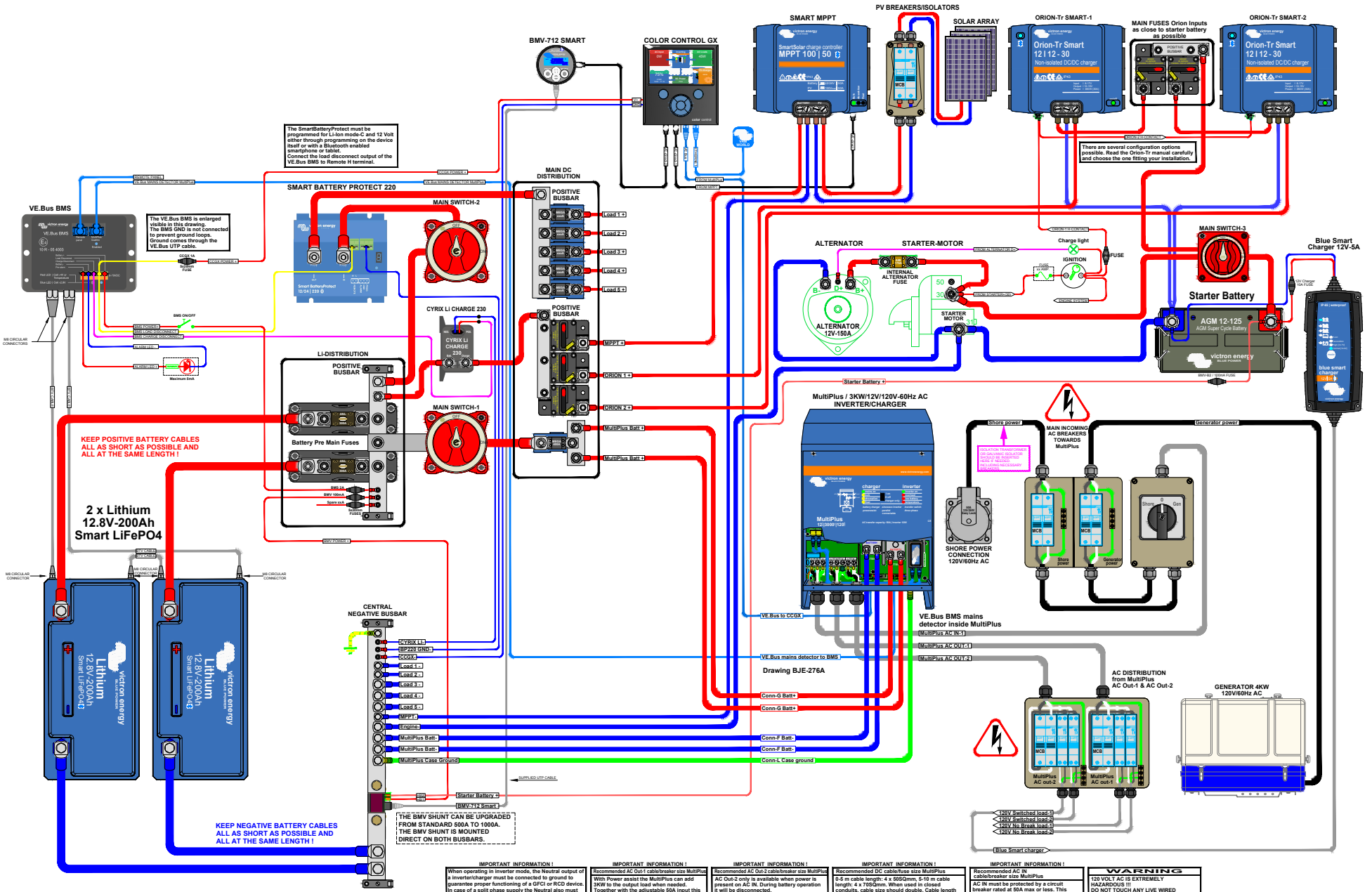
SMART MPPT
PV BREAKERS/ISOLATORS
SOLAR ARRAY
ORION-Tr SMART-1
MAIN FUSES Orion Inputs as close to starter battery as possible
ORION-Tr SMART-2
BMV-712 SMART
COLOR CONTROL GX
SmartSolar charge controller MPPT 100 | 50
Orion-Tr Smart 12 | 12 - 30 Non-isolated DC/DC charger
There are several configuration options possible. Read the Orion-Tr manual carefully and choose the one fitting your installation.
The SmartBatteryProtect 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.
Connect the load disconnect output of the VE.Bus BMS to Remote H terminal.
SMART BATTERY PROTECT 220
VE.Bus BMS
The VE.Bus BMS is enlarged visible in this drawing.
The BMS GND is not connected to prevent ground loops.
Ground comes through the VE.Bus UTP cable.
MAIN DC DISTRIBUTION
POSITIVE BUSBAR
Load 1 +
Load 2 +
Load 3 +
Load 4 +
Load 5 +
MAIN SWITCH-2
CYRIX Li CHARGE 230
MPPT +
ORION 1 +
ORION 2 +
MultiPlus Batt +
MAIN SWITCH-1
LI-DISTRIBUTION
Battery Pre Main Fuses
ALTERNATOR
STARTER-MOTOR
INTERNAL ALTERNATOR FUSE
ALTERNATOR 12V-150A
STARTER MOTOR
Charge light
IGNITION
FUSE
MAIN SWITCH-3
Starter Battery
AGM 12-125
AGM Super Cycle Battery
Blue Smart Charger 12V-5A
KEEP POSITIVE BATTERY CABLES ALL AS SHORT AS POSSIBLE AND ALL AT THE SAME LENGTH !
2 x Lithium 12.8V-200Ah Smart LiFePO4
Lithium 12.8V-200Ah Smart LiFePO4
MultiPlus / 3KW/12V/120V-60Hz AC INVERTER/CHARGER
MultiPlus 12|3000|120
SHORE POWER CONNECTION 120V/60Hz AC
Shore power
Generator power
MAIN INCOMING AC BREAKERS TOWARDS MultiPlus
VE.Bus BMS mains detector inside MultiPlus
MultiPlus AC IN-1
MultiPlus AC OUT-1
MultiPlus AC OUT-2
VE.Bus to CCGX
VE.Bus mains detector to BMS
Drawing BJE-276A
AC DISTRIBUTION from MultiPlus AC Out-1 & AC Out-2
GENERATOR 4KW 120V/60Hz AC
120V Switched load-1
120V Switched load-2
120V No Break load-1
120V No Break load-2
Blue Smart charger
CENTRAL NEGATIVE BUSBAR
CYRIX LI
BP22H GND
CCGX
Load 1 -
Load 2 -
Load 3 -
Load 4 -
Load 5 -
MPPT -
Engine-
MultiPlus Batt-
MultiPlus Case Ground
Starter Battery +
BMV-712 Smart
THE BMV SHUNT CAN BE UPGRADED FROM STANDARD 500A TO 1000A.
THE BMV SHUNT IS MOUNTED DIRECT ON BOTH BUSBARS.
KEEP NEGATIVE BATTERY CABLES ALL AS SHORT AS POSSIBLE AND ALL AT THE SAME LENGTH !
Drawing BJE-276A
Conn-G Batt+
Conn-F Batt-
Conn-L Case ground
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.
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.
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 !!!