Wiring & Configuration for AE Solaron Inverters

Introduction

It is the goal of this document to provide installation and commissioning informational resources for installing contractors. The topics covered include Modbus RTU and TCP configuration options, Modbus network termination landing details, network address/ID configuration and common Modbus network troubleshooting steps.

Applies To

- Solaron 250
- Solaron 333
- Solaron 500/500E
- Solaron 500HE/500E HE

Configuration

Communications Protocol

The AE Solaron may be configured to communicate over an RS485 network (Modbus RTU) or over an ethernet network (Modbus TCP). The inverters are generally configured for TCP communications when shipped, but either option will require additional field configuration before the device is ready to communicate with your monitoring system effectively.

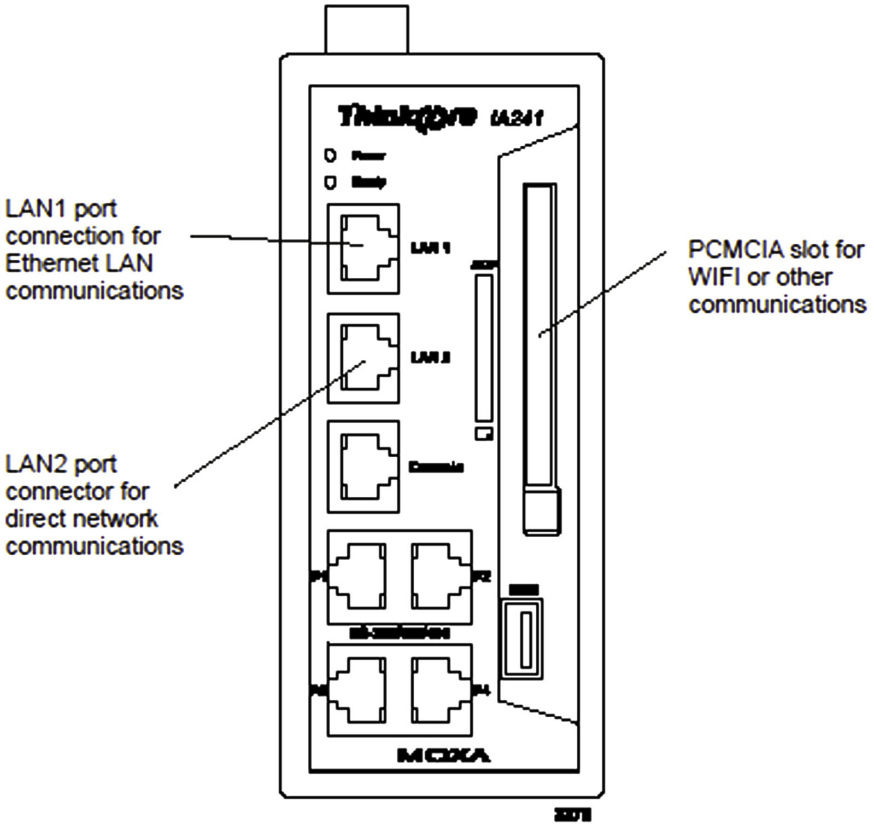
Modbus TCP

Requirements:

1. Available ethernet network interface
   NOTE: Inverter may not be run directly to AcquiSuite
   NOTE: Maximum length of CAT5 cable is 300' to ensure signal fidelity
2. Static IP address on local network assigned by IT or network admin
3. Laptop computer with crossover CAT5 cable for configuration

The AE Solaron inverters are configured for TCP communications but must be assigned a static address for consistent and reliable communications. Inverters left in their default DHCP configuration will lose contact with the Data Acquisition Server over time.

The AE support document "Setting static IP address for LAN1" will detail the steps necessary for configuring the static address. Once the inverter is successfully configured with the proper address, a LAN cable should be connected to the LAN1 port.



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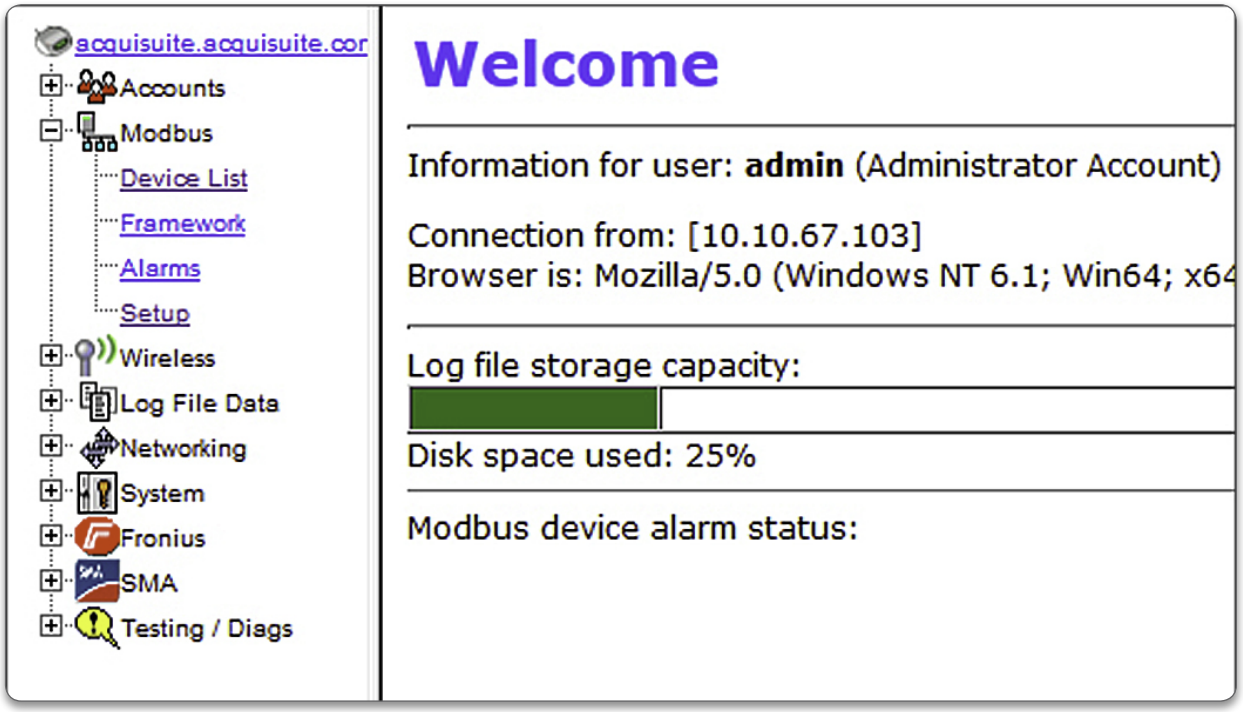
Once the address has been properly assigned, the AcquiSuite must be configured to find the inverter... access the AcquiSuite's web interface by entering the AcquiSuite's IP address into the web browser of a computer attached to the local area network. Expand the "Modbus" tab on the left hand pane, and select the "Device List" link.

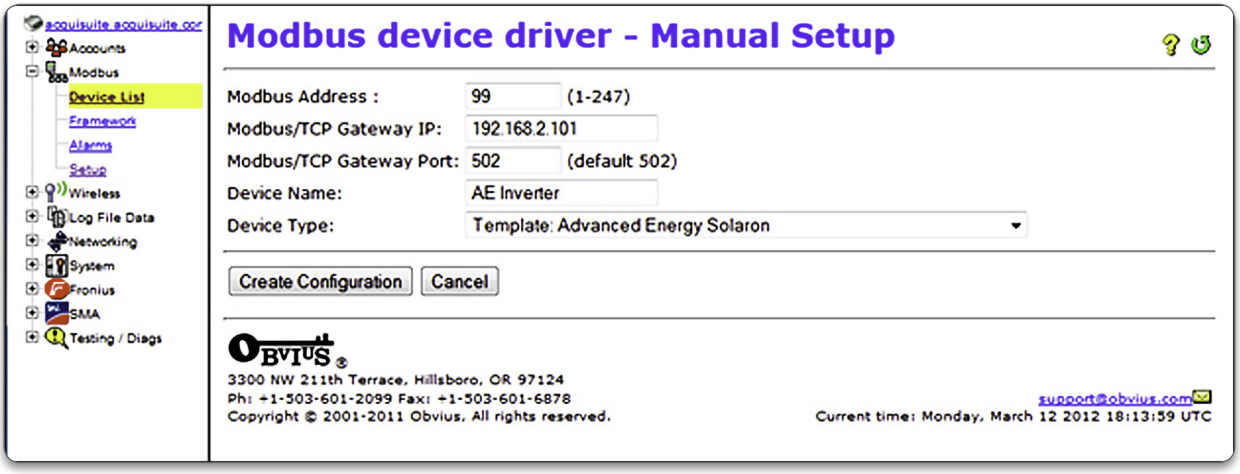


At the bottom of the list, click the "Add" link.

Type a Modbus address for the unit. This will not be used, so simply select an address which is not being used.

In the Modbus/TCP Gateway IP field, enter the static IP address associated with the inverter.

Select "Template: Advanced Energy Solaron" from the Device Type dropdown, and click "Create Configuration."



Modbus RTU

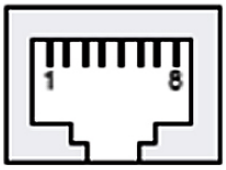
Requirements:

1. RS485 Cable (Belden 3106A or approved alternative)
2. Provisioned Modbus address
3. Laptop with PuTTY package installed
   (available at http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html)
4. Crossover type ethernet cable
5. RJ45 "Splitter" (such as RadioShack catalog #279-026)

As the AE Solaron is configured to communicate via TCP by default, it is necessary to alter the internal settings to allow the device to communicate over a standard RS485 Modbus network. Specific instructions on making this alteration are available in the document "How to Enable Modbus RTU Server."

Once proper configuration changes have been made, the device may be wired into the Modbus network. The RS485 cable must be connected to the inverter using an RJ45 connector (found on standard CAT5 cable).

NOTE: DO NOT USE CAT5 CABLE FOR YOUR RS485 NETWORK.



Pin	RS-232	RS-422	RS-485
1	DSR	---	---
2	RTS	TXD+	---
3	GND	GND	GND
4	TXD	TXD-	---
5	RXD	RXD+	Data+
6	DCD	RXD-	Data-
7	CTS	---	---
8	DTR	---	---

Crimp the positive and negative data conductors to pin terminals 5 and 6 respectively. The signal ground conductor should be connected to pin terminal 3.

If the AE inverter is not the final device on the Modbus chain, it will be necessary to use an RJ45 splitter to allow for connecting the upstream and downstream cables on the same port.