	--	--	--	--	--	--	50	630
	1000	128	74	52	41	--	--	--	--	--	--	--	27	900
	1500	--	110	72	48	36	28	--	--	--	--	--	24	1350
	2000	--	--	54	34	34	26	22	17	15	--	--	15	1800
	3000	--	--	--	102	80	56	50	44	38	26	22	18	2700
Internal battery + 2 external battery cabinets	700	264	122	88	--	--	--	--	--	--	--	--	82	630
	1000	252	126	84	60	--	--	--	--	--	--	--	58	900
	1500	--	208	132	94	74	54	--	--	--	--	--	48	1350
	2000	--	--	120	82	60	52	44	36	29	--	--	29	1800
	3000	--	--	--	124	114	106	92	74	66	62	46	44	2700
Internal battery + 3 external battery cabinets	700	280	140	120	--	--	--	--	--	--	--	--	116	630
	1000	320	148	118	80	--	--	--	--	--	--	--	78	900
	1500	--	310	204	138	102	90	--	--	--	--	--	82	1350
	2000	--	--	180	126	92	72	62	52	45	--	--	45	1800
	3000	--	--	--	174	150	122	110	105	104	76	62	62	2700
Internal battery + 4 external battery cabinet	700	560	300	146	--	--	--	--	--	--	--	--	140	630
	1000	600	250	138	116	--	--	--	--	--	--	--	109	900
	1500	--	400	256	180	144	110	--	--	--	--	--	100	1350
	2000	--	--	240	166	130	108	94	84	64	--	--	64	1800
	3000	--	--	--	184	172	150	128	120	119	105	92	84	2700

[1]Backup times are valid for all models rated with the listed VA

[2]Approximate backup times are in minutes and at +25°C [+77°F] with a resistive load

Note:
S4K2U–5C models are not available in 700VA or 1500VA.

S4K4U-C 6 kVA and S4K6U-C 10 kVA Industrial On-Line UPS

The new SolaHD S4K4U6000C and the S4K6U10KC Industrial UPS Series are the first true On-Line industrial UPS that provide higher output power factor, higher efficiency, flexible output voltage, an integrated maintenance bypass switch and internal batteries all in slim 4U (7.0”) and 6U (10.5") enclosures respectively.

The S4K4UC and S4K6UC features true On-Line (double conversion) topology providing the ultimate in protection against a wide range of potential power problems. The S4K4UC design of two 3 kVA, 120V inverters allow flexible output voltage to meet mixed load voltage requirements. The UPS automatically configures the output voltage to match the input configuration without requiring tap selections. Self diagnostics simplify maintenance and troubleshooting. The standard maintenance bypass switch provides an additional level of protection.

The S4K4UC and S4K6UC also feature a wide input voltage window to support the critical load without having to transfer to the battery. This extends system availability when back-up is truly needed.

Features

- True double conversion topology
- Higher Power Factor of 0.80 (6kVA) and 0.90 (10kVA)
- Both models offer 208/120V or 240/120V
- Configurable as a Tower or Rack mounting
- Highest density, 6 kVA in only 4U and 10 kVA in only 6U of rack space
- Easily installed in 18” to 32” deep rack using rack mount kit # SRS1832
- User replaceable, hot-swappable internal battery module
- Extended Battery Cabinets
- Includes both automatic and manual maintenance bypass switch
- Automatic frequency detection (60 or 50 Hz)
- Power Factor Correction
- Self-Diagnostics simplify maintenance and troubleshooting
- Remote Emergency Power Off (REPO)
- Intellislot™ USB and Terminal Block Communication ports
- Compatible with most standby generators
- Two-year limited warranty applications

Applications

- Industrial Computers
- Robotics and Process Controls
- Industrial Automation Systems
- Network Servers
- Enterprise Telecommunication Systems
- Printing and Publishing Machinery
- Pharmaceutical and Medical Diagnosis Equipment
- Industrial and Commercial Machinery
- Micro-processor Controlled Equipment
- Mission Critical Devices

Related Products

- Portable MCR Power Conditioners
- Surge Protective Devices
- Active Tracking® Filters

S4K 6 and 10 kVA Specifications

Table 1: UPS Specifications		
Parameters	**Model**	
	S4K4U6000C	**S4K6U10KC**
Rating	4800 W/6000 VA	9000 W/10000 VA
DIMENSIONS, W x D x H, in. [mm]		
Unit	6.8 x 26.1 x 16.9 [173 x 662 x 430]	10.3 x 26.5 x 16.9 [261 x 672 x 430]
Shipping	13.2 x 33.1 x 26.1 [336 x 842 x 662]	16.7 x 32.8 x 24.1 [424 x 832 x 612]
WEIGHT, lb. [kg]		
Unit	56.2 [25.5]	78.3 [35.5]
Shipping	70.5 [32.0]	92.6 [42.0]
INPUT AC PARAMETERS		
Nominal Operating Frequency	50 or 60 Hz (Factory default is 60 Hz)	
Factory Default V ac	120/208 V ac @ 120 degrees	
L1–L2 Factory Default Input Phase Angle	120 degrees	
Allowable Input Phase Angle	120, 180, 240 degrees; auto-sensing on application of alternating current (Restrictions for L–N voltage other than 120 V ac)	
Factory Default L1–N, L2–N V ac	120 V ac nominal	
User Configurable L1–N, L2–N V ac	100/110/115/120/127 V ac (Can be modified with configuration program)	
Input Frequency w/o Battery Operation	40–70 Hz	
Input Power Connection	Hardwire terminal block 3W + G (L–L–N–G)	
L1–N, L2–N Maximum Allowable V ac	150 V ac	
OUTPUT AC PARAMETERS		
Factory Default V ac	120/208 V ac @ 120 degrees	
L1–L2 Factory Default Output Phase Angle	120 degrees	
Allowable Output Phase Angle	120, 180, 240 degrees; auto-sensing on initial application of input alternating current	
Factory Default L1–N, L2–N V ac	120 V ac nominal	
User Configurable L1–N, L2–N V ac	100/110/115/120/127 V ac, ±2%	
L1–N, L2–N Operating Load Range		
105% to 130%	1 minute	
131% to 150%	10 seconds	
151% to 200%	1 second	
>200% (impact load)	At least 5 cycles	

S4K 6 and 10 kVA Specifications - continued

Table 2: UPS Specifications		
Parameters	**Model**	
	S4K4U6000C	**S4K6U10KC**
BYPASS PROTECTION LIMITS		
Disable Bypass Operation	If input voltage exceeds ±15% of the nominal voltage	
Re-enable Bypass Operation	If input voltage returns to within ±10% of nominal output voltage	
Disable Bypass Operation	When the input frequency prevents synchronous operation	
ENVIRONMENTAL REQUIREMENTS		
Operating Temperature	0°C to +40°C [+32°F to +104°F]; see Table 8 for operating temperature parameters	
Storage Temperature	-15°C to +50°C [+5°F to +122°F]	
Relative Humidity	0% to 95%, non-condensing	
Operating Elevation	Up to 10,000 ft. [3,000 m] at +40°C [+104°F] without derating	
Audible Noise	<55 dBA @ 3.2 ft. [1 m] rear; <50 dBA @ 3.2 ft. [1 m] front & sides	
AGENCY		
Safety	UL1778, cUL Listed (suitable for computer room applications)	
RFI/EMI	FCC Part 15, Subpart B, Class A, FCC Class A	
Surge Immunity	IEEE/ANSI C62.41 Category A & B	
Transportation	ISTA Procedure 1A	

Table 3: Operating Temperature Parameters		
Ambient Temperature	**S4K4U6000C**	**S4K6U10KC**
pf @ 30°C ±3°C [pf @ 86°F ±5.4°F]	0.8 pf	0.9 pf
pf @ 40°C ±3°C [pf @ 104°F ±5.4°F]	0.8 pf	0.8 pf

Table 4: Internal Battery Specifications		
Parameters	**Model Number**	
	S4K144INTBATC	**S4K288INTBATC**
Used with UPS Models	S4K4U6000C	S4K6U10KC
DIMENSIONS, W x D x H, in. [mm]		
Unit	2.8 x 19.3 x 8.1 [70 x 490 x 206]	5.3 x 19.7 x 8.1 [135 x 500 x 207]
Shipping	12.2 x 23.7 x 10.3 [310 x 602 x 262]	12.2 x 23.9 x 9.5 [310 x 607 x 242]
WEIGHT, lb. [kg]		
Unit	75.8 [34.4]	71.1 [32.3]
Shipping	81.1 [36.8]	76.4 [34.7]
BATTERY PARAMETERS		
Type	Valve-regulated, non-spillable, flame retardant, lead acid	
Qty x V x Rating	2 x 6 x 12 V x 9.0 Ah	2 x 12 x 12 V x 9.0 Ah
Battery Mfr./Part Number	Yuasa/REW 45-12	
Backup Time	See Table 13	
Recharge Time	3 hours to 90% capacity after full discharge into 100% load	
ENVIRONMENTAL REQUIREMENTS		
Operating Temperature	0°C to +40°C [+32°F to +104°F]	
Storage Temperature	-15°C to +50°C [+5°F to +122°F]	
Relative Humidity	0% to 95%, non-condensing	
Operating Elevation	Up to 10,000 ft. [3,000 m] at +40°C [+104°F] without derating	
AGENCY		
Safety	UL1778, cUL Listed (suitable for computer room applications	
RFI/EMI	FCC Part 15, Subpart B, Class A	
Transportation	ISTA Procedure 1A	

Table 5: External Battery Cabinet Specifications		
Parameters	**Model Number**	
	S4K144BATC	**S4K288BATC**
Used with UPS Models	S4K4U6000C	S4K6U10KC
DIMENSIONS, W x D x H, in. [mm]		
Unit (with bezel)	3.3 x 26.1 x 16.9 [85 x 662 x 430]	6.8 x 26.5 x 16.9 [173 x 672 x 430]
Shipping	25.8 x 34.3 x 12.3 [655 x 872 x 312]	13.2 x 33.1 x 24.5 [336 x 842 x 622]
WEIGHT, lb. [kg]		
Unit	99.9 [45.3]	29.8 [13.5]
Shipping	110.2 [50.0]	44.1 [20.0]
BATTERY PARAMETERS		
Type	Valve-regulated, non-spillable, flame retardant, lead acid	
Qty x V x Rating	2 x 6 x 12 V x 9.0 Ah	2 x 12 x 12 V x 9.0 Ah
Battery Mfr./Part Number	Yuasa/REW 45-12	
Backup Time	See Table 13	
ENVIRONMENTAL REQUIREMENTS		
Operating Temperature	0°C to +40°C [+32°F to +104°F]	
Storage Temperature	-15°C to +50°C [+5°F to +122°F]	
Relative Humidity	0% to 95%, non-condensing	
Operating Elevation	Up to 10,000 ft. [3,000 m] at +40°C [+104°F] without derating	
AGENCY		
Safety	UL1778, cUL Listed (suitable for computer room applications)	
RFI/EMI	FCC Part 15, Subpart B, Class A	
Transportation	ISTA Procedure 1A	

Table 6: Power Distribution Specifications for S4K4U6000C

Parameters	Model Number								
	S4KPAD2-HDWRC	S4KPAD2-HDWR-MBSC*	S4KPAD2-001C	S4KPAD2-002C	S4KPAD2-003C	S4KPAD2-004C	S4KPAD2-005C	S4KPAD2-006C	S4KPAD2-L630C
DIMENSIONS, W x D x H, in. [mm]									
Unit	5.2 x 15.5 x 3.5 [132 x 393 x 88]								4.7 x 13.2 x 4.1 [119 x 335 x 105]
Shipping	9.5 x 20.7 x 9.1 [242 x 527 x 230]								10.2 x 18.4 x 8.7 [119 x 335 x 105]
WEIGHT, lb. [kg]									
Unit	5.1 [2.3]	6.0 [2.7]	8.8 [4.0]	8.6 [3.9]	8.6 [3.9]	9.9 [4.5]	10.6 [4.8]	9.5 [4.3]	8.8 [4.0]
Shipping	7.3 [3.3]	8.2 [3.7]	11.0 [5.0]	10.8 [4.9]	10.8 [4.9]	12.1 [5.5]	12.8 [5.8]	11.7 [5.3]	11.0 [5.0]
ELECTRICAL SPECIFICATIONS									
Amp Rating	30 A 2-pole input breaker								
Input Power Connections	Hardwire terminal block 3W + G (L–L–N–G)		(1) L14-30R on a 300 mm cord						(1) L6-30P
Output Power Connections	Hardwire terminal block 3W + G (L–L–N–G)		(4) 5-20R (1) L14-30 (1) L6-30R	(2) 5-20R (2) L6-20R	(4) 5-20R (2) L6-30	(4) L5-20R (2) L5-30R	(4) L5-20R (2) L6-30R	(4) L6-20R	(2) L6-20R (2) L6-30R

Table 7: Power Distribution Specifications for S4K6U10KC

Parameters	Model Number					
	S4KPAD2-101C	S4KPAD2-102C	S4KPAD2-103C	S4KPAD2-104C	S4KPAD2-105C	S4KPAD2-106C
DIMENSIONS, W x D x H, in. [mm]						
Unit	7.4 x 5.7 [188 x 145]					
Shipping	11.9 x 20.6 x 8.7 [302 x 522 x 220]					
WEIGHT, lb. [kg]						
Unit	4.4 [2.0]	6.6 [3.0]			4.4 [2.0]	6.6 [3.0]
Shipping	6.6 [3.0]	8.8 [4.0]			6.6 [3.0]	8.8 [4.0]
ELECTRICAL SPECIFICATIONS						
Amp Rating	60 A 2-pole input breaker					
Input Power Connections	Hardwire terminal block 3W + G (L–L–N–G) to chassis					
Output Power Connections	(2) L6-30 (8) 5-20R	(4) L6-20R (4) 5-20R	(4) 5-20R (4) L6-30R	(4) 5-20R (2) L6-30R (2) L6-20R	(4) 5-20R (2) L5-30R (2) L5-20R	(4) L6-20R (4) L5-20R

*Standard on S4K4U6000C units

S4KC Accessories

Hardware for Rack Mount (order part number separately)

Catalog Number	Description	Approx. Ship Weight lbs (kg)
Rack Slide Kits		
SRS1832	Rack slide kit for racks with 18-32" deep support rails.	8 (3.6)

Optional Equipment

Catalog Number	Description
Communications Options	
SNMPWEB CARD	Ethernet communications kit, (Supports SNMP, HTTP and OCP) includes SNMP hardware, MIB, configuration cable and installation manual.
RELAYCARD-INT	Relay contact board, 2 relay contact signals each independently configured for "On Battery", "Low Battery", "On Bypass", "On UPS", "Summary Alarm" and "UPS Fault" (rated at 24V @ 1 Amp AC or DC).

Power A/C Distribution (PAD)

PADs provide output distribution, input connection and a rotary maintenance bypass switch.
The PAD is field installed by the customer and allows the UPS to be removed without interrupting power to the load.

Catalog Number	Description	Series
A2D115HW	120 Volt, Hardwired for use with 15 Amp Input	S4K2U-C (700 - 1500 VA Models)
A2D120HW	120 Volt, Hardwired for use with 20 Amp Input	S4K2U-C (2000 VA Model)
A2D130HW	120 Volt, Hardwired for use with 30 Amp input	S4K2U-C (3000 VA Model)
A2D220HW5	230 Volt, Hardwired for use with 10 Amp input	S4K2U-C (1000-2000 VA Model)
A2D230HW5	230 Volt, Hardwired for use with 15 Amp input	S4K2U-C (3000 VA Model)
S4KPAD2-001C	208/120 V or 240/120 V, Plug-n-Play L14-30P, (4)5-20 (1) L14-30 (1) L6-30R	S4K4U6000C
S4KPAD2-002C	208/120 V or 240/120 V, Plug-n-Play L14-30P, (2) 5-20R, (2) L6-20R	S4K4U6000C
S4KPAD2-003C	208/120 V or 240/120 V, Plug-n-Play L14-30P, (4) 5-20R, (2) L6-30	S4K4U6000C
S4KPAD2-004C	208/120 V or 240/120 V, Plug-n-Play L14-30P, (4) L5-20R, (2) L5-30R	S4K4U6000C
S4KPAD2-005C	208/120 V or 240/120 V, Plug-n-Play L14-30P, (4) L5-20R, (2) L6-30R	S4K4U6000C
S4KPAD2-006C	208/120 V or 240/120 V, Plug-n-Play L14-30P, (4) L6-20R	S4K4U6000C
S4KPAD2-101C	208/120 V or 240/120 V, Output Distribution, (2) L6-30 (8) 5-20R	S4K6U10KC
S4KPAD2-102C	208/120 V or 240/120 V, Output Distribution, (4) L6-20R, (4) 5-20R	S4K6U10KC
S4KPAD2-103C	208/120 V or 240/120 V, Output Distribution, (4) 5-20R, (4) L6-30R	S4K6U10KC
S4KPAD2-104C	208/120 V or 240/120 V, Output Distribution, (4) 5-20R, (2) L6-30R, (2) L6-20R	S4K6U10KC
S4KPAD2-105C	208/120 V or 240/120 V, Output Distribution, (4) 5-20R, (2) L5-30R, (2) L5-20R	S4K6U10KC
S4KPAD2-106C	208/120 V or 240/120 V, Output Distribution, (4) L6-20R, (4) L5-20R	S4K6U10KC

Note: PADs can only be used with units having matching receptacles for the line cords provided.

Table 8: Battery Backup Times

Number of Batteries	Load	Backup Time (minutes)	
		S4K4U6000C	S4K6U10KC
Internal battery	30%	23	26
	40%	17	18
	50%	12	13.5
	60%	10	11
	70%	7	8
	80%	5.5	7
	90%	4.5	6
	100%	4	4.5
Internal battery + 1 external battery cabinet	30%	53	60
	40%	38	39
	50%	29	32
	60%	24	25
	70%	20	21
	80%	16	18
	90%	14	16
	100%	12	13
Internal battery + 2 external battery cabinets	30%	86	92
	40%	72	70
	50%	48	52
	60%	41	41
	70%	35	34
	80%	28	29
	90%	24	26
	100%	21	23
Internal battery + 3 external battery cabinets	30%	124	125
	40%	86	90
	50%	72	72
	60%	54	60
	70%	47	47
	80%	38	39
	90%	34	35
	100%	30	32

Table 9: Battery Backup Times

Number of Batteries	Load	Backup Time (minutes)	
		S4K4U6000C	S4K6U10KC
Internal battery + 4 external battery cabinets	30%	158	180
	40%	110	120
	50%	88	90
	60%	72	72
	70%	63	65
	80%	49	54
	90%	45	47
	100%	41	39

Using the configuration program, the user may specify the number of external battery cabinets attached to the UPS. The factory default is programmed for internal batteries only. Table 13 shows the estimated battery backup times at different loads.

S4K5U-5C 6 kVA International On-Line UPS

The new SolaHD S4K5U6K5C Industrial On-Line UPS Series is designed for international usage and provides flexible output voltage, an integrated maintenance bypass switch and internal batteries all in a slim 5U (8.7") enclosure. The S4K5U-5C features true On-Line (double conversion) topology providing the ultimate in protection against a wide range of potential power problems. Flexible output voltages (220/230/240 Volt) are available through the configuration program to allow for international use. One of the three L-N output voltages is selected to match the local voltage. Self diagnostics simplify maintenance and troubleshooting, and the UPS can be serviced by the customer. The standard maintenance bypass switch provides an additional level of protection.
The S4K5U-5C also features a wide input voltage window to support the critical load without having to transfer to the battery. This extends system availability when back-up is truly needed.

CE

Features

- True double conversion topology
- Higher Power Factor of 0.80
- Flexible L-N output voltage (220/230/240V)
- Configurable as a Tower or Rack Mount model
- High density, 6 kVA in only 5U of rack space
- Easily installed in 18" to 32" deep rack using rack mount kit # SRS1832
- User replaceable, hot-swappable internal battery module
- Matching 3U Extended Battery Cabinets
- Includes both automatic and manual maintenance bypass switch
- Automatic frequency detection of either 60 or 50 Hz
- Power Factor Correction
- Self-Diagnostics simplify maintenance and troubleshooting
- Remote Emergency Power Off (REPO)
- IntellislotTM, USB, and terminal Block Communication ports
- Compatible with most standby generators
- Two Year Limited Warranty

Applications

- Industrial Computers
- Robotics and Process Controls
- Industrial Automation Systems
- Network Servers
- Enterprise Telecommunication Systems
- Printing and Publishing Machinery
- Industrial and Commercial Machinery
- Pharmaceutical and Medical Diagnosis Equipment

Related Products

- Portable MCR Power Conditioners
- Surge Protective Devices
- Active Tracking® Filters

Table 10: UPS Specifications	
Parameters	**Model Number: S4K5U6K5C**
Rating	6000 VA/4800 W
DIMENSIONS, D x W x H, mm [in.]	
Unit	570 x 430 x 220 [22.4 x 16.9 x 8.7]
Shipping	745 x 530 x 516 [29.3 x 20.9 x 20.3]
WEIGHT, kg [lb.]	
Unit	60 [132.2]
Shipping	71 [156.5]
INPUT AC PARAMETERS	
Nominal Operating Frequency	50 or 60 Hz (Factory default is 50 Hz)
Factory Default V ac	230 V ac
User-configurable V ac	220/230/240 V ac (Can be modified using included configuration program)
Operating Voltage Range without Battery Operation	176–280 V ac
Maximum Allowable V ac	280 V ac
Input Frequency without Battery Operation	40–70 Hz
Input Power Connection	S4KPAD2-CEHWMBSC Standard (See "3.3 Removable Power Distribution Box")
OUTPUT AC PARAMETERS	
Factory Default V ac	230 V ac
Output Connections	S4KPAD2-CEHWMBSC Standard (See "3.3 Removable Power Distribution Box")
Frequency	50 or 60 Hz, nominal
Wave form	Sine wave
Main Mode Overload	>200% for 5 cycles; 151– 200% for 1 second; 131–150% for 10 seconds; 105–130% for 1 minute
BYPASS PROTECTION LIMITS	
Disable Bypass Operation	If input voltage exceeds ±15% of the nominal voltage
Re-enable Bypass Operation	If input voltage returns to within ±10% of nominal output voltage
Disable Bypass Operation	When the input frequency prevents synchronous operation
ENVIRONMENTAL REQUIREMENTS	
Operating Temperature	0°C to +40°C [+32°F to +104°F]; See Table 9
Storage Temperature	-15°C to +50°C [+5°F to +122°F]
Relative Humidity	0% to 95%, non-condensing
Operating Elevation	Up to 1,000 m [3,281 ft.] at +30°C [+86°F] without derating
Audible Noise	<55 dBA @ 1 m [3.2 ft.] rear; <50 dBA @ 1 m [3.2 ft.] front & sides

Table 11: UPS Specifications	
Parameters	**Model Number: S4K5U6K5C**
AGENCY	
Safety	IEC62040-1:2008 Version
EMI/EMC	IEC/EN/AS 62040-2 2nd Edition (Cat 2—Table 6)
ESD	EN61000-4-2, Level 4, Criteria A
Radiated Susceptibility	EN61000-4-3, Level 3, Criteria A
Electrical Fast Transient	EN61000-4-4, Level 4, Criteria A
Surge Immunity	EN61000-4-5, Level 3, Criteria A
Transportation	ISTA Procedure 1A

Table 12: Operating Temperature Parameters	
Ambient Temperature	**Model Number: S4K5U6K5C**
pf @ 30°C ±3°C [pf @ 86°F ±5.4°F]	0.8 pf
pf @ 40°C ±3°C [pf @ 104°F ±5.4°F]	0.8 pf

Table 13: Power Distribution Specifications	
Parameters	**Model Number: S4KPAD2-CEHWMBSC**
Used with UPS Model	S4K5U6K5C
Power Distribution Box Includes:	Two (2) IEC320 C19 16 A/250 V Sockets Eight (8) C13 10 A/250 V Sockets Manual bypass switch with indicator lamp
Ampere Rating	32 A
Input/Output Power Connections	3-wire hard wired, 6–10 mm^2 (8–10 AWG)
User-supplied Input Branch Circuit Breaker	32 A

Table 14: Internal Battery Specifications	
Parameters	**Model Number: S4K240INTBATC**
Used with UPS Model	S4K5U6K5C
DIMENSIONS, D x W x H, mm [in.]	
Unit	390 x 113 x 184 [15.4 x 4.4 x 7.2]
Shipping	467 x 178 x 262 [18.4 x 7.0 x 10.3]
WEIGHT, kg [lb.]	
Unit	20.6 [45.1]
Shipping	23.0 [50.7]
BATTERY PARAMETERS	
Type	Valve-regulated, non-spillable, lead acid
Qty x V x Rating	20 x 12 V x 9.0 Ah
Battery Mfr./Part Number	Yuasa/REW 45-12
Backup Time	See Table 13
Recharge Time	3 hours to 90% capacity after full discharge into 100% load
ENVIRONMENTAL REQUIREMENTS	
Operating Temperature	0°C to +40°C [+32°F to +104°F]; see Table 9
Storage Temperature	-15°C to +50°C [+5°F to +122°F]
Relative Humidity	0% to 95%, non-condensing
Operating Elevation	Up to 3,000 m [10,000 ft.] at +40°C [+104°F] without derating
AGENCY	
Safety	IEC62040-1:2008 Version
Transportation	ISTA Procedure 1A

Table 15: External Battery Cabinet Specifications	
Parameters	**Model Number: S4K240BATC**
Used with UPS Model	S4K5U6K5C
DIMENSIONS, D x W x H, mm [in.]	
Unit (with bezel)	570 x 430 x 148 [22.4 x 16.9 x 5.8]
Shipping	745 x 530 x 407 [29.3 x 20.8 x 16.0]
WEIGHT, kg [lb.]	
Unit	50.4 [111]
Shipping	54.0 [119]
BATTERY PARAMETERS	
Type	Valve-regulated, non-spillable, lead acid
Qty x V	1 x 20 x 12 V
Battery Mfr./Part Number	Yuasa/NPH5-12
Backup Time	See Table 13
ENVIRONMENTAL REQUIREMENTS	
Operating Temperature	0°C to +40°C [+32°F to +104°F]
Storage Temperature	-15°C to +50°C [+5°F to +122°F]
Relative Humidity	0% to 95%, non-condensing
Operating Elevation	Up to 1,000 m [3,281 ft.] at +40°C [+104°F]
AGENCY	
Safety	IEC62040-1:2008 Version
Transportation	ISTA Procedure 1A

Table 16: Battery Backup Times										
Number of Batteries	Output to Connected Load, W									100% Load, W
	1400	1800	2200	2600	3000	3400	3800	4200	4600	
Internal battery	28	18	14	11	9.5	7.5	6.5	5	4	4800
Internal battery + 1 external battery cabinet	56	36	28	22	19	15	13	10	8	4800
Internal battery + 2 external battery cabinets	84	54	42	33	28.5	22.5	19.5	15	12	4800
Internal battery + 3 external battery cabinets	112	72	56	44	38	30	26	20	16	4800
Internal battery + 4 external battery cabinets	140	80	70	55	47.5	37.5	32.5	25	20	4800

Using the configuration program, the user may specify the number of external battery cabinets attached to the UPS. The factory default is programmed for internal batteries only. Table 13 shows the estimated battery backup times at different loads.

UPS Extended Warranty Offering for the SolaHD 1K, S3K and S4K Series

S1K

Catalog Number	Description
1–Year Extended Warranty	
1EWPS1K320	1-year extended warranty for S1K320
1EWPS1K520	1-year extended warranty for S1K520
1EWPS1K650	1-year extended warranty for S1K650
1EWPS1K850	1-year extended warranty for S1K850
1EWPS1K1200	1-year extended warranty for S1K1200
1EWPS1K1500	1-year extended warranty for S1K1500
3–Year Extended Warranty	
3EWPS1K320	3-year extended warranty for S1K320
3EWPS1K520	3-year extended warranty for S1K520
3EWPS1K650	3-year extended warranty for S1K650
3EWPS1K850	3-year extended warranty for S1K850
3EWPS1K1200	3-year extended warranty for S1K1200
3EWPS1K1500	3-year extended warranty for S1K1500

S3K

Catalog Number	Description
1–Year Extended Warranty	
1EWPS3K700	1-year extended warranty for S3K700
1EWPS3K1000	1-year extended warranty for S3K1000
1EWPS3K1600	1-year extended warranty for S3K1600
3–Year Extended Warranty	
3EWPS3K700	3-year extended warranty for S3K700
3EWPS3K1000	3-year extended warranty for S3K1000
3EWPS3K1600	3-year extended warranty for S3K1600

S4K4UC AND S4K6UC – Maintenance Bypass Switch

Catalog Number	Description
1–Year Extended Warranty	
1EWPS4K06KPAD	1-year extended warranty for S4K4UC PADs
1EWPS4K10KPAD	1-year extended warranty for S4K6UC PADs
3–Year Extended Warranty	
3EWPS4K06KPAD	3-year extended warranty for S4K4UC PADs
3EWPS4K10KPAD	3-year extended warranty for S4K6UC PADs

S4KC Industrial – UPS Models

The extended warranty program extends the standard two-year product warranty by the term of the extension purchased, 1-year or 3 years. This results in warranty terms of 3 or 5 years (depending on the extension selected) from the date of purchase. SolaHD will repair or replace the unit at any point during the extension period, subject to the same conditions as the standard warranty. The warranty extension is not transferable.

Catalog Number	Description
1–Year Extended Warranty	
1EWPS4K2U700C	1-year extended warranty for S4K2U700C
1EWPS4K2U1000C	1-year extended warranty for S4K2U1000C
1EWPS4K2U1500C	1-year extended warranty for S4K2U1500C
1EWPS4K2U2000C	1-year extended warranty for S4K2U2000C
1EWPS4K2U3000C	1-year extended warranty for S4K2U3000C
1EWPS4K4U6000C	1-year extended warranty for S4K4U6000C
1EWPS4K6U10KC	1-year extended warranty for S4K6U10KC
3–Year Extended Warranty	
3EWPS4K2U700C	3-year extended warranty for S4K2U700C
3EWPS4K2U1000C	3-year extended warranty for S4K2U1000C
3EWPS4K2U1500C	3-year extended warranty for S4K2U1500C
3EWPS4K2U2000C	3-year extended warranty for S4K2U2000C
3EWPS4K2U3000C	3-year extended warranty for S4K2U3000C
3EWPS4K4U6000C	3-year extended warranty for S4K4U6000C
3EWPS4K6U10KC	3-year extended warranty for S4K6U10KC

Note: Warranty on S4K4U6000 covers electronics and internal battery.

S4KC Industrial – Battery Cabinets

Catalog Number	Description
1–Year Extended Warranty	
1EWPS4K2U48BATC	1-year extended warranty for S4K2U48BATC
1EWPS4K2U96BATC	1-year extended warranty for S4K2U96BATC
1EWPS4K144BATC	1-year extended warranty for S4K144BATC
1EWPS4K288BATC	1-year extended warranty for S4K288BATC
3–Year Extended Warranty	
3EWPS4K2U48BATC	3-year extended warranty for S4K2U48BATC
3EWPS4K2U96BATC	3-year extended warranty for S4K2U96BATC
3EWPS4K144BATC	3-year extended warranty for S4K144BATC
3EWPS4K288BATC	3-year extended warranty for S4K288BATC

Field Service Programs for the S4K4UC/6UC Industrial and S5K Series

These programs are for Domestic coverage (valid only within the continental United States and Canada); additional travel expenses may be billed to customers with site locations more than 150 miles from a major metropolitan area.

S4K4UC/6UC Industrial Start-Up Programs

Start–Up expands the warranty to include remedial onsite parts and labor for 2 years (in lieu of the 2-year parts/depot labor included with the standard unit). Start-up includes one site trip with in the contiguous 48 states by a customer service engineer, after the UPS has been installed. Any additional trips by the customer service engineer as a result of the site not being ready for start-up may result in additional costs to the customer. The site trip includes the following services for one UPS module: non powered inspection, UPS electrical and operation check out, full parts and labor for any remedial work required on the UPS or battery cabinets, and customer operation training at the time of start-up. Two plans are offered: Monday-Friday, 8 a.m. to 5 p.m. and 7 days/week, 24 hours/day.

Start–Up Plus includes the standard start-up as defined above plus one preventive maintenance (PM) service site trip within the contiguous 48 states. The PM must be scheduled during the two-year warranty period and during normal business hours (Monday through Friday, 8 a.m. to 5 p.m.). The PM will include the following services for one UPS module: consult with personnel responsible for the equipment, visually inspect internal subassemblies and major components, check all mechanical connections for tightness and heat discoloration, clean any foreign material and dust from internal compartments, calibrate equipment to manufacturer's specifications, check the normal operation of the system, check battery transfer/discharge and perform a short duration battery run, perform any required engineering field changes, return unit to operational service with the normal load and verify output power. Two plans are offered: Monday-Friday, 8 a.m. to 5 p.m. and 7 days/week, 24 hours/day.

S5K Modular Start-Up Programs

Start–Up is included in the cost of the S5K Modular UPS.

A separate Preventative Maintenance Only plan is available in addition to the standard Start-Up plan included in the cost of the S5K UPS.

Service Programs - S4K4UC/6UC and S5K Series

Preferred service level options include 6-hour on-site response, 24x7 within 150 miles of nearest service centers. 24x7 emergency service includes parts (including internal batteries), labor, and travel. Also includes one (1) Preventive Maintenance (PM) visit per year, scheduled at the customer's convenience (24x7).

Essential service level options include 6-hour on-site response, 24x7 within 150 miles of nearest service centers. 24x7 emergency service includes parts (including internal batteries), labor, and travel. Also includes one (1) Preventive Maintenance (PM) visit per year, scheduled by the customer for M-F 8AM-5PM.

Basic service level options include 6-hour on-site response, 24x7 within 150 miles of nearest service centers. 24x7 emergency service includes parts (excluding internal batteries), labor, and travel. Preventive Maintenance (PM) not included and is not available if the Basic Service plan is selected.

Field Service Programs for the S4K4UC, S4K6UC Industrial and S5K Series - continued

S4K4UC and S4K6UC Industrial Start-Up Programs

Catalog Number	Description
Domestic Only (Monday – Friday, 8am – 5pm)	
SUS4K061UM	6 kVA Start-Up
SUS4K101UM	10 kVA Start-Up
SUS4K061PM	6 kVA Start-Up Plus
SUS4K101PM	10 kVA Start-Up Plus
Domestic Only (7–Days/Week, 24 Hrs/Day)	
SUS4K061U7	6 kVA Start-Up
SUS4K101U7	10 kVA Start-Up
SUS4K061P7	6 kVA Start-Up Plus
SUS4K101P7	10 kVA Start-Up Plus

S4K4UC and S4K6UC Industrial Service Programs

Preferred Service (w/ 1 PM)	
Catalog Number	**Equipment**
MUUS4K06PR1	S4K4U6000C
MEUS4KBATPR1	S4K144BATC & S4K288BATC
MUUS4K10PR1	S4K6U10KC

Essential Service (w/ 1 PM)	
Catalog Number	**Equipment**
MUUS4K06ES1	S4K4U6000C
MEUS4KBATES1	S4K144BATC & S4K288BATC
MUUS4K10ES1	S4K6U10KC

Basic Service (PM not available)	
Catalog Number	**Equipment**
MUUS4K06BA0	S4K4U6000C
MEUS4KBATBA0	S4K144BATC & S4K288BATC
MUUS4K10BA0	S4K6U10KC

S4K4UC and S4K6UC Industrial Service Programs

1 PM Only (Mon–Fri, 8 am – 5 pm)	
Catalog Number	**Equipment**
MS4K061PM85	S4K4U6000C
MS4KBAT1PM85	S4K144BATC & S4K288BATC
MUUS4K10PM85	S4K6U10KC

1 PM Only (7 days, 24 hours)	
Catalog Number	**Equipment**
MS4K061PM24	S4K4U6000C
MS4KBAT1PM24	S4K144BATC & S4K288BATC
MUUS4K10PM24	S4K6U10KC

S5K Modular Service Programs

Contact Technical Services to obtain the catalog number for any of the Preferred, Essential or Basic Services (catalog number depends on the S5K configuration).

X = Number of Power Modules (#1 through #6)

YY = Number of Battery Modules (# 01 through #11)

Catalog Number	Service Program
MUUS5KXPRYY	Preferred Service
MUUS5KXESYY	Essential Service
MUUS5KXBAYY	Basic Service
MS5K1PM24	PM Only (7-Days/Week, 24 Hrs/Day) for all configurations

Note: Service programs are valid for one year.

S5K Modular Series On-Line Uninterruptible Power Systems (UPS)

This easily upgraded and flexible UPS provides the protection you want, when you need it.

The 5K Modular is scalable from 4 to 20 kVA, offering many flexible options by adding a few standard modules. Designed to be fully configured, tested and shipped in the configuration you need, the 5K Modular also has the ability to be easily upgraded in the field to either higher VA ratings (up to 20 kVA maximum), longer back-ups or to add N+x parallel redundancy. Configurations can be cost-effectively upgraded keeping your 5K Modular current without a large reinvestment in a new system.

The optional N+x redundancy provides a fault-tolerant group of power modules and controls. The modular design is easy to upgrade so the UPS can grow with the needs of the system that is being protected.

Each of the modular components, including 4 kVA power modules, battery modules and system control modules, can be hot-swapped making it easy to increase power, extend your back-up or add redundancy while still providing power protection to the load.

This fault-tolerant system uses intelligent power and battery modules which take themselves off-line if there is a problem without interrupting power to the load. Self-diagnostic capabilities simplify maintenance and troubleshooting. Each unit incorporates an internal automatic bypass.

Applications

- Network Servers
- Enterprise Telecommunications Systems
- LAN gateways, Bridges and Routers
- Mini-computers, Superservers and Server Clusters
- Clusters of PCs or Workstations and Peripherals
- RAID arrays and other large-scale Data Handling Systems

E179213

Features

- Scalable for capacity, redundancy, or battery back-up offering unbelievable flexibility.
- Built-in intelligence is provided for each individual module using microprocessor controls, increasing functionality, communications and reliability.
- N+x parallel redundancy is easily achieved by adding extra control, power and battery modules.
- Any failed module will automatically take itself off-line while the other modules continue to support the connected equipment.
- Multiple and simultaneous communication ports
- Variable input voltage range minimizes battery operation to increase battery life.
- An automatic internal bypass for maximum availability of output power.
- Continuous sinewave output
- Power factor corrected input reduces reflected distortion and optimizes utility power.
- Limited two-year warranty (Includes factory start up), See the Extended Warranty at the end of this section for details.

Chassis Options

The S5K Modular has three chassis available to build on:

- The “A” chassis can accommodate up to 8 modules.
- The “B” chassis can accommodate up to 12 modules and supplies 16 kVA of power, with N+1 redundancy.
- The “C” chassis can accommodate up to 12 modules and supplies a full 20 kVA of power, with N+1 redundancy.

System control modules are not included in module count. All chassis can accommodate up to two system control modules. Select the proper chassis based on your futures need for expansion or redundancy. In most standard (non-redundant) applications, the “A” chassis is the most popular.

Selection Steps

1. Determine the maximum kVA you will need for future expansion.

2. Determine the kVA and run time value for your immediate need.

3. Determine if you need redundancy. If the exact run time is the critical need, use the fully redundant option (see Selection Charts on the following pages).

4. Select the unit that meets both your immediate requirements, and is expandable to your future needs in the “Maximum Upgrade” column in the selection table. The Maximum Upgrade column shows the highest kVA expansion that particular configuration is capable of without removing any of the battery modules from the original configuration.

Specifications

Capacity (VA/Watts)	4 kVA / 2.8 kW to 20 kVA / 14 kW in 4 kVA / 2.8 kW increments
Dimensions – inches	
Unit (H x W x D)	8 module capacity “A” Chassis 41” x 20” x 28” 12 module capacity “B” or “C” Chassis 54” x 20” x 28”
Shipping (H x W x D)	56 in x 32 in x 42 in
Input AC Parameters	
Voltage Range (typical)	170-276 Vac Low line limit variable with load 170 Vac from 80 to 100% load 144 Vac from 20 to 90% load 127 Vac from 20 to 70% load 100 Vac at less than 30% load
Voltage Configuration and Connection	Single phase, 2-wire plus ground (L1-L2-G)
Frequency	60 Hz nominal 40 - 70 Hz range without operating from battery
Input Connector	Hardwired only
Power Factor	.98 typical
Output AC Parameters	
Voltage	240, 208, 240/120 (120-0-120) or 208/120 (120-0-88)
Receptacles	Optional with use of external Maintenance Bypass
Voltage Regulation	±3 %
Voltage Distortion	Maximum 3% THD for linear loads, maximum 7% THD for full non-linear loads.
Transient Response	< 7% for 100% step load; recovery within 96 ms.
Frequency	60 Hz
Frequency Slew Rate	Selectable up to 5 Hz/sec
Frequency Sync Range	Selectable up to ±5 Hz
Overload	100 to 110% for 10 minutes minimum 111 to 150% 10 seconds 151 to 200% for 2 Cycles
Battery Parameters	
Battery Type	Sealed, lead acid
Recharge Rate	3 to 5 Hrs to 90% capacity
Battery Back–up	See Battery Selection Tables for specific configurations Autonomy time is 6 minutes with an equal number of battery & power modules in a non-redundant configuration at full load
Battery Voltage	120 Vdc Nominal
Maximum charge current (full load)	3A
Environmental	
Operating Temperature	+32°F to +104°F (0°C to +40°C)
Storage Temperature	+5°F to +122°F (-15°C to +50°C)
Relative Humidity	0% to 95%, non-condensing
Operating Elevation	Up to 10,000 ft. (3000m) at 104°C (40°C) without derating
Storage Elevation	15.000m (50,000 ft.) maximum
Heat Dissipation	1062 BTU / Hour per fully loaded power module (4kVA / 2.8kW)
Audible Noise	< 62 dBA @ 1 meter
Agency	
Safety	UL 1778 listed; c-UL
Compliant Immunity Standards	ANSI C62.41, Class A & B
Routine Maintenance	Keep the UPS clean and cool to enhance system reliability. Occasionally clean or replace the fan intake filters and ensure proper airflow. Do not use liquid or aerosol cleaning fluids. Periodically review the UPS alarm logs

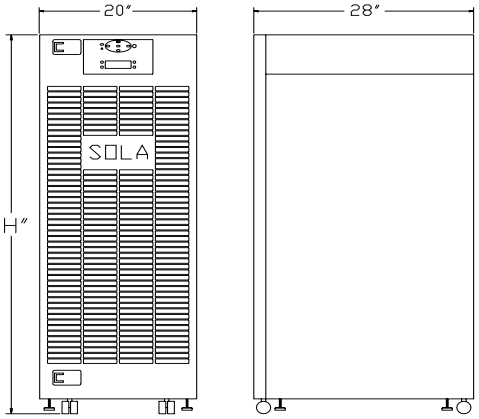
Recommended Part Numbers

(See selection charts for other options)

kVA / kW	Catalog Number		Back–up (Min@FL/HL)
	Standard	Redundant	
4/2.8	**S5KA4N1A6**	**S5KA4R1A6**	7/18
8/5.6	**S5KA8N2A6**	**S5KA8R2A6**	7/18
12/8.4	**S5KA12N3A6**	**S5KA12R3A6**	7/18
16/11.2	**S5KA16N4A6**	**S5KB16R4A6**	7/18
20/14	**S5KC20N5A6**	**S5KC20R5A6**	7/18

Mechanical Diagram

CHASSIS	HEIGHT "H"
A	41"
B	54"
C	54"



Part Number Configuration

The S5K modular is available in many combination. Use the part number template below to identify the description of any given part number.

Series Designation	Chassis Size	kVA Rating	Unit Type	Number of Battery Modules	Output Voltage	Frequency
	A = 8 Module, 16 kVA Capacity	**4, 8, 12, 16** or **20** kVA **00** = External Battery	**N** = Standard (Not Redundant)	* Must be at least one per 4 kVA of capacity	**A** = 208/120	**6** = 60 Hz
	B = 12 Module, 16 kVA Capacity		**R** = Redundant Power & Control			
	C = 12 Module, 20 kVA Capacity		**X** = Redundant Power, Battery & Control			
	D = External Battery Cabinet		**B** = Battery Cabinet			
Example: 4 kVA Load, Future Expandable to 16 kVA with 7 minutes of Back-up. What is the part number?						
S5K	A	4	N	1	A	6
Resulting catalog number is "S5KA4N1A6"						

Chassis A: 8 Module, 4 kVA Enclosure Selection Chart

System Model Number	Qty of Power Modules Included	Qty of Battery Modules Included	Qty of System Control Modules Included	Unit Weight (lbs)	Back–up Full/Half Load (minutes)	Maximum Upgrade[2]
4 kVA / 2.8kW						
S5KA4N1A6	1	1	1	441	7/18	16kVA
S5KA4N2A6	1	2	1	506	19/42	16kVA
S5KA4N3A6	1	3	1	571	30/61	16kVA
S5KA4N4A6	1	4	1	636	42/82	16kVA
S5KA4N5A6	1	5	1	701	52/98	12kVA
S5KA4N6A6	1	6	1	766	62/110	8kVA
S5KA4N7A6	1	7	1	831	75/140	N/A
Redundant (power & control only)						
S5KA4R1A6	2	1	2	472	7/18	12kVA
S5KA4R2A6	2	2	2	537	19/42	12kVA
S5KA4R3A6	2	3	2	602	30/61	12kVA
S5KA4R4A6	2	4	2	667	42/82	12kVA
S5KA4R5A6	2	5	2	732	52/98	8kVA
S5KA4R6A6	2	6	2	797	62/110	N/A
Full Redundant (battery, power & control)[1]						
S5KA4X2A6	2	2	2	537	7/18	12kVA
S5KA4X3A6	2	3	2	602	19/42	12kVA
S5KA4X4A6	2	4	2	667	30/61	8kVA
S5KA4X5A6	2	5	2	732	42/82	N/A
S5KA4X6A6	2	6	2	797	52/98	N/A

Notes:

1. Full redundant units include one redundant battery module. Back–up given does not include this extra module, so actual achieved Back–up will be longer than published.
2. The S5K modulars are easily upgraded by adding extra battery and/or power modules as long as the number of modules (battery plus power) does not exceed the number of modules the enclosure is designed to contain.
   – Control modules do not count toward the 8 module max. (2 max control modules per system).
   – There must be at least one battery module per power module installed.

Chassis A: 8 Module Enclosure Selection Chart

System Model Number	Qty of Power Modules Included	Qty of Battery Modules Included	Qty of System Control Modules Included	Unit Weight (lbs)	Back–up Full/Half Load (minutes)	Maximum Upgrade[2]
8 kVA / 5.6kW						
S5KA8N2A6	2	2	1	532	7 / 19	16kVA
S5KA8N3A6	2	3	1	597	13 / 30	16kVA
S5KA8N4A6	2	4	1	662	19 / 42	16kVA
S5KA8N5A6	2	5	1	727	25 / 52	12kVA
S5KA8N6A6	2	6	1	792	30 / 62	N/A
Redundant (power & control only)						
S5KA8R2A6	3	2	2	563	7 / 19	12kVA
S5KA8R3A6	3	3	2	628	13 / 30	12kVA
S5KA8R4A6	3	4	2	693	19 / 42	12kVA
S5KA8R5A6	3	5	2	758	25 / 52	N/A
Full Redundant (battery, power & control)[1]						
S5KA8X3A6	3	3	2	628	7 / 19	12kVA
S5KA8X4A6	3	4	2	693	13 / 30	N/A
S5KA8X5A6	3	5	2	758	19 / 42	N/A
12 kVA / 8.4kW						
S5KA12N3A6	3	3	1	623	7 / 19	16kVA
S5KA12N4A6	3	4	1	688	11 / 27	16kVA
S5KA12N5A6	3	5	1	753	15 / 34	N/A
Redundant (power & control only)						
S5KA12R3A6	4	3	2	654	7 / 19	N/A
S5KA12R4A6	4	4	2	719	11 / 27	N/A
Full Redundant (battery, power & control)[1]						
S5KA12X4A6	4	4	2	719	7 / 19	N/A
16 kVA / 11.2kW						
S5KA16N4A6	4	4	1	714	7 / 19	N/A

Notes:

1. Full redundant units include one redundant battery module. Back–up given does not include this extra module, so actual achieved Back–up will be longer than published.

2. The S5K modulars are easily upgraded by adding extra battery and/or power modules as long as the number of modules (battery plus power) does not exceed the number of modules the enclosure is designed to contain.
   – Control modules do not count toward the 8 module max. (2 max control modules per system).
   – There must be at least one battery module per power module installed.

Chassis B: 12 Module, 4 kVA Enclosure Selection Chart

System Model Number	Qty of Power Modules Included	Qty of Battery Modules Included	Qty of System Control Modules Included	Unit Weight (lbs)	Back–up Full/Half Load (minutes)	Maximum Upgrade[2]
4 kVA / 2.8 kW						
S5KB4N1A6	1	1	1	496	7 / 18	16 kVA
S5KB4N2A6	1	2	1	561	19 / 42	16 kVA
S5KB4N3A6	1	3	1	626	30 / 61	16 kVA
S5KB4N4A6	1	4	1	691	42 / 82	16 kVA
S5KB4N5A6	1	5	1	756	52 / 98	16 kVA
S5KB4N6A6	1	6	1	821	62 / 110	16 kVA
S5KB4N7A6	1	7	1	886	75 / 140	16 kVA
S5KB4N8A6	1	8	1	951	92 / 170	16 kVA
S5KB4N9A6	1	9	1	1016	100 / 190	12 kVA
S5KB4N10A6	1	10	1	1081	110 / 220	8 kVA
S5KB4N11A6	1	11	1	1146	120 / 250	N/A
Redundant (power & control only)						
S5KB4R1A6	2	1	2	527	7 / 18	16 kVA
S5KB4R2A6	2	2	2	592	19 / 42	16 kVA
S5KB4R3A6	2	3	2	657	30 / 61	16 kVA
S5KB4R4A6	2	4	2	722	42 / 82	16 kVA
S5KB4R5A6	2	5	2	787	52 / 98	16 kVA
S5KB4R6A6	2	6	2	852	62 / 110	16 kVA
S5KB4R7A6	2	7	1	917	75 / 140	16 kVA
S5KB4R8A6	2	8	1	982	92 / 170	12 kVA
S5KB4R9A6	2	9	1	1047	100 / 190	8 kVA
S5KB4R10A6	2	10	1	1112	110 / 220	N/A
Full Redundant (battery, power & control)[1]						
S5KB4X2A6	2	2	2	592	7 / 18	16 kVA
S5KB4X3A6	2	3	2	657	19 / 42	16 kVA
S5KB4X4A6	2	4	2	722	30 / 61	16 kVA
S5KB4X5A6	2	5	2	787	42 / 82	16 kVA
S5KB4X6A6	2	6	2	852	52 / 98	16 kVA
S5KB4X7A6	2	7	2	917	62 / 110	16 kVA
S5KB4X8A6	2	8	2	982	75 / 140	12 kVA
S5KB4X9A6	2	9	2	1047	92 / 170	8 kVA
S5KB4X10A6	2	10	2	1112	100 / 190	N/A

Notes:

1. Full redundant units include one redundant battery module. Back–up given does not include this extra module, so actual achieved Back–up will be longer than published.

2. The S5K modulars are easily upgraded by adding extra battery and/or power modules as long as the number of modules (battery plus power) does not exceed the number of modules the enclosure is designed to contain.
   – Control modules do not count toward the 8 module max. (2 max control modules per system).
   – There must be at least one battery module per power module installed.

Chassis B: 12 Module, 8 kVA Enclosure Selection Chart

System Model Number	Qty of Power Modules Included	Qty of Battery Modules Included	Qty of System Control Modules Included	Unit Weight (lbs)	Back–up Full/Half Load (minutes)	Maximum Upgrade[2]
8 kVA / 5.6kW						
S5KB8N2A6	2	2	1	587	7 / 19	16kVA
S5KB8N3A6	2	3	1	652	13 / 30	16kVA
S5KB8N4A6	2	4	1	717	19 / 42	16kVA
S5KB8N5A6	2	5	1	782	25 / 52	16kVA
S5KB8N6A6	2	6	1	847	30 / 62	16kVA
S5KB8N7A6	2	7	1	912	38 / 75	16kVA
S5KB8N8A6	2	8	1	977	43 / 92	16kVA
S5KB8N9A6	2	9	1	1042	47 / 100	12kVA
S5KB8N10A6	2	10	1	1107	54 / 110	N/A
Redundant (power & control only)						
S5KB8R2A6	3	2	2	618	7 / 19	16kVA
S5KB8R3A6	3	3	2	683	13 / 30	16kVA
S5KB8R4A6	3	4	2	748	19 / 42	16kVA
S5KB8R5A6	3	5	2	813	25 / 52	16kVA
S5KB8R6A6	3	6	2	878	30 / 62	16kVA
S5KB8R7A6	3	7	2	943	38 / 75	16kVA
S5KB8R8A6	3	8	2	1008	43 / 92	12kVA
S5KB8R9A6	3	9	2	1073	47 / 100	N/A
Full Redundant (battery, power & control)[1]						
S5KB8X3A6	3	3	2	628	7 / 19	16kVA
S5KB8X4A6	3	4	2	693	13 / 30	16kVA
S5KB8X5A6	3	5	2	758	19 / 42	16kVA
S5KB8X6A6	3	6	2	878	25 / 52	16kVA
S5KB8X7A6	3	7	2	943	30 / 62	16kVA
S5KB8X8A6	3	8	2	1008	38 / 75	12kVA
S5KB8X9A6	3	9	2	1073	43 / 92	N/A

Notes: (Apply to all 12 Module Tables)

1. Full redundant units include one redundant battery module. Back–up given does not include this extra module, so actual achieved Back–up will be longer than published.

2. The S5K modulars are easily upgraded by adding extra battery and/or power modules as long as the number of modules (battery plus power) does not exceed the number of modules the enclosure is designed to contain.
   – Control modules do not count toward the 8 module max. (2 max control modules per system).
   – There must be at least one battery module per power module installed.

Chassis B: 12 Module, 12 and 16 kVA Enclosure Selection Chart

System Model Number	Qty of Power Modules Included	Qty of Battery Modules Included	Qty of System Control Modules Included	Unit Weight (lbs)	Back–up Full/Half Load (minutes)	Maximum Upgrade[2]
12 kVA / 8.4kW						
S5KB12N3A6	3	3	1	678	7 / 19	16kVA
S5KB12N4A6	3	4	1	743	11 / 27	16kVA
S5KB12N5A6	3	5	1	808	15 / 34	16kVA
S5KB12N6A6	3	6	1	873	18 / 41	16kVA
S5KB12N7A6	3	7	1	938	24 / 50	16kVA
S5KB12N8A6	3	8	1	1003	27 / 58	16kVA
S5KB12N9A6	3	9	1	1068	29 / 63	N/A
Redundant (power & control only)						
S5KB12R3A6	4	3	2	709	7 / 19	16kVA
S5KB12R4A6	4	4	2	774	11 / 27	16kVA
S5KB12R5A6	4	5	2	839	15 / 34	16kVA
S5KB12R6A6	4	6	2	904	18 / 41	16kVA
S5KB12R7A6	4	7	2	969	24 / 50	16kVA
S5KB12R8A6	4	8	2	1034	27 / 58	N/A
Full Redundant (battery, power & control)[1]						
S5KB12X4A6	4	4	2	719	7 / 19	16kVA
S5KB12X5A6	4	5	2	839	11 / 27	16kVA
S5KB12X6A6	4	6	2	904	15 / 34	16kVA
S5KB12X7A6	4	7	2	969	18 / 41	16kVA
S5KB12X8A6	4	8	2	1034	24 / 50	N/A
16 kVA / 11.2kW						
S5KB16N4A6	4	4	1	769	7 / 19	N/A
S5KB16N5A6	4	5	1	834	11 / 27	N/A
S5KB16N6A6	4	6	1	899	15 / 34	N/A
S5KB16N7A6	4	7	1	964	16 / 38	N/A
S5KB16N8A6	4	8	1	1029	19 / 43	N/A
Redundant (power & control only)						
S5KB16R4A6	5	4	2	800	7 / 19	N/A
S5KB16R5A6	5	5	2	865	10 / 25	N/A
S5KB16R6A6	5	6	2	930	12 / 30	N/A
S5KB16R7A6	5	7	2	995	16 / 38	N/A
Full Redundant (battery, power & control)[1]						
S5KB16X5A6	5	5	2	865	7 / 19	N/A
S5KB16X6A6	5	6	2	930	10 / 25	N/A
S5KB16X7A6	5	7	2	995	12 / 30	N/A

Note: See previous page.

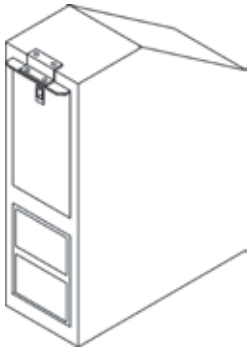
Chassis C: 12 Module, 12, 16 and 20 kVA Enclosure Selection Chart

System Model Number	Qty of Power Modules Included	Qty of Battery Modules Included	Qty of System Control Modules Included	Unit Weight (lbs)	Back–up Full/Half Load (minutes)	Maximum Upgrade[2]
12 kVA / 8.4 kW						
S5KC12N3A6	3	3	1	744	7 / 19	20 kVA
S5KC12N4A6	3	4	1	809	12 / 24	20 kVA
S5KC12N5A6	3	5	1	874	16 / 36	20 kVA
S5KC12N6A6	3	6	1	939	20 / 43	20 kVA
S5KC12N7A6	3	7	1	1004	24 / 51	20 kVA
S5KC12N8A6	3	8	1	1069	28 / 60	16 kVA
S5KC12N9A6	3	9	1	1134	32 / 68	N/A
Redundant (power & control only)						
S5KC12R3A6	4	3	2	775	7 / 19	20 kVA
S5KC12R4A6	4	4	2	846	12 / 24	20 kVA
S5KC12R5A6	4	5	2	905	16 / 36	20 kVA
S5KC12R6A6	4	6	2	970	20 / 43	20 kVA
S5KC12R7A6	4	7	2	1035	24 / 51	16 kVA
S5KC12R8A6	4	8	2	1100	28 / 60	N/A
Full Redundant (battery, power & control)[1]						
S5KC12X4A6	4	4	2	840	7 / 19	20 kVA
S5KC12X5A6	4	5	2	905	12 / 24	20 kVA
S5KC12X6A6	4	6	2	970	16 / 36	20 kVA
S5KC12X7A6	4	7	2	1035	20 / 43	16 kVA
S5KC12X8A6	4	8	2	1100	24 / 51	N/A
16 kVA / 11.2 kW						
S5KC16N4A6	4	4	1	835	7 / 19	20 kVA
S5KC16N5A6	4	5	1	900	9 / 25	20 kVA
S5KC16N6A6	4	6	1	965	13 / 31	20 kVA
S5KC16N7A6	4	7	1	1030	17 / 37	20 kVA
S5KC16N8A6	4	8	1	1095	19 / 43	N/A
Redundant (power & control only)						
S5KC16R4A6	5	4	2	866	7 / 19	20 kVA
S5KC16R5A6	5	5	2	931	9 / 25	20 kVA
S5KC16R6A6	5	6	2	996	13 / 31	20 kVA
S5KC16R7A6	5	7	2	1061	17 / 37	N/A
Full Redundant (battery, power & control)[1]						
S5KC16X5A6	5	5	2	931	7 / 19	20 kVA
S5KC16X6A6	5	6	2	996	9 / 25	20 kVA
S5KC16X7A6	5	7	2	1061	13 / 31	N/A
20 kVA / 13 kW						
S5KC20N5A6	5	5	1	926	7 / 19	N/A
S5KC20N6A6	5	6	1	991	9 / 24	N/A
S5KC20N7A6	5	7	1	1056	12 / 29	N/A
Redundant (power & control only)						
S5KC20R5A6	6	5	2	957	7 / 19	N/A
S5KC20R6A6	6	6	2	1033	9 / 24	N/A
Full Redundant (battery, power & control)[1]						
S5KC20X6A6	6	6	2	1022	7 / 19	N/A

Note: See previous page.

Maintenance Bypass Options

The S5K Modular Series Maintenance Bypass Cabinet provides complete "wrap around" protection and allows the UPS to be pulled from service without interrupting power to the loads.



Front View

The Maintenance Bypass Cabinet controls are located behind a lockable front panel to provide operation security. Controls include a manual by-pass transfer switch, UPS input disconnect switch, and a branch rated output circuit breaker. Indicator lamps provide visual confirmation that the UPS input, UPS output, and bypass source are available. Models are available with and without an isolation transformer in the bypass path. The Maintenance Bypass with Transformer option provides isolation in the bypass path as well as flexibility with utility voltages. The transformer provides simultaneous output voltages of 120/120/208/240 V regardless of whether the input voltage is 208 or 240 V.

The Maintenance Bypass ships on a wooden pallet with a metal pull out ramp. The bypass cabinet includes casters and leveling feet as well as floor mounting brackets (brackets are used to secure bypass cabinet to pallet during shipping).

The Maintenance Bypass has a two year parts and labor warranty. Basic start-up is included, if the bypass cabinet is purchased at the same time as the S5K Modular UPS. Start-up of the Maintenance Bypass must occur at the same time as start-up of the UPS.

The S5KMBS-00-ISO hardwired Maintenance Bypass can be reconfigured by removing the provided plates and adding the Receptacle Kit options. The S5KMBS-00-ISO has 8 blank plates. Each plate can be removed and a Receptacle Kit option installed by a qualified electrician or electrical contractor. The hardwired output provision may also be removed adding slots for two (2) more Receptacle Kits (for a total of 10 Kits Maximum per MBS). Reassembled configurations are available for those who would prefer the MBS arrive with any needed receptacles already installed. Contact your local SolaHD Sales Representative for details.

MBS Wiring Kit Options

Optional wiring kits include all necessary conduit, wiring and conduit fittings to make the input and output connections between the UPS and the Maintenance Bypass.

Catalog Number	Description (right or left side as viewed from front)
S5KWKITR	Bypass without transformer, mounted on right of UPS
S5KWKITL	Bypass without transformer, mounted on left of UPS
S5KWKITR-ISO	Bypass with transformer, mounted on right of UPS
S5KWKITL-ISO	Bypass with transformer, mounted on left of UPS

Maintenance Bypass Switch (MBS)

Catalog Number	Description	Dimensions (H x W x D) – in (mm) Weight (lbs/kg)
Hardwired MBS		
S5KMBS-00-ISO	Hardwired Bypass w/ 120/120/208/240 V output with isolation transformer	30.4 x 9.5 x 26.5 (775 x 241 x 700) 300 (130)
S5KMBS-00*	Hardwired Bypass w/ 208 or 240 V output (does not support 120 V loads)	
S5KMBS-C0-ISO	Hardwired Bypass w/ 120/120/208/240 V output with 20 kVA isolation transformer	
S5KMBS-C0*	Hardwired Bypass w/ 208 or 240 V output	
MBS with pre–configured distribution options		
S5KMBS-01-ISO	Bypass w/ 120/120/240 V output with isolation transformer & the following receptacle options: (10) Duplex 5-15R	30.4 x 9.5 x 26.5 (775 x 241 x 700) 300 (130)
S5KMBS-02-ISO	Bypass w/ 120/120/240 V output with isolation transformer & the following receptacle options: (6) Duplex 5-15R (2) Duplex 5-20R (1)L14-30R 120/120/240 V	
S5KMBS-03-ISO	Bypass w/ 120/120/240V output with the following receptacle options: (4) Duplex 5-20R (2) L5-20R (2) L6-20R - 240 V (2) L6-30R - 240	

***Note:** Unit does not include an isolation transformer and does not support 120V loads.

Receptacle Kit Options (max qty 10 per MBS)

Catalog Number	Description
S5K120HW15KIT	Hardwire kit, 120 V, 15A (1) Pole Breaker, ½" & ¾" knockout
S5K208HW15KIT	Hardwire kit, 208 V, 15A (2) Pole Breaker, ½" & ¾" knockout
S5K240HW15KIT	Hardwire kit, 240 V, 15A (2) Pole Breaker, ½" & ¾" knockout
S5K515R2KIT	Duplex NEMA 5-15R Receptacle Kit
S5KL515RKIT	Duplex NEMA L5-15R Receptacle Kit
S5K615R2KIT208	NEMA 6-15R 208 Vac Receptacle Kit
S5K615R2KIT240	NEMA 6-15R 240 Vac Receptacle Kit
S5KL615R2KIT208	NEMA L6-15R 208 Vac Receptacle Kit
S5KL615R2KIT240	NEMA L6-15R 240 Vac Receptacle Kit
S5K120HW20KIT	Hardwire kit, 120 V, 20A (1) Pole Breaker, ½" & ¾" knockout
S5K208HW20KIT	Hardwire kit, 208 V, 20A (2) Pole Breaker, ½" & ¾" knockout
S5K240HW20KIT	Hardwire kit, 240 V, 20A (2) Pole Breaker, ½" & ¾" knockout
S5K520R2KIT	Duplex NEMA 5-20R Receptacle Kit
S5KL520RKIT	NEMA L5-20R Receptacle Kit
S5KL620RKIT208	NEMA L6-20R 208 Vac Receptacle Kit
S5KL620RKIT240	NEMA L6-20R 240 Vac Receptacle Kit
S5KL1420RKIT	NEMA L14-20R 120/120/240 Receptacle Kit
S5K120HW30KIT	Hardwire kit, 120 V, 30A (1) Pole Breaker, ½" & ¾" knockout
S5K208HW30KIT	Hardwire kit, 208 V, 30A (2) Pole Breaker, ½" & ¾" knockout
S5K240HW30KIT	Hardwire kit, 240 V, 30A (2) Pole Breaker, ½" & ¾" knockout
S5KL530RKIT	NEMA L5-30R Receptacle Kit
S5KL630RKIT208	NEMA L6-30R 208 Vac Receptacle Kit
S5KL630RKIT240	NEMA L6-30R 240 Vac Receptacle Kit
S5KL1430RKIT	NEMA L14-30R 120/120/240 Receptacle Kit

External Battery Options*

Catalog Number	Number of Battery Modules	Shipping Weight – lbs (kg)
S5KD00B1200	12	1107 (502.13)
S5KD00B1100	11	1041 (472.19)
S5KD00B1000	10	975 (442.25)
S5KD00B0900	9	909 (412.32)
S5KD00B0800	8	843 (382.38)
S5KD00B0700	7	777 (352.44)
S5KD00B0600	6	711 (322.50)
S5KD00B0500	5	645 (292.57)
S5KD00B0400	4	579 (262.63)
S5KD00B0300	3	513 (232.69)
S5KD00B0200	2	447 (202.75)
S5KD00B0100	1	381 (172.82)
Pluggable Cables for Extended Battery Options		
S5KEXTBC3	3 ft. pluggable battery cable for connection between extended battery cabinet and UPS	
S5KEXTBC15	15 ft. pluggable battery cable for connection between extended battery cabinet and UPS	
S5KEXLBCKIT	External battery cable adapter (allows hardwire of up to 25 ft. of customer supplied battery cable and conduit, (2) required for use with extended battery cabinet	

* Pluggable cables for external battery options.

Optional Equipment

Expansion Module Options		
Catalog Number	**Description**	**Approx. Ship Weight**
S5K4KPWR	4 kVA / 2.8 kW Power Module	30 (13.61)
S5KBATT	Battery Module	70 (31.75)
S5KCNTRL	Control Module	7 (3.17)
Communication Options		
Catalog Number	**Description**	
SNMP WEB CARD	Ethernet communications kit, (Supports SNMP, HTTP & OCP) includes SNMP hardware, MIB, configuration cable and installation manual.	
RELAY CARD-INT	Relay contact board, relay contact signals for "On Battery", "Low Battery", "On Bypass", "On UPS", "Summary Alarm" and "UPS Fault".	
S5KREPOKIT	Remote Emergency Power Off Kit includes 50' length of cable with connector to UPS and external push button switch.	
External Battery Connections		
S5KEXTBC3	3 ft. Battery Connection Cable	
S5KBATKIT	Battery Connection Kit allows up to 25' or customer supplied cable and conduit.	