

Quattro-II 5kVA 230VAC 24VDC 600Ah Li Lynx Smart BMS & distributors Cerbo GX touch Smart Battery Protect 65A+200A MPPT 3 x Orion Tr Smart Generator.

What is this drawing about ?

This drawing can be used for sail or motor boats with a maximum Li Battery capacity of 24V 800Ah and 230V/50Hz AC but can easily be used for 120V/60Hz as well.

This Victron system works as follows:

This system has been built around the 5kVA Quattro-II with 3 or 4 x 200Ah 24 Volt Li battery capacity (for 800 Ah Li capacity it will be better to use the 8kVA Quattro).

Protection of the Li batteries from a charge and discharge point of view is in good hands with use of the Lynx Smart BMS.

To make sure you will not run out of power that easily, there are multiple charge possibilities available for this setup:

1. AC Shore Power that will enable the 5kVA Quattro-II to charge with 120 Amps towards the Li batteries.
2. AC Generator Power that will enable the 5kVA Quattro-II to charge with 120 Amps towards the Li batteries.
3. DC Solar Power that will enable the Smart Solar MPPT 100|50 to charge towards the Li batteries. The total Charge capacity depends on the installed Solar array for the MPPT and the MPPT size and/or Array can be adjusted to what is needed.
4. DC Engine Alternator charging power with use of 3 x Orion Tr Smart 24|24-17A that can charge with a total current of 51 Amps towards the Li batteries.

Charge combinations of the above mentioned devices also are possible.

DC Loads or power consumers such as lights, pumps, and so on, can be connected behind the Smart Battery Protect 220 where the loads are split between main fuse 1 till 5. These loads will not be powered when' the BMS stops the Allow to Discharge signal.

There is another Smart Battery Protect-65 in use that feeds power to a so called Control fuse box.

The Port and Stbd winch control power needs to be connected from here to make sure the winches can not operate in case the BMS stops the Allow to Discharge signal.

This is a safe way to stop large devices like winches from working.

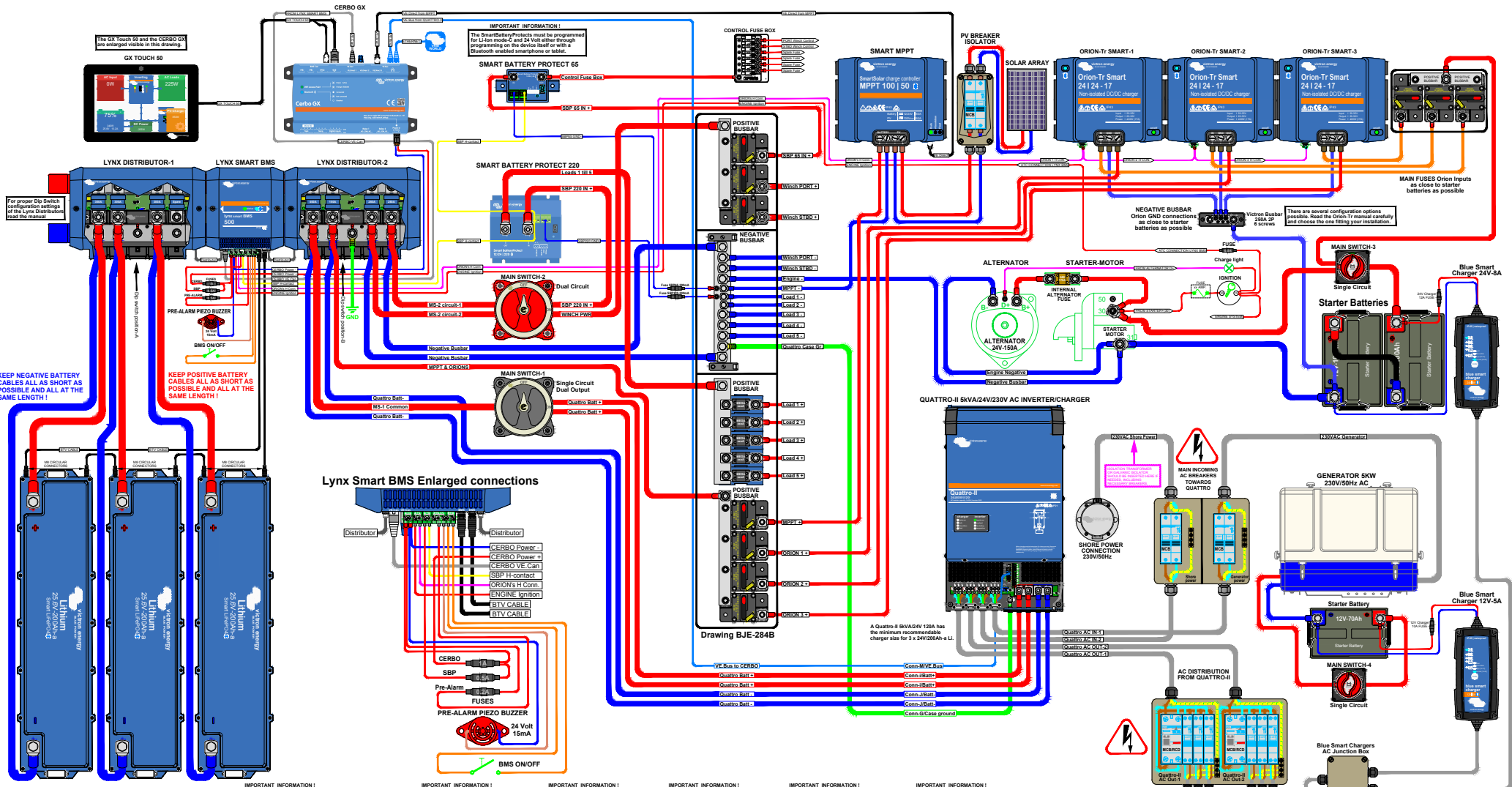
AC Power will be available from the 5kVA Quattro-II Inverter/Charger the moment it has been switched on. This means that without any AC power on the input, the Quattro-II will give you 5kVA of inverter power on AC OUT-1. The moment AC Power is available on input AC IN-1 or AC IN-2, of the Quattro-II, AC Power will be used to charge the batteries and also is available for loads connected to AC OUT-1 and AC OUT-2. The second AC output AC OUT-2 is live only when AC power is available on one of the AC inputs of the Quattro-II.

With use of the Cerbo GX one can adjust the available AC Shore power to the maximum AC current the Quattro-II will use and this is where the Power Assist function comes into play.

Power Assist supplements AC inverter power to (for instance) a limited Shore power connection when needed.

All information about the system and its connected Victron devices are clearly visible on the GX Touch 50 Screen that is connected to the Cerbo GX. All AC Input power and AC Loads are clearly visible as well. Here you can monitor the state of charge (SoC) from your Li batteries and you also can exactly see what discharge current runs away and what charge current comes into the batteries from for instance the Quattro-II, the Smart MPPT and the Orion Tr Smarts.

You can then rest assured that you are in control of your "on board" AC and DC power availability. More info about the system and its individual Victron parts used in this installation are explained in more details down below.



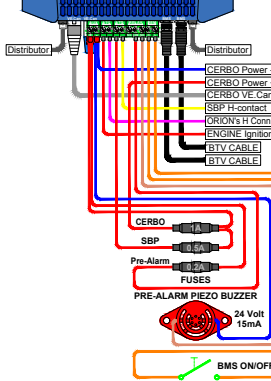
The GX Touch 50 and the CERBO GX are enlarged visible in this drawing.

IMPORTANT INFORMATION!
The SmartBatteryProtects must be programmed for Li-Ion mode, C and 54 Volt either through programming on the device itself or with a Bluetooth enabled smartphone or tablet.

KEEP NEGATIVE BATTERY CABLES ALL AS SHORT AS POSSIBLE AND ALL AT THE SAME LENGTH!

KEEP POSITIVE BATTERY CABLES ALL AS SHORT AS POSSIBLE AND ALL AT THE SAME LENGTH!

Lynx Smart BMS Enlarged connections



- IMPORTANT INFORMATION!**
Victron Smart Lithium Batteries charge & discharge controlled by BMS & CERBO. In systems with Victron Smart Lithium Batteries, it's important that all charging devices as well as loads are controlled by the BMS.
- IMPORTANT INFORMATION!**
When operating in inverter mode, the Neutral output of an inverter/charger must be connected to ground to guarantee proper functioning of a GFCI or RCD device. In case of a split phase supply the Neutral also must be grounded.
- IMPORTANT INFORMATION!**
Recommended DC cable conductor size Quattro-II: With Power assist the Quattro-II can add 50% to the output load when required. Together with the adjustable 100A input fuse all leads up to the main input and output current of 150-21+121A. An Earth leakage device with breaker or a combination MCB/RCD must be installed on the output. Cable size must be adjusted accordingly.
- IMPORTANT INFORMATION!**
AC Out 2 only is available when power is present on AC In 1 or AC In 2. During battery operation it will be disconnected.
- IMPORTANT INFORMATION!**
AC Out 2 supports up to 50A. An Earth leakage device with breaker or a combination MCB/RCD must be installed on the output. Cable size must be adjusted accordingly.
- IMPORTANT INFORMATION!**
Recommended DC cable conductor size Quattro-II: 0-5 m cable length: 4 x 95Strmm 5-10 m cable length: 4 x 95Strmm. When used in closed conduit, cable size should double. Cable length stands for the length between the battery and the Quattro-II connections. If Recommendations are without other loads in the system and there also should be taken into account for proper main battery, main fuse & Fuse size should be 1 x 40A.
- IMPORTANT INFORMATION!**
Recommended AC cable conductor size Quattro-II: 1 x 1 x AC In 1 & AC In 2: 2-core cable must be protected by a circuit breaker rated at 100A max or fuse. This depends heavily on the size of the connected power source. The input currents must be adjusted to the size of the connected power source. The breaker and cable size for both AC In 1 & AC In 2 should be adjusted accordingly.
- WARNING!**
230 VOLT AC IS EXTREMELY DANGEROUS!! DO NOT TOUCH ANY LIVE WIRED PARTS OF THE INSTALLATION!! WHEN IN DOUBT, ALWAYS CONSULT YOUR VICTRON DEALER!!

- No Break panel
- No Break panel
- No Break panel
- No Break panel
- No Break panel
- No Break panel

This is how the system has been setup:

Around the Victron Lithium Batteries 25.6V Smart and Lynx Distributor-1 (Dip switch Pos-A)

A Lynx Distributor is an easy to use and connect DC distribution system. It can hold 4 Mega fuses and three of them are in use here. It is important to always start with connecting the negative cable first before connecting the positive for each distribution position. Read the manual for additional information.

1. The first fuse position at the left hand side of Distributor-1 holds a 300A fuse together with its lower positioned negative for Li Battery-1.
2. The second fuse position of Distributor-1 holds a 300A fuse together with its lower positioned negative for Li Battery-2.
3. The third fuse position of Distributor-1 holds a 300A fuse together with its lower positioned negative for Li Battery-3.
4. The fourth fuse position of Distributor-1 holds a spare fuse together with its lower positioned negative for a spare Li battery.

Lynx Smart BMS:

The Lynx Smart BMS is connected between Lynx Distributor-1 and Lynx Distributor-2. The BMS is the controlling safety heart of the system as this device protects the LiFePO₄ batteries against over Voltage, under Voltage and high temperature. The Victron Lithium Batteries 25.6V Smart have an integrated Balancing, Temperature and Voltage control (acronym: BTV) and connect to the BMS connections with two M8 circular connector cable sets. The BTV's of several batteries can be daisy-chained as in this drawing with 3 connected batteries. When cables are not long enough, extension cables are available in several lengths from your Victron dealer which will suit your purpose. A shunt has been built inside this BMS in the negative connection bus. This shunt is needed to measure what the charge/discharge current is for all connected batteries. The protective part of the BMS for the Li batteries is called ATC (Allow To Charge) and ATD (Allow To Discharge) and this happens through two potential free contacts called ATC and ATD. You can see all these connections clearly in the enlarged part of the Lynx Smart BMS at the bottom left of the drawing next to the batteries. Power for these contacts to control external equipment can be taken from the Aux positive and Negative power connections through a fuse or as further explained by use of external power for the Orion Tr Smart Chargers. ATC in this drawing only is used for all three Orion Tr Smart chargers and DC power to control the ATC signal for these device comes from the Engines ignition connection-15 through a 0,5 Amp fuse. From this fuse 24V power is connected to the left ATC connection. From the right ATC connection (purple wire) 24 Volt connects to each Orion Tr Smart H connection. ATD for Smart battery Protect-220 and 65 has to be connected as follows: Positive power from the Aux + contact towards a 0.5A fuse. From the fuse to the left ATD contact and from the right ATD contact (yellow wire) to SBP-220 and 65 H connections.

Power for the Cerbo has to be connected as follows: from the Aux + contact towards a 1A fuse. From the fuse to the positive power connection of the Cerbo and from the Aux - contact to the negative power connection of the Cerbo.

The BMS can generate a Pre-Alarm signal to warn of an imminent Cell under-Voltage with use of the Relay contacts. By using a Pre-Alarm Piezo Buzzer as shown in the drawing, the buzzer will sound and this will give you ample time to start a charge or to switch off devices preventing a load disconnect. Power for the Buzzer comes from the Aux + and Aux - connections and positive power has to be connected through a 0,2 A fuse towards the relays COM Connection. From the relay NO connection Positive power (brown wire) should be connected to the positive connection of the Buzzer. The negative connection of the Buzzer comes from the Aux-.

Instead of a wire bridge you can install a small BMS ON/OFF switch connected to the BMS Remote-H and Remote-L connections as shown in the drawing. You can decide whether or not to use this switch. If you decide to use the BMS ON/OFF switch, make sure to mount it away/out of sight from little kid's hands otherwise you might be in the dark quite suddenly !

The Distributor RJ11 cables on the left and right hand side of the BMS have to be connected to Distributor-1 and Distributor-2 as they provide power to the LED PCB for each Distributor and can be daisy-chained from Distributor 2 to 3 (when available). These cables transfer data between the

Distributor and the BMS about each main fuse status. Dip switches in each distributor need to be set properly to make this work. See settings behind each Distributor header.

Data at Can bus level between the BMS and the Cerbo has to be connected to a VE.Can port of each device. The VE.Can cable between the BMS and the Cerbo is a normal RJ45 cable. Do not forget to use a terminator at each open VE.Can port at the BMS and the Cerbo. Use the by Victron supplied terminators for this.

The ATC contacts of the BMS will stop connected devices from charging to prevent Cell over-Voltage or a Cell temperature that runs too high. (Detailed description as explained above and in the manual) The following Victron devices will be stopped when this happens:

- Orion-Tr Smart-1, Orion-Tr Smart-2 and Orion-Tr Smart-3.

The ATD contacts of the BMS will stop connected devices from discharging when the Battery Voltage has decreased below a preset value. (Detailed description as explained above and in the manual) The following Victron devices will be stopped when this happens:

- Smart Battery Protect SBP-220 and SBP-65 both controlling a full Load disconnect of what is connected to both SBP OUT Connections.

Other connected Victron devices in this system also need to be controlled from a charge and discharge point of view and this can be achieved through the connected GX device:

- Quattro-II Inverter/Charger will be controlled digitally through the GX device DVCC feature.
- Smart Solar charger will be controlled digitally through the GX Device DVCC feature.

Acronym: DVCC stands for: Distributed Voltage and Current Control.

Lynx Distributor-2 (Dip switch Pos-B)

1. The first fuse position at the left hand side of Distributor-2 holds a 400A fuse together with its lower positioned negative connections for the biggest device in this installation, a 5kVA Quattro-II inverter/charger. Keep the distance between Lynx Distributor Fuse-1, Main switch-1 (Blue Sea 3000) and the negative Quattro-II connections as short as possible. Read the Quattro-II manual carefully to proceed further. Notice that 2 negative connections are used here, 1 below Fuse-1 and one below Fuse-2.
2. The second fuse position of Distributor-2 holds a 150A fuse for the positive outputs of the Smart Solar charge controller MPPT 100|50 and the 3 x Orion-Tr Smart 24|24-17. The lower negative is used for the Quattro-II second negative connection as all negative outputs for the Solar charge controller and the 3 x Orion-Tr Smart 24|24-17 are connected to the negative Busbar.
3. The third fuse position of Distributor-2 holds a 250A fuse for 3 automatic circuit breakers: 1-Smart Battery Protect-65, 2-Winch Port, 3-Winch Stbd. Its lower positioned negative connection is used to connect to the Negative Busbar. Keep the distance between Lynx Distributor fuse-3, Main switch-2 and the 3 automatic circuit breakers as short as possible.
4. The fourth fuse position of Distributor-2 holds a 250A fuse for Smart Battery Protect 220. Its lower positioned negative connection is used to connect to the Negative Busbar. Keep the distance between Lynx Distributor fuse-4, Main switch-2 and SBP 220 as short as possible.

Main switch-1 is a single circuit model used for the Quattro-II with dual output connections to provide two positive connections towards the Quattro-II. This makes connecting of the Quattro-II much easier. Main switch-2 is a dual circuit model used for Main fuse 3 and 4.

The PE/Earth connection will be dealt with later together with the Quattro-II.

SBP or Smart Battery Protect 220:

The smart battery protect 220 is used for DC loads 1 till 5. One can make a choice what to use it for. The SBP is needed to protect the Li batteries from discharging beyond a low Voltage setpoint. It comes highly recommended to install a fuse of 300mA in the negative connection of the SBP.

SBP or Smart Battery Protect 65:

The smart battery protect 65 is used for the DC Control fuse box. This Control box is used to connected the Port and Stbd winch control power. This is a safe way to stop large devices like winches from working when requested for by the BMS. The SBP is needed to protect the Li

batteries from discharging beyond a low Voltage setpoint. It comes highly recommended to install a fuse of 300mA in the negative connection of the SBP.

Cerbo GX with GX Touch 50 Display:

The Cerbo GX with its GX Touch 50 Display is visible above the BMS and its Distributors. The Cerbo together with the GX Touch 50 Display is the monitoring heart of your installation showing you what is going on with all connected devices. Monitoring of your installation can be done either with the Cerbo in front of you or from anywhere in the world using an internet connection as shown in the drawing with VRM World that connects to the Victron VRM portal either using the VictronConnect app or website.

The Cerbo also provides Remote Firmware updates and allows settings to be changed Remotely. Whatever you connect to a Cerbo can be made visible on the GX Touch 50 display or with: Remote Console, VRM Dashboard, Advanced VRM Widgets, VRM App Widgets, and VE.Can/NMEA 2000. This all has been clearly explained in the Cerbo manual.

The positive power for the Cerbo comes through a 1A fuse connected to the Lynx Smart BMS AUX connections including its negative as explained with the BMS. The GX Touch 50 Display HDMI connector with attached USB power cable obviously has to go into the HDMI port of the Cerbo and the USB cable directly next to it.

The VE.Bus cable coming from the 5kVA Quattro-II goes into a VE.Bus port of the Cerbo. The Ethernet cable and its connector, to connect to the VRM Portal (if available), will go into the Network port of the Cerbo. The VE.Direct cable and connector from the Smart Solar MPPT 100|50 goes into a VE.Direct port of the Cerbo. Data at VE.Can bus level to/from the Lynx Smart BMS has to be connected to a Cerbo VE.Can port. Do not forget to terminate the Can bus cable as explained with the BMS. Both ends of the cable need a terminator.

These are all the connections you have to make for the Cerbo. There is plenty more you can connect and do with a Cerbo and that all is very well explained in its manual.

SmartSolar charge controller MPPT 100|50:

Top middle centre you will find a Smart Solar charge Controller MPPT 100|50.

Also visible here is a PV breaker/Isolator. The Solar array as shown in the drawing is just to visualize some solar panels and how things need to be connected.

It might be a good idea that you use the free MPPT sizing calculator available from the Victron website. This is a great and accurate tool to size what you need on Solar panel power and charge controllers for your project. On the Victron Website just search for MPPT calculator.

DC power from the solar array first passes through the PV breaker/Isolator and then connects to the MPPT PV input connections. The positive DC Output connection of the MPPT connects to a 60A Blue Sea breaker before connecting to the second fuse position of Distributor-2. The negative DC output connection of the MPPT connects to the Negative busbar.

The VE.Direct cable and connector from the MPPT has to be connected to a Cerbo VE.Direct Port. The Cerbo in connection with the BMS controls the MPPT from overcharging the Li batteries via DVCC or Distributed Voltage and Current Control.

Orion-Tr Smart 1-2-3 / 24|24-17 Non Isolated DC/DC chargers:

Next to the PV Breaker/Isolator and Solar Array you will find three Orion Tr Smart 24|24-17 DC/DC converters. These three are working in parallel and will give a total charge current of 51A.

Non isolated models are used here, but Isolated models can also be used if needed. As you can see there is no wire bridge between any of the Orion L & H connections. But all H connections are wired together. The On signal for the Orions comes from engine ignition connection-15 followed by a 0,5 Amp fuse. From the fuse it continues to the Lynx BMS left ATC connection. From the right ATC connections a purple wire continues to all the bridged H connections.

When charging is allowed by the BMS and the moment the ignition is on, the Orions switch on as well. When the engine runs with a working Alternator and a rising Starter Battery Voltage the Orions will start charging. The Orions need to be configured for charging in Li mode and configured for either a normal or a Smart Alternator. Read the manual carefully and make settings accordingly. The Positive Power input for each Orion comes from the starter battery positive behind Main Switch-3 through 3 x 60A Blue Sea breakers and from the starter battery negative through a Negative Busbar to each Orion GND connection. Just like with the Smart Solar Charge

controller, each Orion positive DC Output connects to a 60A Blue Sea breaker before connecting to the second fuse position of Distributor-2.

Engine Systems:

The 24V starter circuit of the Main Engine with Starter Batteries (2x12V in series), Main switch-3, Alternator with main fuse and Starter Motor visible in this drawing should be seen as an example to show you how to connect your Victron products.

The 12V starter circuit of the Generator with Starter Battery and Main switch-4 visible in this drawing also should be seen as an example to show you how to connect your Victron products.

Maintenance Chargers for starter batteries 24 Volt and 12 Volt 230V/50Hz AC:

There are 2 Victron Blue Smart chargers in this drawing. AC power for both chargers comes from Quattro-II output AC Out-2 through switched load breaker-1 and an AC Junction Box.

- The Blue Smart 24V-7A Main Engine maintenance charger is connected to the 24V starter batteries positive connection with a 10A In-Line fuse. The negative output of the charger obviously needs to be connected to the 24V negative starter batteries connection.
- The Blue Smart 12V-5A Generator maintenance charger is connected to the 12V starter battery positive connection with a 10A In-Line fuse. The negative output of the charger obviously needs to be connected to the 12V negative starter battery connection.

Quattro-II Inverter/Charger 5kVA/24V 230V/50Hz AC:

Below the Main engine starter circuit you will find the Quattro-II Inverter/Charger.

The Quattro-II should be mounted in such a way that it can cool itself down properly and the space where it is in should be dry and well ventilated. Free space around the device should be at least 10cm or 4". Don't box the device in as this will certainly have a bad effect on its functioning and service life.

Most connections to and from the Quattro-II already have been discussed, but it might be a good idea to have them all together here again:

DC power to and from the Quattro-II connects to the first fuse position at the left hand side of Distributor-2 holding a 400A fuse together with its lower positioned negative connection and the lower positioned negative connection of Fuse-2.

The Positive connection from the first Fuse position connects to Main Switch-1. By using a Blue Sea 3000 HD Main Switch for Main Switch-1, one can connect two Positive connections towards the Quattro-II. This will make connecting of the Quattro-II much easier.

Incoming AC power comes through a Victron Shore Power connection. From there it passes through an incoming AC breaker panel towards the Quattro-II AC IN-2 connections. Incoming Generator power comes through an incoming AC breaker panel towards the Quattro-II AC IN-1 connections. AC OUT-1 of the Quattro-II is connected to an AC breaker panel and from the breaker panel onward these are NO Break AC outputs and as the name suggests are constantly powered by the Quattro-II Inverter. AC OUT-2 of the Quattro-II is also connected to an AC breaker panel and from the breaker panel onward these are switched AC outputs and as the name here suggest are switched off when there is no incoming AC power available. AC OUT-2 is live only when AC power is available on one of the inputs of the Quattro-II with a 2 minute connect delay.

The Quattro-II has two VE.Bus connections:

One is used for the Cerbo and the other one is Spare.

The Quattro-II has a Case Ground connection-G that should be connected to the negative Busbar as shown in this drawing. The Case Ground cable should be one size smaller compared to its total connected negative. All shown connections in this drawing, are made according to CE/ABYC regulations. This is a NON Isolated DC System setup. When in doubt about how to continue with these connections, consult your Victron dealer.

Read the Quattro-II manual carefully to proceed further.

Software settings for all shown Victron devices in this drawing:

- When setting up a new system, it will be good practice to update all Victron devices to the latest available Software/Firmware.

- The three Victron LiFePO4 25,6V 200Ah Smart batteries can be set, monitored and updated with use of the VictronConnect App.
- The Victron Smart Battery Protect 220 and 65 can be set, monitored and updated with use of the VictronConnect App. Must be programmed for Li-Ion mode-C and 24V.
- The Victron Smart Solar charge controller MPPT 100|50 can be set, monitored and updated with use of the VictronConnect App. Must be programmed for Li-Ion mode and 24V.
- The three Victron Orion-Tr Smart 24|24-17 Non-Isolated DC/DC chargers can be set, monitored and updated with use of the VictronConnect App. Must be programmed for Li-Ion mode.
- The Victron Cerbo GX Device can be updated to the latest Firmware in two different ways:
 - 1 - Update it via the internet, either manually or let it check for new updates every day.
 - 2 - Update it from a microSD-card or USB-stick. Check the Cerbo manual for this.
- The Victron Lynx Smart BMS can be set, monitored and updated with use of the VictronConnect App.
- The Victron Quattro-II can be set, monitored and updated with use of the MK3-USB interface and VEConfigure software (Windows only) or use the VictronConnect App (Multi Platform). Limitations of Victron Connect are that one can not add assistants, use Virtual Switch and/or change the Grid Code.
- The two Victron Blue Smart maintenance chargers can be set, monitored and updated with use of the VictronConnect App.

Wiring Calculations:

There are no wire sizes visible in this drawing and there is a good reason why this is not available in any drawing on the Victron website. We at Victron do not know what the physical size of your project is and it therefore will be impossible to give you specific wire sizes that will fit your setup. But there is a very handy tool available from Victron called Victron Toolkit for Android and iPhone users. In this app you will find Cable Calc that will help you size any cable for AC and DC. This will help you find all the right cable sizes for your project.

Wiring Unlimited:

This is a book freely available for downloading from the Victron Website.

This book is all about electrical wiring for systems containing batteries, inverters, charger, inverter/chargers and so on. With this book Victron aims to explain wiring basics of electrical systems. This book helps to explain the importance of 'getting it right' and the issues that might happen when a system has inferior wiring. It also assists electrical installers or users to troubleshoot issues that have arisen from bad wiring. This book will certainly help to get it right and to make sure proper conclusions can be drawn for the electrical systems its readers are involved with.

Using the Victron-Remote-Monitoring / VRM app or website:

Monitoring of your installation can be done either with the Cerbo in front of you or from anywhere in the world using an internet connection as shown in the drawing with VRM World that connects to the Victron VRM portal either using the VictronConnect app or website. Just login to your VRM account or setup a new one and tap on your account to view your installation. You can for instance set alarm status information for the state of charge or SoC and this will automatically warn you when a certain level has been reached. This is extremely useful during periods of absence or winterizing mode and..... it is free of charge !

For more info read the latest available VRM manual.

The VRM app is available for Android and iPhone users.

During periods of absence:

Make sure to switch the Quattro-II to charger only. This prevents the inverter from draining the batteries when no AC input power is available. Switch off all unnecessary users. When proper calculations for the Solar system were made, the solar array will maintain the batteries.

Winterizing:

Before putting the boat in hibernation for winterizing, make sure to fully charge the batteries first. Then switch off the Quattro-II and its main switch-1. You can also decide to switch off main switch-2 and the engine main switches 3 & 4 as well if needed.

Solar charging will continue to maintain the Li batteries.

Check at regular intervals if the batteries are not losing too much capacity and make sure to prevent freezing at all times. A regular interval is 4-6 weeks. To keep communication of your

system going with use of the VRM app or website, you do need an Internet connection to make this work and Victron also has a solution for this with the GX LTE 4G cellular modem. Check it out on the Victron website.

In this drawing you will find the following Victron equipment with some additional material:

Victron Part description	Part No.	Amount	Remark
Battery switch on/off 275A	VBS127010010	2	
BMS Piezo buzzer and on/off switch	.....		Order from your Victron dealer
Breaker box PV with DC breaker isolator for solar Array	.....	1	Order from your Victron dealer
Breaker box Quattro-II AC OUT-1 & AC OUT-2	.....	1	Order from your Victron dealer
Breaker box Quattro-II AC Shore power Input and AC Generator power Input	.....	1	Order from your Victron dealer
Busbar 250A 2P with 6 screws +cover	VBB125020620	1	
Busbar to connect 5 Modular fuse holders for Mega-fuse CIP100200100 (500 A)	CIP100400060	1	
Busbar: Negative as in drawing	.....	1	Order from your Victron dealer
Blue Sea Battery switch on/off. Single circuit, dual output.	3000	1	
Blue Sea Battery switch on/off. Dual circuit.	5501E	1	
Blue Sea Glass Fuse Block	5018	1	
Blue Sea Thermal breaker 25A for MPPT	7180	1	
Blue Sea Thermal breaker 30A for MPPT	7181	6	
Blue Sea Thermal breaker 60A for MPPT	7184	1	
Blue Sea Thermal breaker 100A for MPPT	7187	2	
Blue Smart IP65s Charger 24/8 + DC connector	BPC240831064R	1	maintenance charger
Blue Smart IP65s Charger 12/5 + DC connector	BPC120533064R	1	maintenance charger
Cables with M8 circular connector (for Li-ion batteries) Male to Female 3 pole 2 m (bag of 2)	ASS030560200	1	Bag of 2
Cerbo GX	BPP900450100	1	
Fuse holder 2AG or 5x20mm by Little Fuse including fuses	150 series	8	Order on line or from your Victron dealer
GX Touch 50 Display	BPP900455050	1	
LiFePO4 Battery 25,6V/200Ah - Smart-a	BAT524120610	3	
Lynx Smart BMS 500	LYN034160200	1	
Lynx Distributor	LYN060102000	2	Order fuses from your Victron dealer

Victron Part description	Part No.	Amount	Remark
MEGA-fuse 150A/32V (package of 5 pcs)	CIP136150010	1	
MEGA-fuse 250A/32V (package of 5 pcs)	CIP136250010	1	
MEGA-fuse 300A/32V (package of 5 pcs)	CIP136300010	1	
MEGA-fuse 400A/32V (package of 5 pcs)	CIP136400010	1	
Modular fuse holder for Mega-fuse (1 till 5)	CIP100200100	5	Order fuses from your Victron dealer
Orion-Tr Smart 24/24-17A non Isolated DC-DC charger	ORI242440140	3	
Power Inlet 32A stainless steel with cover	SHP303202000	1	
Power Cord 15m 25A for shore power inlet	SHP304001500	1	
Quattro-II 24/5000/120-50/50 230V	QUA242505010	1	
Smart BatteryProtect 12/24V-220A	BPR122022000	1	
Smart BatteryProtect 12/24V-65A	BPR065022000	1	
SmartSolar MPPT 100/50	SCC110050210	1	
VE.Bus cable: from Quattro to Cerbo	.....	1	RJ45 Cable length not known
VE.Can cable: from BMS to Cerbo	1	RJ45 Cable length not known
VE.Direct cable: from MPPT to Cerbo	0	Cable length not known

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