ASP MONITORING
QUICK START GUIDE

SOLECTRIA PVI 3000-7000
MULTIPLE INVERTER RJ45
BETA TESTING
EDITION

ASP SOLAR MONITORING QUICK START GUIDE: BETA TESTING EDITION

ASP SOLAR MONITORING has been developed to provide an affordable and easy to set up option for monitoring the energy output and savings generated by your solar electric system. With the monitoring system in place, you will be able to access real time data about your system from anywhere you have an internet connection. We are very excited about our new monitoring solution, but before we go crazy with it, we have to make sure it works:). So thank you for participating in the beta run of this product and helping us hammer out the kinks!

SYSTEM REQUIREMENTS:
- BROADBAND/HIGH SPEED INTERNET SERVICE
  If you have to dial up using a modem and hear a dial tone every time you want to access the internet, then you have dial up internet service. If the internet is "always on" and you can just go to a website any time you want by opening up a browser window and it loads nice and fast, then you have broadband internet service. If you are still unsure, please contact your internet service provider to determine whether or not you have broadband service.
- SOLECTRIA INVERTERS in the PVI 3000-7000 family
  All of your inverters must belong to the PVI 3000-7000 family of Solectria inverters.
- IT MUST BE POSSIBLE TO SAFELY RUN AN ETHERNET CABLE FROM THE AREA OF YOUR INVERTER TO YOUR INTERNET ROUTER

The following hardware is necessary for installation:
- BLACKBOX (included in this shipment)
- POWER ADAPTER for blackbox (included in this shipment)
- DAISY CHAIN CABLE(S) (included in this shipment)
- SERIAL CABLE (included in this shipment)
- CAT5E ETHERNET CABLE (included on request for field testing participants)
  Ethernet cable must be long enough to run from the area of your inverters to your internet router without getting in the way of foot traffic.
- POWERLINE ADAPTER (only included on request for field testing participants for whom ethernet cabling is not feasible)

The instructions that follow are organized into three parts:
- PART I: COMM PORT SWITCH SETTINGS
  Part I will guide you through setting your inverters' comm port switches to the correct positions.
- PART II: BLACKBOX INSTALLATION
  Part II will guide you through mounting your Blackbox and connecting all necessary cables.
- PART III: ONLINE DATA ACCESS
  Part III will guide you through accessing your solar electric system's output data online.

To ensure proper installation:
- **Read ALL instructions carefully BEFORE beginning installation.**
- **Installation should ONLY be performed by a LICENSED ELECTRICIAN.**
- **Make sure to FOLLOW STEPS IN THE ORDER THEY ARE PRESENTED. Failure to do so may result in improper installation.**
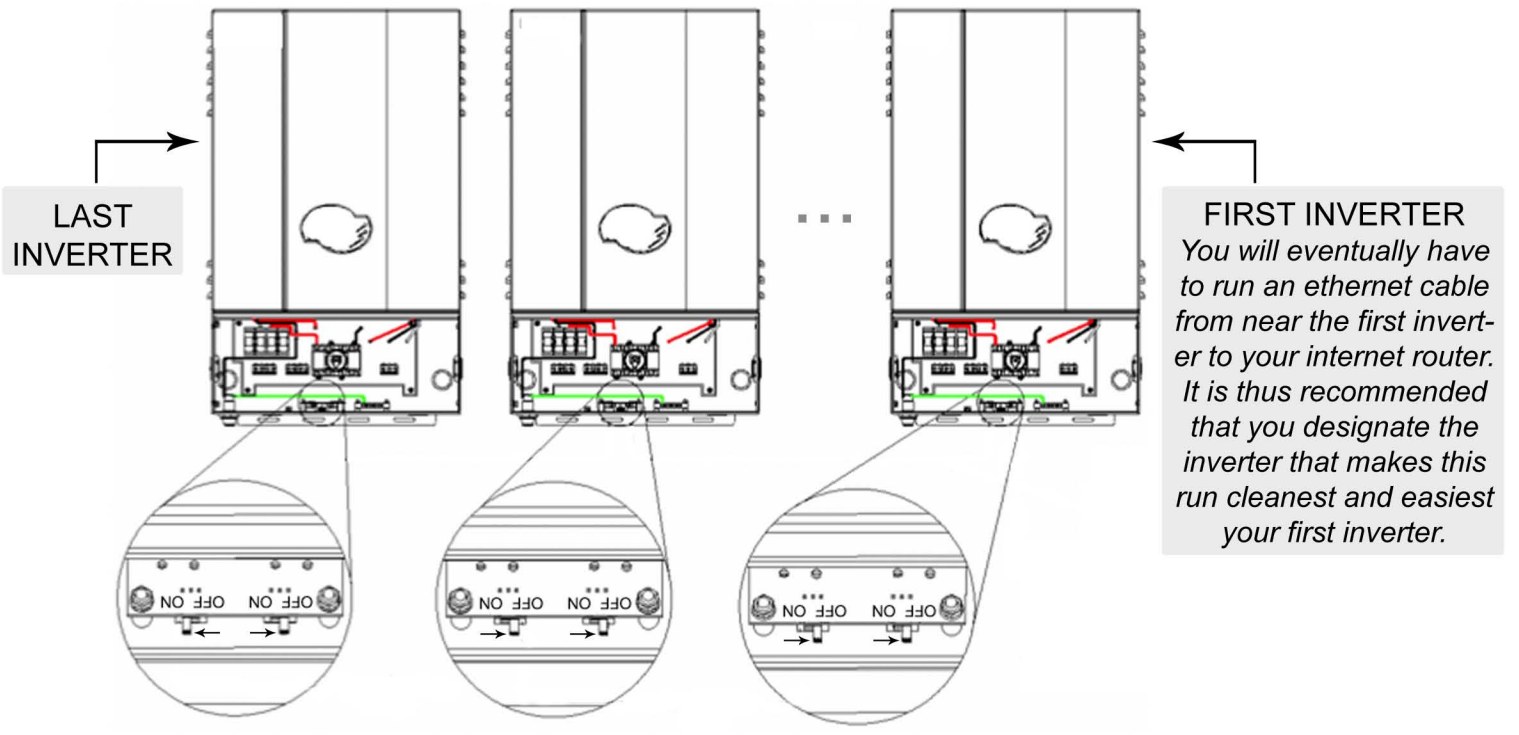
STEP 1. Turn OFF all inverters.	**STEP 2.** Flip AC disconnect to OFF position.

Front View

Top View
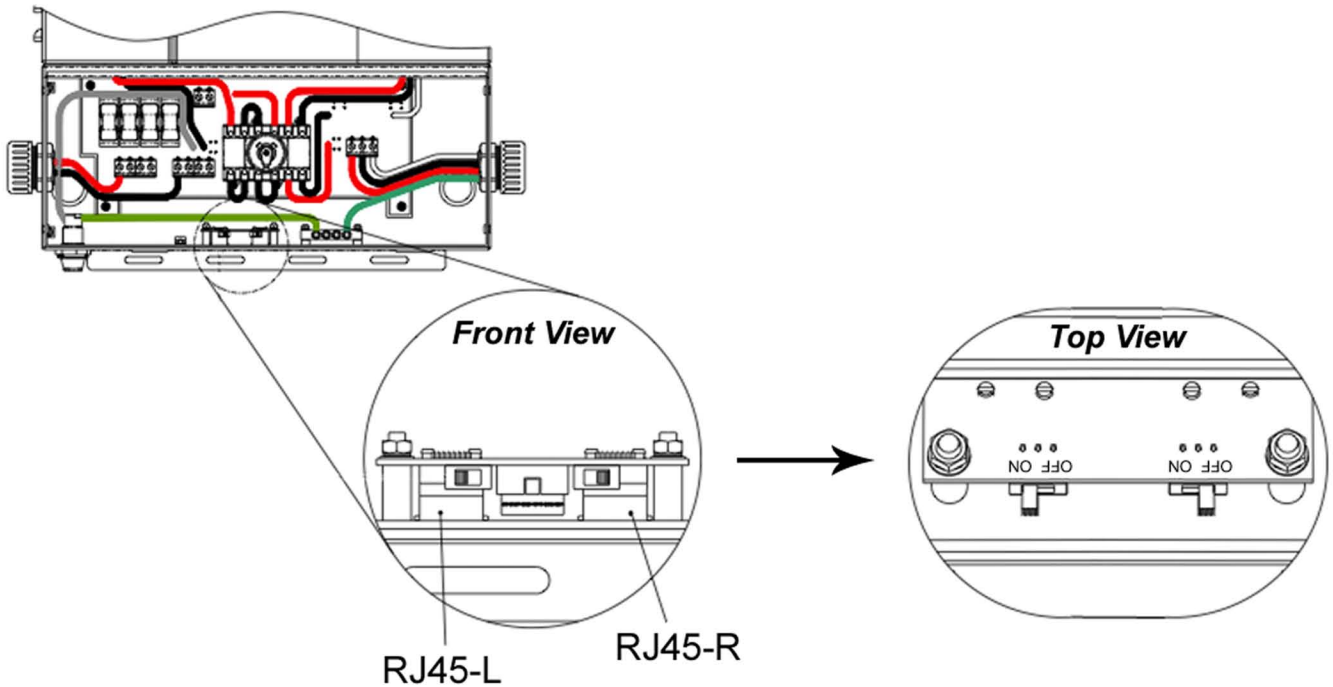
RJ45-L

RJ45-R

STEP 3. Unscrew and remove lower panels of all inverters to reveal switches controlling the comm ports, RJ45-L and RJ45-R, of each inverter.

LAST INVERTER

FIRST INVERTER
You will eventually have to run an ethernet cable from near the first inverter to your internet router. It is thus recommended that you designate the inverter that makes this run cleanest and easiest your first inverter.
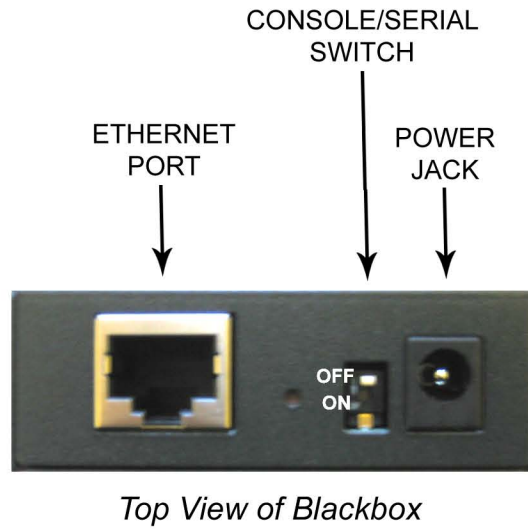
OFF ON   OFF ON

OFF ON   OFF ON

OFF ON   OFF ON

STEP 4. On the *last* inverter, set the RJ45-L switch to ON and the RJ45-R switch to OFF as shown. Set all other switches of all other inverters to OFF as shown. Refasten lower panels of all inverters.
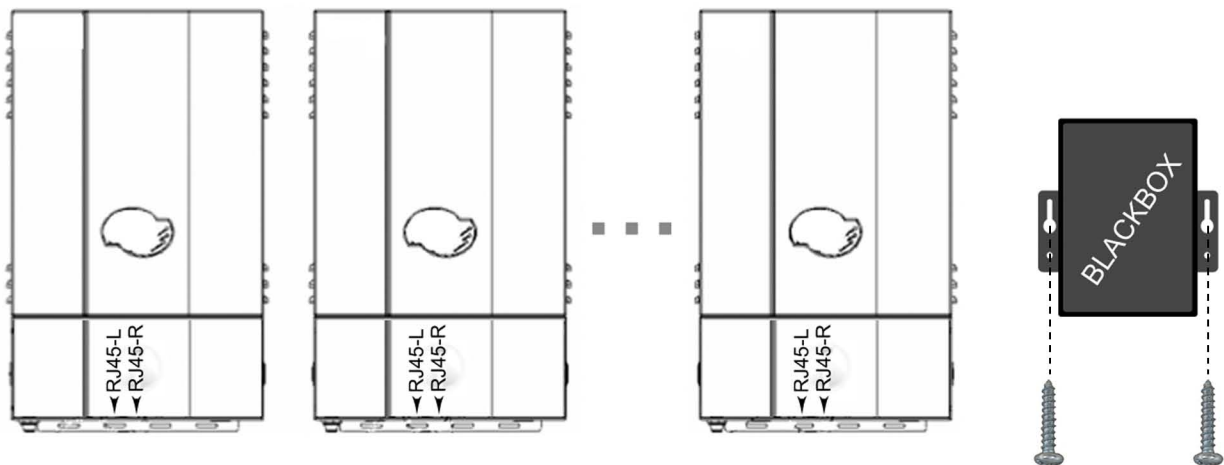
ON

ON

**STEP 5.** Flip AC disconnect to ON position.

STEP 6. Turn ON all inverters.

CONSOLE/SERIAL
SWITCH

ETHERNET
PORT

POWER
JACK

OFF
ON

Top View of Blackbox

STEP 1. Set console/serial switch on top face of Blackbox to OFF position.

RJ45-L
RJ45-R

RJ45-L
RJ45-R

RJ45-L
RJ45-R

BLACKBOX

STEP 2. Mount Blackbox near the *first* inverter (the same inverter designated as the first inverter in *Part I Step 4* of these instructions) making sure that Blackbox will not be exposed to water or extreme temperatures (below -40C or above 66C).

Bottom view of last inverter   *Bottom view of a middle inverter*   *Bottom view of first inverter*
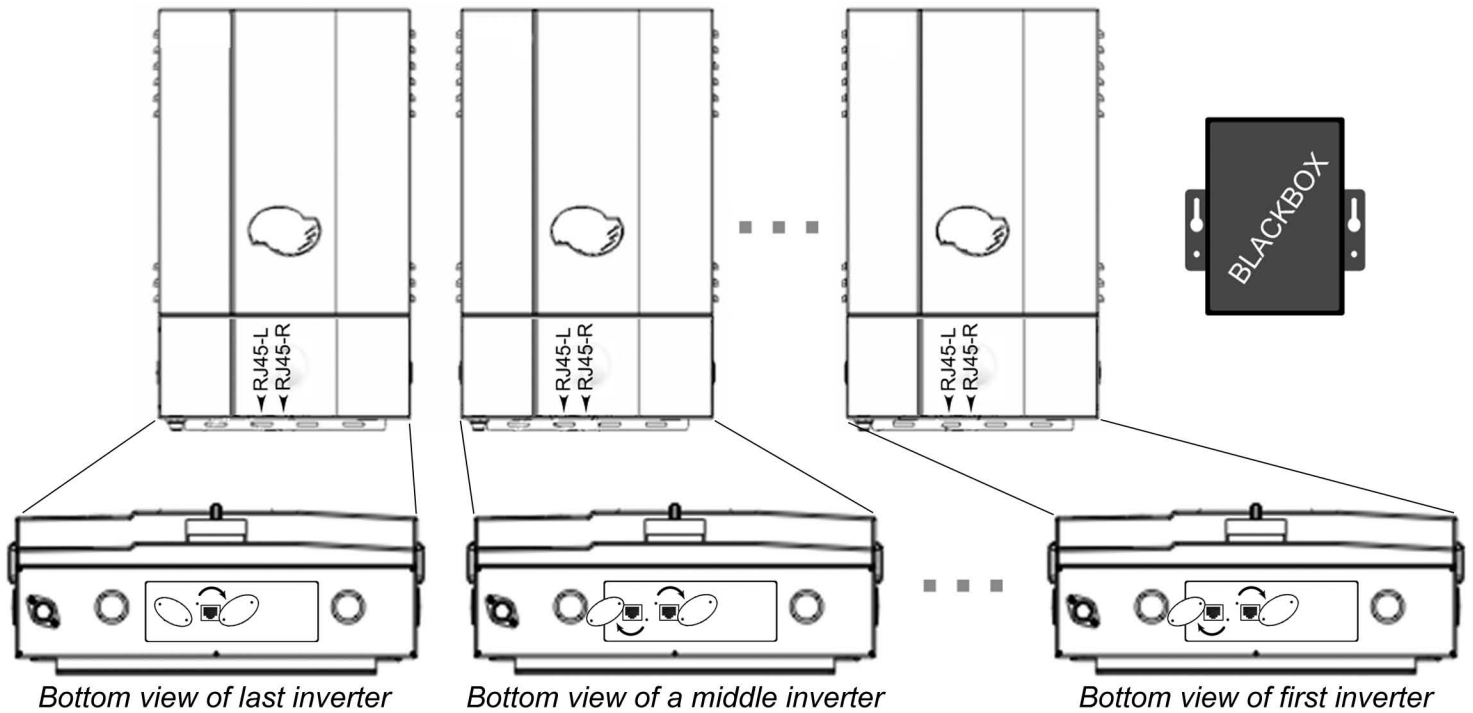
STEP 3. On the inverters, unscrew and slide away covers over all comm ports *except* the cover over comm port, RJ45-L of the *last* inverter (the same inverter designated as the last inverter in *Part I Step 4* of these instructions) as shown.
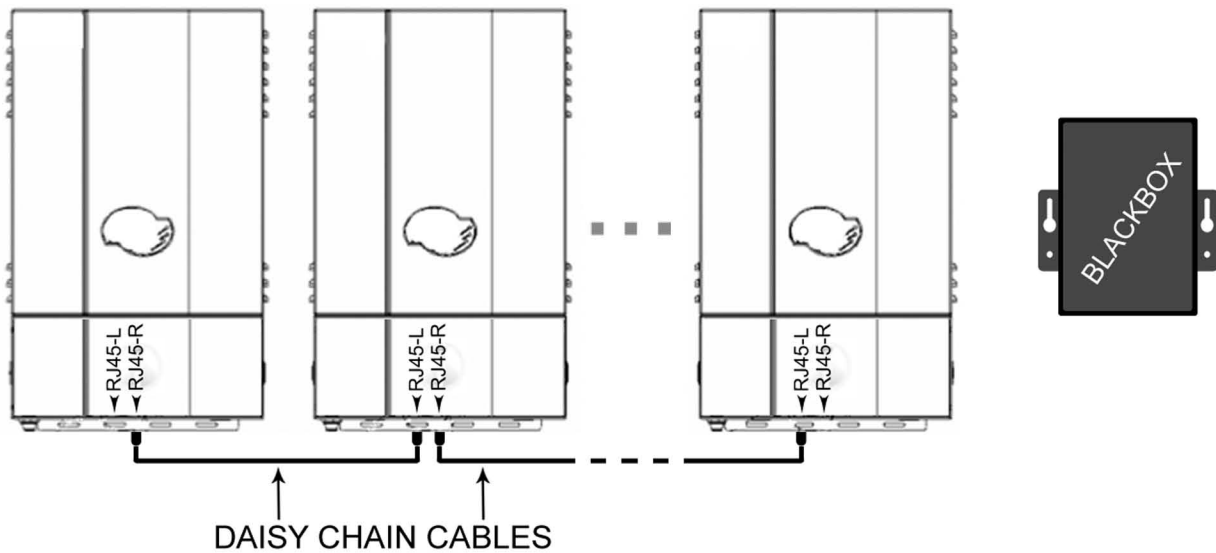

DAISY CHAIN CABLES

STEP 4. Connect the RJ45-L port of each inverter to the RJ45-R port of the next inverter with daisy chain cables as shown.

RJ45-L
RJ45-R

RJ45-L
RJ45-R

BLACKBOX

RJ45-L
RJ45-R

DAISY CHAIN CABLES

SERIAL CABLE

Serial Port Closeup
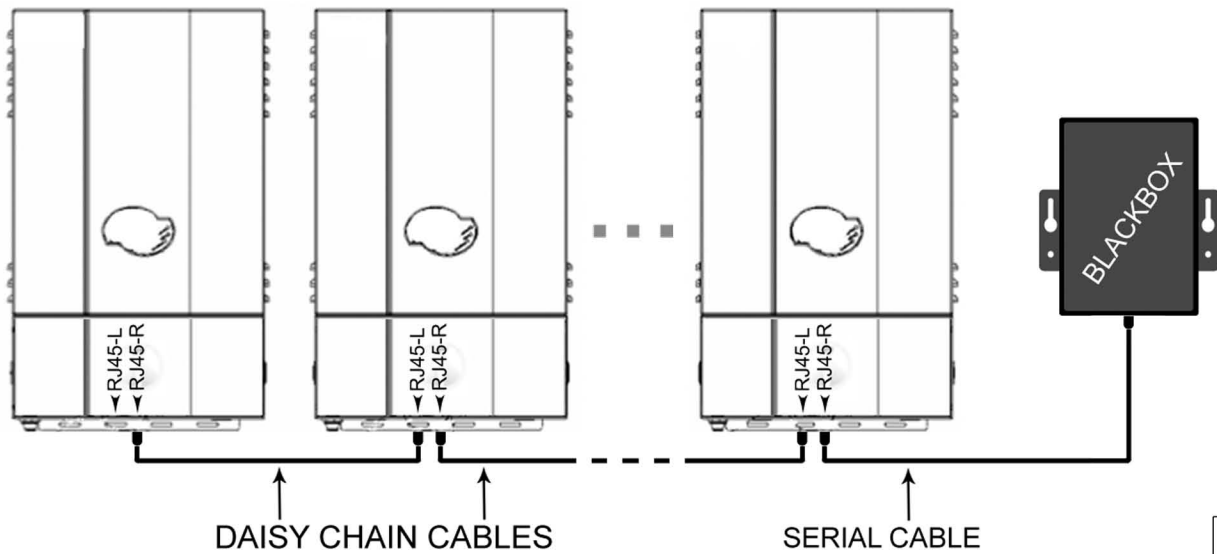
NOTE: Serial port looks identical to ethernet port, but is located on bottom face of Blackbox.
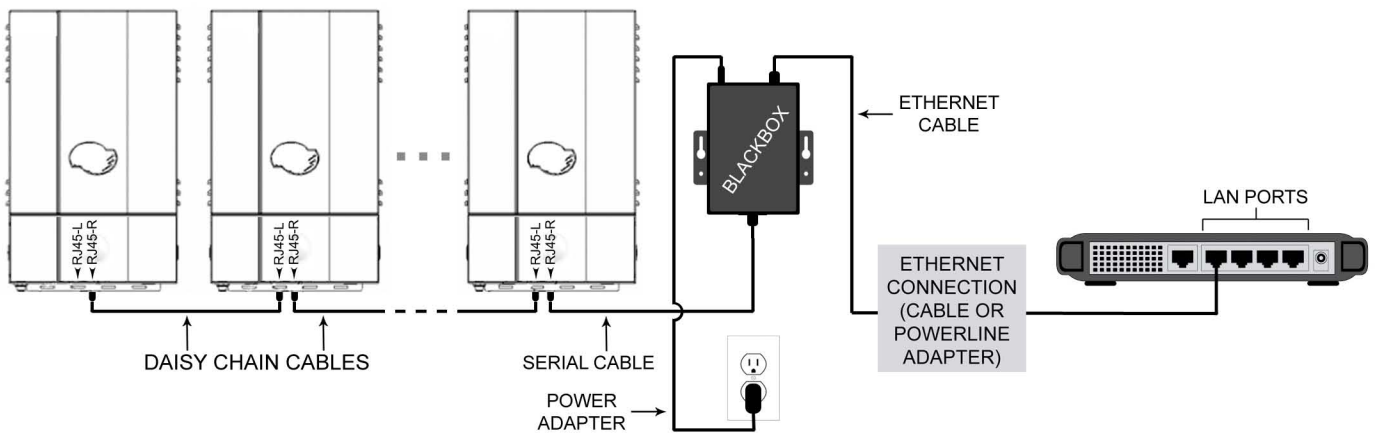
STEP 5. Connect RJ45-R comm port of *first* inverter to serial port of Blackbox with serial cable as shown. The end of the serial cable marked "BB" plugs into the Blackbox, while the end of the serial cable marked "INV" plugs into the inverter.

RJ45-L
RJ45-R

RJ45-L
RJ45-R

BLACKBOX

RJ45-L
RJ45-R

LAN PORTS

DAISY CHAIN CABLES

SERIAL CABLE
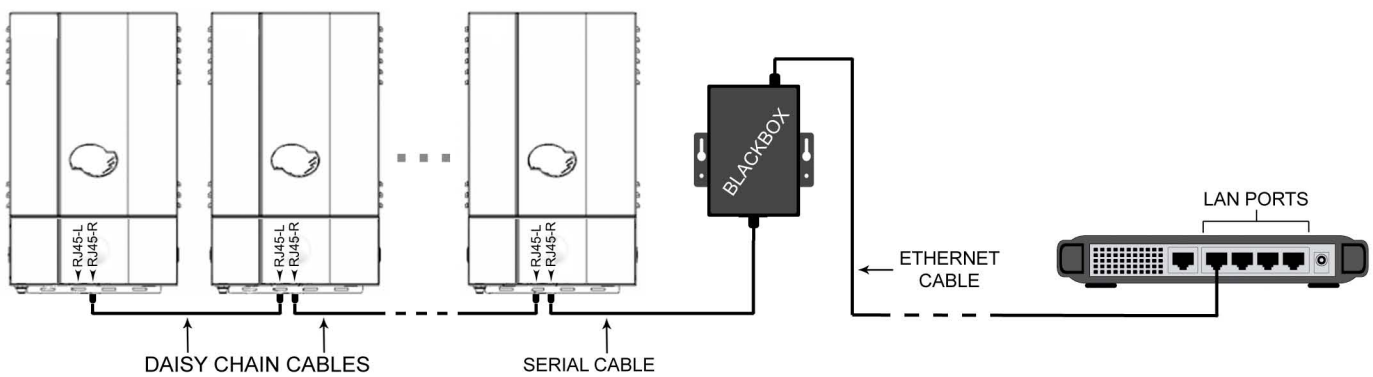
ETHERNET CABLE

STEP 6. Connect ethernet port of Blackbox to any one of the LAN ports (These ports are usually numbered.) on your internet router using a standard CAT 5E ethernet cable. Make sure ethernet cable is not in the way of foot traffic.

ETHERNET
CABLE

LAN PORTS

BLACKBOX

RJ45-L
RJ45-R

DAISY CHAIN CABLES   SERIAL CABLE

TP-LINK   TP-LINK
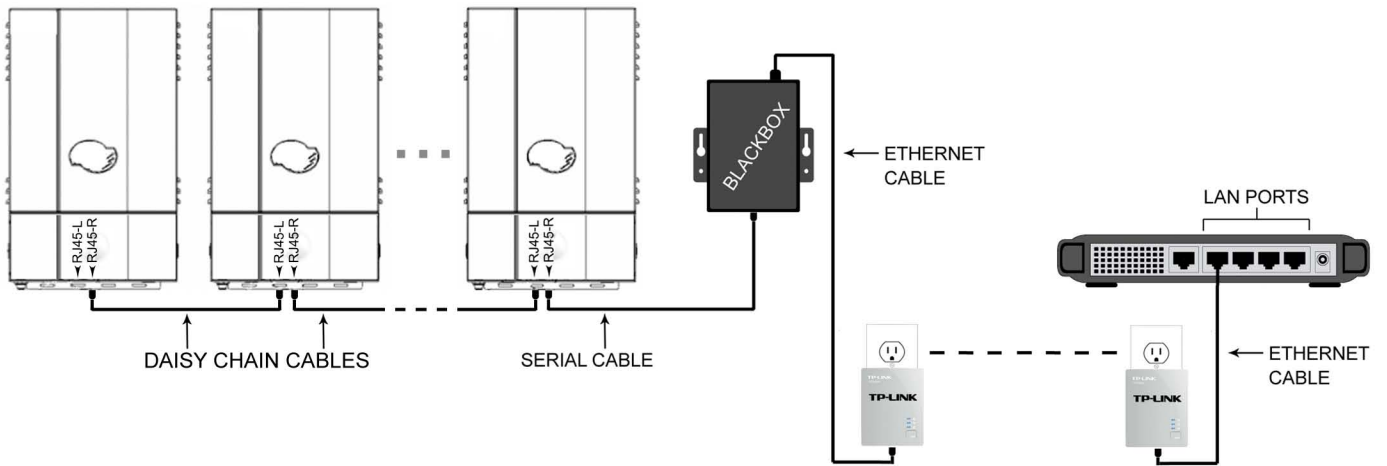
ETHERNET
CABLE

STEP 6 ALTERNATE. Connect to ethernet through the TP-LINK powerline adapter, which uses your home's existing wiring. You will still need shorter lengths of CAT 5E ethernet cabling at both ends as shown.

ETHERNET
CABLE

BLACKBOX

RJ45-L
RJ45-R

LAN PORTS

DAISY CHAIN CABLES   SERIAL CABLE

POWER
ADAPTER

ETHERNET
CONNECTION
(CABLE OR
POWERLINE
ADAPTER)

STEP 7. Power up Blackbox by plugging it into a standard 110V outlet with the power adapter.

Console/Serial Switch
should be in the OFF
position

DO NOT
PRESS
RESET
BUTTON

Power/Ready LED
can cycle through several
colors (yellow, green, red)
during the boot process,
but should complete with
a solid green light

Link/10/100 LED
indicates ethernet connection
speed and should be either
solid yellow (100 Mbps) or
solid green (10 Mpbs)

Activity LED
should flash green

- | +
9-30VDC   RESET   10/100
                                ETHERNET

ON   Console
OFF Serial

Power/Ready

Link/10/100

Activity

perle

Tx

Rx

SERIAL

Step 8. After power up, allow two minutes for Blackbox to boot. Confirm that LEDs are be-having as described above. If not, check that all connections are made properly. Then unplug and replug Blackbox. After proper LED behavior is confirmed, allow at least 3 hours of sunlight to pass (for data collection) before proceeding to Part III of instructions.
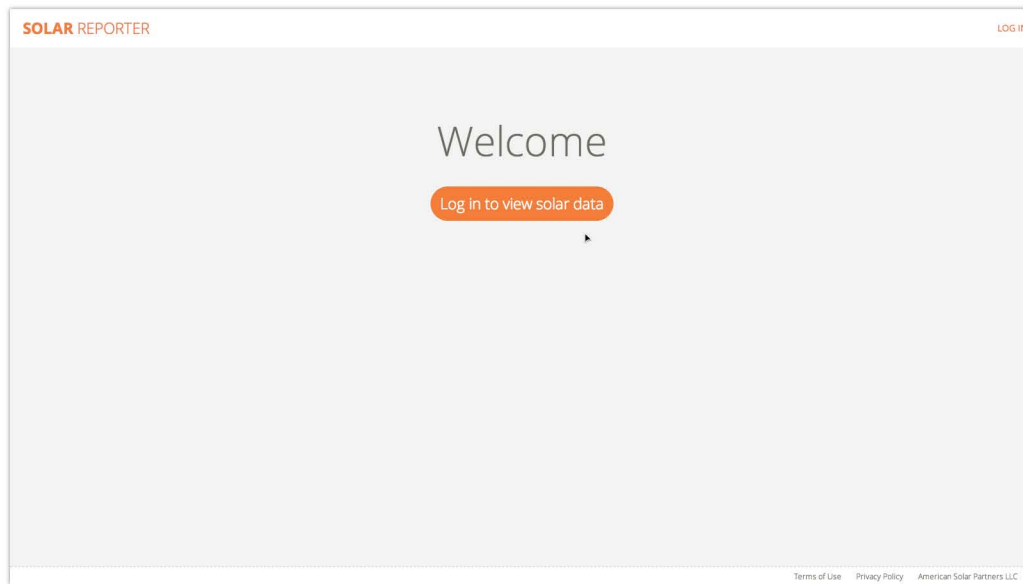
STEP 1. Open a browser window and type www.americansolarmonitor.com into the address bar. When you come to the screen pictured above, click on the log in button and log in with your email and the default password "aspmonit1".
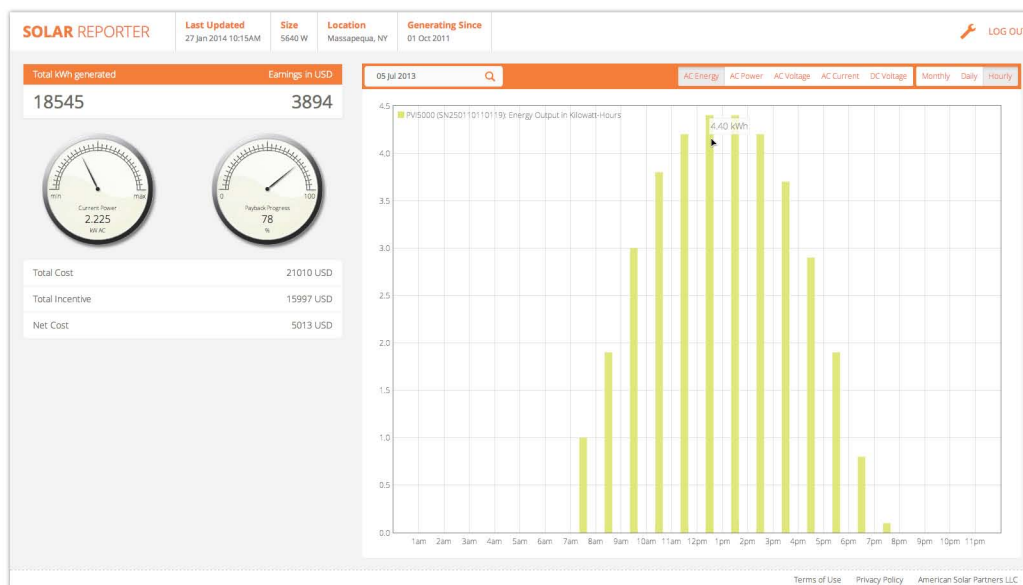
STEP 2. Explore your solar data by clicking through the buttons atop the plot. View past data by clicking the date on the upper left corner of the plot, selecting the desired date from the dropdown calendar and then clicking the magnifying glass to load the data.