Application Note

S5K Modular UPS Site Planning Data

Revision 1 / May 16, 2002

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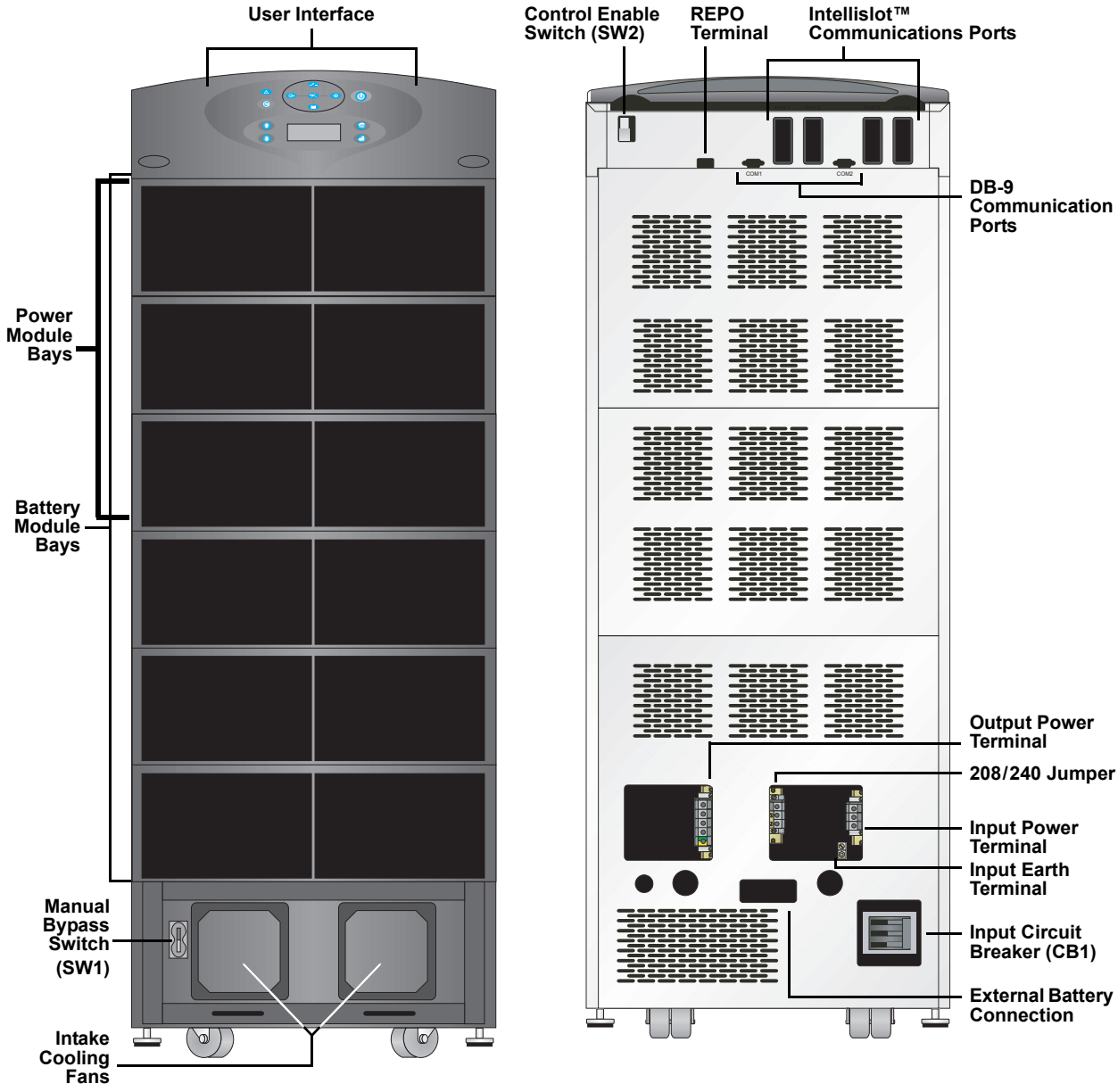


Front
with bezels removed

Back
with access plates removed

PREPARATION

These installation instructions provide all the information needed for positioning the UPS (including environmental requirements) and for connecting the input and output power cables.

Inspection

Upon receiving the UPS, examine the packaging for any signs of mishandling or damage. If any damage is noted, call your local Sola/Hevi-Duty representative and/or notify your carrier.

Environment

NOTE: Operating in temperatures above 25°C (77°F) will reduce battery life. The UPS environment must be free of conductive contaminants and excessive moisture (water and condensation), flammable vapors, chemical fumes or corrosive gases and liquids.

Required Setup Equipment

The tools below are required to properly set up your UPS:

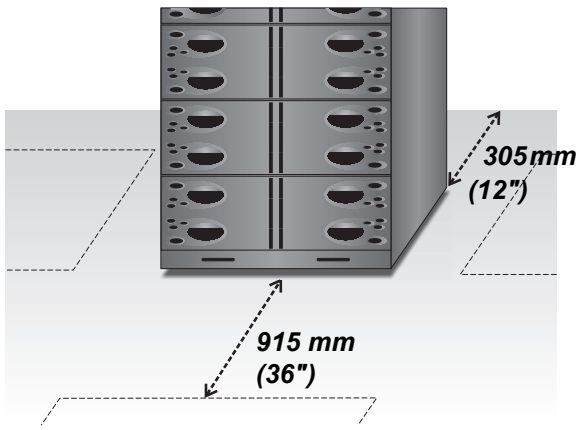
- Pallet jack
- 13 mm (1/2") ratchet or wrench
- Torque wrench (in-lb)
- Flathead screwdriver
- #2 Phillips screwdriver

Site Preparation

When deciding where to locate your UPS, consider the weight and size of the unit. Make sure that the structural integrity of the floor can withstand the weight of a fully loaded unit. Refer to the table below for size and fully populated weight considerations.

Model	Max Weight kg (lb)	H x W x D mm (in)
8 bay	377 (831)	1016 x 508 x 711 (40 x 20 x 28)
12 bay	536 (1182)	1346 x 508 x 711 (53 x 20 x 28)

Check to make sure that your UPS will be located in a well-ventilated area with at least 305 mm (12 inches) behind it. The UPS is force-cooled with the aid of internal fans. Cooling air enters from the front of the UPS and is exhausted through ventilation grilles in the back. It should also have at least 915 mm (36 inches) in front in order to change modules when necessary.



The unit frame is bolted to the shipping pallet to ensure safety. It is recommended that a pallet jack be used to transport the unit to its operating location (prior to unbolting the unit).

CABLE INSTALLATION

Wiring Preparation

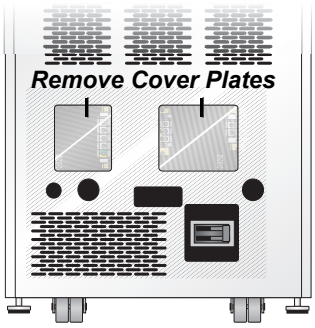
WARNING:

Please read this section thoroughly before attempting to install wiring to this unit.

Be sure that the unit is not connected to any power source before installing any wiring to this unit. This UPS should be installed by a qualified / certified electrician.

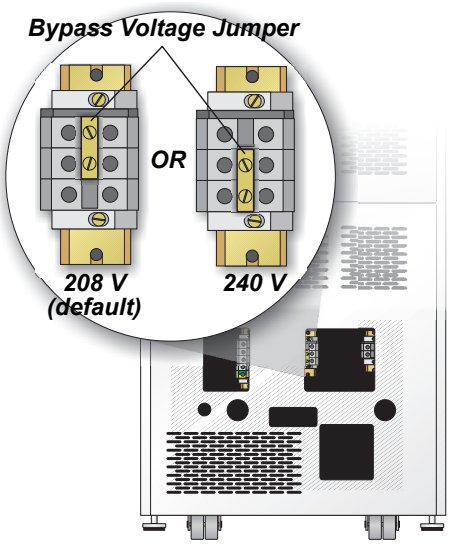
Removing the Cover Plates

On the back of the UPS, cover plates are over the input and output terminals, as shown at right. Remove these using a Phillips screwdriver. Keep screws and plates to one side.



Configuring the Bypass Voltage (TB2)

The UPS voltage is factory-set to 208 V. Should the user have a utility supply of 240 V, the bypass voltage jumper will have to be changed to ensure correct output voltage.



Power Cable Installation

Refer to the chart below when selecting cables

Power Cable and Protection Ratings			
	120 V	**208 V**	**240 V**
Max Input Current in UPS Mode and Nominal Voltage	N/A	79 A	69 A
Input Protection	N/A	100 A	90 A
Max Output Current	67 A/ phase	77 A	67 A
Input/Output Terminal Details	2 AWG Max: 35 mm² 6 AWG Min: 16 mm² Torque Rating: 2.5-3.0 Nm (22-26 in-lb)		

90°C rated copper wire is recommended

NOTES

If the start-up is on bypass, the UPS has a six-cycle inrush current that is up to 20 times the rated output current. This must be taken into account when selecting the overload protection device at the AC input supply distribution point. To avoid random tripping on start up, it is recommended that the AC input supply be protected with a circuit breaker capable of withstanding this initial inrush.

This UPS is fitted with EMI suppression filters. Earth leakage current is less than 40mA. Transient and steady state earth leakage currents may occur when starting the equipment. This should be taken into account when selecting ground current detection devices, as the earth leakage currents of both the UPS and load will be carried.

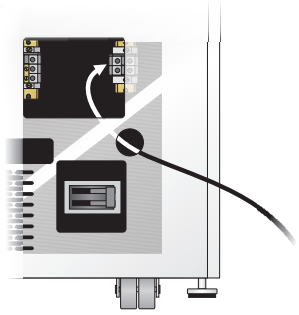
Input and output cables must be run in separate conduits.

A branch rated overcurrent protection device (circuit breaker or fused disconnect switch) must be installed for the AC input.

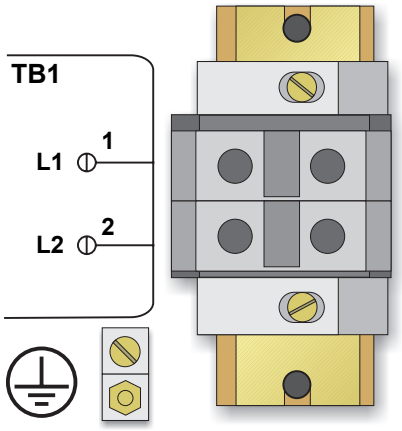
Input Wiring (TB1)

To connect the input wiring, follow these steps:

1. Locate the input wiring access, remove the knockout and pull the three input wires through it, allowing some slack for installation.



2. Secure the conduit to the rear panel of the UPS.
3. Input Power cables connect to screw terminals on the Input Terminal Block located to the right of the Bypass Voltage Terminal. Connect the wires to the block connections as shown below. Using a torque wrench, turn the screws clockwise until tightened to the proper torque value 2.5 - 3.0 Nm (22-26 in-lb). Insert the ground wire through the grounding lug and tighten it to the proper torque value.



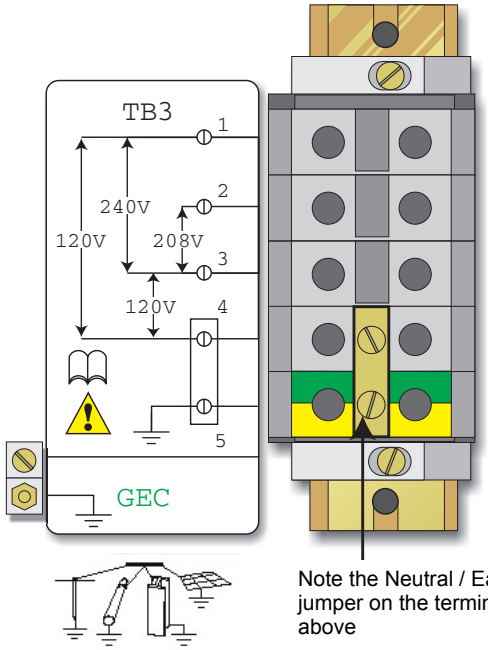
Grounding Conductor Installation

An insulated grounding conductor must be identical or larger in size, insulation material, and thickness as the grounded and ungrounded branch circuit supply conductors. This cable must be green with or without one or more yellow stripes and is to be installed as part of the branch circuit that supplies the unit or system.

The grounding conductor is to be grounded to earth at the service equipment or, if supplied by a separately derived system, at the supply transformer or motor generator set.

Output Wiring (TB3)

Output wiring may be configured one of two different ways (240/120 or 208/120). Refer to the chart and diagram below when configuring the output wiring.



Note the Neutral / Earth jumper on the terminal above

Voltage	120	208	240
Terminals	1,4 3,4	2, 3	1,3

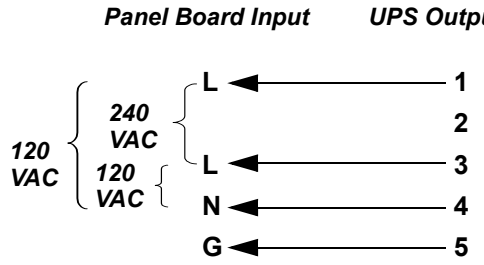
Use only the connections listed above. Other connections will produce nonstandard voltages.

Note

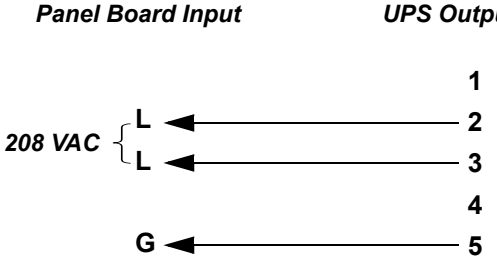
The *S5K Modular* UPS contains an isolation transformer that generates a neutral conductor for the connected equipment. The UPS is a separately derived source and contains a neutral to ground bonding jumper. A grounding electrode conductor (GEC) must be installed in accordance with national and local wiring codes and regulations.

Connecting to External Panel Boards

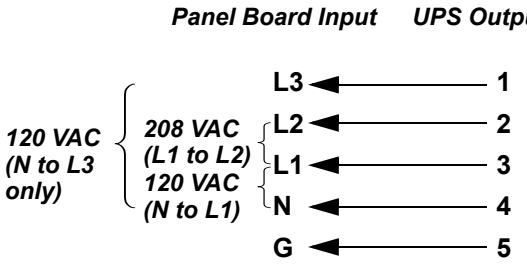
If connected equipment operates at 240 VAC only or 120 VAC only or is a mixture of both, use a single-phase panel board connected to the UPS as follows:



If connected equipment operates at 208 VAC only, use a single-phase panel board connected to the UPS as follows:



If connected equipment is a combination of 208 VAC and 120 VAC, use a three-phase panel board connected to the UPS as follows:



Note: L2 to N is 88 VAC

NOTE: L2 - N is 88 VAC.

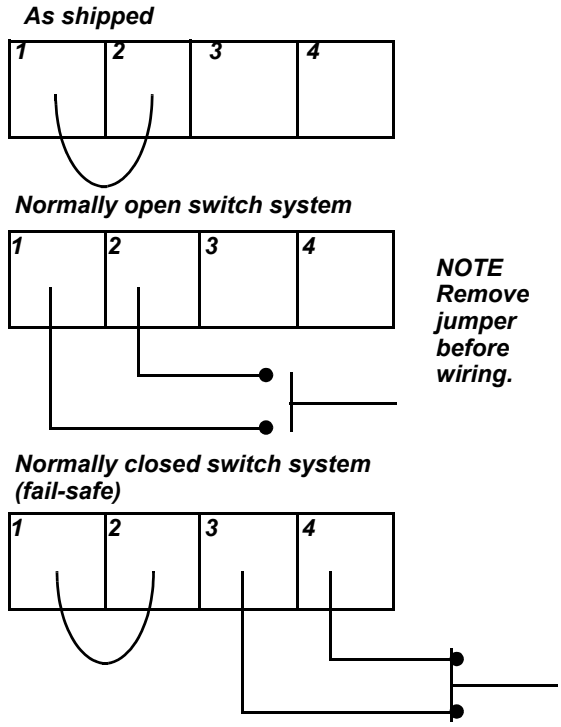
CAUTION: It is necessary that the installing electrician clearly identify the connections for future reference. Refer to NEC 215-8 and 210-4(d) .

REPO Switch

S5K Modular is equipped with a Remote Emergency Power Off (REPO) switch.

The user must supply a means of interfacing with the REPO circuit to allow disconnecting the UPS input feeder breaker to remove all sources of power to the UPS and connected equipment to comply with national and local wiring codes and regulations.

REPO switch connection diagram



1. 24 V DC, 35 mA
2. = Sense
3. = Sense
4. = Ground

If the installation does not require connection to a REPO system, the jumper must be removed.

CAUTION: To maintain safety (SELV) barriers and electromagnetic compatibility, signal cables should be segregated and run separately from power cables.