SUNCON WVC Modem
User Manual

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1 WVC Modem User Manual

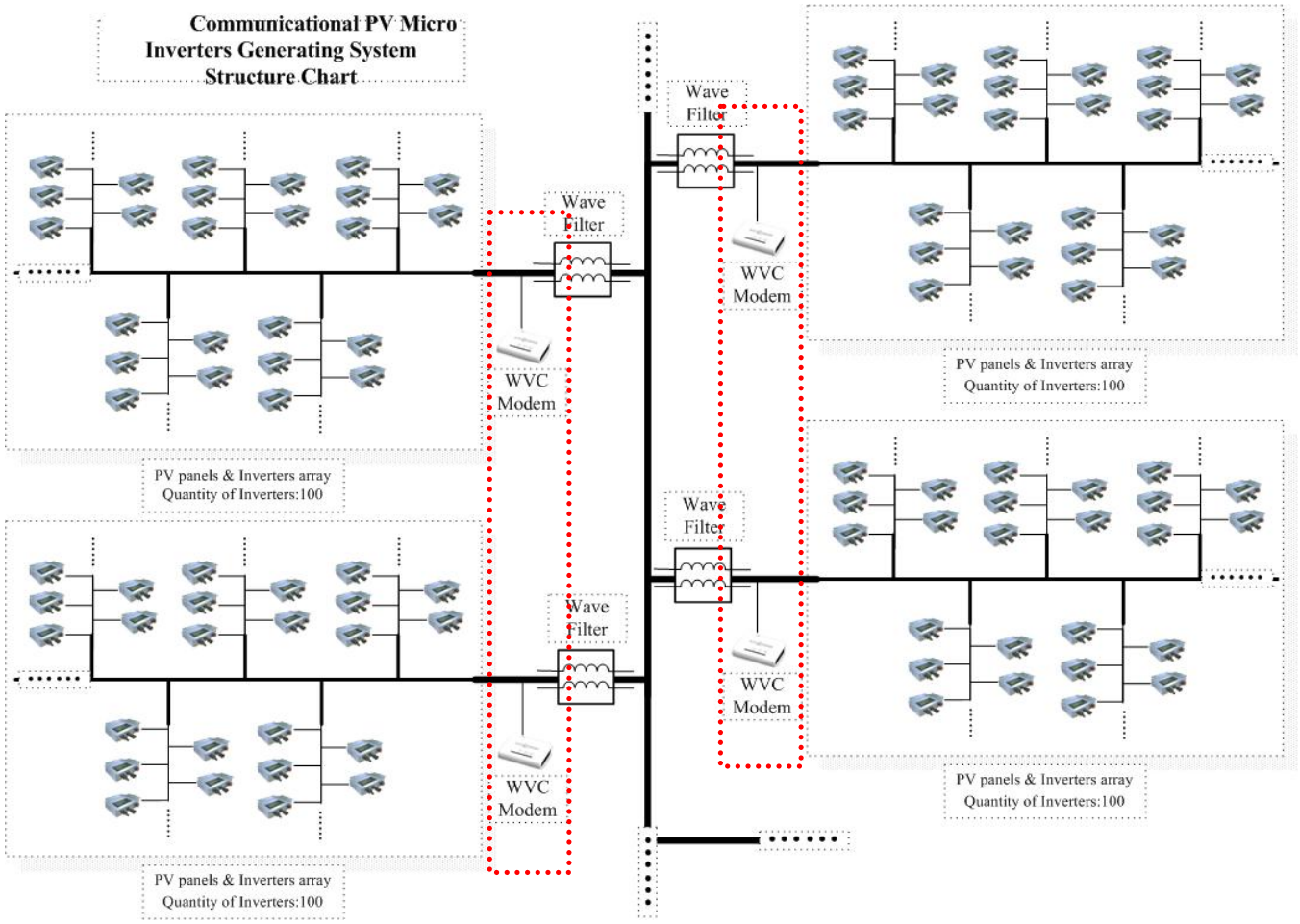
1.1 System Comprehensive description

The WVC Modem is the important component of communication power generating system. According to the applied characteristics, we design a WVC Modem which can monitoring and manage of 100 pcs our micro inverter. 100pcs micro inverter and one WVC Modem make a group. In the same group, micro inverters and WVC Modem must be installed in the same phase circuit, and install 2mH filter behind inverter and Modem to prevent the communication interference between the different groups; WVC Modem have two standard interfaces , one is RS232 standard(the distance RS232 standard installation must not be more than 15 meters), the other is RS485 standard (RS485 standard installation must not be more than 1200 m distance). We need according to the size of the power system and installation distance to choose the standard, we recommendations like below：

1. If the system has only one group and WVC Modem distance less than 15 meters, we can choose RS232 standard interface；

2. If the system have more than 1 group or WVC Modem installation distance is more than 15 meters, we need to choose RS485 standard interface；

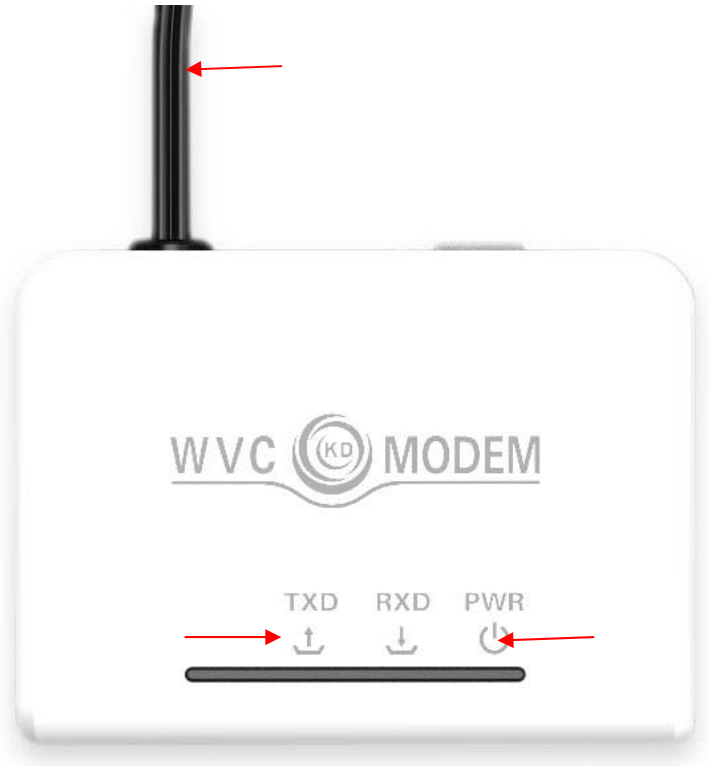
In the whole power system, WVC Modem system simple structure schemes like below: (detailed installation chart please see communication power generation system installation structure guide)：



1.2 Equipment components

WVC Modem standard components including：

1. WVC Modem unit (Integrated switching power supply/power line/plug)；



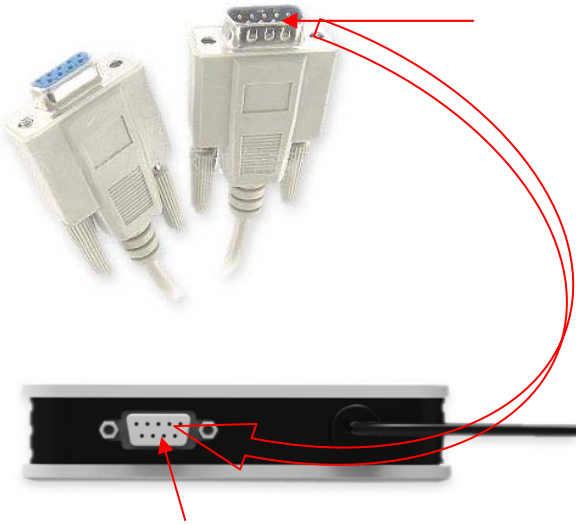
2. One RS232 serial connections

1.3 Installation

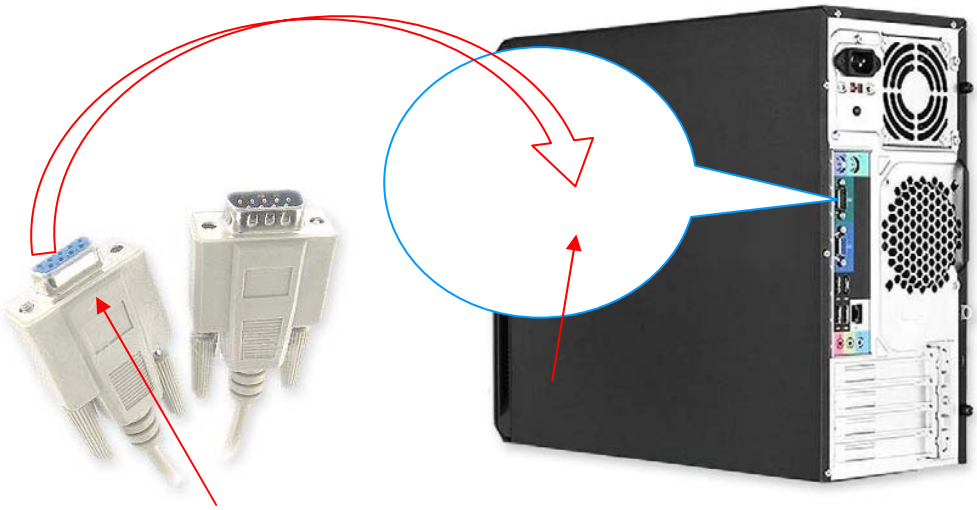
1.3.1 one WVC Modem(only one group) and the installation distance is within 15M

When the micro inverters is less than or equal to 100pcs in generation system, we only need to install one WVC Modem. The installation is very simple, just need using the serial port to connect the WVC Modem and computer, then plugged in power. Of course, the first premise is your computer needs a serial port. And the details installation like below:

1. Connect the serial port of the female contact of lunk to WVC Modem serial port and tighten the screw on both ends of the connections, show likes below:



2. Connect the serial port of the male contact of lunk to computer main chassis's serial port and tighten the screw on both ends of the connections, show likes below:



3. Connect the power;

4. Finish installation of WVC Modem;

1.3.2 Installation ways of WVC Modem which the distance is more than 15M

If your system has more than one group of micro inverters and the installation distance is far, we need to choose RS485 interface. We need add a concentrator for RS232 serial port between WVC Modem and a computer. The function of concentrator is to make one computer can connect to several WVC Modems. Below is concentrator of eight serial ports, just as examples illustrate：

WVC Modems installation details as follows:

1. Connect WVC Modem with serial port line connector though RS485 serial port line;
2. Connect RS232 serial port line of WVC Modem with PC;
3. Connect and turn on all WVC Modems;
4. WVC Modems installation complete;

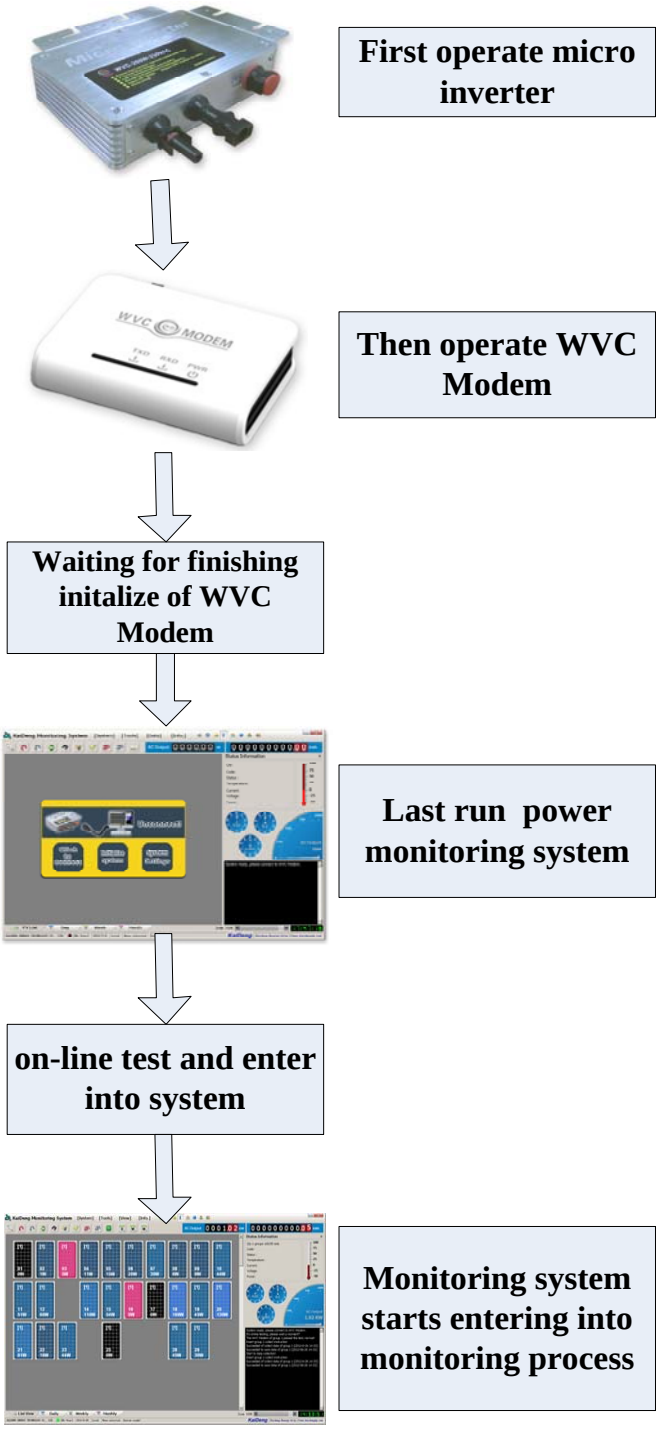
1.4 Equipment initialization and Instructions

WVC Modem will start to initialize automatically a few seconds later after power on, and indicator light will be flashing for about 1 minute until installation complete. WVC Modem will automatically complete part of instructions and Monitoring System will manually or automatically complete the rest instructions. (Referring to the Monitoring System Instructions) The sequence of devices start and operation is the most important in Generation System, and details of the sequence please refer to section 2.4 of the manual.

1.5 Equipments operation sequence instructions

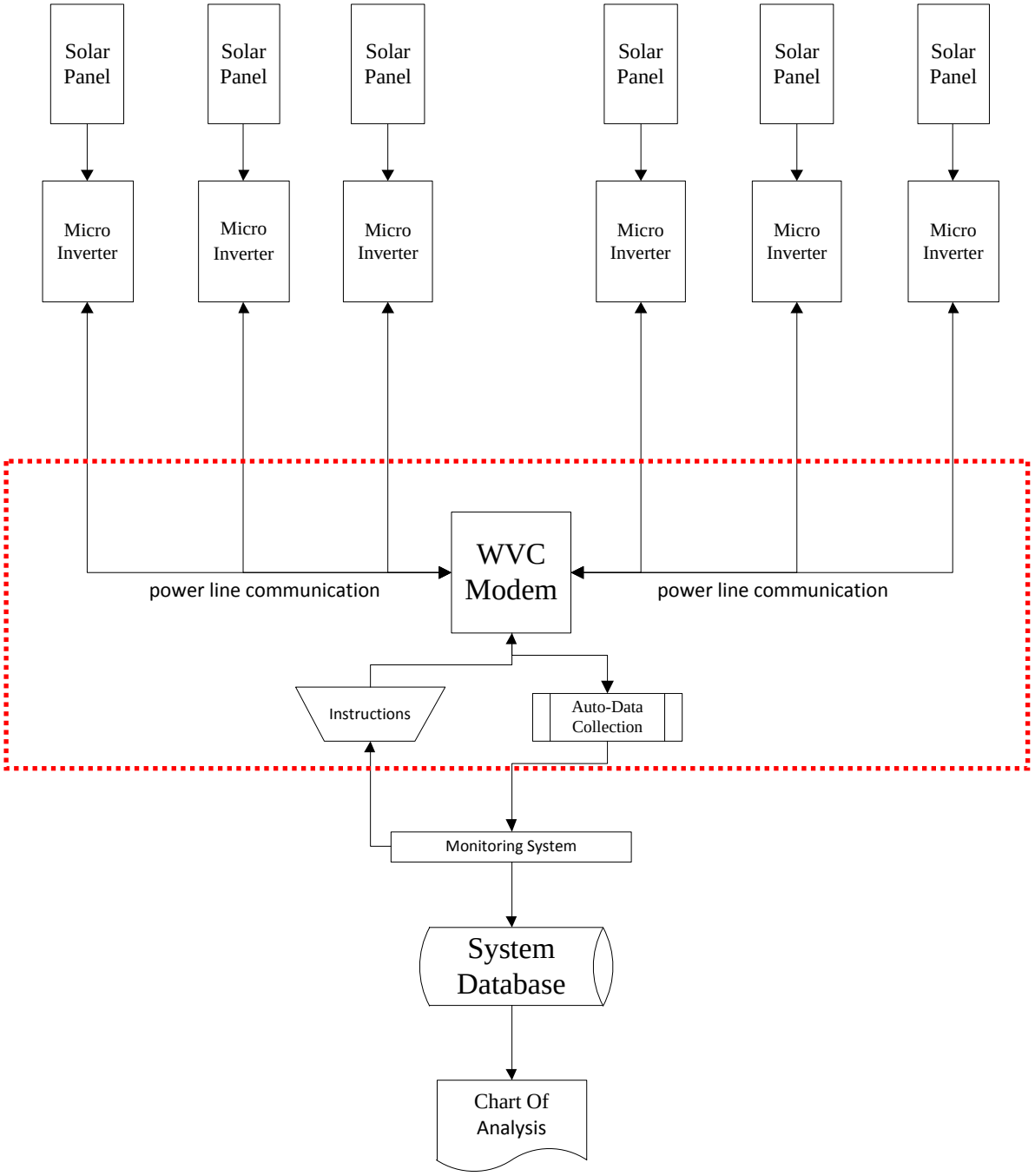
The devices of the new communicational PV generate system could work in good condition to achieve the best. In order to have the communicational PV generate system operate and work fluently, please pay attention to system operation sequence. And wrong sequence may lead to wrong and delayed data. And here is the system operation sequence as

follows:



1.6 System communication control flow chart

The devices of the new communicational PV generate system is like an organic whole that each related closely, we have designed a WVC Modem-based communicational PV generate system and reliable working process of data transmission. And here is the system communication control flow chart as follows:



1.7 Equipment reboot

It is simple to reboot WVC Modem, two ways as follows:

1. Turn WVC Modem power off, then wait for seconds to restore power supply;
2. Press Reboot Modem button of Inverter Monitor System to reboot WVC Modem. (Referring to Inverter Monitor System Manual)

Notes:

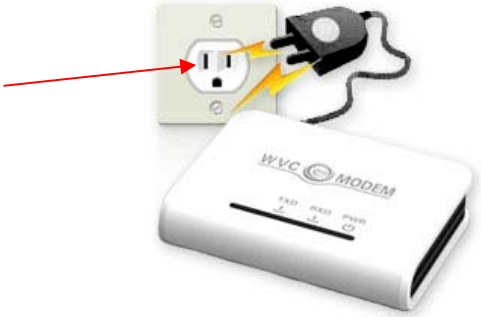
WVC Modem will reinitialize after rebooting, the other related work cannot be taken until reboot finished.

If some inverter monitoring by WVC Modem change after rebooting, you should click Disconnect online button on Inverter Monitor System and then connect online to recognize the inverters that was removed;

1.8 Disconnect sequence

According to WVC Modem' serial port connection, please DO NOT disconnect or install WVC Modem to keep the hardware safe when power on. Please refer to the following steps to disconnect:

1. Disconnect WVC Modem power plug;



2. Disconnect WVC Modem with serial port line;
3. Disconnect PC with serial port line;
4. WVC Modem disconnected complete;

2 Operational environment & fault handling

2.1 Natural environment

WVC Modem is an ordinary communicational trunking device, and it would not work in good condition, or even be damaged in a very bad environment. Please note that no high temperature, no high humidity and no ultra-low temperature working environment. waterproof boxes needed for outdoor working environment, no direct sunlight exposure and no extremely cold environment without heat preservation devices.

2.2 Application environment

WVC Modem transfers data by power lines carrier communication technology, which has simple installation, low cost, high efficiency and easy maintenance advantages to bring our customers enormous economic benefits. But there are requirements for arrangement of power lines: Inverters and WVC Modem in the same group should be installed with the power line in phase, and add with a 2mH filter or other devices to prevent signal interference from other groups.

2.3 Errors handling

- **How to deal with failing to connect devices and monitoring system online?**
  There are reasons about failure to connect as the following below, please kindly check:

1. Check Inverter Monitoring system initialization settings.

The initial numbers and the number of group have a direct effect on connecting online, please carefully check the numbers range of WVC Modem and the parameters of the initialization settings to keep relative uniformity, and try again;

2. Check WVC Modem initialization completed or not.

Connect online would start after WVC Modem initialization completed. First it will take about 1 minute to initialize a group of all the inverters after power on and the blue light will be continually flashing and stop until initialization finished. In the processing, WVC Modem has no reaction for any external communication requests;

3. Check the boot sequence of system equipments.

Right boot sequences please refer to Manual Section 2.4;

4. All above checked and system online failure still exists, please try to run online testing again after WVC Modem restarted and initialization completed;

- **How to deal with one WVC Modem failing to communicate correctly in normal monitoring processing?**

WVC Modem is design for 24-hour work and long time with thousands times of testing. However, WVC Modem may not communicate correctly all the time in the bad condition below: high temperature, moisture, signal interference of power lines and other factors. When it occur to the bad situation, please cut the modem power off and wait a few minutes and then connect the power, the problem can be solved generally. Or call our local after-service branch for support and help after trying several times.

3 Thank you !

Thanks for choosing our products and the service!Meeting our customers' maximize needs is the final goal to pursue. Thank you very much for reading this manual, and hope it would be helpful to your work and life!Thank you!