Parallel Kit Installation Guide
SCV 6 & 10kVA Tower
Parallel Kit Installation Guide

1. Package Inside
The same kit will fit both the 6 KVA and 10 KVA units. Inside the parallel kit, you will find the following items in the package:
- Parallel board
- (2) Parallel cables
- Output relay board
- (2) Share current cables
- 2-pin red/black cable
- Blue wire and brown wire
- (3) Mounting screws

2. Product Introduction
By installing parallel kit into standard models, the standard online UPS can be operated as a parallel system. This kit simplifies the process of upgrading standard model to parallel model and provides high flexibility to customers.

3. Installation
There are three steps to this installation.

   a. Install Output Relay board between the Main control board O/P Line and O/P Neutral cables and the O/P EMI board.
   b. Install parallel board.
   c. Configure UPS system Settings for parallel operation.

Read all instructions and make sure the installation kit is complete before starting the installation.
Step 1 – Remove top and left side covers. Also remove Parallel cover plate.

**Caution**: Units contains internal batteries.
Step 2 – Mount the Relay Board on the right side of the unit just below the Control board, using (3) mounting screws.
Step 3 – Remove Blue cable from Main Control Board, O/P N connection.

Step 4 - Remove brown connector coming from Main Control Board from the EMI Board (left rear connector on EMI Board) using 7mm socket/wrench. Leave end connected to Main Control Board.
**Step 5** – Connect end of Blue wire removed in Step 3 and Blue wire supplied in Parallel kit to terminal P3 of Relay Board using large screw. Connect the other end of the Blue wire from the parallel kit to O/P N connector on Main Control board. The Relay board will have two (2) wires on connector P3.

**Step 6** – Connect existing brown wire removed in step 4 to terminal P1 of Relay Board using large screw.
**Step 7** – Install Brown wire from Parallel kit between P2 on Relay board and left rear terminal on EMI board from step 4 using large screw.
Step 8 – Locate 4-pin, 2-wire cable from CN 15 on PSDR board that is tied up near rear of unit by Output EMI board. Install this cable to CN1 in Relay Board.

Step 9 – Install Parallel Board, 14-Pin ribbon cable and 2-pin black/red cable from kit.
Step 10 – Connect the 14-pin ribbon cable from CN1 of Parallel board to CN11 of Control Board. Connector CN1 is located on right side of unit on board with connectors facing downwards.
Step 11 – Install 2-pin cable from CN9 of Parallel Board to CN2 on EMBS board.

Step 12 – Install Parallel Board to rear sheet metal of unit. Use jack screws from parallel cable DB9 connectors to hold board snug in place.

Step 13 – Replace side and top panels.
4. Wiring Connection and Test Parallel System

Before testing parallel system, please make sure every single UPS can work fine as below procedure:

PART 1: Before testing the parallel system, in order to make sure every single UPS can work fine, please confirm items below first.

1) Make sure that the parallel board and OP relay board have been installed correctly.

2) Make sure that each UPS has the same configuration, including the following parameters:
   a) output voltage,
   b) output frequency,
   c) bypass voltage range,
   d) bypass frequency range,
   e) converter enable or disable,
   f) bypass enable or disable,
   g) bypass open or forbidden,
   h) frequency auto detect enable or disable,
   i) inverter short clear enable or disable

3) Turn on each UPS into the line mode or battery mode respectively. Measure and calibrate the output voltage by a multimeter.

Make sure the difference of the output voltage among the UPSs is less than 2.0V (typical 1V). If not, you can adjust the voltage via LCD as bellow (detailed description about this part, please refer to related part in USER MANUAL):

<table>
<thead>
<tr>
<th>Interface</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Interface Image]</td>
<td>![Setting Image]</td>
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After adjusting the inverter voltage, check if the output voltage detection is ok. If the difference between the displayed value and the voltage measured by a multimeter is not more than 1V, please adjust it to make sure the difference is not more than 1V. Then, shut down the UPS to save this setting into EEPROM.
PART 2: Parallel Operation.

1) Wiring UPS parallel system as below pictures:

Wiring of two UPSs in parallel

Wiring of three UPSs in parallel
2) **Turn on the parallel system with utility power supply (in AC mode)**
   a) Turn the breakers on for every battery pack and then power on UPS one by one.
   **NOTE: The parallel UPSs cannot use the same battery pack. Each UPS should be connected to its own battery pack.**

   At this moment, the fan is running and the UPS start to initialize. Several seconds later, UPSs operate in Bypass mode. After a while, UPSs’ output relays is closed. Then, parallel system supplies power to the loads via the bypass.

   b) Check if the parallel information in LCD display is shown as below pictures. If parallel UPS systems are successfully set up, it will show “Parallel: Master”, “Parallel: Slave1” or “Parallel: Slave2”. If not, please do not go to next step and check if the parallel cables have been connected well.

   ![parallel display](image)

   c) Press and hold the “ON” button for 0.5s and turn on the UPS one by one. More details about how to start UPS, please refer to related part of USER MANUAL.

   ![parallel display](image)

3) **Turn on the parallel system without utility power supply (in Battery mode)**
   a) Turn on the battery breaker.
   b) Press the “ON” button of one UPS to set up the power supply. UPS will enter to power on mode. After initialization, UPS will enter to No Output mode. Then, press “ON” button again to turn on UPS.

   c) A few seconds later, after UPS is on, the UPS will enter to Battery mode.
   d) Then, do the same procedure for other UPSs as step c).
   e) Then, the parallel system has been installed and starts to supply power to the load.
4) **Turn off the parallel system**
Press and hold the “OFF” button to turn off the UPSs one by one. The buzzer will beep once. After a while, the UPSs will enter to bypass mode or no output mode synchronously.

5) **Add one new unit into the parallel system**
   a) You can not add one new unit into the parallel system when whole system is running. You must cut off the load and shut down the system first.
   b) Make sure all of the UPSs are the parallel models and follow the connection refer to section 4.
   c) Install the new parallel system, please refers to the previous section.

6) **Remove one unit from the parallel system**
   a) Press the “OFF” button twice. Then, the UPS will enter into bypass mode or no output mode without output.
   b) Turn off the output breaker of this unit. Then, turn off the input breaker of this unit.
   c) After it shuts down, you can move the parallel cable and share current cable. And then, remove the unit from the parallel system.