

**Parallel Operation Manual for HT11/31 6-20K V1.0**



## Important Safety Instructions

This manual contains important safety instructions. Read all safety and operating instructions before operating the uninterruptible power systems (UPS). Adhere to all warnings on the unit and in this manual. Follow all operating and user instructions. This equipment can be operated by individuals without previous training.

This product designed for commercial/industrial use only. It is intended for use with lift support and other designated “critical” devices. Maximum load must not exceed that shown on the UPS rating label. The UPS is designed for data processing equipment. If uncertain, consult your dealer or local representative.



### **WARNING OF BATTERY**

The battery can present a risk of electrical shock and high short circuit current. Following precautions should be observed before replace the battery or maintain standard ups.

- Wear rubber gloves and boots.
- Remove rings, watches and other metal objects.
- Use tools with insulated handles.
- Do not lay tools or other metal objects on the batteries.
- If the battery is damaged in any way or shows signs of leakage, contact your local representative immediately.
- Do not dispose of batteries in a fire. The batteries may explode.
- Handle, transport and recycle batteries in accordance with local representative.



### **WARNING**

Although ups has been designed and manufactured to ensure personal safety, improper use also can result in electrical shock or fire. To ensure safety, observe the following precautions:

- Turn off and unplug the UPS before cleaning it.
- Clean the UPS with a dry cloth. Do not use liquid or aerosol cleaners.
- Never block or insert any objects into the ventilation holes or other openings of the UPS.
- Do not place the UPS power cord where it might be damaged.
- If fire, please use the dry powder fire extinguishers. If use liquid extinguisher, there may has get an electric shock risk.
- Before turn on ups, please check that whether the cable and the polarity of the batteries are correct.

### **Important Tips:**

**When need to replace board, please turn off ups, disconnect the mains switch and battery switch (built-in battery, please unplug at least one battery cable), wait for 10 minutes.**

## 1 Parallel UPS cable connection

If output cable less than 20m, length deviation of the parallel UPS output cable should not be more than 20%; if output cable more than 20m, length deviation of the parallel UPS output cable should not be more than 10%. System diagram as shown in fig1.1. Kindly suggest installing the external switch to test and maintain system.

UPS cable connection as shown in fig1.2.

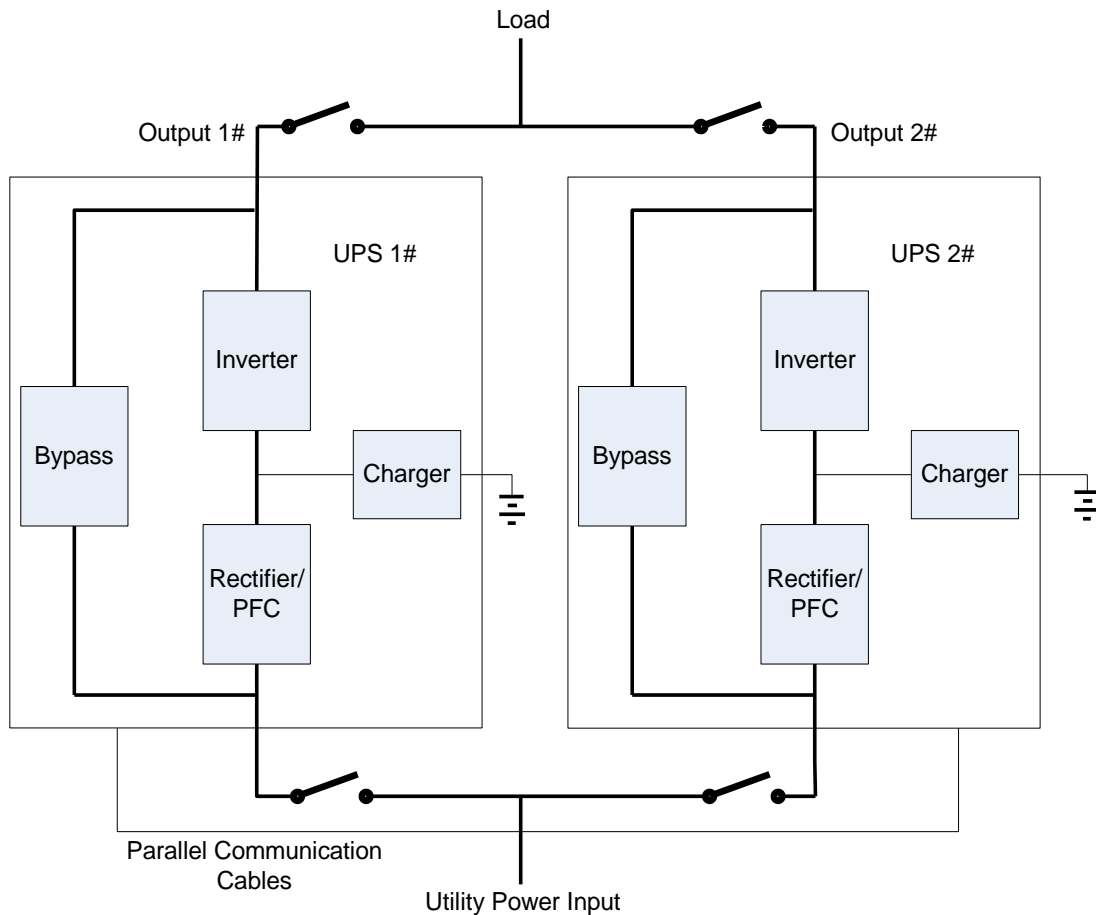


Fig1.1 Parallel Installation Diagram

### Notes:

※※ For HT31 serial UPS, input phase of parallel system must be same. Input A (UPS 1) same as Input A (UPS 2), other phases also like this; For HT11 serial UPS, Input L (UPS 1) same as Input L (UPS 2), Input N (UPS 1) same as Input N (UPS 2).

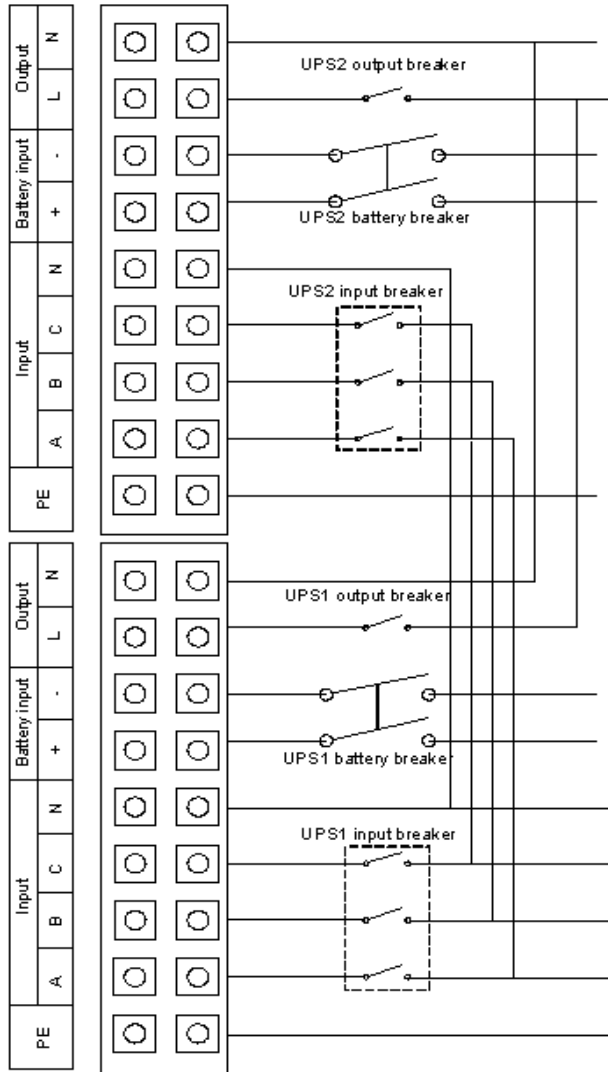
※※ **Output of parallel system must be shorted together, then connect load.** Output L (UPS 1) connect to Output L (UPS 2), Output N (UPS 1) connect to Output N (UPS 2)

※※ **Parallel UPS cannot share battery bank, must use battery bank for each other.**

※※ For HT11 15-20K serial UPS, cable connection method same as HT11 6-10K.

2. The parallel communication cable are designed to be shielded and double insulated, and are connected between the UPS rack modules to form a loop as shown below. This close loop connection ensures the reliability of the parallel system control, as fig 1.3.

**HT31 Serial**



**HT11 Serial**

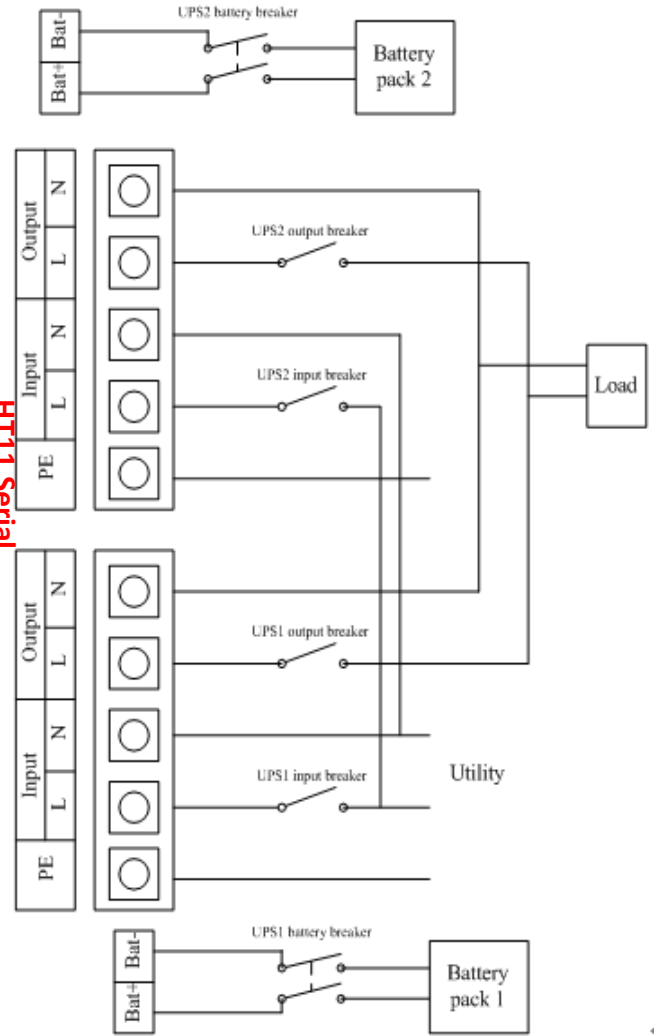


Fig 1.2 Parallel system cable illustrative diagram

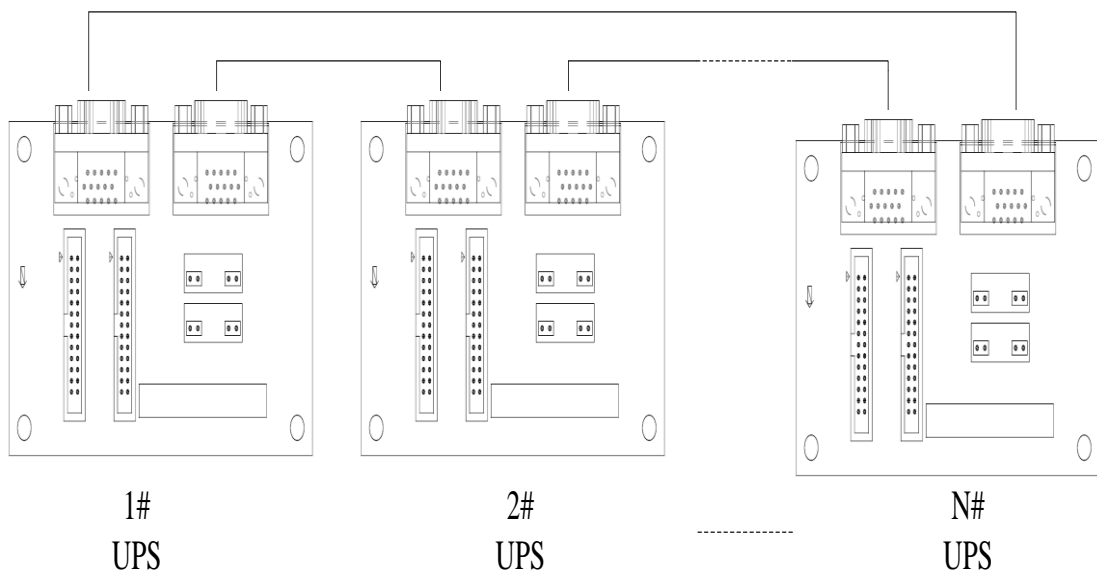


Fig 1.3 parallel communication cable

## 二 UPS Parallel settings

1. If parallel board has been installed before delivery, UPS parallel settings would already be modified. We just skip parameters modification steps.
2. Please kindly check cable again. Only close battery switch of UPS 1, then click "ON/OFF", LCD panel will work.

Connect monitoring software, we can change system mode. UPS number: 2, the ID of UPS 1: 0, the ID of UPS 2: 1, then click "set", as shown in fig2.1.

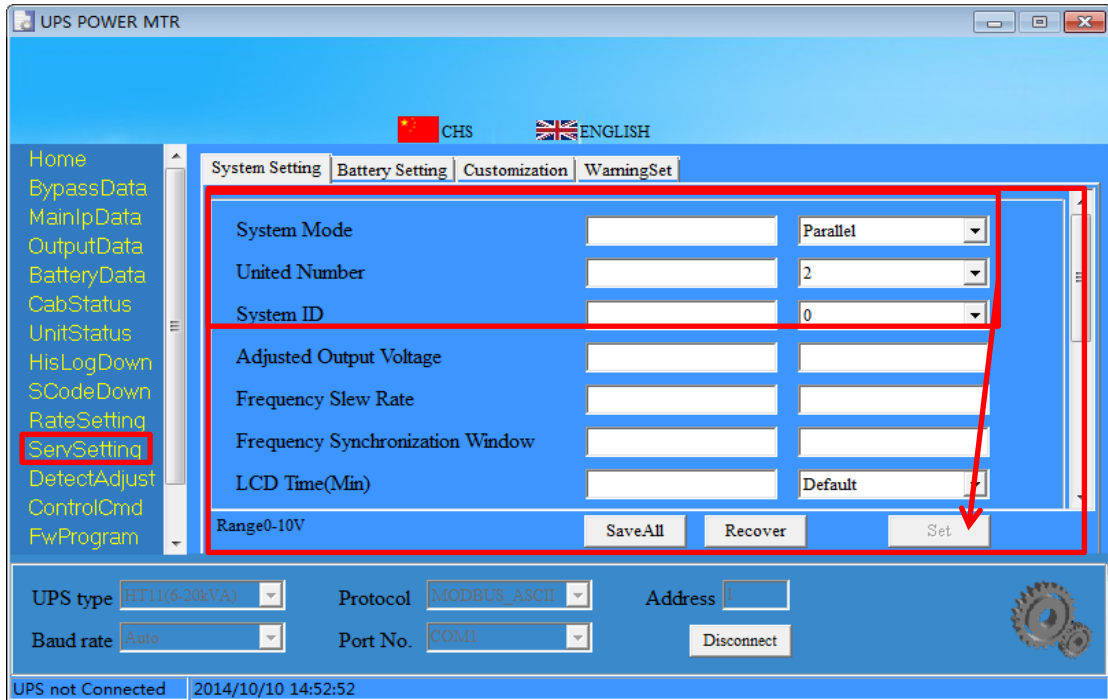


Fig 2.1 parameters modification

3. Modify the system code. Please cancel option "Transformer", and click "Set".

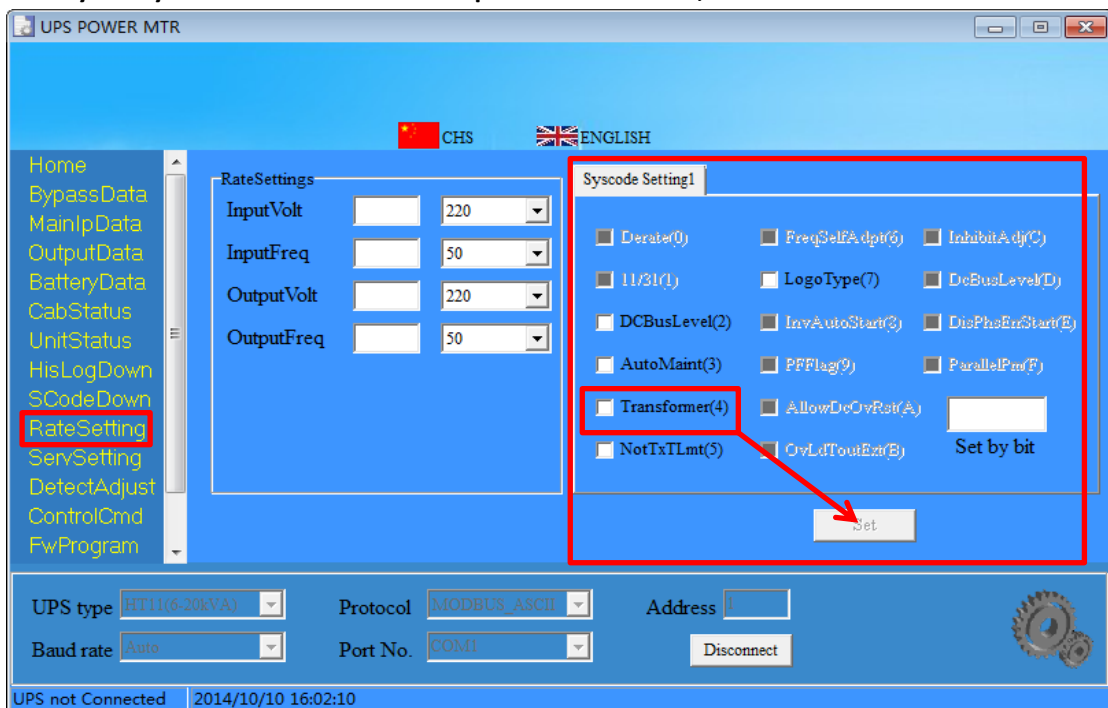


Fig 2.2 System code modification

4. Turn off battery switch (Turn off UPS 1). Then turn on battery switch again, click "ON/OFF". Please check LCD panel, as shown in fig 2.2.



Fig 2.2 UPS 1 panel

5. Then modify UPS 2, panel show as fig2.3. Then turn off UPS 2.

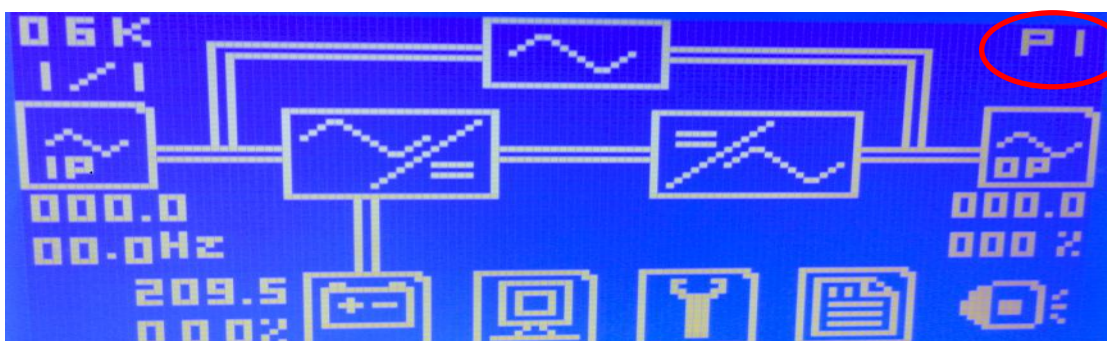


Fig 2.3 UPS 2 panel

**NOTES:**

- ※※ Each time only modify one UPS, and then turn off UPS
- ※※ All parallel parameters should be same except system ID, if not , please contact UPS engineer.

≡ **Parallel system test**

**3.1 single ups test**

Check input, output, battery cable again.

- a) Turn on UPS in battery mode
- b) Close main input switch, UPS run in normal mode
- c) Manual transfer UPS to bypass mode on the panel. Then manual quit bypass mode.
- d) Turn off main input switch, UPS will run in battery mode;
- e) Turn off UPS 1, and then test UPS 2.

**3.2 Parallel test**

- a) First turn on UPS 1 in normal mode. Then turn on UPS 2 in normal mode.  
If there have any alarm, please turn off UPS, check cable and settings.
- b) Manual transfer UPS to bypass mode on the panel, both UPS will turn into bypass mode synchronous. Then manual quit bypass mode.
- c) Turn off UPS main input, UPS will run in battery mode;

**notes:**

- ※※ In the process of test, please make sure that same phase of output power cable always be shorted together.