

Aurora Universal Residential Installation Guide

This installation document covers details for installing the Aurora Universal Residential hardware to work directly with an inverter. Through Aurora Universal Residential, the Management System (for example, Aurora Vision or Fat Spaniel Prime Edition) collects and analyzes energy generation and usage data for your inverter. Once the hardware is installed, you will need to login to the Management System to verify the Internet is connected properly and verify that the data is being received.

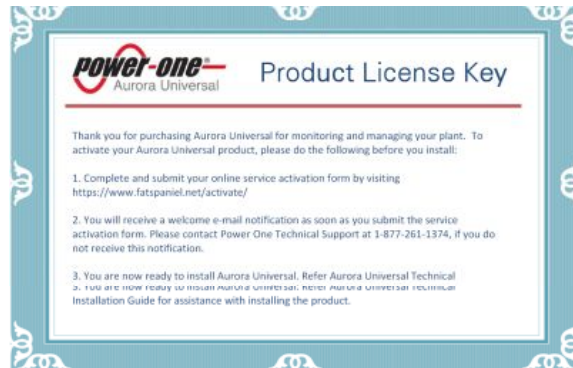
Equipment and Supplies

We supply:	You supply:
<p>Aurora Universal Residential System, which includes:</p> <ul style="list-style-type: none"> Aurora Universal Computer with RS485 adapter card attached AC Power Cord/Converter Product License Key M/F DB9 Cable 	<ul style="list-style-type: none"> Inverter AC wall outlet RS485 Signal cable from inverter to Aurora Universal Computer Straight-through CAT-5 Network cable to LAN port or Router

Aurora Residential Computer



License Key



Power Cord/Adapter



Site Selection and Mounting

Site Location Planning

The Aurora Universal Residential is connected to the Internet using CAT-5 or CAT-5 compatible cabling.

The Internet connection is only limited by the typical restraints and conditions that apply to any data network, as long as the router connected to the Aurora Universal Residential is reachable over a public network. The Internet connection point may be a router or switch that is connected to a public network. It may also be a router shared by multiple Aurora Universal Residential systems.

Cable Lengths

Below are the rules regarding cable lengths:

- Maximum 100 m (300 ft) between Aurora Universal Residential and the internet connection point (LAN)
- Maximum 1,000 m (3,000 ft) between Aurora Universal Residential and the inverter

RS485 Cabling

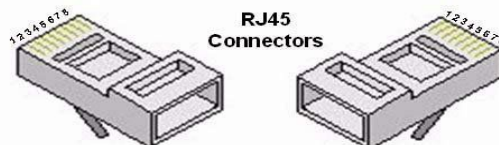
RS485 signal wiring between inverters is low-voltage wiring and should be shielded from electrical interference, such as high voltage wires or fluorescent light ballasts.

Internet (Cat-5) Cabling

For connection between the Aurora Universal Residential and the Internet, ordinary straight through CAT-5 cable works for most applications. However, ordinary CAT-5 is low-voltage wiring and should be shielded from electrical interference. If outdoor exposure or proximity to a noise source is a concern, Power-One recommends CAT-5e cabling.

It may be necessary for your application to string CAT-5 wire through conduit. It may not be possible to string the wire without cutting off and re-attaching one of the RJ45 connectors. The wiring diagram for RJ45 connectors on CAT-5 cable is provided as a convenience if you are required to re-attach an RJ45 connector.

Pin #	Color
1	Orange/white
2	Orange
3	Green/white
4	Blue
5	Blue/white
6	Green
7	Brown/white
8	Brown



Device Mounting

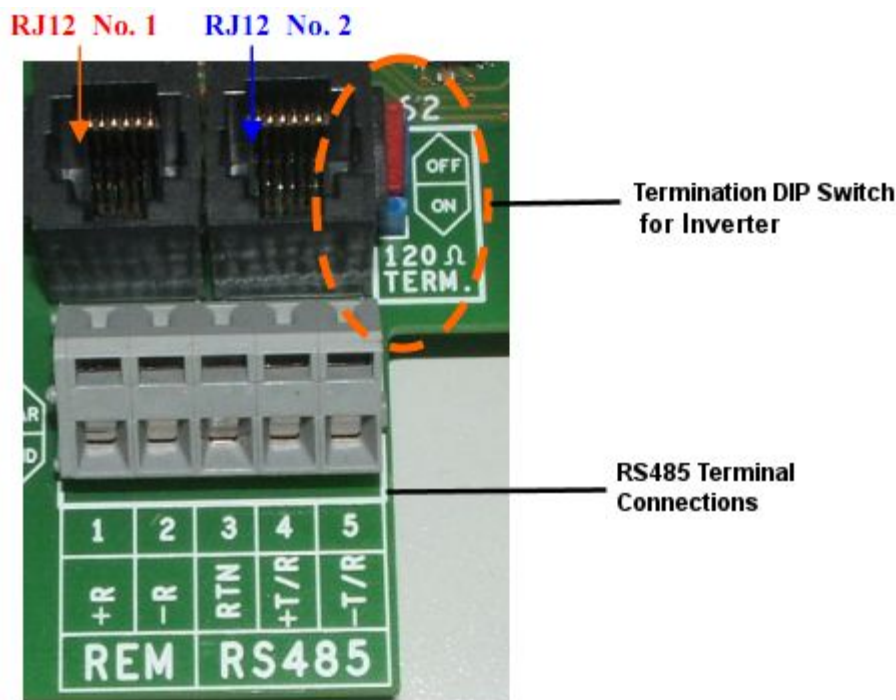
The exact method of mounting the Aurora Universal Residential enclosure is left to the installer. Here are some tips and best practices:

- Ambient temperature around the equipment should remain between -10°C and 40°C
- Aurora Universal Residential requires an indoor installation.

Preparing Inverters for Connection to Aurora Universal Residential

For easier installation, inverters typically feature one or two holes in the bottom of the unit. For a single inverter connection to Aurora Universal, you will only need to route the wires through one of the holes. Holes are sometimes blanked with waterproof plugs, and the inverter manufacturer may supply cable glands for the hole that protect the inverter. After passing through the cable gland, cables are connected inside of the unit to the RS485 terminal block. Terminal blocks are typically reached by removing a door or cover over the RS485 terminal block.

The RS485 connectors may be a screw terminal block or cage-clamp connector, and there may also be RJ12 ports depending on the inverter. An example terminal block from an inverter is shown below.



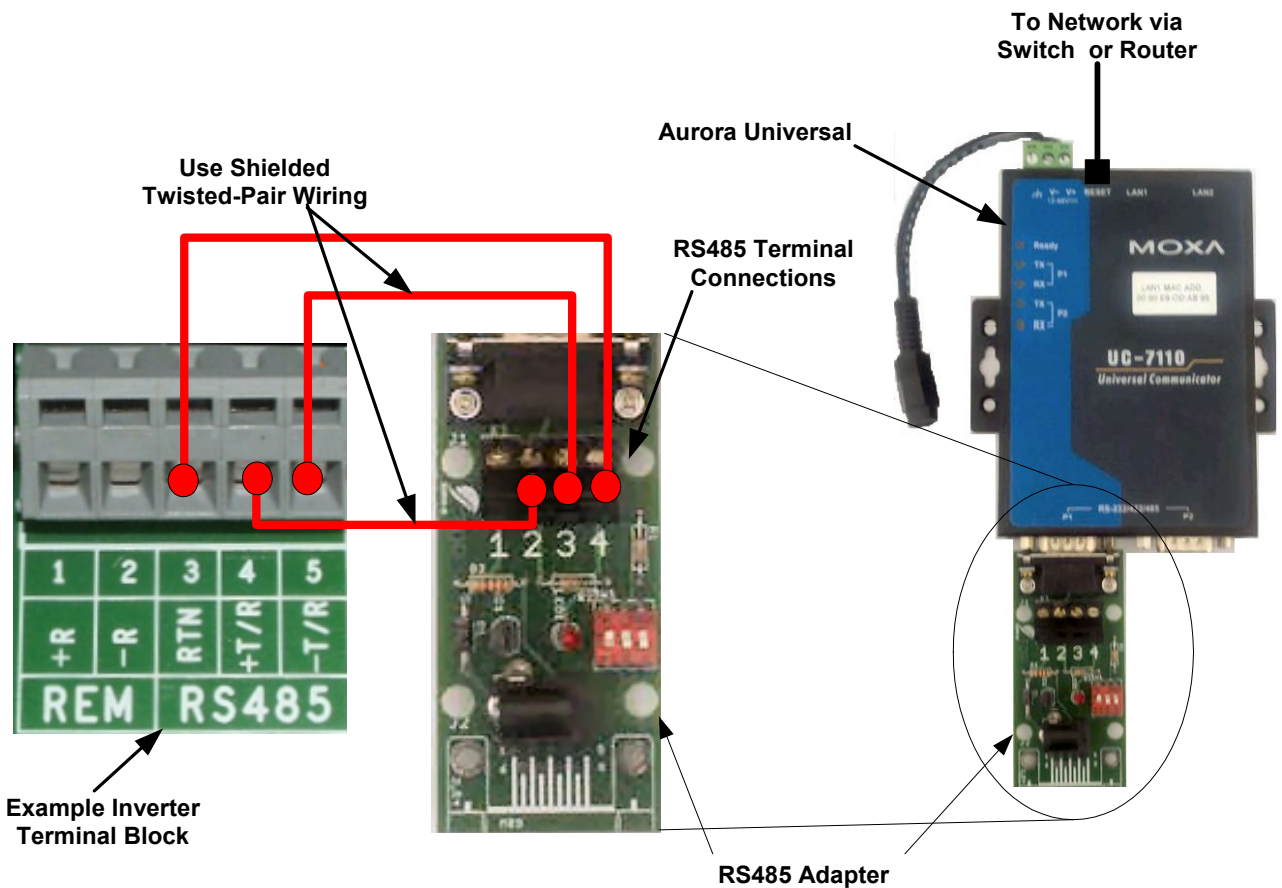
Make sure the inverter is terminated. There may be a DIP switch on the inverter RS485 terminal block or other means of terminating the connection. For detailed information, refer to the section on communications of your Inverter installation manual. Some inverters have RJ12 connectors and cabling. This connection to the Aurora Universal should not be used.

Connect Inverter and Ethernet

Three individual wires, two wires for signals and a third one for a ground connection, establish the physical connection for RS485 signaling. The physical connection to Ethernet can be completed by stringing a CAT-5 or CAT-5 compatible cable between the Aurora Universal and an Ethernet switch or router.

1. Connect the RS485 data wires from the Aurora Universal Residential to the RS485 terminal block in the inverter using the pin callouts in Table 1. Refer to the diagram and table below for an example of how to make the proper connections. Refer to the Inverter installation documentation for details on the RS485 terminal block location. Make sure to use shielded twisted pair wire to pins 2 and 3 on the Aurora Universal Terminal Block.

Inverter RS485 Terminal Block Connection	Aurora Universal RS485 Terminal Block Connection	Aurora Inverter RS485 Pin Number
RTN	4 (white)	3
+TR	2 (red)	4
-TR	3 (black)	5



2. Run the CAT-5 or CAT-5 equivalent cable to an Ethernet access point, usually a switch or router. Refer to [Internet Cabling](#) if you need to need to cut and re-attach an RJ45 connector. Connect the CAT-5 cable (RJ45) to the Aurora Universal port labeled **LAN1**.
3. Plug in the Aurora Universal power cord to an AC outlet.
4. Check the Aurora Universal power. There are 4 LED lights on the front of the computing unit. The Ready LED should be ON.
5. Check the Aurora Universal Ethernet connection. Look at the top of the Aurora Universal computer; you should see a green light above the LAN1 port.

System Activation and Validation

Refer to the Product License Key that comes with your Aurora Universal Residential package for more information about the next steps for product activation and validation.

System validation is performed over the Internet through a computer logged into an account at the Fat Spaniel website. The purpose of System Validation is to verify that communication links are established, data from monitored equipment is being received, and the data is being reported correctly.

Go to Fat Spaniel public web site and select the login page, <http://www.fatspaniel.com/log-in/>, and Login to the Partner Portal with your account name and password. Select **Quick Start Guide** from the Partner Portal home page for instructions on how to perform System Validation.

Fat Spaniel also has on-site diagnostic tools to assist with validating the installation or debugging installation/communication problems. Information about these tools can also be found on the Partner Portal website.



CAUTION!

Power-One uses the inverter address to track data for each inverter and to establish the Web site view. If you only have one inverter, the inverter address is set correctly to work with Aurora Universal Residential.

If the address must be changed at a later time or an inverter is replaced, Power-One Technical Support must be contacted *before the change is made*. Once the inverter is connected to the Power-One monitoring equipment and is reporting data to the server, the address may *not* be changed without incurring additional expense to the customer. Go to <http://www.fatspaniel.com/support/submit-a-case/> to request an address change.

If for some reason the inverters cannot be configured as specified, Technical Support must be contacted *before service is started*.