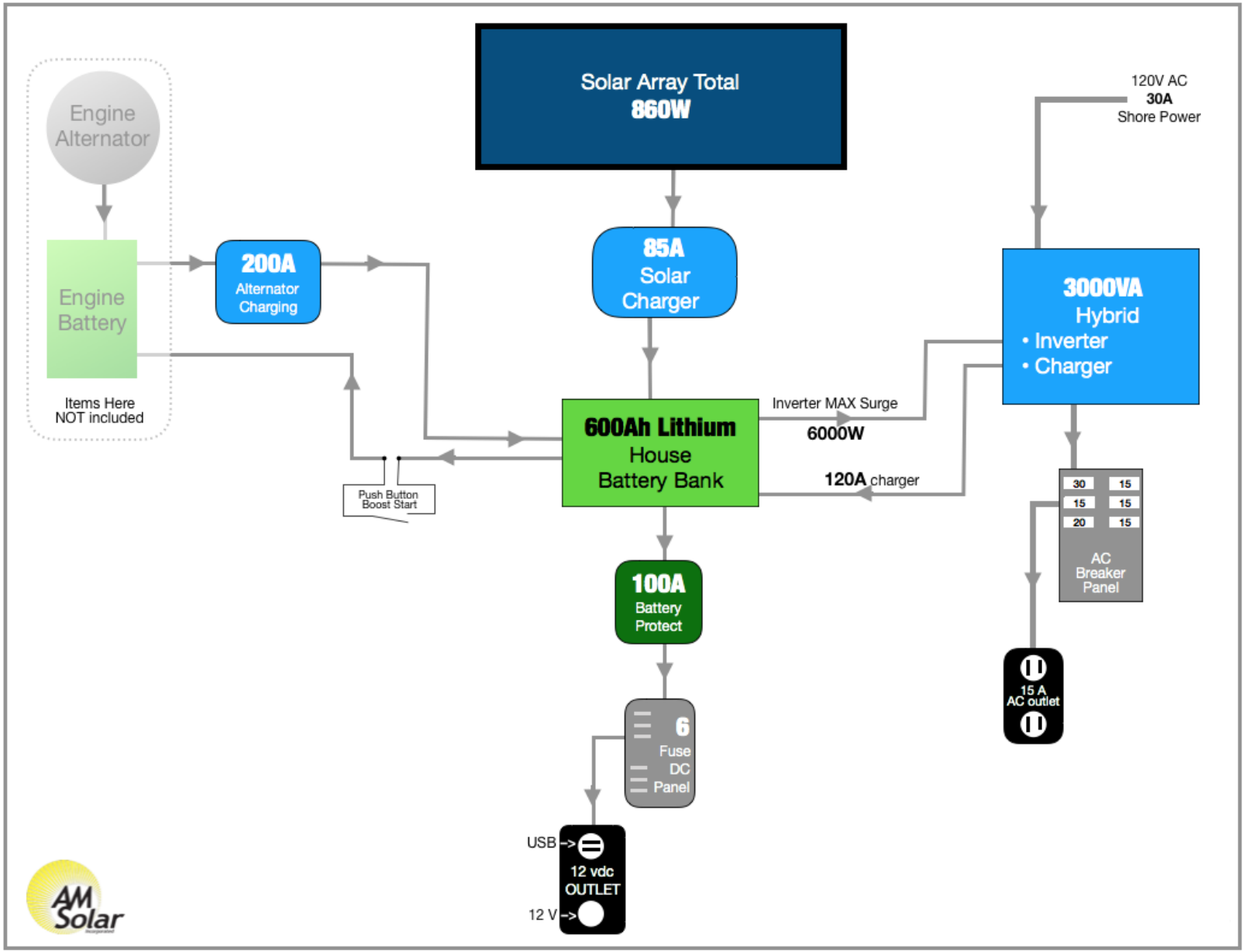
Installation Guide



Website Link

AM Solar Inc.
3555 Marcola Rd.
Springfield, OR 97477
541.726.1091
www.amsolar.com

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General Guidelines and Tips

Congratulations on your purchase of a power system designed by AM Solar! We have assembled this kit to take the guess work out of putting together a complete solar solution. Now the fun begins - It's time for installation. Please read the guidelines below to help ensure a smooth project completion.

Stay safe

Remember that you will be working with both AC and DC power, so whenever possible avoid working with "live" components. Always use caution when working with electricity. When this guide is followed, you'll have a safe and successful installation. Be careful, not frightful - The installation can be fun when following these instructions and not cutting corners.

Keeping a realistic time frame for installation is important

This installation might take 4 to 5 days for an experienced AM Solar technician. So, establishing a realistic goal for completing the installation is helpful and avoids rushing aspects of the project. You'll want to stay consistent with your work beginning to end, without the need to rush.

Don't rush the layout and planning of component placement

The design/layout part of your build is the most important thing you'll do. Skoolies, by design, are great since they start empty and give you many different installation options. Grab some chalk, cardboard, rope and a ball of string - We're going to make some component placement templates. Use chalk to outline spots for smaller items such as breakers and the fuse panel. Use the string to make the small wire runs, rope for heavy gauge, and label them (tape and stickers works well). Then layout the all the components that fit the interior of your rig to prepare for installation.

Keep it organized

Stay organized by making your work tidy and well planned. Read the included product guides / instructions and **ABC** (Always Be Checking). If you are installing and find that something was missed during your layout and planning and can't be installed correctly or safely, don't worry! Just backtrack to that stage in your layout design, and find an alternative placement before moving forward.

Making it last

No matter how long you plan on keeping this kit, it's only going to be useful and have value if it's in good order. This equipment doesn't react well to neglect or abuse. When planning and performing the installation, use proper technique and plan for the long run. Using duck tape to secure a part in place might be a good emergency fix, but you'll want to start as "clean" as possible from the beginning.

Component Proximity

Always keep high current lines as short as possible. The battery to inverter cable should be under 10 feet, 5 feet would be ideal. If you are mounting all the equipment in a very small area, be aware of the distance between all "connection points" - If a component comes loose and shifts for any reason, you will want to ensure it will not result in components touching each other and possibly causing a short.

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Suggested Tools For Installation

Here is a list of some of the tools that might be needed for your installation. If you feel this list is too ambiguous or potentially intimidating, now would be a great time to schedule your installation work with the professionals at AM Solar.

- Sturdy Ladder
- Hammer Crimper
- Hammer
- Heat Gun
- Wire Crimper
- Wire stripper
- Cable Cutter
- Multimeter
- Screwdriver
- Smartphone
- PC
- Drill
- Box knife
- 91% Isopropyl Alcohol
- Cleaning rags
- Crescent wrench
- Safety glasses









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Bill of Materials

	QTY	AMS PN	Description
SOLAR CHARGING	4	SOLAR-ZS170	Solar Panel Z170
	2	SOLAR-ZS90	Solar Panel Z90
	6	91M-35MZ	Mount Set - 35mm Zamp
	6	92C-PREP	Panel Prep Kit
	90	CABLE-10GA-2-GRY	Duplex-10/2
	6	92C-ROOF	Roof Wire Harness Acc. Kit
	1	20-ROOF	Roof Combiner Box
	3	SEAL-SKF	Sikaflex 221
	1	CCTLR-VT-MPPS-085A	Victron BlueSolar Smart MPPT 150/85-Tr (85A)
	30	CABLE-2GA-2-GRY	Duplex-2/2
	1	92C-INTR	Interior Wire Harness Acc. Kit
	1	93B-100A	100 Amp DC Brkr. w/Screws
	1	93T-POS-2GA	2ga Brkr Pos Term Kit
	1	93T-NEG-2GA	2ga Negative Terminal Kit
	1	93S-MINI	Switch-Mini On/Off w/Screws
	2	LUG-2GA-RING-3/8	2 ga. Lug-3/8" Ring
	3	HS-RED-HD-1/2	Heat Shrink 1/2" Red
BATTERY	1	MONITOR-VTBMV-S	Victron Battery Monitor BMV-712 Smart
	1	TEMP-VTBMV	Victron Temperature sensor for BMV-700 series
	1	BATTBMS-VTLYNX	Lynx Distributor
	1	BATTBMS-VT-BUS	VE.Bus BMS
	1	FUSE-MEGA-250A	MEGA-FUSE 250A/32V 5 Pack
	1	CABLE-VT-RJ45-3	RJ45 UTP Cable 3 m
	2	RELAY-VTBP	BatteryProtect 12/24V-100A
	1	BATTBMS-AMSLB	AMS Lithium Control Board
	1	TEMP-BS	Blue Sky Temperature Sensor
	1	RELAY-EV20	Lithium, EV200 Relay
	1	93S-MINI	Switch-Mini On/OFF with Screws
	1	93F-ATC-015A	15A ATC Fuse Kit
	1	93P-RED	Junction Post Kit Positive
	1	93P-BLK	Junction Post Kit Negative
	6	FSTSCW-1034Z	Screw-#10x1" SQ DR TEK SS
	4	FSTSCW-1058SS	Screw-#10x5/8" PHP SMS SS
	6	CABLE-4/0-1-BLK	Cable 4/0
	27	CABLE-18GA-2-GRY	Duplex-18/2
	30	CABLE-18GA-1-YLW	18 ga. Yellow Wire
	6	CABLE-2GA-1-RED	Cable-2 ga. Red
	1	CABLE-VT-M8-1	Victron M8 circular connector M/F 3 pole cable 1m
	8	LUG-4/0-RING-3/8	4/0 Lug-3/8" Ring
	6	LUG-2GA-RING-3/8	2 ga. Lug-3/8" Ring
	1	LUG-18GA-RING-BR	18-22 ga. Ring Bare
	2	SPLICE-18-BUTT-HS	18-22 ga. Butt-HS
	4	FSTSCW-612	Screw-#6x1/2" PHP BLK OX
	4	93H-B3/4	Heat Shrink Black 1.5" x 3/4"
	4	93H-R3/4	Heat Shrink Red 1.5" x 3/4"
	6	HS-BLK-DWALL-3/16	Heat Shrink 3/16" Black - Cut into twelve 1/2" pieces
	6	HS-RED-HD-1/2	Heat Shrink 1/2" Red
	2	BATTLI-VT-300	VE LiFePO4 Smart Batt 12.8V/300Ah
	12	CABLE-2/0-1-BLK	Cable 2/0
	8	LUG-2/0-RING-3/8	2/0 Lug-3/8" Ring
	4	93H-B3/4	Heat Shrink Black 1.5" x 3/4"
	4	93H-R3/4	Heat Shrink Red 1.5" x 3/4"

	QTY	AMS PN	Description
ALTERNATOR CHARGING	20	CABLE-2/0-1-BLK	Cable-2/0
	30	CABLE-18GA-2-GRY	Duplex-18/2
	1	LUG-18GA-RING-BR	18-22 ga. Ring-Bare
	1	SWITCH-ESSCLD	Essential black momentary switch
	1	PLATE-MOM	Faceplate for Momentary Switch
	4	FSTSCW-612	Screw-#6x1/2" PHP BLK OX
	6	LUG-2/0-RING-3/8	2/0 Lug-3/8" Ring
	1	93B-200A	200 Amp DC Brkr. w/Screws
	2	93H-B3/4	Heat Shrink Black 1.5" x 3/4"
	4	93H-R3/4	Heat Shrink Red 1.5" x 3/4"
AC INPUT & OUTPUT	1	INV-VT-3000	Switch-Mini On/OFF with Screws
	1	MONITOR-VTDM	Stranded 6/3
	1	CABLE-VT-RJ45-5	10-12 ga. Closed End Crimp
	1	CABLE-VT-MK3USB	AC Breaker 15A/15A
	8	LUG-4/0-RING-3/8	AC Breaker 15A/20A
	12	CABLE-4/0-1-BLK	AC Breaker 30A/15A
	6	93H-R3/4	Shore Power Cord, 30A, 25' Locking
	2	93H-B3/4	Power Outlet - 30A - Black
	1	95F-CLST-400A	Midnite Solar Baby DIN Mnt Box
	1	FUSE-CLST-400A	277VAC/30A DIN Mnt Breaker
	1	WIRETIE-05	Sub Panel Brkr. Box-Surface
	1	93S-MINI	Strain Relief 1-1/4"
	25	CABLE-10GA-3-GRY	Strain Relief 3/4"
	2	SPLICE-12-CEC	Romex-14-2
	1	BRKR-AC-BRKR-15/15	15A/125V Outlet
	1	BRKR-AC-BRKR-15/20	Duplex-6/2
	1	BRKR-AC-BRKR-30/15	ST Fuse Block 6 Circuit
	1	CORD-30A-25-L	60A DC Circuit Breaker
	1	OUTLET-30A-B	6 ga. Lug-3/8" Ring
	1	BOX-MSB	Heat Shrink 1/2" Red
	1	BRKR-AC-DIN-277V/30A	Heat Shrink 1/2" Black
	1	BOX-SPBS	6 ga. Lug-1/4" Ring
	1	STRN-S-11/4	10-12 ga. #8 Block Spade-Bare
	2	STRN-S-3/4	12V/USB Outlet
	20	CABLE-14GA-2-WHT	Duplex-10/2 600V
	1	OUTLET-15125	
DC LOADS	15	CABLE-6GA-2-GRY	Duplex-6/2
	1	FUSEHLDR-MULT	ST Fuse Block 6 Circuit
	1	BRKR-DC-BRKR-060A	60A DC Circuit Breaker
	4	LUG-6GA-RING-3/8	6 ga. Lug-3/8" Ring
	4	HS-RED-DWALL-1/2	Heat Shrink 1/2" Red (4x 1"pcs)
	2	HS-BLK-DWALL-1/2	Heat Shrink 1/2" Black (2x 1"pcs)
	2	LUG-6GA-RING-1/4	6 ga. Lug-1/4" Ring
	2	LUG-10GA-SPD-8	10-12 ga. #8 Block Spade-Bare
	1	OUTLET-12USB	12V/USB Outlet
	4	FSTSCW-834B	Screw-#8x3/4 OHP BLK OX
	10	CABLE-10GA-2-WHT	Duplex-10/2 600V
	4	LUG-10GA-DISC-F	Female Disconnect 10 ga.

Solar Panels

Charge Controller

Lithium Base Kit

Inverter 3000

Lithium Batteries

Digital Multi Control

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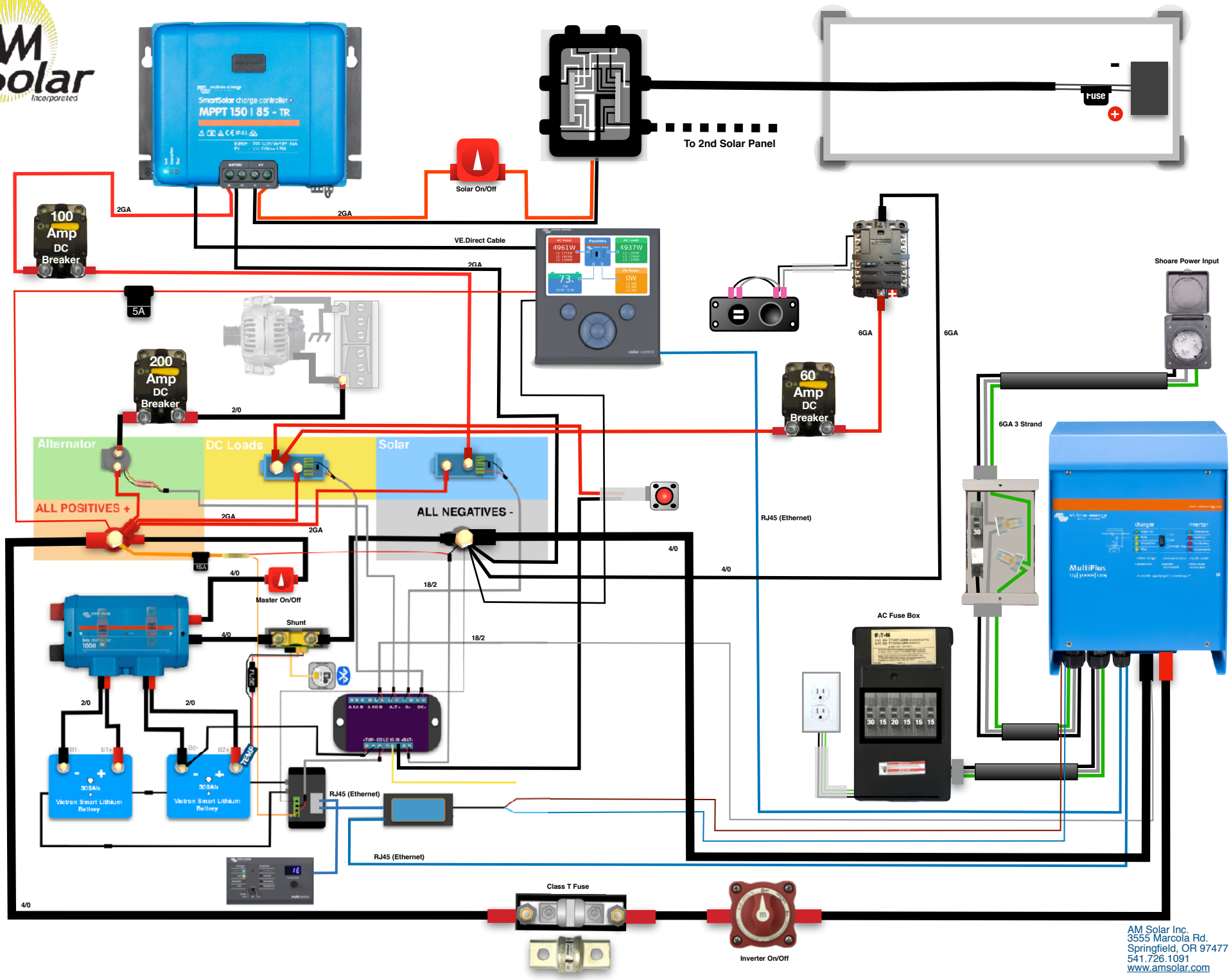
Full-Timing Bus: Complete Schematic

Rev.20180911



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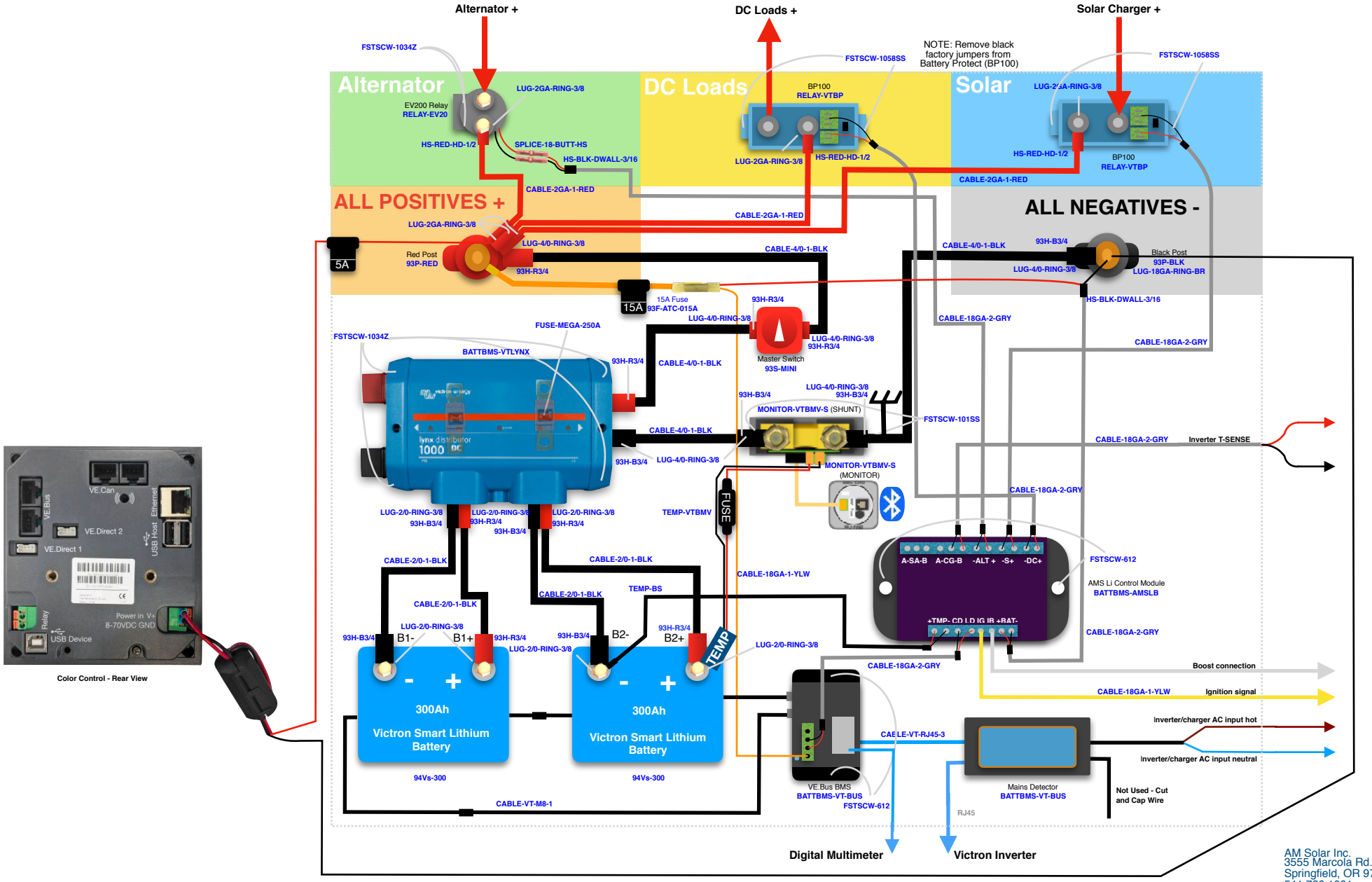
Battery Bank

The battery bank is the heart of the system. Its components usually take up the most space and all other subsystems connect to it. That's why we recommend installing it first. This battery bank consists of two 300Ah Lithium Batteries. The Bluetooth battery monitor reads all charging and discharging current through a shunt and is able to interpret that data to compute battery usage, remaining energy, percent charge, etc. When a shunt is used, the load side of the shunt becomes the new negative battery terminal and no negatives will connect to the actual battery.



Color Control - Rear View

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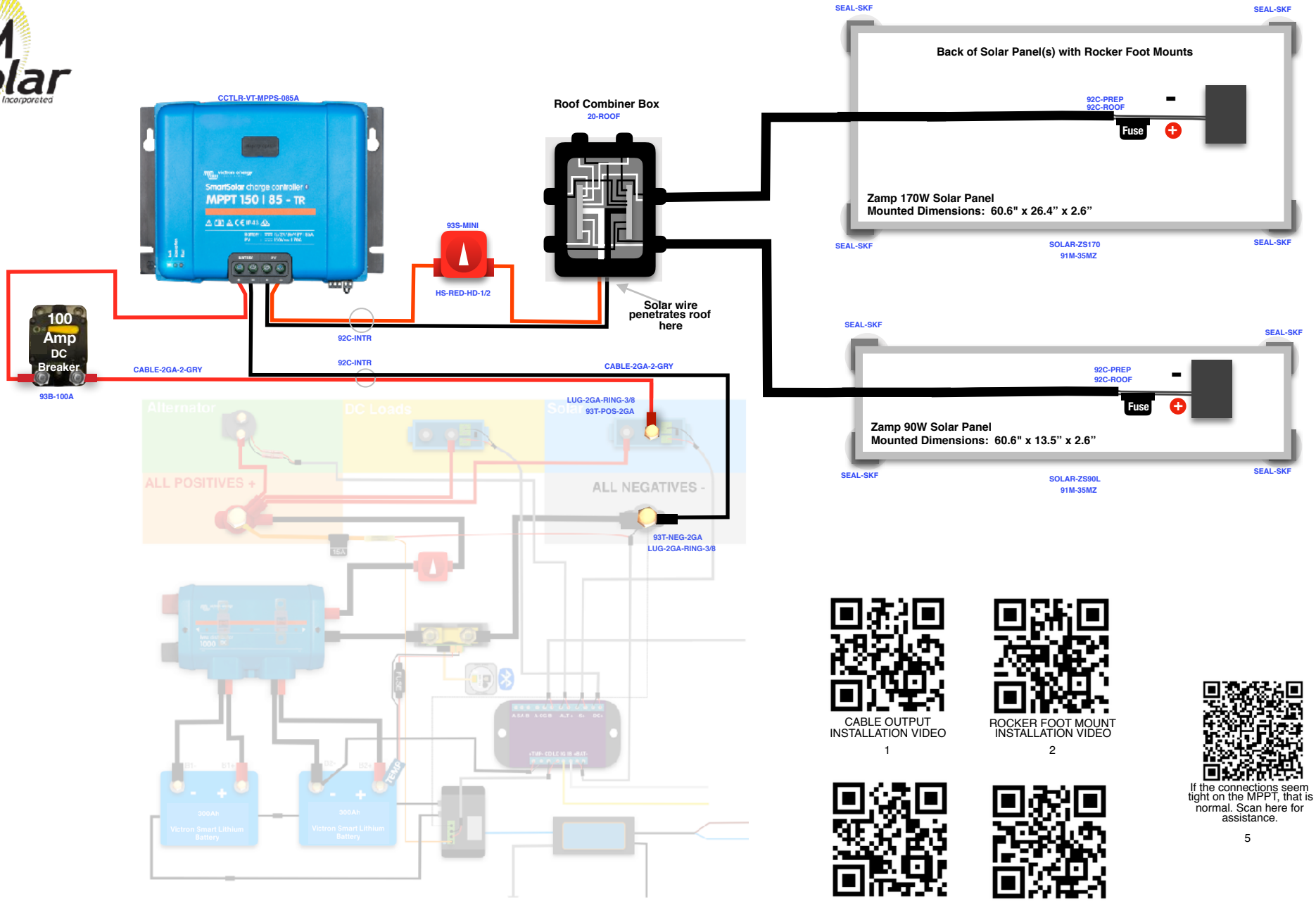
Full-Timing Bus: Solar

Rev.20180911



CABLE OUTPUT INSTALLATION VIDEO
1

ROCKER FOOT MOUNT INSTALLATION VIDEO
2

SOLAR PANEL INSTALLATION VIDEO
3

ROOF COMBINER BOX INSTALLATION VIDEO
4

If the connections seem tight on the MPPT, that is normal. Scan here for assistance.
5

NOTICE:

The "greyed out" battery bank items are not included, but you will be interacting with them.

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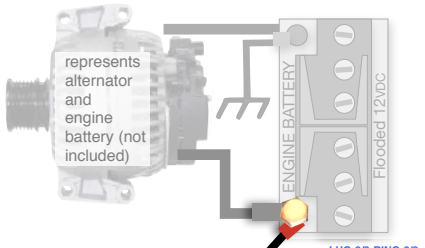
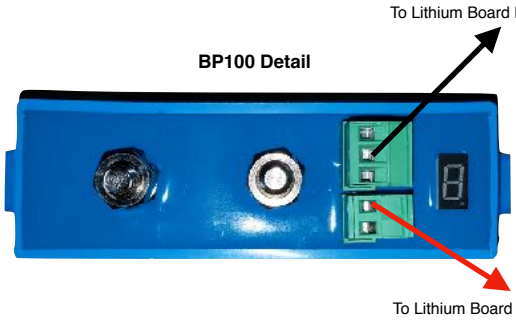
Full-Timing Bus: Alternator Charging

Rev.20180911

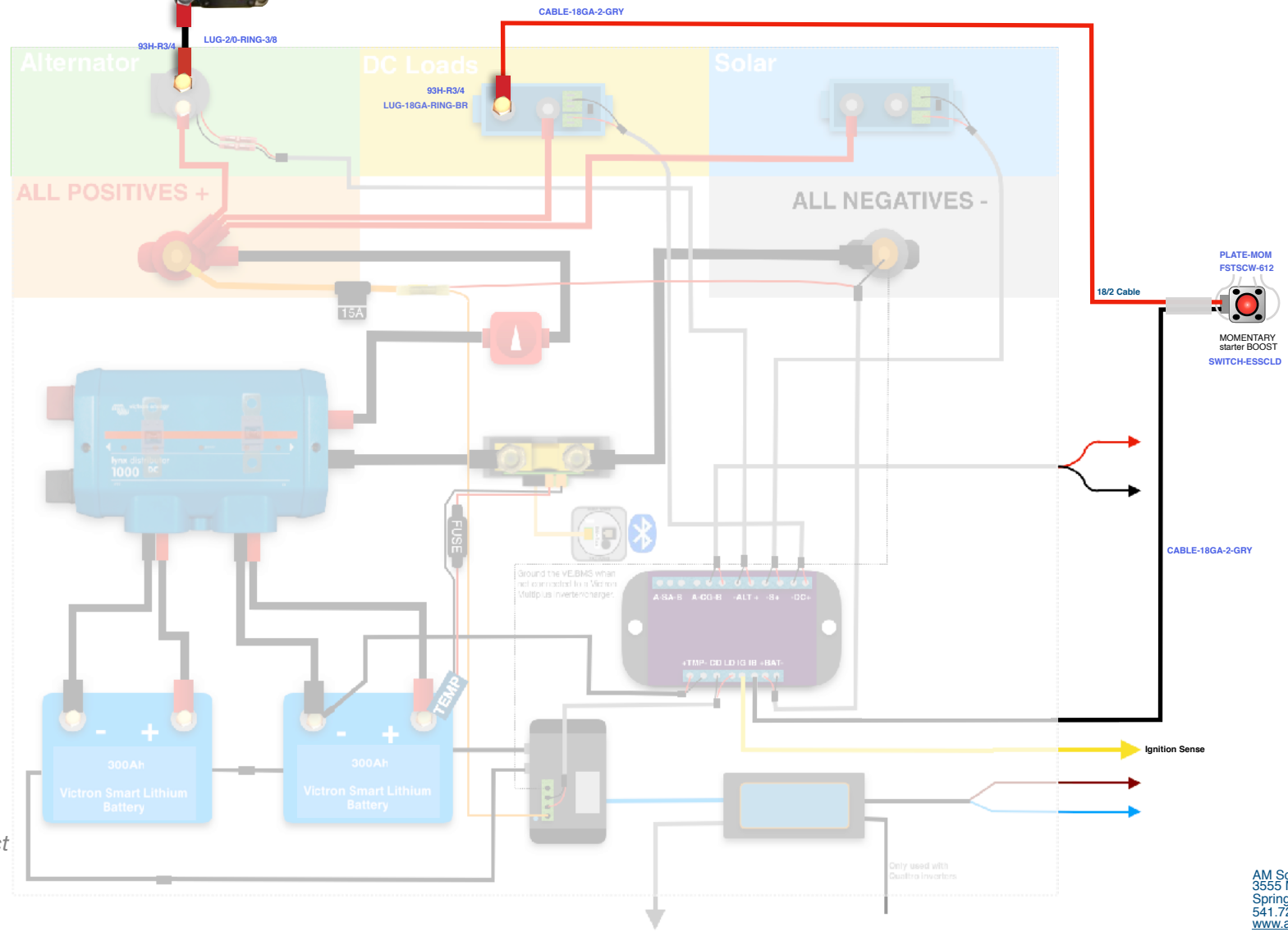


BP100 Detail



NOTE: The BP100 comes with a black wire in the ground jumper, this should be removed.

BP100 Side View



IMPORTANT NOTICE:

All the "greyed out" items are not included. You will need to interact with them.

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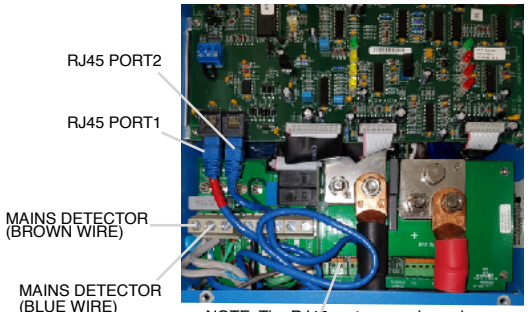
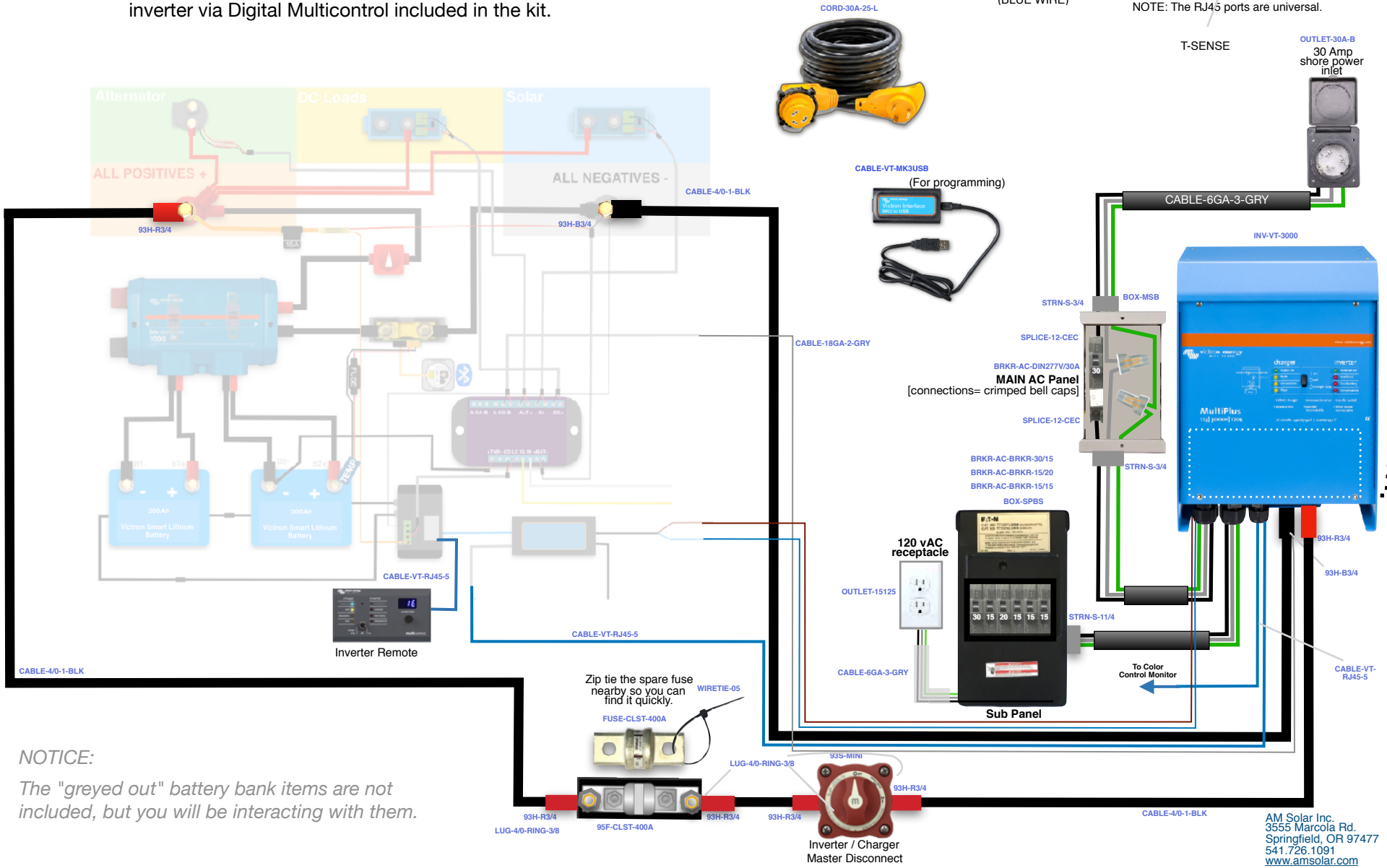
AC Input & Output

The AC Input/Output system is capable of plugging into a standard 30A shore power outlet. (Note: Adapters from 30A to 15A outlets can be purchased at hardware or RV supply stores). The shore power charges the battery bank and can also be passed through the inverter to the AC loads. If the loads draw more current than the shore power connection can provide, the inverter can meet the demand up to the rating of the inverter by simultaneously drawing from the battery bank. When not plugged into shore power, the inverter will draw from the battery bank to power the AC loads. When not in use, save energy by turning off the inverter via Digital Multicontrol included in the kit.





NOTICE:

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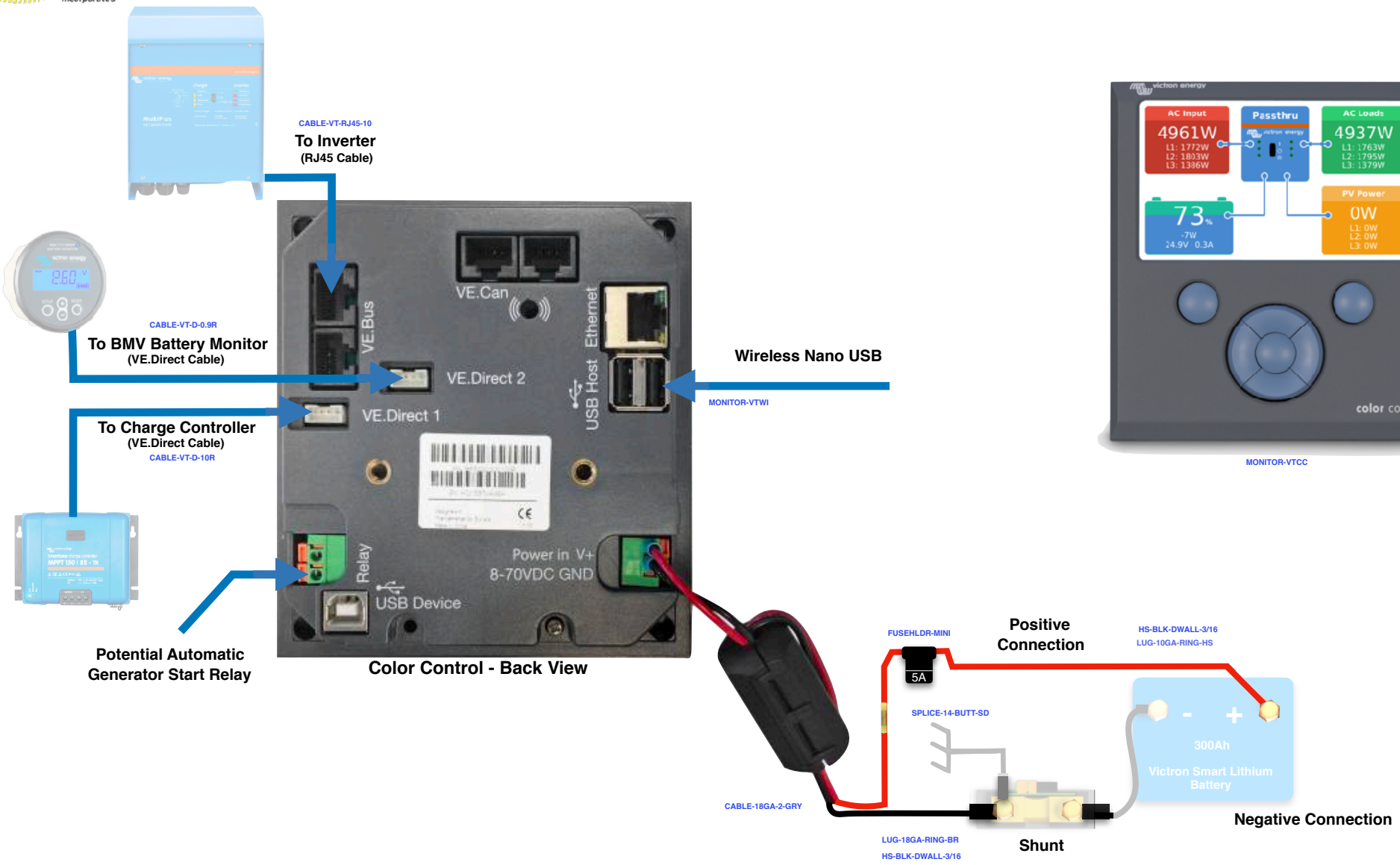
Color Control Wiring



Note: All the components (shunt and battery) shown “greyed out” are to show points of connection, and are not included with the Monitor Kit.

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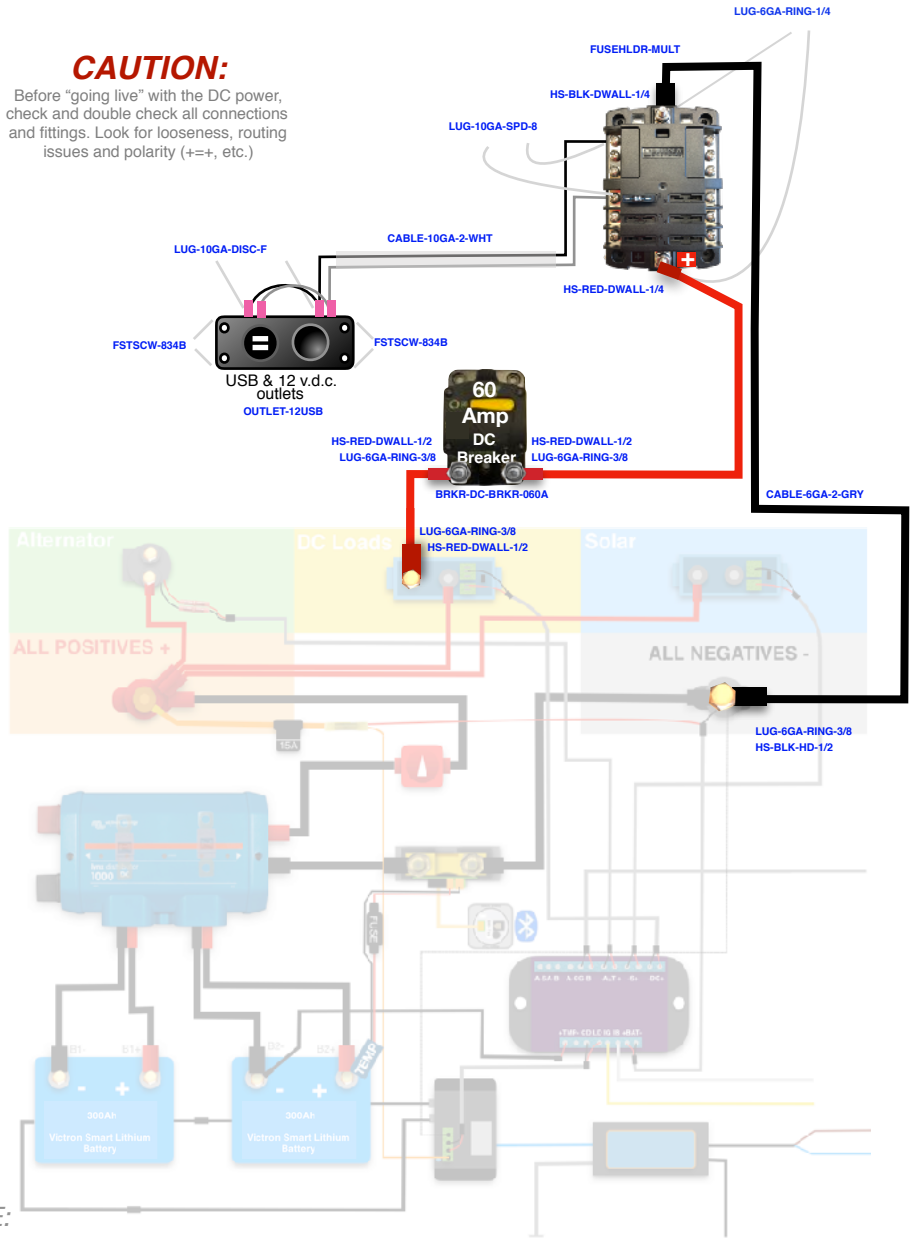
DC Distribution

One DC outlet with dual USB and standard 12V is included. Additional outlets can be connected to the fuse block or wired in parallel to the existing outlet.

CAUTION:

Before "going live" with the DC power, check and double check all connections and fittings. Look for looseness, routing issues and polarity (+=+, etc.)



1. **Position the components** so cable routes can be planned. The BP65 should be within about 12" of the shunt.
2. **Install the negative cable** from the load side of the shunt to the negative post of the DC fuse block.
3. **Connect the positive cable** from the positive side of the DC fuse block to the LOAD post of the breaker. Turn the breaker to the OFF position.
4. **Install the outlet** and connect it to the fuse block. A parallel connection between the two sets of outlet posts will have to be made by fitting two sets of cable into a positive and a negative female spade lug.
5. **Verify the connections** to make sure that they are correct and tight.
6. **Activate the system** by turning the DC breaker to ON. If the DC loads do not work, toggle the DC load master switch.

NOTICE:

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Programming Your Victron Color Monitor

Connecting Your Victron Display to Wireless:

1. Press the top right button on the display (menu), and use the down directional button to scroll to Settings. Enter the Settings screen by pressing the center button when “Settings” is highlighted.
2. Use the down directional button to scroll to “Wifi” (near the bottom of the list). Press the center buttom when highlighted to enter Wifi.
3. Hightlight the network you are connecting to, using the up and down directional buttons to scroll if needed. Press the center buttom to connect once the wireless network is highlighted.

   If a password is required, it will prompt you here. Use the up and down directional buttons to select letters. Press the right directional button to move to the next letter. Press the center button when the full password is entered.
4. The connection could take up to 1 minute to complete. Ensure it displays “connected” when done. You now have internet access to your display. Be sure to remain within the wireless signal range during the duration of the firmware upgrade in the next step.

Updating The Display Firmware:

1. Use the left direction button to go back to the “Settings” screen.
2. Use the down directional button to scroll to “Firmware” (2nd down from the top), and press the center button once hightlighted.
3. Select “Online updates”. Press the center. Button once hightlighted.
4. Select “Check for Updates”. It will proceed with checking for updates.
5. Select “Perform Updates”. It can take up to 5 minutes for the updates to be applied and the system to reboot.
6. It should now display a message stating it’s on the latest version in the “Firmware” section.

These devices connect via Bluetooth to communicate with a smartphone using the VictronConnect app.

Helpful Notes:

- Pressing the center button will always select what is highlighted.
- Pressing the left arrow will take you back to the previous screen.
- Pressing the top right button will pull up the Settings page.

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Recording the VRM Portal ID:

1. Go back to Settings, then enter “VRM Online Portal”.
2. Take a photograph of the VRM online portal ID and upload it to the customer’s photo folder.

Changing Settings:

1. Go to settings, enter “general”, then turn remote support (SSH) on.
2. Take photo or document the remote support port number displayed.
3. Go back to settings, then enter “Remote Console”,
4. Select “Disable Password Check”.
5. Turn “Enable on VRM” to on.
    1. Ensure you select “No Password Required”
6. Go back to settings, then enter Date and Time and set date/time.
7. Go back to settings, enter “General” then select “reboot?”.
8. Enter settings once rebooted, then enter Services and turn on VRM two-way communication.
9. Go to Settings, then enter “System Setup”.

- Change all settings to the following:
    - Log intreval: **5 minutes** (1 for troubleshooting)
    - AC Input 1: **Shore Power**
    - AC Input 2: **Generator**
    - Battery Monitor: **Automatic**
    - Synch VE.Bus SOC with battery: **On**
    - Use solar charge current to improve VE.Bus SOC: **On**
    - Has DC System: **On**

      The following are only visible after the firmware upgrade:

      DVCC: **On**

      SVS: **On**

      Limit Charge Current: **On**

      Max Charge Current: 3**00A** (Ensure this number is adequate and safe)

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Using the Victron VRM Portal

Getting your VRM Portal ID

1. Press the menu button on your Color Control.
2. Go to “Settings”.
3. Go to “VRM Online Portal”.
4. Take a photograph or write down your VRM portal ID shown here. It will be used for later purposes.

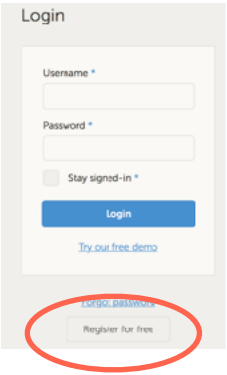
Generating A Login:

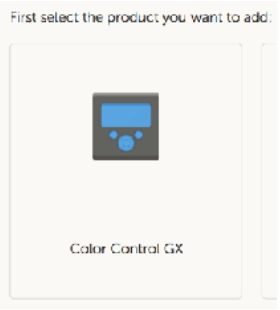
1. Go to vrm.victronenergy.com from a computer or tablet.
2. Click on the “Register For Free” button.
3. Complete all the fields with your name, etc. except “Company”. Enter AM Solar for the field “Victron Dealer”.
4. Click “Register”.
5. Upon registration, you will get an email sent to the address you entered. The email includes a link to verify your account, click on the link in the email.
6. Once clicking the link in your email to confirm your account, you are now registered. Your browser window should automatically log you into the VRM portal. If it doesn’t automatically log you in, you can visit vrm.victronenergy.com and enter your login credentials.

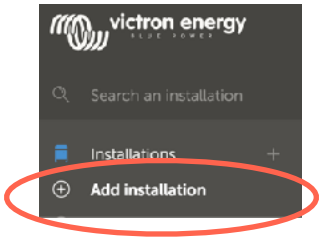
Adding Your Color Control To Your Portal Account:

1. Click on “Add Installation” in the top left menu.
2. Click on the picture of the Color Control GX.
3. Scroll down to the bottom of the screen, you’ll see a box where you can enter your VRM Portal ID
4. Enter your VRM Portal ID here that you obtained from your Color Control Settings.
5. The device is now always viewable under “Installations” in the top right menu when you login.

VRM Screenshots:







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Updating Firmware and Programming a Multiplus Inverter

What you are trying to accomplish:

Victron inverters don't always ship out from the factory with the latest version of firmware. You will want to install the latest version of the firmware and install the custom settings that depend on the type of battery bank you are using. The firmware is developed by Victron. The custom settings are developed by AM Solar to work with the systems that we designed. AM Solar performs all the initial firmware updates, as well as programs your inverter upon installation. This required adapter cable is included with the kit, so you'll have it on hand for any future updates.

What you need:

- Tablet/Laptop/PC with an internet connection and a USB port
- Philips screw driver
- MK3-USB adapter cable
- RJ45 cable
- Victron Multiplus Inverter

NOTE: Before you connect your MK3 for the first time, be sure you are connected to the internet.

Step 1:
Download the communication software from Victron
You will need the latest versions of VEFlash and VEConfig downloaded from the Victron website onto your PC.

a) Go to this website: https://www.victronenergy.com/support-and-downloads/software
b) On the right side of the page click the download link for **VE Configuration tools** and download the file to your desktop.
NOTE: Remember the location of the download on your computer, so you can open the file later.
c) You will now install the program. Double click the file you downloaded.
d) Your PC may prompt you with a message "Do you want to allow…" click **YES.**
e) A window will pop up that says "Welcome to the VE Configure tools Setup Wizard". Click **Next>**.
f) The window will say "Select Additional Tasks", check the boxes next to **VEConfig** and **VEFlash**, this will put the programs on your desktop so you can find them easily. Click **Next >**.
g) The window will say "Ready to Install", click **Install**.
h) The window will say "Completing the VE Configure tools Setup Wizard", uncheck **Start VEConfig when setup finished**, and click **Finish**.

Step 2:
Download the program files from the AM Solar website.

a) Go to: http://amsolar.com/victron/cable-vt-mk3usb or you can navigate to this page by going to www.amsolar.com, typing "**Mk3**" into the search bar below the picture, click **ENTER**, and then on the next page click on the link to the **Victron MK3-USB Interface**.
b) Scroll down to the black boxes with white lettering with labels "Firmware" and "Battery settings".
c) Click to download the firmware corresponding to the inverter model, as well as the battery type you are using.

AM Solar Inc.
3555 Marcola Rd.
Springfield, OR 97477
541.726.1091
www.amsolar.com

Step 3:
Preparing your inverter and physically connecting your PC
In order to do this step, your inverter system needs to be fully installed and connected to the battery bank.

a) Turn the black inverter switch on the faceplate to the OFF position (middle position for the rocker switch).
b) Turn any breakers supplying the inverter with AC to the OFF position.
c) Using a Philips screw driver remove the four screws on the inverter faceplate and remove the faceplate.
d) Unplug all RJ45 cables.
e) Plug the MK3-USB Adapter's USB port into your PC's USB port.
f) Plug one end of an RJ45 cable into the MK3-USB Adapter's port and plug the other end into one of the inverter's ports.

Step 4:
Updating the firmware
If the steps on this list don't exactly match up with what your computer does, you may want to try using a different PC. Sometimes the "Next>" button is missing. If that happens, just click ENTER to go to the next step.

a) Find the VEFlash icon on your desktop and double click it.
b) A "Welcome" screen will pop up. Click **Start**.
c) The window will say "Select required action", leave the toggle on "Update the firmware" and click **Next>**.
d) The window will say "Warning", click **Next>**.
e) The window will say "Select file", click **Browse**.
f) Select the .vff firmware file you downloaded to the desktop in Step 2 and click **Open**, then click **Next>**.
g) The window will say "Prepare your system", click **Next>**.
h) Turn the inverter ON by pushing the black button upward (away from the cables coming out the bottom).
i) The window will say "Select a comport", click **Auto detect comport**. A window will pop up while it searches for the comport. After the window disappears click **Next>**.
j) The window will say "Connect part 1", turn the inverter OFF by pushing the black button back toward the center position. Click **Next>**.
k) The window will say "Connect part 2", turn the inverter back ON with the black button. Click **Next>**.
l) The window will say "Ready to program", click **Next>**.
m) The window will "Busy" as an animation shows data going into a microprocessor. When the animation stops, click **OK**.
n) The window will disappear and your inverter firmware will have been updated.
o) Disconnect power to the inverter and then reconnect it.

Step 5:
Uploading battery settings

a) Find the VEConfig icon on your desktop and double click on it.
b) A warning window will pop up. Click **OK**. The warning will disappear, leaving the VEConfigure window.
c) Click on the **Port selection** tab, mouse over **Com port**, click on **Auto detect (not for MK1)**.
d) After a couple seconds of initialization the window will show inverter status. Click on the **File** tab and click on **Load settings**.
e) A browsing window will pop up. Select the battery settings file you downloaded in Step 2. Click **Open**.
f) A window will pop up saying "It is not allowed to make this charge in the grid code…" Click **No**.
g) Click on the **Send settings** button.
h) Click on the "**all settings**" toggle, then click **OK**.
i) A window will pop up saying "Would you like to send the assistant setup to the device?" Click **Yes**.
j) A window will pop up saying "Writing block…" this will count through several blocks then disappear. A new window will pop up saying "Assistant setup successfully written to target." Click **OK**.
k) Congratulations, your inverter is now fully programmed. You can close out of the VE Configure program.

Step 6:
Put the inverter back together

a) Turn the inverter OFF with the black button by pushing it down to the center position.
b) Physically unplug the RJ45 cable that is connected to the MK3-USB adapter from the inverter.

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What To Do if the Port is not Recognized - Getting MK3 Compatible USB Drivers

- Open VE Configure.
- Go to the Special Tab at the top —> Dropdown to USB Drivers.
- It will pull up a message screen, click yes.
- You will download a file now, it will bring up the download destination screen. Put the file in a location you can find later.
- You will see a success message.
  - You can close VEConfigure after getting that driver downloaded.
- Next go to to the Device Manager on your PC.
  - If you can't locate it, just search for "Device Manager" in the search bar.
- Scroll down to "Universal Serial Bus Controller" which should be near the bottom.
  - Expand the list of devices
- Take a photo of the list of devices
- Unplug the MK3 from the USB port.
- See which device was removed when compared to the photo. It should be "USB Serial Converter".
- Plug the MK3 back in to the USB port.
- The device will reappear. Highlight the device and click on properties.
- Go to "General" at the top.
- Click on "Change" Settings.
- Click on "Drivers" at the top.
- Click on "Update Drivers".
- Click on "Browse my computer for driver software"
- Locate the folder that you downloaded it to at the beginning, select the folder.
- It will state the driver is installed - You are finished with this portion.

Now we want to go back to step 4 above, and the port should be recognized with the MK3.

Troubleshooting:

If the cable is connected to the inverter and powered on without internet connectivity.

a) The update file will be corrupted, and must be re-installed from step one. Be sure to be connected to the internet before plugging in the MK3 into the inverter and power cycling.

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Programming / Commissioning Your System - The BMV-712 Smart Battery Monitor

We recommend you interface with the BMV-712 through the Victron app on your phone, and change the settings from there. The app is named “VictronConnect”. Ensure your Bluetooth is enabled before entering the app. Once inside the app you will see your BMV-712 displayed, click on it to change the applicable settings:

Program Settings for Lithium Batteries

- **Battery Capacity**: Enter the total battery capacity in Amp Hours.
- **Charge Voltage**: 13.9
- **Tail Current**: 2%
- **Peukert Exponent**: 1.1
- **Charge Efficiency Factor**: 98%
- **Temperature Unit**: “CELC” (Celsius) or “FAHR” Fahrenheit
- **Aux Input**: User Option (“Temp” works best)

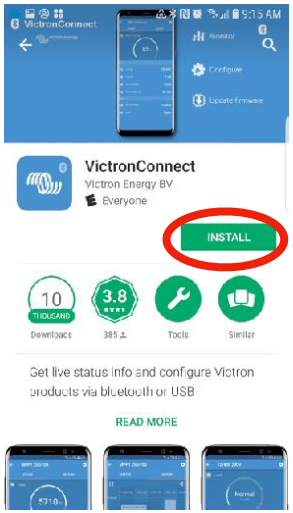
Programming on the BMV-712 Battery Monitor:

1. Download “Victron Connect” from the Google Play Store (picture 1).
2. Turn on your Phone’s Bluetooth, and get as close as possible to your Victron Component(s).
3. Open the Victron Connect app, and after it takes a moment to scan it will recognize your BMV-712.

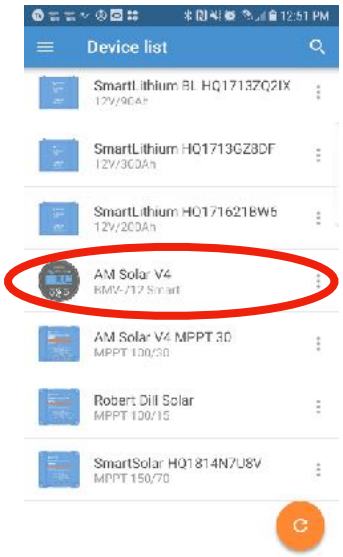
NOTE: *If your device is not shown, it is probably signal interference. Try closing the app and moving to a different location before re-entering the app in a location that can pick up the BMV signal.*

4. Select the BMV-712 on the Device List (picture 2).
5. Press the gear icon in the top right corner (picture 3).
6. Enter “Battery Settings” and change the values below (similar to picture 4):
7. **Changing Battery Capacity**: Enter the number of Ah of your entire battery bank
8. **Charge Voltage**: 13.9
9. **Tail Current:** 2%
10. **Peukert Exponent:** 1.1
11. **Charge Efficiency Factor:** 98%
12. **Temperature Unit:** “FAHR” Fahrenheit
13. **Aux Input**: User Option (“Temp”)
14. Exit from the device.

NOTE: *Only one phone can be connected to each device at a time. Be sure to completely disconnect and close the app to log out from the device.*



1



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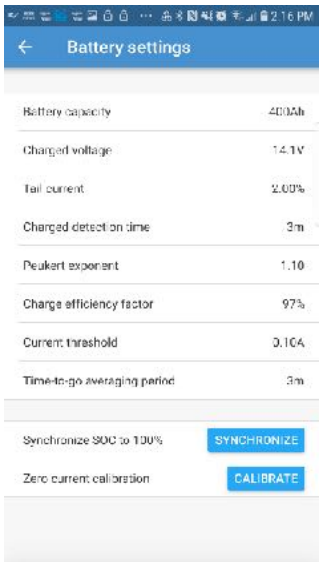

4

NOTE: To change the PIN code from the app, go back to the device list page in the app. Click on the three circles to the right of your device, and select “Reset PIN code”.

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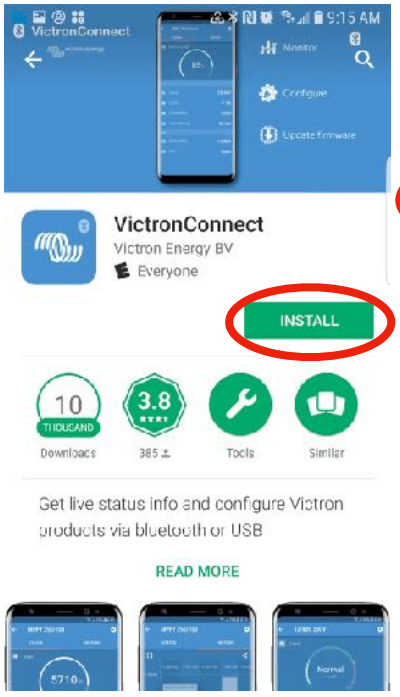
Programming / Commissioning Your System - The Charge Controller

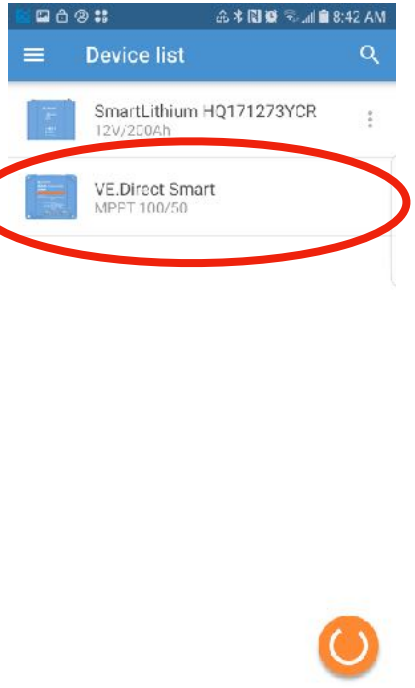
Charge Control Settings for Lithium Batteries:

1. Download the "VictronConnect" App to your phone.
2. Open the App.
3. You'll see a selection for your SmartSolar MPPT Charger, select it.
4. Type **000000** to login for the first time.
   NOTE: To change the PIN code, go back one step to the main screen. Click on the 3 buttons to the right of the controller image, and select "Reset PIN Code".
5. Click on the **gear** in the top right corner.
6. Click on "Battery".
7. Click on the settings and adjust them acccordingly to match below:
   - Battery voltage: 12V
   - Max charge current: 50A (In this example)
   - Use default charge settings: OFF
   - Charger: ON
   - Absorption voltage: 14.20 V
   - Absorption Time Limit: 01:00
   - Float voltage: 13.50 V
   - Equalization voltage: 14.20 V
   - Auto Equalization: DISABLE (OFF)
   - Temperature compensation: OFF

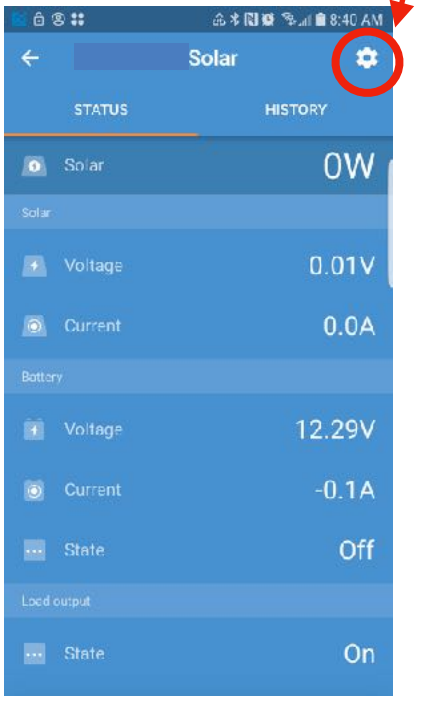
	Flooded	Lifeline AGM	Victron Lithium
Victron BMV-702 & BMV-712			
02. Charge Voltage	14.2V	14.1V	13.9V
03. Tail Current	4%	2%	2%
05. Peukert Exponent	1.25	1.1	1.1
06. Charge Efficiency Factor	94%	97%	98%
Victron Blue Solar MPPT with Bluetooth or MPPT Control			
Absorption Voltage	14.60V	14.40V	14.20V
Absorption Time limit	2:00	2:00	1:00
Float Voltage	13.40V	13.30V	13.50V
Equalization Voltage	15.20V	15.20V	14.20V
Auto Equalization	OFF	OFF	OFF
Temperature Compensation	ON	ON	OFF
Temperature Compensation	-20.00mV/°C	-20.00mV/°C	



Download VictronConnect In App Store



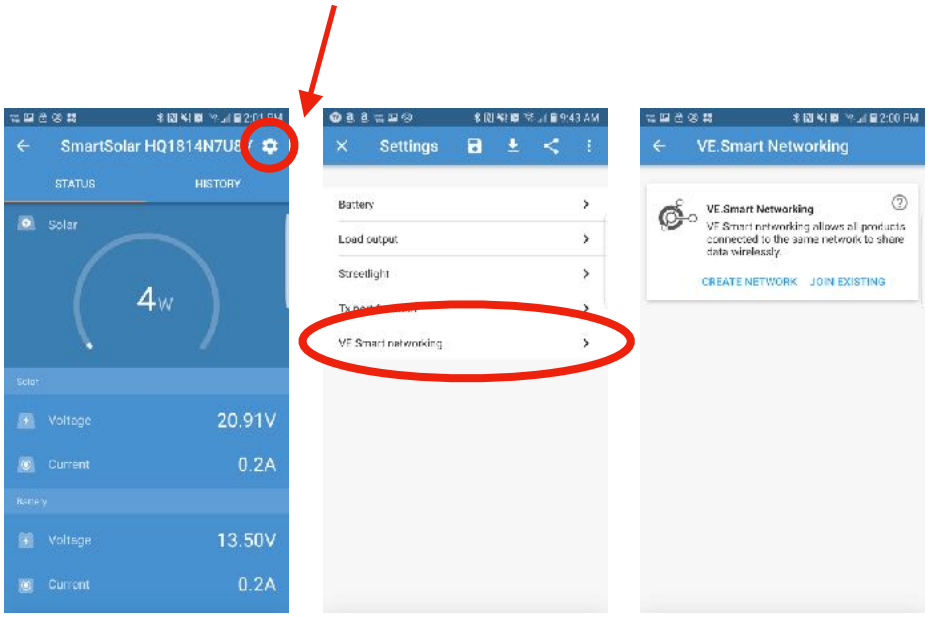
Device List within VictronConnect



MPPT Charge Controller Screen

Creating The Network

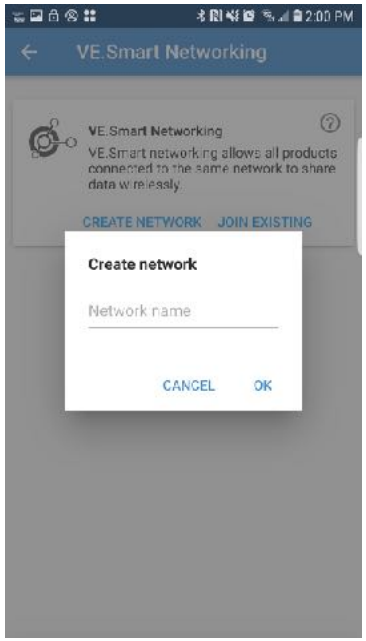
1. When in the Victron Connect App, click on one of your devices.
2. Go to “Settings” (shown as a gear symbol in the top right, picture 1).
3. Go to “VE.Smart networking” (picture 2).
4. Go to “Create Network” (picture 3).
5. Enter a name for your network (picture 4).



1 2 3

Linking Each Device:

1. Enter the Victron Connect App and click on a device.
2. Go to “Settings” (shown as a gear symbol in the top right, picture 1).
3. Go to “VE.Smart networking” (picture 2)
4. Go to “Join Existing Network” (picture 3)
5. Select the network you just created (picture 5).
6. This device is now joined to the network (picture 7). Repeat this step for every other bluetooth enabled device.



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