

## S5KC Modular Series On-Line Uninterruptible Power Systems (UPS)

The SolahD S5KC Modular On-Line UPS Series is scalable from 5 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 S5KC Modular UPS also has the ability to be easily upgraded in the field to either higher VA ratings (up to 20 kVA maximum), longer back-ups time or to add N+x parallel redundancy. Configurations can be cost-effectively upgraded keeping your S5KC Modular UPS 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 5 kVA power modules, LCD display, battery modules and system control modules, can be hot-swapped making it easy to increase power, extend your back-up time 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

With multiple standard options in a smaller footprint, providing more flexibility for capacity and communication both pre- and post-installation, the S5KC delivers the power protection needs in applications such as

- Oil and Gas (Pure OEMs)
- Pharmaceutical
- Automotive
- Food & Beverage

### Features

- Module level redundancy provides multiple layers of protection to ensure your machine has the power it needs to run safely with no single point of failure, critical loads continue to run on conditioned battery power even if a system component malfunctions.
- An industry leading 0.9 power factor keeps machines performing flawlessly when running on battery power.
- Superior overload capabilities deliver conditioned power during temporary power anomalies without unnecessarily transferring to and from bypass power.



- Independently controlled maintenance bypass is designed to provide maximum system availability to critical equipment by allowing transfer of connected equipment to an alternate power path. The UPS can then be turned Off and removed from service with no interruption of power to connected equipment.
- True on-line double conversion with a large input voltage range (low line transfer down to 110 Vac) isolates sensitive equipment from power fluctuations while minimizing transfers to increase battery life.
- ENERGY STAR® qualified UPS models – UPS products meeting the EPA's requirements use an average of 35% less energy than their standard counterparts.
- To enhance the availability and trouble-free operation, every pre-configured S5KC UPS arrives standard with one IS-UNITY-DP communications card installed. This enables you to take advantage of the remote monitoring and diagnostic service available with your system during your initial standard warranty period.
- Start-up services available, contact your local sales representative for details.

### Certifications and Compliances

#### All Models

- Energy Star models: S5KC-A, S5KC-B, S5KC-C (except 5 kVA), S5KC-D (except 5 kVA), S5KC-E, S5KC-F:

- Listed, UPS Equipment
  - UL 1778, Fourth Edition
  - CSA C22.2 No. 107.3
- ABS Type Approved
- RoHS Compliant

#### Series S5KCA, S5KCB, S5KCC, S5KCD

- (Low Voltage and EMC Directive)
  - EN62040-1, EN62040-2
- EAC: TR CU 004/2011 - Technical Regulation of Custom Union "On the safety of low-voltage equipment"

## Chassis Selection

The SolaHD S5KC Modular UPS system has multiple chassis available to build on:

Select the proper chassis based on your applications current and future need for expansion. Also consider if redundancy will be required for your application then consider your application power and location wiring needs. To help with selecting the appropriate chassis series, we have provided a useful selection flow chart to guide you to an appropriate chassis series to meet your requirements.

## Steps to Selection

1. Determine the maximum kVA you will need for future expansion.
2. Determine the kVA and run time value for your immediate need.
3. Using the flow chart to the right, determine the voltage, phase configuration and chassis requirements.
4. Determine if you need redundancy. If the exact run time is critical and you are not sure which unit is appropriate, please contact our technical support team to aid in selection.
5. Select the unit that meets both your immediate requirements, and is expandable to your future needs. Each chassis will have a "Maximum Upgrade" capacity. The Maximum Upgrade is the highest kVA expansion that particular configuration is capable of without removing any of the battery modules from the original configuration.
6. External Battery Cabinets (EBC). Depending on extended run-times desired or your location's spacing requirements, you may be able to add an optional EBC to extend your run-time.
7. Optional External Maintenance Bypass (EMB) or other available accessories. Review your application's current and future needs and consider all functional options including filters and spare modules if desired.

## Which Product Do I Select?



**Table 15: Specifications**

|   | 10 Bay (A)   | 16 Bay (B)            | 12 Bay (C)   | 16 Bay (D)  | 10 Bay (E)   | 16 Bay (F)        |           |
|---|--|-----------------------|--|---|--|-------------------|-----------|
|   | Xfmr-free  |                       | Xfmr-based   |   | Xfmr-free dual inverter  |                   |           |
| Capacity  | 15 kVA   | 20 kVA                | 15 kVA   | 20 kVA  | 15 kVA   | 20 kVA            |           |
|   | 13.5 kW  | 18 kW                 | 13.5 kW  | 18 kW   | 13.5 kW  | 18 kW             |           |
| <b>General and Environment</b>                    |  |                       |  |   |  |                   |           |
| Conducted and radiated EMC levels                 | IEC/EN/AS 62040-2 Cat 2, CISPR22 Class A, FCC Part 15 Class A                                    |                       |  |   |  |                   |           |
| Compliant immunity standards                      | IEC/EN/AS 61000-4-2, 3, 4, 5, 6  |                       |  |   |  |                   |           |
| Environmental                                     | WEEE and ROHS2 (6 by 6), REACH Compliant   |                       |  |   |  |                   |           |
| ENERGY STAR® qualified                            | Yes<br>All Models  | Yes<br>All Models     | Yes<br>10, 15, 20 kVA  | Yes<br>10, 15, 20 kVA   | Yes<br>All Models  | Yes<br>All Models |           |
| <b>Dimensions — mm (in) &amp; Weight kg (lbs)</b> |  |                       |  |   |  |                   |           |
| Width   | 440 (17)   | 440 (17)              | 440 (17)   | 440 (17)  | 440 (17)   | 440 (17)          |           |
| Depth   | 800 (32)   | 850 (34)              | 800 (32)   | 850 (34)  | 800 (32)   | 850 (34)          |           |
| Height  | 695 (27)   | 970 (38)              | 1060 (42)  | 1240 (49)   | 695 (27)   | 970 (38)          |           |
| Weight (frame rating populated)                   | Unit Weight  | 256 (565)             | 318 (700)  | 361 (795)   | 417 (920)  | 256 (565)         | 318 (700) |
|   | Shipping Weight  | 274 (605)             | 336 (740)  | 379 (835)   | 435 (960)  | 274 (605)         | 336 (740) |
| <b>Environmental</b>                              |  |                       |  |   |  |                   |           |
| Operating temperature                             | 0°C - 40°C (32 °F - 104 °F)  |                       |  |   |  |                   |           |
| Relative humidity                                 | 0 - 95%, non-condensing  |                       |  |   |  |                   |           |
| Altitude  | 3000 m (10000 ft) @ 25°C (77°F)  |                       |  |   |  |                   |           |
| Efficiency (AC-AC)                                | 91.8-92.0%   | 91.6-92.0%            | 88.5-89.9%   | 88.6-89.7%  | 90.4-91.0%   | 90.0-91.0%        |           |
| Heat dissipation                                  | 4208 BTU / Hr  | 5747 BTU / Hr         | 5528 BTU / Hr  | 7965 BTU / Hr   | 4904 BTU / Hr  | 6768 BTU / Hr     |           |
| <b>Input Data</b>                                 |  |                       |  |   |  |                   |           |
| Nominal input voltage                             | 200/208/220/230/240 Vac; Single Phase  |                       |  | 200/100, 208/120, 220/110, 230/115, 240/120 Vac; Single Phase |  |                   |           |
|   | 380/400/415 Vac; 3 Phase   |                       | Not Applicable   |   |  |                   |           |
| Input Voltage Range                               | The input voltage range based on the output loading, refer to User Manual                        |                       |  |   |  |                   |           |
| Power Factor                                      | Single phase input, > 0.99 Cos;<br>three phase input, > 0.95 Cos                                 |                       | Single phase input, > 0.99 Cos   |   |  |                   |           |
| Input Frequency Range                             | 40 Hz to 70 Hz auto-sensing  |                       |  |   |  |                   |           |
| <b>Battery Module</b>                             |  |                       |  |   |  |                   |           |
| Battery capacity                                  | 36W @ 15min-rate to 1.67V per cell @ 25°C (77°F)   |                       |  |   |  |                   |           |
| Battery Back-up Time (full load)                  | 5 minutes (for non-redundant system which has equal number of battery strings and power modules) |                       |  |   |  |                   |           |
| Maximum Charge current (full load)                | Power module internal charger: 1.8A / Charger module: 10 A                                       |                       |  |   |  |                   |           |
| Nominal Voltage                                   | 144 VDC  |                       |  |   |  |                   |           |
| Recharge time                                     | < 5 hours to 90% capacity (PM internal charger with 1:1 ratio of PM to Battery Strings)          |                       |  |   |  |                   |           |
| <b>Output Data</b>                                |  |                       |  |   |  |                   |           |
| Output voltage                                    | 200/208/220/230/240 Vac;<br>Single Phase   |                       | 100/100/173/200,110/110/<br>190/220, 115/115/199/230,<br>120/120/208/240 Vac; Single Phase |   | 200/100, 208/120, 220/110,<br>230/115, 240/120 Vac; Single Phase |                   |           |
| Voltage regulation                                | ±3%  |                       |  |   |  |                   |           |
| Voltage stability (100% step load)                | ±7%  |                       |  |   |  |                   |           |
| Voltage Recovery time                             | ≤ 60 minutes   |                       |  |   |  |                   |           |
| Voltage distortion                                | ≤ 3%, linear load  |                       |  |   |  |                   |           |
|   | ≤ 5%, non-linear load  | ≤ 7%, non-linear load |  | ≤ 5%, non-linear load   |  |                   |           |
| Output frequency                                  | 50/60 Hz   |                       |  |   |  |                   |           |
| Output overload capability                        | < 104% continuous  |                       |  |   |  |                   |           |
|   | 105% - 130% for 1 min  |                       |  |   |  |                   |           |
|   | 131% - 150% for 10 sec   |                       |  |   |  |                   |           |
|   | 151% - 200% for 1 sec<br>> 201% for 250 msec   |                       |  |   |  |                   |           |

Table 16: Mechanical Description

| Chassis       | Dimension mm (In) |           |
|---------------|-------------------|-----------|
|               | Height (H)        | Depth (D) |
| S5KC-A SERIES | 695 (27)          | 800 (32)  |
| S5KC-B SERIES | 970 (38)          | 850 (34)  |
| S5KC-C SERIES | 1060 (42)         | 800 (32)  |
| S5KC-D SERIES | 1240 (49)         | 850 (34)  |
| S5KC-E SERIES | 695 (27)          | 800 (32)  |
| S5KC-F SERIES | 970 (38)          | 850 (34)  |



| Chassis Designation | Number of Bays | Description   |
|---------------------|----------------|---|
| S5KC-A              | 10 Bay         | 5-15 kVA, 1PH, Xfmr-free, 200-240 Vac input/output                        |
| S5KC-B              | 16 Bay         | 5-20 kVA, 1PH, Xfmr-free, 200-240 Vac input/output                        |
| S5KC-C              | 12 Bay         | 5-15 kVA, 1PH, Xfmr-based, 200-240 Vac input - 200/100-240/120 Vac output |
| S5KC-D              | 16 Bay         | 5-20 kVA, 1PH, Xfmr-based, 200-240 Vac input - 200/100-240/120 Vac output |
| S5KC-E              | 10 Bay         | 5-15 kVA, 2PH, Xfmr-free, 200/100-240/120 Vac input/output                |
| S5KC-F              | 16 Bay         | 5-20 kVA, 2PH, Xfmr-free, 200/100-240/120 Vac input/output                |

## S5KC Operating Modes

The S5KC UPS is a true online double-conversion system, having the following operating modes:

- Normal Mode
- Back-up Mode
- Auto Restart Mode
- Bypass Mode

### Normal Mode

The power module rectifiers derive power from a utility AC source and supply regulated DC power to the inverter. The module's inverter regenerates precise AC power to supply the connected equipment. The battery charger is in the power module and maintains a float-charge on the batteries of the UPS; additionally, the optional charger module (S5KCCHGRMOD) can also charge the batteries to maintain a quicker recharge time for long back-up time applications.

### Back-up Mode

When AC utility fails, the connected equipment is supplied power by the inverter, which obtains energy from the battery modules. The output power will not be interrupted during the failure or restoration of the AC utility/mains source.

### Auto Restart Mode

After a power outage and complete battery discharge, and once AC utility is restored, the UPS will automatically restart and resume supplying power to connected equipment. This feature is enabled at the factory, but can be disabled by the user. The user can also program two auto restart delay settings from the LCD:

- Battery capacity level (%)
- Countdown timer

### Bypass Mode

The bypass provides an alternate path for power to the connected equipment and operates in the following manner:

- **Automatic:** In the event of an internal fault or should the inverter overload capacity be exceeded, the UPS performs an automatic transfer of the connected equipment from the inverter to the bypass source.
- **Manual:** Should the UPS need to be taken out of service for limited maintenance or repair, manual activation of the bypass will cause an immediate transfer of the equipment from the inverter to the bypass source.

S5KC-A & S5KC-B Frames:

Xfmr-Free



S5KC-C & S5KC-D Frames:

Xfmr-Based



S5KC-E & S5KC-F Frames:

Xfmr-Free



**Table 17: Part Number Configuration**

The S5KC modular is available in many combinations. Use the part number template below to identify the description of any given part number.

| Series Designation                      | Frame Configuration Type                                      | System kVA / kW        | Number of Charger Modules | System Type                      | Battery Type and Number Strings                               |                                     |
|---|---|------------------------|---------------------------|----------------------------------|---|-------------------------------------|
|   | A = 10 Bay, Xfmr Free, 1PH, cULus Listed, GS/CE/C-tick Marked | 05A = 5 kVA / 4.5 kW   | N = No charger module     | N = Non-redundant                | NN = None (allows for empty replacement frames to be shipped) |                                     |
|   |   | 10 A = 10 kVA / 9 kW   | A = 1 charger module      | R = Redundant Power and Controls | C1 = 1 String, CSB UPS 12460 F2 FR                            |                                     |
|   | B = 16 Bay, Xfmr Free, 1PH, cULus Listed, GS/CE/C-tick Marked | 15A = 15 kVA / 13.5 kW |                           |                                  | F = Redundant Power, Controls, and Battery                    | C2 = 2 Strings, CSB UPS 12460 F2 FR |
|   | C = 12 Bay Xfmr Based, 1PH, cULus Listed, GS/CE/C-tick Marked | 20A = 20 kVA / 18 kW   |                           |                                  |   | C3 = 3 Strings, CSB UPS 12460 F2 FR |
|   | D = 16 Bay Xfmr Based, 1PH, cULus Listed, GS/CE/C-tick Marked |                        |                           |                                  |   | C4 = 4 Strings, CSB UPS 12460 F2 FR |
|   | E = 10 Bay, Xfmr Free, 2PH, cULus Listed                      |                        |                           |                                  |   | C5 = 5 Strings, CSB UPS 12460 F2 FR |
| F = 16 Bay Xfmr Free, 2PH, cULus Listed |   |                        |                           |                                  | C6 = 6 Strings, CSB UPS 12460 F2 FR                           |                                     |
|   |   |                        |                           |                                  | C7 = 7 Strings, CSB UPS 12460 F2 FR                           |                                     |

**Example:** 10 Bay, 1PH, 10 kVA/9 kW, No Charger Module, Non-Redundant, 2 strings, 208V, 60 Hz, L-L-G, No Distribution Slots, Standard Product

|     |   |      |   |   |    |
|-----|---|------|---|---|----|
| S5K | A | 10 A | A | N | C2 |
|-----|---|------|---|---|----|



### Configuration Notes:

1. Every pre-configured S5KC UPS arrives standard with one IS-UNITY-DP communications card installed. This allows you to take advantage of the monitoring included with your system during your initial standard warranty period. Start-up services available, contact your local sales representative for details.
2. "Maximum Upgrade" capacity considerations. The Maximum Upgrade is the highest kVA expansion each configuration will provide without removing any of the battery modules from the original configuration. Please consider your future expansion and redundancy needs.

| Output Voltage/Frequency/Wiring | Distribution Slot 1                                | Distribution Slot 2                                | Product Type         |
|---------------------------------|--|--|----------------------|
| A = 200 V, 60Hz, L-L-G          | N = None   | N = None   | C = Standard product |
| B = 220 V, 60Hz, L-L-G          | 1 = (2) L6-30R, (8) 5-15/20R [PD2-101]             | 1 = (2) L6-30R, (8) 5-15/20R [PD2-101]             |                      |
| C = 208V, 60Hz, L-L-G           | 2 = (4) L6-20R, (4) 5-15/20R [PD2-102]             | 2 = (4) L6-20R, (4) 5-15/20R [PD2-102]             |                      |
| D = 240 V, 60Hz, L-L-G          | 3 = (4) L6-30R, (4) 5-15/20R [PD2-103]             | 3 = (4) L6-30R, (4) 5-15/20R [PD2-103]             |                      |
| E = 200/100 V, 60Hz, L-L-N-G    | 4 = (2) L6-30R, (2) L6-20R, (4) 5-15/20R [PD2-104] | 4 = (2) L6-30R, (2) L6-20R, (4) 5-15/20R [PD2-104] |                      |
| F = 220/110 V, 60Hz, L-L-N-G    | 5 = (2) L5-30R, (2) L5-20R, (4) 5-15/20R [PD2-105] | 5 = (2) L5-30R, (2) L5-20R, (4) 5-15/20R [PD2-105] |                      |
| G = 208/120 V, 60Hz, L-L-N-G    | 6 = (4) L6-20R, (4) L5-20R [PD2-106]               | 6 = (4) L6-20R, (4) L5-20R [PD2-106]               |                      |
| H = 240/120 V, 60Hz, L-L-N-G    | 7 = (4) L5-20R, (4) 5-15/20R [PD2-107]             | 7 = (4) L5-20R, (4) 5-15/20R [PD2-107]             |                      |
| J = 220/127V, 60Hz, L-L-N-G     | 8 = (2) L6-30R, (2) L6-20R [PD2-108]               | 8 = (2) L6-30R, (2) L6-20R [PD2-108]               |                      |
| K = 200 V, 50Hz, L-L-PE         | 9 = (2) L14-30R [PD2-109]                          | 9 = (2) L14-30R [PD2-109]                          |                      |
| L = 220 V, 50Hz, L-N-PE         | A = (4) IEC320-C19, (4) IEC320-C13 [PD2-200]       | A = (4) IEC320-C19, (4) IEC320-C13 [PD2-200]       |                      |
| M = 230 V, 50Hz, L-N-PE         | B = (2) IEC320-C19, (8) IEC320-C13 [PD2-201]       | B = (2) IEC320-C19, (8) IEC320-C13 [PD2-201]       |                      |
| N = 240 V, 50Hz, L-N-PE         | C = (12) IEC320-C13 [PD2-202]                      | C = (12) IEC320-C13 [PD2-202]                      |                      |
| P = 208V, 50Hz, L-L-PE          | D = (2) IEC309-32A, (4) IEC320-C13 [PD2-204]       | D = (2) IEC309-32A, (4) IEC320-C13 [PD2-204]       |                      |
| Q = 200/100 V, 50Hz, L-L-N-PE   |  |  |                      |
| R = 208/120 V, 50Hz, L-L-N-PE   |  |  |                      |
| S = 220/110 V, 50Hz, L-L-N-PE   |  |  |                      |
| T = 230/115 V, 50Hz, L-L-N-PE   |  |  |                      |
| U = 240/120 V, 50Hz, L-L-N-PE   |  |  |                      |
| W = 220/127V, 50Hz, L-L-N-PE    |  |  |                      |

|          |          |          |          |
|----------|----------|----------|----------|
| <b>C</b> | <b>N</b> | <b>N</b> | <b>C</b> |
|----------|----------|----------|----------|

**Table 18: Basic Recommended Part Numbers (scalable for your application needs)**

**Back-up time: 5 minutes minimum at full load with 1-battery string per 5 kVA ①**

| kVA/kW   | Non-Redundant Catalog Number   | Available Expansion Bays (Total/Power) | Redundant Catalog Number       | Available Expansion Bays (Total/Power) |
|--|--------------------------------|--|--------------------------------|--|
| <b>S5KA Xfmr-Free (2W + G)</b>                         |                                |  |                                |  |
| 5/4.5  | S5KA05ANNC1C <sup>GN</sup> NC  | 7/2                                    | S5KA05ANRC1C <sup>GN</sup> NC  | 6/2                                    |
| 10/9   | S5KA10 ANNC2C <sup>GN</sup> NC | 5/1                                    | S5KA10 ANRC2C <sup>GN</sup> NC | 3/1                                    |
| 15/13.5  | S5KA15ANNC3C <sup>GN</sup> NC  | 1/0                                    | S5KA15ANRC3C <sup>GN</sup> NC  | 0/0                                    |
| <b>S5KB Xfmr-Free (2W + G)</b>                         |                                |  |                                |  |
| 5/4.5  | S5KB05ANNC1C <sup>GN</sup> NC  | 13/3                                   | S5KB05ANRC1C <sup>GN</sup> NC  | 12/3                                   |
| 10/9   | S5KB10 ANNC2C <sup>GN</sup> NC | 10/2                                   | S5KB10 ANRC2C <sup>GN</sup> NC | 9/2                                    |
| 15/13.5  | S5KB15ANNC3C <sup>GN</sup> NC  | 7/1                                    | S5KB15ANRC3C <sup>GN</sup> NC  | 6/1                                    |
| 20/18  | S5KB20ANNC4C <sup>GN</sup> NC  | 4/0                                    | S5KB20ANRC4C <sup>GN</sup> NC  | 3/0                                    |
| <b>S5KC Xfmr-Based (Input: 2W + G, Output: 3W + G)</b> |                                |  |                                |  |
| 5/4.5  | S5KC05ANNC1G <sup>GN</sup> NC  | 9/2                                    | S5KC05ANRC1G <sup>GN</sup> NC  | 8/2                                    |
| 10/9   | S5KC10 ANNC2G <sup>GN</sup> NC | 6/1                                    | S5KC10 ANRC2G <sup>GN</sup> NC | 5/1                                    |
| 15/13.5  | S5KC15ANNC3G <sup>GN</sup> NC  | 3/0                                    | S5KC15ANRC3G <sup>GN</sup> NC  | 2/0                                    |
| <b>S5KD Xfmr-Based (Input: 2W + G, Output: 3W + G)</b> |                                |  |                                |  |
| 5/4.5  | S5KD05ANNC1G <sup>GN</sup> NC  | 13/3                                   | S5KD05ANRC1G <sup>GN</sup> NC  | 12/3                                   |
| 10/9   | S5KD10 ANNC2G <sup>GN</sup> NC | 10/2                                   | S5KD10 ANRC2G <sup>GN</sup> NC | 9/2                                    |
| 15/13.5  | S5KD15ANNC3G <sup>GN</sup> NC  | 7/1                                    | S5KD15ANRC3G <sup>GN</sup> NC  | 6/1                                    |
| 20/18  | S5KD20ANNC4G <sup>GN</sup> NC  | 4/0                                    | S5KD20ANRC4G <sup>GN</sup> NC  | 3/0                                    |
| <b>S5KE Xfmr-Free (3W + G)</b>                         |                                |  |                                |  |
| 5/4.5  | S5KE05ANNC1G <sup>GN</sup> NC  | 7/2                                    | S5KE05ANRC1G <sup>GN</sup> NC  | 6/2                                    |
| 10/9   | S5KE10 ANNC2G <sup>GN</sup> NC | 5/1                                    | S5KE10 ANRC2G <sup>GN</sup> NC | 3/1                                    |
| 15/13.5  | S5KE15ANNC3G <sup>GN</sup> NC  | 1/0                                    | S5KE15ANRC3G <sup>GN</sup> NC  | 0/0                                    |
| <b>S5KF Xfmr-Free (3W + G)</b>                         |                                |  |                                |  |
| 5/4.5  | S5KF05ANNC1G <sup>GN</sup> NC  | 13/3                                   | S5KF05ANRC1G <sup>GN</sup> NC  | 12/3                                   |
| 10/9   | S5KF10 ANNC2G <sup>GN</sup> NC | 10/2                                   | S5KF10 ANRC2G <sup>GN</sup> NC | 9/2                                    |
| 15/13.5  | S5KF15ANNC3G <sup>GN</sup> NC  | 7/1                                    | S5KF15ANRC3G <sup>GN</sup> NC  | 6/1                                    |
| 20/18  | S5KF20ANNC4G <sup>GN</sup> NC  | 4/0                                    | S5KF20ANRC4G <sup>GN</sup> NC  | 3/0                                    |

**Configuration Notes:**

- Voltage Options: Additional Output Voltage Configurations are available. Refer to Table 16 and 18, part number configuration template table.  
Example: D = 240 V, 60Hz, L-L-G ; S5KC05ANN1D<sup>GN</sup>NC is a 240 V configuration.
- Every pre-configured S5KC UPS arrives standard with one IS-UNITY-DP communications card installed. This allows you to take advantage of the monitoring included with your system during your initial standard warranty period. Start-up services available, contact your local sales representative for details.
- Available Expansion Bays (Total/Power) equals the TOTAL available expansion bays still available and POWER is the number of bays that can be used for remaining POWER modules up to the maximum allowed for that configuration. For example: S5KA05ANNC1C<sup>GN</sup>NC, has 7 total, 2 power so you can add either 6 battery modules, 1 charging module or 6 battery modules and 2 power modules.
- Do you require an EBC or MBC? Please refer to configuration table 20 and 21 to build an appropriate part.

① Configurations with run-times in excess of 5 minutes are available, contact Technical Services.

**Table 19: External Battery Cabinet (EBC) Part Number Configuration**

The SolaHD S5KC Modular UPS includes internal batteries. Optional, matching external battery cabinets, offer extended battery runtime. Use the part number template below to identify the description of any given part number.



**Specifications**

| Mechanical                               |  |
|--|--|
| <b>Conducted and Radiated EMC Levels</b> | IEC/EN/AS 62040-2—Class A, FCC Part 15 (Class A)                             |
| <b>Safety Standards</b>                  | IEC/EN/AS 62040-1:2008, UL 1778 4th Ed and CSA 22.2 No. 107.3                |
| <b>Immunity Standards</b>                | IEC/EN/AS 61000-4-2, 3, 4, 5, 6 (C-tick)                                     |
| <b>Transportation</b>                    | ISTA-1E  |
| <b>Dimensions – WxDxH in (mm)</b>        | 17 x 28 x 38 (440 x 712 x 970)   |
| <b>Unit Weight – lbs (kg)</b>            | 170 (77.1)   |
| <b>Shipping Weight – lbs (kg)</b>        | 210 (129.3)  |
| Environmental                            |  |
| <b>Operating Temperature °F (°C)</b>     | 32 to 104 (0 to 40)  |
| <b>Storage Temperature, °F (°C)</b>      | Without battery: -4 to 140 (-20 to 60)<br>With battery: 5 to 104 (-15 to 40) |
| <b>Relative Humidity, %</b>              | 0 - 95%, non-condensing  |
| <b>Altitude, ft. (m)</b>                 | 10000 (3000)   |



| Series Designation  | Frame Configuration Type | Number of Battery Strings                                    | Battery Manufacturer   | Battery Model   | Overcurrent Protection | Product Type         |
|---|--------------------------|--|--|---|------------------------|----------------------|
|   |                          | 1 = 1 String   | C = CSB  | XX = CSB UPS 12460 F2 FR                                      | B = Circuit Breaker    | C = Standard product |
|   |                          | 2 = 2 Strings  | N = None (allows for empty replacement frames to be shipped) | NN = None (allows for empty replacement frames to be shipped) |                        |                      |
|   |                          | 3 = 3 Strings  |  |   |                        |                      |
|   |                          | 4 = 4 Strings  |  |   |                        |                      |
|   |                          | 5 = 5 Strings  |  |   |                        |                      |
|   |                          | 6 = 6 Strings  |  |   |                        |                      |
|   |                          | 7 = 7 Strings  |  |   |                        |                      |
|   |                          | N = None (allows for empty replacement frames to be shipped) |  |   |                        |                      |
| <b>Example:</b> 4 String, CSB, CSB UPS 12460 F2 FR, Circuit Breaker, Standard Product |                          |  |  |   |                        |                      |
| <b>S5K</b>  | <b>EBC</b>               | <b>4</b>   | <b>C</b>   | <b>XX</b>   | <b>B</b>               | <b>C</b>             |

**Table 20: Maintenance Bypass Options**

The S5KC Modular Series Maintenance Bypass provides maximum system availability to business critical equipment by allowing transfer of connected equipment to an alternate power path allowing full isolation of the UPS for maintenance. The UPS can then be turned Off and removed from service with no interruption of power to connected equipment.



**Specifications**

| Mechanical                             |   |
|--|---|
| <b>Dimensions – W x D x H, mm (In)</b> | 440 x 862 355 (17.3 x 33.9 x 14.3)                            |
| <b>Safety Standards</b>                | IEC/EN/AS 62040-1:2008, UL 1778 4th Ed and CSA 22.2 No. 107.3 |
| <b>Transportation</b>                  | ISTA Procedure 1A   |
| <b>Weight – kg (lbs)</b>               | 30 (66.1)   |
| Environmental                          |   |
| <b>Operating Ambient Temperature</b>   | 0°C to +40°C (32°F to 104°F)                                  |
| <b>Storage Ambient Temperature</b>     | -20°C to +60°C (-4°F to +140°F)                               |
| <b>Humidity</b>                        | 0 to 95% non-condensing                                       |

| Series Designation  | Frame Configuration Type | Mounting      | Rating                                | Voltage/Frequency/Wiring   | Agency    | Distribution Slot 1  | Distribution Slot 2  | Product Type         |
|---|--------------------------|---------------|---------------------------------------|--|-----------|--|--|----------------------|
|   |                          | R = Rackmount | 1 = 15 kVA, 100A<br>2 = 20 kVA, 125 A | A = 200 V, 60Hz, L-L-G<br>B = 220 V, 60Hz, L-L-G<br>C = 208V, 60Hz, L-L-G<br>D = 240 V, 60Hz, L-L-G<br>E = 200/100 V, 60Hz, L-L-N-G<br>F = 220/110 V, 60Hz, L-L-N-G<br>G = 208/120 V, 60Hz, L-L-N-G<br>H = 240/120 V, 60Hz, L-L-N-G<br>J = 220/127V, 60Hz, L-L-N-G | U = cULus | N = None<br>1 = (2) L6-30R, (8) 5-15/20R [PD2-101]<br>2 = (4) L6-20R, (4) 5-15/20R [PD2-102]<br>3 = (4) L6-30R, (4) 5-15/20R [PD2-103]<br>4 = (2) L6-30R, (2) L6-20R, (4) 5-15/20R [PD2-104]<br>5 = (2) L5-30R, (2) L5-20R, (4) 5-15/20R [PD2-105]<br>6 = (4) L6-20R, (4) L5-20R [PD2-106]<br>7 = (4) L5-20R, (4) 5-15/20R [PD2-107]<br>8 = (2) L6-30R, (2) L6-20R [PD2-108]<br>9 = (2) L14-30R [PD2-109]<br>A = (4) IEC320-C19, (4) IEC320-C13 [PD2-200]<br>B = (2) IEC320-C19, (8) IEC320-C13 [PD2-201]<br>C = (12) IEC320-C13 [PD2-202]<br>D = (2) IEC309-32A, (4) IEC320-C13 [PD2-204] | N = None<br>1 = (2) L6-30R, (8) 5-15/20R [PD2-101]<br>2 = (4) L6-20R, (4) 5-15/20R [PD2-102]<br>3 = (4) L6-30R, (4) 5-15/20R [PD2-103]<br>4 = (2) L6-30R, (2) L6-20R, (4) 5-15/20R [PD2-104]<br>5 = (2) L5-30R, (2) L5-20R, (4) 5-15/20R [PD2-105]<br>6 = (4) L6-20R, (4) L5-20R [PD2-106]<br>7 = (4) L5-20R, (4) 5-15/20R [PD2-107]<br>8 = (2) L6-30R, (2) L6-20R [PD2-108]<br>9 = (2) L14-30R [PD2-109]<br>A = (4) IEC320-C19, (4) IEC320-C13 [PD2-200]<br>B = (2) IEC320-C19, (8) IEC320-C13 [PD2-201]<br>C = (12) IEC320-C13 [PD2-202]<br>D = (2) IEC309-32A, (4) IEC320-C13 [PD2-204] | C = Standard product |
| <b>Example:</b> Rackmount, 15 kVA, 100A, 208V, 60Hz, L-L-G, UL, cUL Listed, No Distribution Slots, Standard Product |                          |               |                                       |  |           |  |  |                      |
| <b>S5K</b>  | <b>MBC</b>               | <b>R</b>      | <b>1</b>                              | <b>C</b>   | <b>U</b>  | <b>N</b>   | <b>N</b>   | <b>C</b>             |

NOTES:

RM-MBC (Rack Mount - Maintenance By-Pass Cabinet)

## Optional Equipment

| Catalog Number               | Description   |
|------------------------------|---|
| <b>Communication Options</b> |   |
| <b>IS-UNITY-DP</b>           | IS Communications Card for multiple protocols: BACnet, Modbus, SNMP, Web, YDN23   |
| <b>IS-RELAY</b>              | Relay contact board, relay contact signals for "On Battery", "Low Battery", "On Bypass", "On UPS", "Summary Alarm" and "UPS Fault". |
| <b>S5KREPOKIT</b>            | Remote Emergency Power Off Kit includes 50' length of cable with connector to UPS and external push button switch.                  |

## Optional Equipment

| Model Number          | Description   |
|-----------------------|---|
| <b>S5KCRACKKIT</b>    | Rackmount Kit   |
| <b>S5KCEBCCBL1M</b>   | EBC Cable 1 meter   |
| <b>S5KCEBCCBL3M</b>   | EBC Cable 3 meters  |
| <b>S5KCEBCCBL5M</b>   | EBC Cable 5 meters  |
| <b>S5KCLRTCONNKIT</b> | LRT Connector Kit   |
| <b>S5KCLRTTEMPKIT</b> | LRT Temperature Sensor Kit  |
| <b>S5KCHRGRMOD</b>    | Charger Module, 10 amps   |
| <b>S5KCEBCCARD</b>    | EBC Communication Card  |
| <b>S5KCBATMODCU</b>   | Expansion Battery to increase run time.<br>Note: Each kit includes one string (2 modules) |

## Spare Equipment Parts

| Model Number           | Description   |
|------------------------|---|
| <b>S5K5KPWRMOD1</b>    | Power Module (PM1), 208/120 Vac, 5 kVA / 4.5kW (E & F Chassis)        |
| <b>S5K5KPWRMOD2</b>    | Power Module (PM2), 230, 208 Vac, 5 kVA / 4.5kW (A, B, C & D Chassis) |
| <b>S5KCBATMODCU</b>    | Replacement Battery<br>Note: Each kit includes one string (2 modules) |
| <b>S5KCBYDPSMOD</b>    | Bypass DSP Module   |
| <b>S5KCBYPMCUMOD</b>   | Bypass MCU Module   |
| <b>S5KCLCDMOD</b>      | LCD module  |
| <b>S5KCAFLTRKIT</b>    | Air Filter Kit  |
| <b>S5KCAFLTRKIT-FD</b> | Fine Dust Air Filter Kit  |
| <b>S5KCEZELHMI</b>     | Metal HMI Bezel with Display Opening and Filter                       |
| <b>S5KCEZEL</b>        | Metal Bezel for Module Bays and Filter                                |

## S5KCHRGRMOD, Charger Module

In AC mains mode, the charger module charges the system battery modules or external battery cabinet. Each charger module is rated to deliver 10 A charging current. The charger module has an independent control function and maintains real-time communication with the system and the battery modules to ensure stable charging and fault protection.

The charger module may be added or replaced on-line with no interruption or danger to the user, connected battery system or connected equipment.

**Example:** 10-Bay Configuration  
(S5KC Chassis E and F)

|   |             |
|---|-------------|
| <b>S5K5KPWRMOD1</b>                         | (P, B, C) * |
| (P, B, C) *                                 | (P, B, C) * |
| <b>S5KCBATMODCU = 2 Modules or 1 string</b> |             |
| B **  | B **        |
| B **  | B **        |

P = Power module

B = Battery module

C = Charger module

\* Where you have an empty spot you can add a power, battery or charger.

\*\* Battery module only.

UPS Extended Warranty Offering for the SolaHD S1K, S3K and S4K Series

S1K

| Catalog Number                  | Description                          |
|---------------------------------|--------------------------------------|
| <b>1–Year Extended Warranty</b> |                                      |
| 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 |
| <b>3–Year Extended Warranty</b> |                                      |
| 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                          |
|---------------------------------|--------------------------------------|
| <b>1–Year Extended Warranty</b> |                                      |
| 1EWPS3K700                      | 1-year extended warranty for S3K700  |
| 1EWPS3K1000                     | 1-year extended warranty for S3K1000 |
| 1EWPS3K1600                     | 1-year extended warranty for S3K1600 |
| <b>3–Year Extended Warranty</b> |                                      |
| 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                              |
|---------------------------------|--|
| <b>1–Year Extended Warranty</b> |  |
| 1EWPS4K06KPAD                   | 1-year extended warranty for S4K4UC PADs |
| 1EWPS4K10KPAD                   | 1-year extended warranty for S4K6UC PADs |
| <b>3–Year Extended Warranty</b> |  |
| 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. We will repair or replace the SolaHD 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                             |
|---------------------------------|---|
| <b>1–Year Extended Warranty</b> |   |
| 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  |
| <b>3–Year Extended Warranty</b> |   |
| 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                              |
|---------------------------------|--|
| <b>1–Year Extended Warranty</b> |  |
| 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  |
| <b>3–Year Extended Warranty</b> |  |
| 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 S5KC 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.

### S5KC Modular Start-Up Programs

Start-up services should be ordered as a separate line item at the time of purchase. S5KC Series UPS sold with start-up Services are provided with a 2 year parts and labor warranty. Please refer to the following information for a menu of start-up options and please choose the appropriate start-up service required. If start-up is not ordered and performed, please note that this will reduce your warranty period to two years of parts and, 90 days labor.

A separate Preventative Maintenance Only plan is available in addition to the standard Start-Up plan.

### Service Programs - S5KC 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 S5KC Series**

| Catalog Number     | Equipment   |
|--------------------|---|
| <b>SUS5KCXXMF</b>  | S5KC Start-Up Monday-Friday 8-5                               |
| <b>SUS5KCXX24</b>  | S5KC Start-Up 7x24  |
| <b>SUPS5KCXXMF</b> | S5KC Start-Up Plus M-F 8-5 w/1PM over initial warranty period |
| <b>SUPS5KCXX24</b> | S5KC Start-Up Plus 7x24 w/1PM over initial warranty period    |

PM = Preventative Maintenance

**S5KC 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 S5KC configuration).

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

YY = Number of Battery Modules (#01 through #07)

| Catalog Number      | Service Program  |
|---------------------|--|
| <b>MUUS5KCXPYY</b>  | Preferred Service  |
| <b>MUUS5KCXESYY</b> | Essential Service  |
| <b>MUUS5KCXBAYY</b> | Basic Service  |
| <b>MS5KC1PM24</b>   | PM Only (7-Days/Week, 24 Hrs/Day) for all configurations |

Note: Service programs are valid for one year.



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