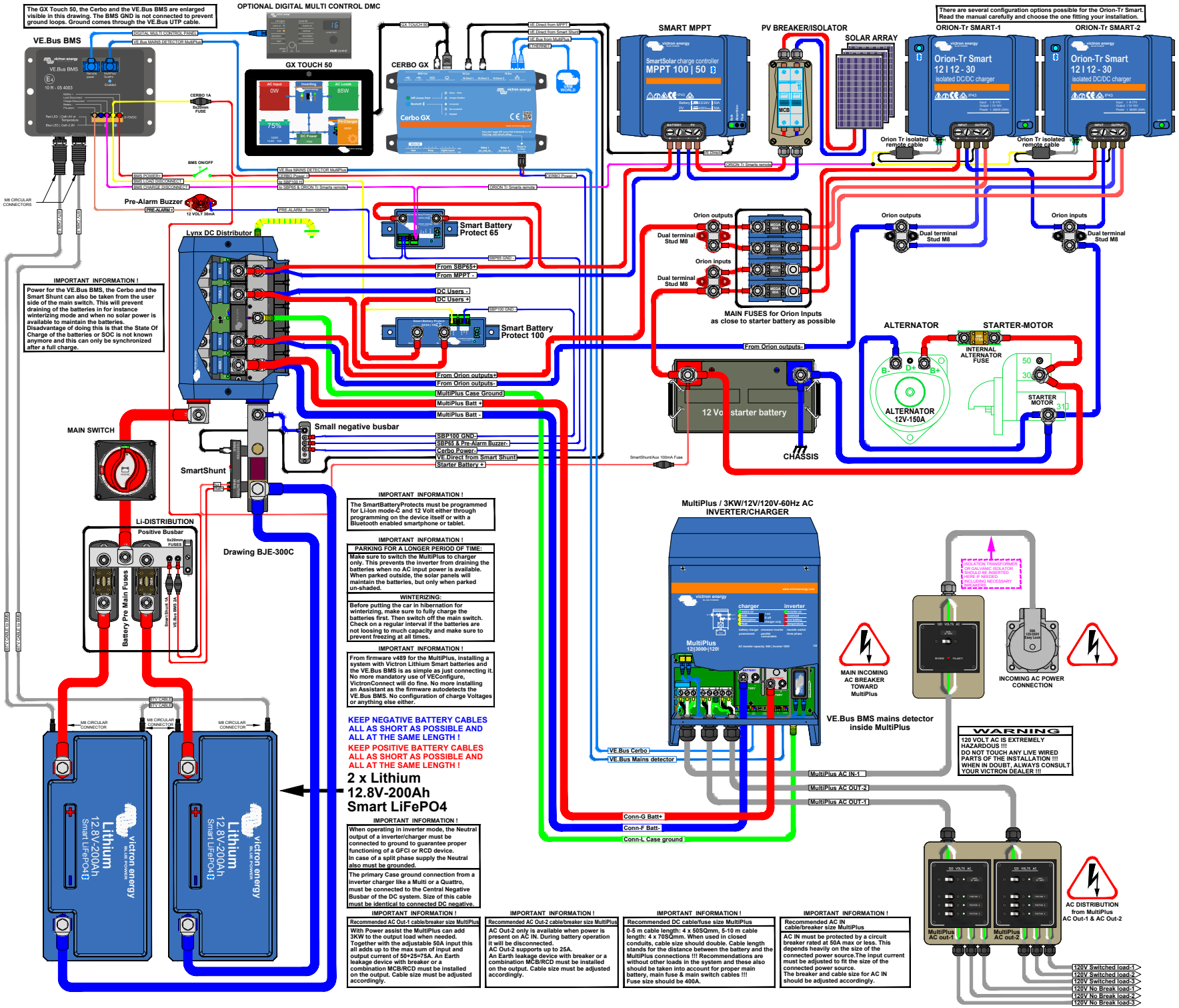
The GX Touch 50, the Cerbo and the VE.Bus BMS are enlarged visible in this drawing. The BMS GND is not connected to prevent ground loops. Ground comes through the VE.Bus UTP cable.
OPTIONAL DIGITAL MULTI CONTROL DMC
VE.Bus BMS
GX TOUCH 50
CERBO GX
SMART MPPT
PV BREAKER/ISOLATOR
SOLAR ARRAY
There are several configuration options possible for the Orion-Tr Smart. Read the manual carefully and choose the one fitting your installation.
ORION-Tr SMART-1
ORION-Tr SMART-2
Orion Tr Isolated remote cable
Pre-Alarm Buzzer
Lynx DC Distributor
Smart Battery Protect 65
Smart Battery Protect 100
Orion outputs
Orion inputs
Dual terminal Stud M8
MAIN FUSES for Orion Inputs as close to starter battery as possible
ALTERNATOR
STARTER-MOTOR
INTERNAL ALTERNATOR FUSE
ALTERNATOR 12V-150A
STARTER MOTOR
12 Volt starter battery
CHASSIS
From Orion outputs-
From SBP65+
From MPPT -
DC Users -
DC Users +
From Orion outputs+
From Orion outputs-
MultiPlus Case Ground
MultiPlus Batt +
MultiPlus Batt -
Small negative busbar
SBP100 GND-
SBP65 & Pre-Alarm Buzzer-
Cerbo Power-
VE.Direct from Smart Shunt
Starter Battery +
MAIN SWITCH
SmartShunt
Li-DISTRIBUTION
Positive Busbar
Battery Pre Main Fuses
Drawing BJE-300C
IMPORTANT INFORMATION !
Power for the VE.Bus BMS, the Cerbo and the Smart Shunt can also be taken from the user side of the main switch. This will prevent draining of the batteries in for instance winterizing mode and when no solar power is available to maintain the batteries. Disadvantage of doing this is that the State Of Charge of the batteries or SOC is not known anymore and this can only be synchronized after a full charge.
IMPORTANT INFORMATION !
The SmartBatteryProtects must be programmed for Li-Ion mode-C and 12 Volt either through programming on the device itself or with a Bluetooth enabled smartphone or tablet.
IMPORTANT INFORMATION !
PARKING FOR A LONGER PERIOD OF TIME:
Make sure to switch the MultiPlus to charger only. This prevents the inverter from draining the batteries when no AC input power is available. When parked outside, the solar panels will maintain the batteries, but only when parked un-shaded.
WINTERIZING:
Before putting the car in hibernation for winterizing, make sure to fully charge the batteries first. Then switch off the main switch. Check on a regular interval if the batteries are not loosing to much capacity and make sure to prevent freezing at all times.
IMPORTANT INFORMATION !
From firmware v489 for the MultiPlus, installing a system with Victron Lithium Smart batteries and the VE.Bus BMS is as simple as just connecting it. No more mandatory use of VEConfigure, VictronConnect will do fine. No more installing an Assistant as the firmware autodetects the VE.Bus BMS. No configuration of charge Voltages or anything else either.
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 !
2 x Lithium 12.8V-200Ah Smart LiFePO4
IMPORTANT INFORMATION !
When operating in inverter mode, the Neutral output of a 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.
The primary Case ground connection from a inverter charger like a Multi or a Quattro, must be connected to the Central Negative Busbar of the DC system. Size of this cable must be identical to connected DC negative.
MultiPlus / 3KW/12V/120V-60Hz AC INVERTER/CHARGER
MAIN INCOMING AC BREAKER TOWARD MultiPlus
INCOMING AC POWER CONNECTION
VE.Bus BMS mains detector inside MultiPlus
WARNING
120 VOLT AC IS EXTREMELY HAZARDOUS !!!
DO NOT TOUCH ANY LIVE WIRED PARTS OF THE INSTALLATION !!!
WHEN IN DOUBT, ALWAYS CONSULT YOUR VICTRON DEALER !!!
VE.Bus Cerbo
VE.Bus Mains detector
MultiPlus AC IN-1
MultiPlus AC OUT-2
MultiPlus AC OUT-1
Conn-G Batt+
Conn-F Batt-
Conn-L Case ground
AC DISTRIBUTION from MultiPlus AC Out-1 & AC Out-2
120V Switched load-1
120V Switched load-2
120V Switched load-3
120V No Break load-1
120V No Break load-2
120V No Break load-3
IMPORTANT INFORMATION !
Recommended AC Out-1 cable/breaker size MultiPlus
With Power assist the MultiPlus can add 3KW to the output load when needed. Together with the adjustable 50A input this all adds up to the max sum of input and output current of 50+25=75A. 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 AC Out-2 cable/breaker size MultiPlus
AC Out-2 only is available when power is present on AC IN. During battery operation it will be disconnected. AC Out-2 supports up to 25A. 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/fuse size MultiPlus
0-5 m cable length: 4 x 50SQmm, 5-10 m cable length: 4 x 70SQmm. When used in closed conduits, cable size should double. Cable length stands for the distance between the battery and the MultiPlus connections !!! Recommendations are without other loads in the system and these also should be taken into account for proper main battery, main fuse & main switch cables !!! Fuse size should be 400A.
IMPORTANT INFORMATION !
Recommended AC IN cable/breaker size MultiPlus
AC IN must be protected by a circuit breaker rated at 50A max or less. This depends heavily on the size of the connected power source. The input current must be adjusted to fit the size of the connected power source. The breaker and cable size for AC IN should be adjusted accordingly.