

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

The true on-line (double conversion) protection offered by the S4K2U Industrial UPS series eliminates a wider range of potential power problems (spikes, surges and extended overvoltage, noise and other transients, sags and extended brownouts), even difficult-to-track harmonics and dangerous frequency variations that are common with stand-by generator operation. These UPS modules are a true on-line design with a sinewave output in a slim 2U (3.5") package.

#### Features

- S4K2U offered at 120V, 50/60 Hz
- S4K2U-5 offers flexible L-N output voltage (220/230/240 V, 50/60 Hz for international applications)
- Hardwire capability for permanent installation
- Small 2U height maximizes available space
- Two step battery recharge extends battery life
- PWM inverter reduces output voltage distortion
- Add on batteries for extended Back-ups
- Integral sealed, non-spillable batteries for safe ground or air transportation.
- Hot swappable, user replaceable battery
- Automatic restart
- Automatic and manual battery test
- RS232 communication port easily interfaces with the PC.

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.



- Rack-mount or Stand-alone tower mounting for 700 - 3000 VA units
- 700 - 3000 VA 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
- Input and output noise suppression
- Limited two-year warranty

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

#### Selection Table - S4K2U & S4K2U-5 Tower/Rack-mount Models

| Capacity (VA/W)                               | Catalog Number | Typical Back-up Times (minutes)* | Input Plug/Output Receptacle                        | Approx. Ship Weight – lbs (kg)                                                        |
|-----------------------------------------------|----------------|----------------------------------|-----------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>120 Vac, 50/60 Hz Models</b>               |                |                                  |                                                     |  |
| 700/490                                       | S4K2U700       | 17/44                            | 5-15P / (4) 5-15R                                   | 50 (22.7)                                                                             |
| 1000/700                                      | S4K2U1000      | 11/25                            | 5-15P / (4) 5-15R                                   | 51 (23.1)                                                                             |
| 1500/1050                                     | S4K2U1500      | 7/20                             | 5-15P / (4) 5-15R                                   | 52 (23.6)                                                                             |
| 2000/1400                                     | S4K2U2000      | 6/14                             | 5-20P / (4)5-20R (15/20 amp type)                   | 56 (25.4)                                                                             |
| 3000/2100                                     | S4K2U3000      | 5/16                             | L5-30P / (4)5-20R (15/20 amp type), L5-30R          | 76 (34.5)                                                                             |
| <b>230 Vac, 50/60 Hz International Models</b> |                |                                  |                                                     |  |
| 1000/700                                      | S4K2U1000-5    | 11/25                            | IEC 60320-10A / (4) IEC 60320/C13                   | 51 (23.1)                                                                             |
| 2000/1400                                     | S4K2U2000-5    | 6/14                             | IEC 60320-10A / (4) IEC 60320-10A                   | 56 (25.4)                                                                             |
| 3000/2100                                     | S4K2U3000-5    | 5/16                             | IEC 60320-16A / (4) IEC 60320-10A (1) IEC 60320-16A | 76 (34.5)                                                                             |

\* Full/Half Load (in minutes).

## S4K2U, 120 Vac, 50/60 Hz Tower/Rack-mount Models Specifications

| Catalog Number                     | S4K2U700                                                       | S4K2U1000 | S4K2U1500                | S4K2U2000                               | S4K2U3000                                           |
|------------------------------------|----------------------------------------------------------------|-----------|--------------------------|-----------------------------------------|-----------------------------------------------------|
| Capacity (VA/Watts)                | 700/490                                                        | 1000/700  | 1500/1050                | 2000/1400                               | 3000/2100                                           |
| Dimensions – inches (mm)           |                                                                |           |                          |                                         |                                                     |
| Unit (H x W x D)                   | 17 x 3.5 x 21.5 (432 x 89 x 546)                               |           |                          |                                         | 17 x 3.5 x 24.2 (432 x 89 x 618)                    |
| Shipping (H x W x D)               | 23 x 10 x 27 (584 x 254 x 685m)                                |           |                          |                                         |                                                     |
| Approx. Shipping Weight – lbs (kg) | 58 (26)                                                        | 58 (26)   | 60 (27)                  | 63 (28)                                 | 78 (35)                                             |
| Input AC Parameters                |                                                                |           |                          |                                         |                                                     |
| Voltage Range (typical)            | 120 Vac nominal; variable based upon output load               |           |                          |                                         |                                                     |
| 100% – 90% Loading                 | 80-83 Vac to 134-138 Vac                                       |           | 90-93 Vac to 134-138 Vac |                                         |                                                     |
| 90% – 70% Loading                  |                                                                |           | 80-83 Vac to 134-138Vac  |                                         |                                                     |
| 70% – 30% Loading                  | 70-73 Vac to 134-138 Vac                                       |           |                          |                                         |                                                     |
| 30% – 0% Loading                   | 60-63 Vac to 134-138 Vac                                       |           |                          |                                         |                                                     |
| Frequency                          | 48.1-51.9 Hz or 57.6-62.4; auto sensing                        |           |                          |                                         |                                                     |
| Input Connector                    | 6 ft. Attached, w/ NEMA 5-15 Plug                              |           |                          | 10 ft. Attached, w/ NEMA 5-20 Plug      | 10 ft. Attached, w/ NEMA L5-30 Plug                 |
| Output AC Parameters               |                                                                |           |                          |                                         |                                                     |
| Voltage                            | 100/110/120/127 Vac; ±3% user configurable                     |           |                          |                                         |                                                     |
| Receptacles                        | (4) NEMA 5-15R                                                 |           |                          | (4) NEMA 5-20R T-slot, accepts 15A plug | (4) NEMA 5-20R T-slot (1) NEMA L5-30R on 12 in cord |
| Frequency                          | 50 Hz or 60 Hz                                                 |           |                          |                                         |                                                     |
| Waveform                           | Sinewave                                                       |           |                          |                                         |                                                     |
| Utility Mode Overload              | 200% for 8 cycles; 130% for 10 seconds with transfer to bypass |           |                          |                                         |                                                     |
| Battery Parameters                 |                                                                |           |                          |                                         |                                                     |
| Battery Type                       | Valve-Regulated, non-spillable, lead acid                      |           |                          |                                         |                                                     |
| Battery Qty x Voltage x Rating     | 4 x 12 V x 7 or 7.2 AH                                         |           |                          | 4 x 12 V x 9AH                          | 6 x 12 V x 9AH                                      |
| Back–up Time                       | See Battery Back-up Times Chart                                |           |                          |                                         |                                                     |
| 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 104°C (40°C) without derating     |           |                          |                                         |                                                     |
| Storage Elevation                  | 15.000m (50,000 ft.) maximum                                   |           |                          |                                         |                                                     |
| Audible Noise                      | Less than 45 dBA @ 1 meter                                     |           |                          |                                         |                                                     |
| Agency                             |                                                                |           |                          |                                         |                                                     |
| Safety                             | UL 1778, c-UL Listed                                           |           |                          |                                         |                                                     |
| Emissions                          | FCC Part 15, Subpart B, Class B                                |           |                          |                                         |                                                     |
| Surge Immunity                     | IEEE / ANSI C62.41 Category A & B                              |           |                          |                                         |                                                     |
| Transportation                     | ISTA Procedure 1A                                              |           |                          |                                         |                                                     |

## S4K2U-5, 230 Vac, 50/60 Hz Tower/Rack-mount Models Specifications



| Catalog Number                     | S4K2U1000-5                                                                           | S4K2U2000-5       | S4K2U3000-5                                 |
|------------------------------------|---------------------------------------------------------------------------------------|-------------------|---------------------------------------------|
| Capacity (VA/Watts)                | 1000/700                                                                              | 2000/1400         | 3000/2100                                   |
| Dimensions – inches (mm)           |                                                                                       |                   |                                             |
| Unit (H x W x D)                   | 17 x 3.5 x 21.5 (432 x 89 x 546)                                                      |                   | 17 x 3.5 x 24.2 (432 x 89 x 618)            |
| Shipping (H x W x D)               | 23 x 10 x 27 (584 x 254 x 685)                                                        |                   |                                             |
| Approx. Shipping Weight – lbs (kg) | 58 (26)                                                                               | 63 (28)           | 78 (35)                                     |
| Input AC Parameters                |                                                                                       |                   |                                             |
| Voltage Range (typical)            | 230 Vac nominal; variable based upon output load                                      |                   |                                             |
| 100% – 90% Loading                 | 159 Vac / 280 Vac                                                                     | 176 Vac / 280 Vac |                                             |
| 90% – 70% Loading                  | 159 Vac / 280 Vac                                                                     |                   |                                             |
| 70% – 30% Loading                  | 139 Vac / 280 Vac                                                                     |                   |                                             |
| 30% – 0% Loading                   | 119 Vac / 280 Vac                                                                     |                   |                                             |
| Frequency                          | 40-70 Hz; auto sensing                                                                |                   |                                             |
| Input Connector                    | IEC 60320-10A                                                                         |                   | IEC 60320-16A                               |
| Output AC Parameters               |                                                                                       |                   |                                             |
| Output Receptacles                 | (4) IEC 60320/C13                                                                     | (4) IEC 60320-10A | (4) IEC 60320-10A,<br>(1) (4) IEC 60320-16A |
| Voltage                            | 200/208/220/230/240 (user configurable) Vac; ±3%                                      |                   |                                             |
| Frequency                          | 50 Hz or 60 Hz                                                                        |                   |                                             |
| Waveform                           | Sinewave                                                                              |                   |                                             |
| Main Mode Overload                 | 200% for 8 cycles; 130% for 10 seconds with transfer to bypass                        |                   |                                             |
| Battery Parameters                 |                                                                                       |                   |                                             |
| Type                               | Valve-Regulated, non-spillable, lead acid                                             |                   |                                             |
| Qty x Voltage x Rating             | 4 x 12V x 7.2 AH                                                                      | 4 x 12V x 9 AH    | 6 x 12V x 9 AH                              |
| Back–up Time                       | See Battery Back-up Times Chart                                                       |                   |                                             |
| Recharge Time                      | 5 Hours to 95% capacity after full discharge into 100% load (Internal Batteries Only) |                   |                                             |
| Environmental                      |                                                                                       |                   |                                             |
| 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. (3000 m) at 104°C (40°C) without derating                            |                   |                                             |
| Storage Elevation                  | 15,000m (50,000 ft.) maximum                                                          |                   |                                             |
| Audible Noise                      | <50 dBA, at 1 meter from the rear<br><45 dBA, at 1 meter from the front or sides      |                   |                                             |
| Agency                             |                                                                                       |                   |                                             |
| Safety                             | CE compliance mark for both Low Voltage and EMC Directives; TUV certified             |                   |                                             |
| Emissions                          | EN 50091-2, Class B                                                                   |                   |                                             |
| Surge Immunity                     | EN 61000 4-2, 4-3, 4-4, 4-5                                                           |                   |                                             |
| Transportation                     | ISTA Procedure 1A                                                                     |                   |                                             |

## External Battery Cabinets Specifications

| Catalog Number                     | S4K2U48BAT                                                                                                                                 |             |             | S4K2U96BAT                       |  |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|----------------------------------|--|
| Used with UPS Model                | S4K2U700                                                                                                                                   | S4K2U1000   | S4K2U2000   | S4K2U3000                        |  |
|                                    | S4K2U1500                                                                                                                                  | S4K2U1000-5 | S4K2U2000-5 | S4K2U3000-5                      |  |
| Dimensions – inches (mm)           |                                                                                                                                            |             |             |                                  |  |
| Unit (H x W x D)                   | 17 x 3.5 x 21.5 (432 x 89 x 546)                                                                                                           |             |             | 17 x 3.5 x 24.2 (432 x 89 x 618) |  |
| Shipping (H x W x D)               | 23 x 10 x 27 (584 x 254 x 685)                                                                                                             |             |             | 23 x 10 x 27 (584 x 254 x 685)   |  |
| Approx. Shipping Weight – lbs (kg) | 71.1 (32.3)                                                                                                                                |             |             | 102.5 (46.5)                     |  |
| Battery Parameters                 |                                                                                                                                            |             |             |                                  |  |
| Type                               | Valve-regulated, non-spillable, lead acid                                                                                                  |             |             |                                  |  |
| Battery (Qty x Voltage x Rating)   | (2 x 4) 12 V x 7.2 AH                                                                                                                      |             |             | (2 x 6) 12 V x 9 AH              |  |
| Back–up Time                       | See Battery Back-up Times Chart                                                                                                            |             |             |                                  |  |
| Recharge Time                      | 5 Hours to 95% capacity after full discharge into 100% 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 104°C (40°C) without derating                                                                                 |             |             |                                  |  |
| Storage Elevation                  | 15.000 m (50,000 ft.) maximum                                                                                                              |             |             |                                  |  |
| Agency                             |                                                                                                                                            |             |             |                                  |  |
| Safety                             | UL 1778, c-UL listed (Suitable for computer room applications)<br>EN50091-1-1, CE compliance mark, for both Low Voltage and EMC Directives |             |             |                                  |  |
| Emissions                          | FCC part 15, Subpart B, Class B EN50091-2                                                                                                  |             |             |                                  |  |
| Transportation                     | ISTA Procedure 1A                                                                                                                          |             |             |                                  |  |

S4K2U and S4K2U-5 Battery Back-up Times<sup>1</sup>

|                                                                            | Load % | 700VA | 1000VA | 1500VA | 2000VA | 3000VA |
|----------------------------------------------------------------------------|--------|-------|--------|--------|--------|--------|
| <b>Internal Battery<br/>(minutes)</b>                                      | 10%    | 248   | 191    | 144    | 56     | 91     |
|                                                                            | 20%    | 115   | 87     | 63     | 33     | 46     |
|                                                                            | 30%    | 79    | 48     | 38     | 26     | 30     |
|                                                                            | 40%    | 68    | 34     | 28     | 19     | 21     |
|                                                                            | 50%    | 44    | 26     | 20     | 14     | 16     |
|                                                                            | 60%    | 35    | 19     | 15     | 12     | 11     |
|                                                                            | 70%    | 29    | 16     | 12     | 10     | 9      |
|                                                                            | 80%    | 24    | 13     | 10     | 8      | 8      |
|                                                                            | 90%    | 20    | 12     | 8      | 7      | 7      |
|                                                                            | 100%   | 17    | 11     | 7      | 6      | 5      |
| <b>Internal Battery<br/>+1 External<br/>Battery Cabinet<br/>(minutes)</b>  | 10%    | 992   | 764    | 576    | 328    | 364    |
|                                                                            | 20%    | 460   | 348    | 212    | 159    | 184    |
|                                                                            | 30%    | 316   | 192    | 152    | 88     | 120    |
|                                                                            | 40%    | 232   | 136    | 112    | 67     | 84     |
|                                                                            | 50%    | 176   | 100    | 80     | 52     | 64     |
|                                                                            | 60%    | 140   | 76     | 60     | 36     | 44     |
|                                                                            | 70%    | 116   | 64     | 48     | 30     | 36     |
|                                                                            | 80%    | 96    | 52     | 40     | 24     | 32     |
|                                                                            | 90%    | 80    | 48     | 32     | 21     | 28     |
|                                                                            | 100%   | 68    | 44     | 28     | 18     | 20     |
| <b>Internal Battery<br/>+2 External<br/>Battery Cabinets<br/>(minutes)</b> | 10%    | 1984  | 1528   | 1152   | 392    | 728    |
|                                                                            | 20%    | 920   | 696    | 424    | 231    | 368    |
|                                                                            | 30%    | 632   | 384    | 304    | 182    | 240    |
|                                                                            | 40%    | 464   | 272    | 224    | 133    | 168    |
|                                                                            | 50%    | 352   | 200    | 160    | 98     | 128    |
|                                                                            | 60%    | 280   | 152    | 120    | 84     | 88     |
|                                                                            | 70%    | 232   | 128    | 96     | 70     | 72     |
|                                                                            | 80%    | 192   | 104    | 80     | 56     | 64     |
|                                                                            | 90%    | 160   | 96     | 64     | 49     | 56     |
|                                                                            | 100%   | 136   | 88     | 56     | 42     | 40     |

|                                                                                 | Load % | 700VA | 1000VA | 1500VA | 2000VA | 3000VA |
|---------------------------------------------------------------------------------|--------|-------|--------|--------|--------|--------|
| <b>Internal Battery<br/>+ 3 External<br/>Battery<br/>Cabinets<br/>(minutes)</b> | 10%    | 2976  | 2292   | 1728   | 560    | 1092   |
|                                                                                 | 20%    | 1380  | 1044   | 636    | 330    | 552    |
|                                                                                 | 30%    | 948   | 576    | 456    | 260    | 360    |
|                                                                                 | 40%    | 696   | 408    | 336    | 190    | 252    |
|                                                                                 | 50%    | 528   | 300    | 240    | 140    | 192    |
|                                                                                 | 60%    | 420   | 228    | 180    | 120    | 132    |
|                                                                                 | 70%    | 348   | 192    | 144    | 100    | 108    |
|                                                                                 | 80%    | 288   | 156    | 120    | 80     | 96     |
|                                                                                 | 90%    | 240   | 144    | 96     | 70     | 84     |
|                                                                                 | 100%   | 204   | 132    | 84     | 60     | 60     |
| <b>Internal Battery<br/>+ 4 External<br/>Battery<br/>Cabinets<br/>(minutes)</b> | 10%    | 3968  | 3056   | 2304   | 840    | 1456   |
|                                                                                 | 20%    | 1840  | 1392   | 848    | 495    | 736    |
|                                                                                 | 30%    | 1264  | 768    | 608    | 390    | 480    |
|                                                                                 | 40%    | 928   | 544    | 448    | 285    | 336    |
|                                                                                 | 50%    | 704   | 400    | 320    | 210    | 256    |
|                                                                                 | 60%    | 560   | 304    | 240    | 180    | 176    |
|                                                                                 | 70%    | 464   | 256    | 192    | 150    | 144    |
|                                                                                 | 80%    | 384   | 208    | 160    | 120    | 128    |
|                                                                                 | 90%    | 320   | 192    | 128    | 105    | 112    |
|                                                                                 | 100%   | 272   | 176    | 112    | 90     | 80     |

**Note:**

1. Back-up times are at 25°C, 77°F, with 100% capacity batteries and resistive loads.