The VE.Bus BMS NG is enlarged visible in this drawing. There is NO BMS negative connection to prevent ground loops. Ground comes through the VE.Bus UTP cable.

VE.Bus BMS NG

GX TOUCH 50

Cerbo GX

CERBO GX

SMART MPPT

SmartSolar charge controller MPPT 100 | 30

PV ARRAY

PV BREAKER ISOLATOR

MCB

ORION-Tr SMART

Orion-Tr Smart 12 | 12 - 30 Non-isolated DC/DC charger

CHARGE RELAY ORION Tr

K1

SMART BATTERY PROTECT 220

Smart BatteryProtect 12/24 | 220

MAIN SWITCH-1

PRE-ALARM PIEZO BUZZER

12 VOLT/30mA

OPTIONAL BMS AC POWER ADAPTER

IMPORTANT INFORMATION !

Victron Lithium Batteries charge & discharge controlled by BMS & GX Device

In systems with Victron Lithium NG Batteries, it's important that all charging devices as well as loads are controlled by the BMS and GX Device. Here is how that is taken care of in this system:

1 - MultiPlus Inverter/charger: digitally via the GX Device, DVCC feature.
2 - Solar charger: digitally via the GX Device, DVCC feature.
3 - Orion Tr: by using ignition power to coil of relay K1 with BMS CD signal through the relay towards the H contact of the Orion Tr.
4 - DC Loads: via SmartBattery Protect 220 and LD signal from BMS.
5 - AC Loads: controlled together with the MultiPlus Inverter/Charger.

KEEP POSITIVE BATTERY CABLES ALL AT THE SAME LENGTH !

MAIN DC DISTRIBUTION

POSITIVE BUSBAR

MAIN SWITCH-2

DC-DISTRIBUTION

POSITIVE BUSBAR

Load+
Load+
Load+
MPPT+
Orion+
MultiPlus Batt +

BMV-712 SMART

CENTRAL NEGATIVE BUSBAR

Aux Power-
Pre-Alarm-
SBP220-
CERBO-
MPPT-
Load-
Load-
Load-
Starter Battery-
MultiPlus Case GR
MultiPlus Batt-
Starter Battery +

THE BMV SHUNT IS MOUNTED DIRECT ON TO BOTH BUSBARS

Drawing BJE-260A Rev-D

KEEP NEGATIVE BATTERY CABLES ALL AT THE SAME LENGTH !

2 x Lithium 12.8V-150Ah NG-LiFePO4

Starter Battery

BMV-B2 / 100mA FUSE

Charger Starter Battery 6A FUSE

12V-100Ah Starter Battery

MAIN SWITCH-3

MAIN FUSE ORION INPUT

new style MULTIPLUS 1600VA/12V DC/230V AC INVERTER/CHARGER

MultiPlus 12 | 1600 | 70

STARTER MOTOR

INTERNAL ALTERNATOR FUSE

ALTERNATOR 12V-80A

IGNITION

Fuse

Charge light

IMPORTANT INFORMATION !

Standard Engine Installation

With Alternator positive output connected to Starter motor connection 30/B+. Alternator & starter motor both are connected behind the Engine Main Switch. Other connection options are possible depending on owner preferences.

230V SHORE POWER CONNECTION

ISOLATION TRANSFORMER OR GALVANIC ISOLATOR SHOULD BE INSERTED HERE IF NEEDED, INCLUDING NECESSARY BREAKERS.

AC DISTRIBUTION

MCB/RCD

MultiPlus AC Output

MultiPlus AC Input

MultiPlus Output

MultiPlus Input

No Break load-1
No Break load-2
MultiPlus input
Small Geyser

VE.Bus MultiPlus
Conn-G Start Batt+
Conn-K Batt+
Conn-L Case ground
Conn-F Batt-

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 can be one size smaller compared to its total connected DC negative per device (ABYC).

Recommended AC Out cable/breaker size MultiPlus

With Power assist the MultiPlus can add 1.3 KW to the output load when needed. Together with the adjustable 16A input this all adds up to the max sum of input and output current of 16+5.6=21.6A. An Earth leakage device with breaker or a combi MCB/RCD must be installed on the output. Cable size must be adjusted accordingly.

Recommended DC cable/fuse size MultiPlus

0-5 m cable length: 50SQmm
Cable length stands for the total distance between the battery connections plus and minus 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 !
INTERNAL Fuse size should be 200A.

Recommended AC In cable/breaker size MultiPlus

AC IN must be protected by a circuit breaker rated at 16A 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

230 VOLT IS EXTREMELY HAZARDOUS
DO NOT TOUCH ANY LIVE WIRED PARTS OF THE INSTALLATION !
WHEN IN DOUBT, ALWAYS CONSULT YOUR VICTRON DEALER !

IMPORTANT INFORMATION !

The MultiPlus with Firmware version xxxx489 or higher will configure automatically for Li mode for use with the VE.Bus BMS-NG. The only thing you have to adjust is the battery capacity inside the MultiPlus. This can easily be set with use of VictronConnect software.
A mains-detector is not necessary as this functionality has been build inside the new style MultiPlus. With DVCC enabled in the Cerbo, all connected Victron devices in this drawing will stop charging when requested for by the BMS-NG. Check to make sure that all installed Victron devices in this drawing are properly configured for use with Victron Li batteries.