03-08-2017

VE.Direct TX digital output cable

The VE.Direct TX digital output cable ASS030550500 can be used together with BlueSolar and SmartSolar MPPT chargers[1].

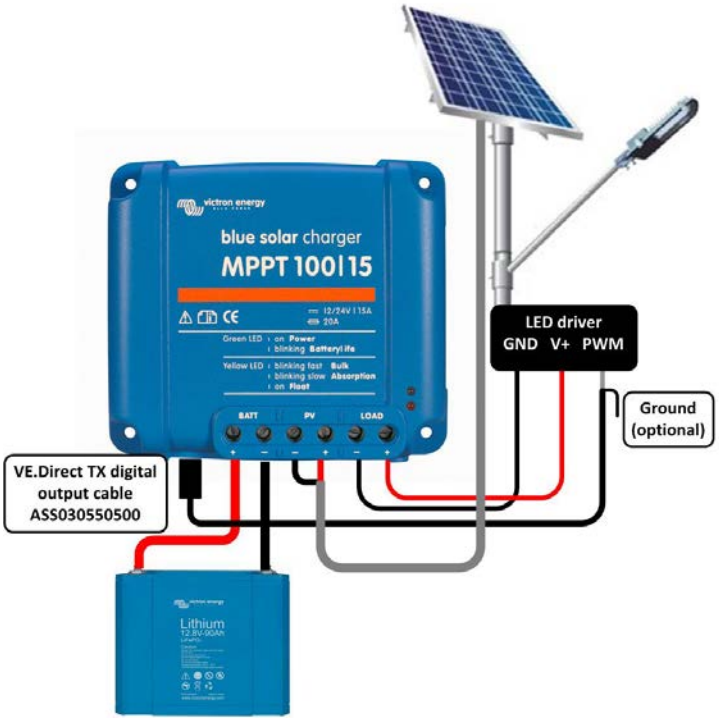
The MPPT solar charge controller must have software version V1.15 or higher. An MPPT with an older version can be upgraded with VictronConnect.
VictronConnect can both be used to upgrade the firmware and to configure the MPPT controller.

The latest MPPT charger firmware is contained within VictronConnect, it will update your product to latest firmware automatically. Alternatively the latest MPPT firmware can be retrieved via the portal (e.g. when using VE Power Setup to update a remote installation connected to a Color Control).

The VE.Direct TX digital output cable supports two applications:

1. Solar lighting applications
Energy consumption can be substantially reduced by light-dimming when appropriate.
Lower energy consumption will reduce overall system cost, and increase light availability even when the battery has only been partly charged due to bad weather.

The TX cable connects the TX pin on the VE.Direct connector of a MPPT charger to the PWM light dimming input of a LED driver.



[1] The cable cannot be used with the following versions, as these units power-down completely at night:
- SCC010030200 - BlueSolar MPPT 100/30. Use its successor, SCC020030200 instead.
- SCC010050000 - BlueSolar MPPT 75/50. Use the successor of the 100/50, SCC020050200 instead.
- SCC010050200 - BlueSolar MPPT 100/50. Use its successor, SCC020050200 instead.
- SCC010035000 - BlueSolar MPPT 150/35. Use its successor, SCC020035000 instead.

The PWM dimming function has been tested to work with the following LED drivers:

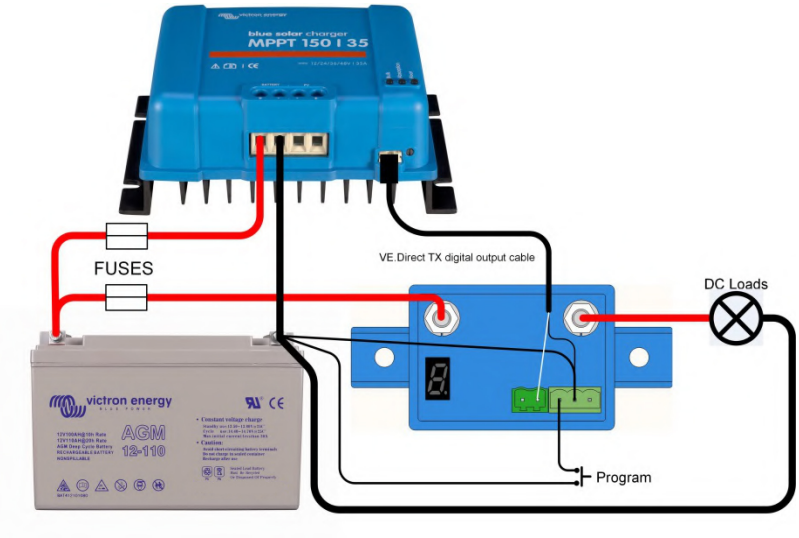
- RECOM RBD-12
- Glacial Power GP-LD7048-0B
- Glacial Power GP-LD3548-0B
- MEAN WELL LDH-45

Relevant configuration items in VictronConnect:

- Settings -> Tx port function -> Tx port function = "Light dimming (normal)" or "Light dimming (inverted)".
- Settings -> Load -> Load operation mode = "BatteryLife algorithm" or any mode you prefer.
- Settings -> Streetlight -> Streetlight function = "ON", setup the timer program as desired for your application.

2. Virtual load output

The second application for which this cable can be used is to add load output functionality to the larger Solar Chargers, MPPT 100/30 and up. Which do not have load output terminals such as the smaller Solar Chargers do.



The cable connects the TX output of the VE.Direct connector of the Solar Charger to a Battery Protect or a solid state relay. Which will then switch a load off when the battery is low.

There are multiple programs available for switching the load. See chapter 4.2 in the VictronConnect MPPT Solar Charger manual for details.

- Battery Protect

- Solid State Relay (any SSR that can handle DC is ok, most switch on @5V control voltage, e.g. Omron G3NA-D210B-UTU DC5-24)

Relevant configuration items in VictronConnect:

- Settings -> Tx port function -> Tx port function = "Virtual load output".
- Settings -> Load -> Load operation mode = "BatteryLife algorithm" or any mode you prefer.
- Settings -> Streetlight -> Streetlight function = "OFF"

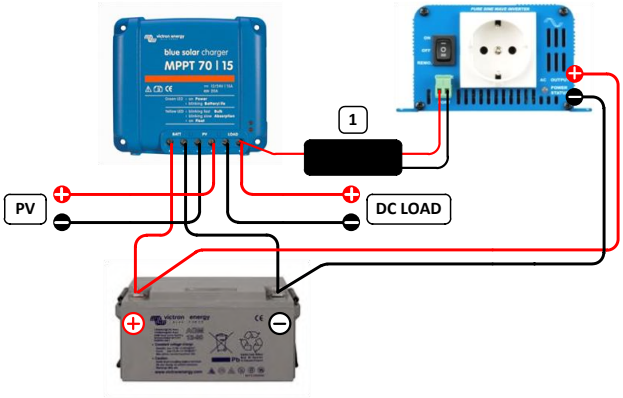
Inverting remote on-off cable (ASS030550100)

The Inverting remote on-off cable is intended for products which require active pull down of the remote control terminal to switch on, while the source signal turns high when switch on is required.

The load output of an MPPT 75/15 or MPPT 100/15, for example, can be used to control an inverter. Some inverters will switch on when the remote control input is pulled high. The remote control input of other inverters must be pulled down to switch on.
Pull down to switch on is needed for the Victron inverters model Phoenix 12/180, 24/180, 12/350 and 24/350. These inverters should be interfaced to the load output of the MPPT 75/15 or MPPT 100/15 with the inverting remote on-off cable.

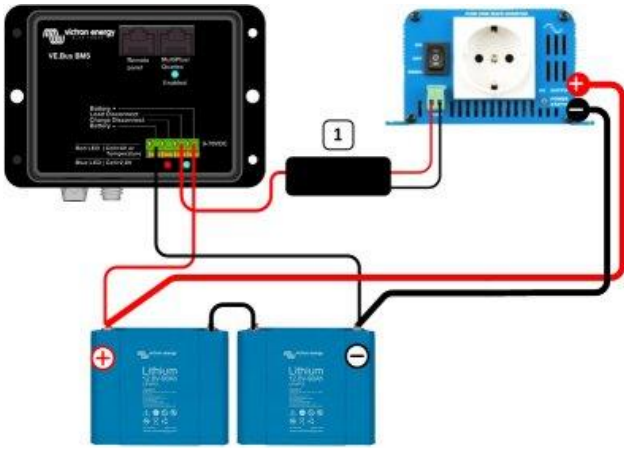
All Phoenix Inverters rated at 3kVA and more and all Multi C's, Multi's and Quattro's also require active pull down to switch on, and the inverting remote on-off cable can be used to interface between the remote on-off terminal and a source signal that turns high when switch on is required.

Example 1:
Inverting remote on-off cable (1) used to interface between the load output of the MPPT 75/15 or MPPT 100/15
and the Phoenix inverters model
12/180, 24/180, 12/350, 24/350.
(The Victron inverters model Phoenix 12/800, 24/800, 12/1200 and 24/1200 require active pull up to switch on and can be controlled by connecting the right side connection of the inverter remote control directly to the load output of the solar charger)

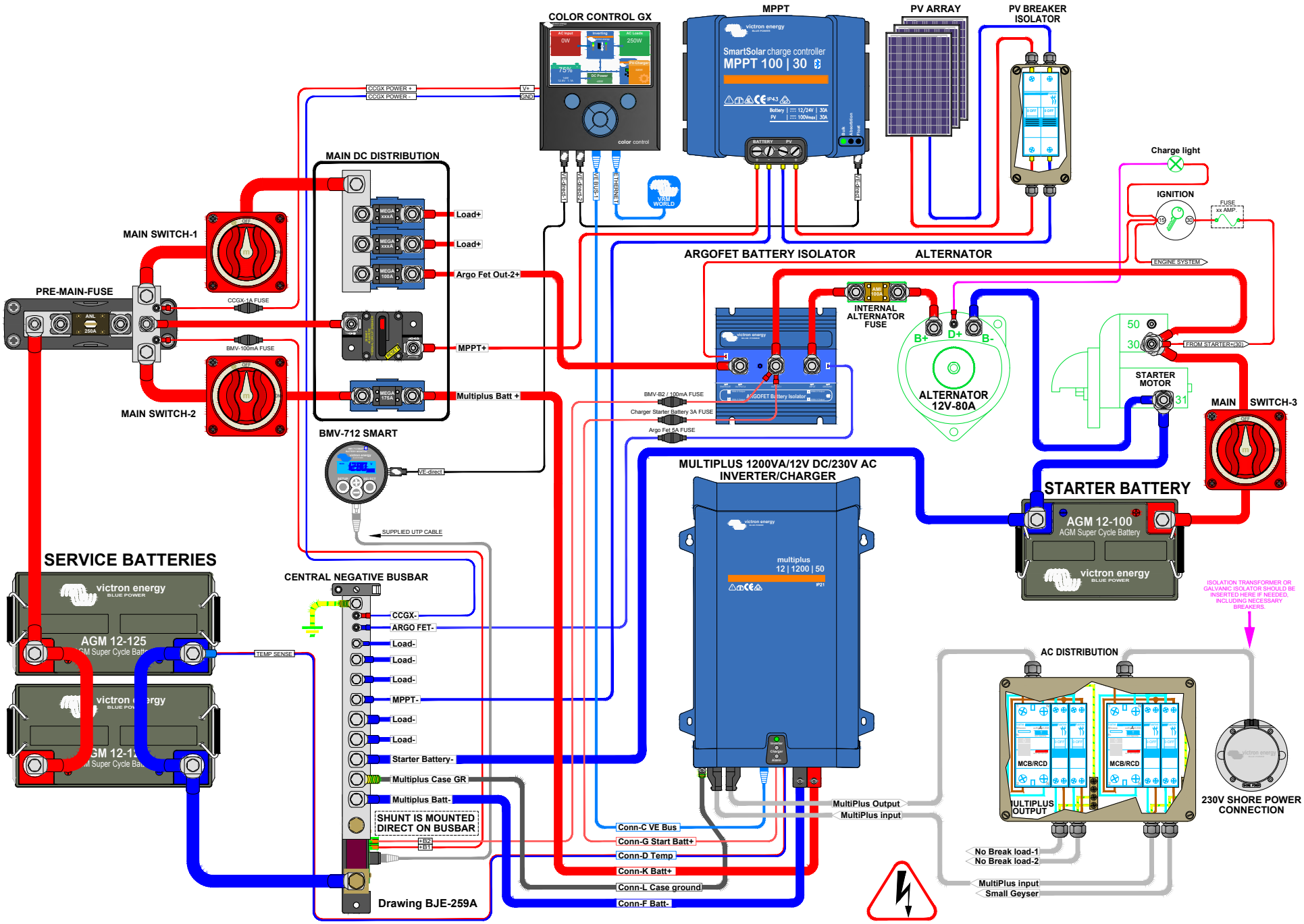


Example2:
Inverting remote on-off cable (1) used to interface between the load disconnect output of the VE.BUS BMS
and the Phoenix inverters model
12/180, 24/180, 12/350, 24/350, 48/350.

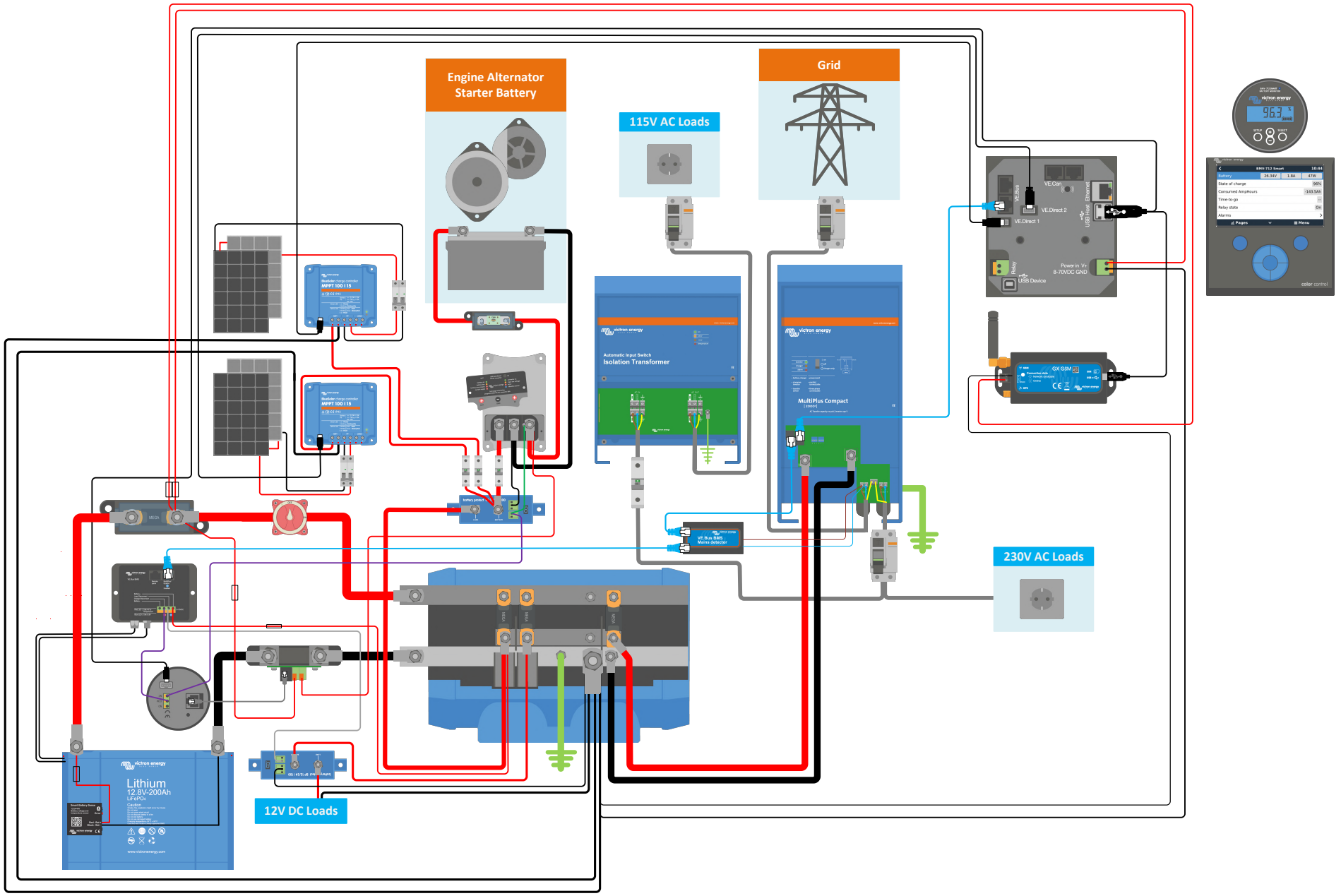
Similarly, the Inverting remote on-off cable can be used to interface between the VE.BUS BMS and Phoenix Inverters rated at 3kVA and more.

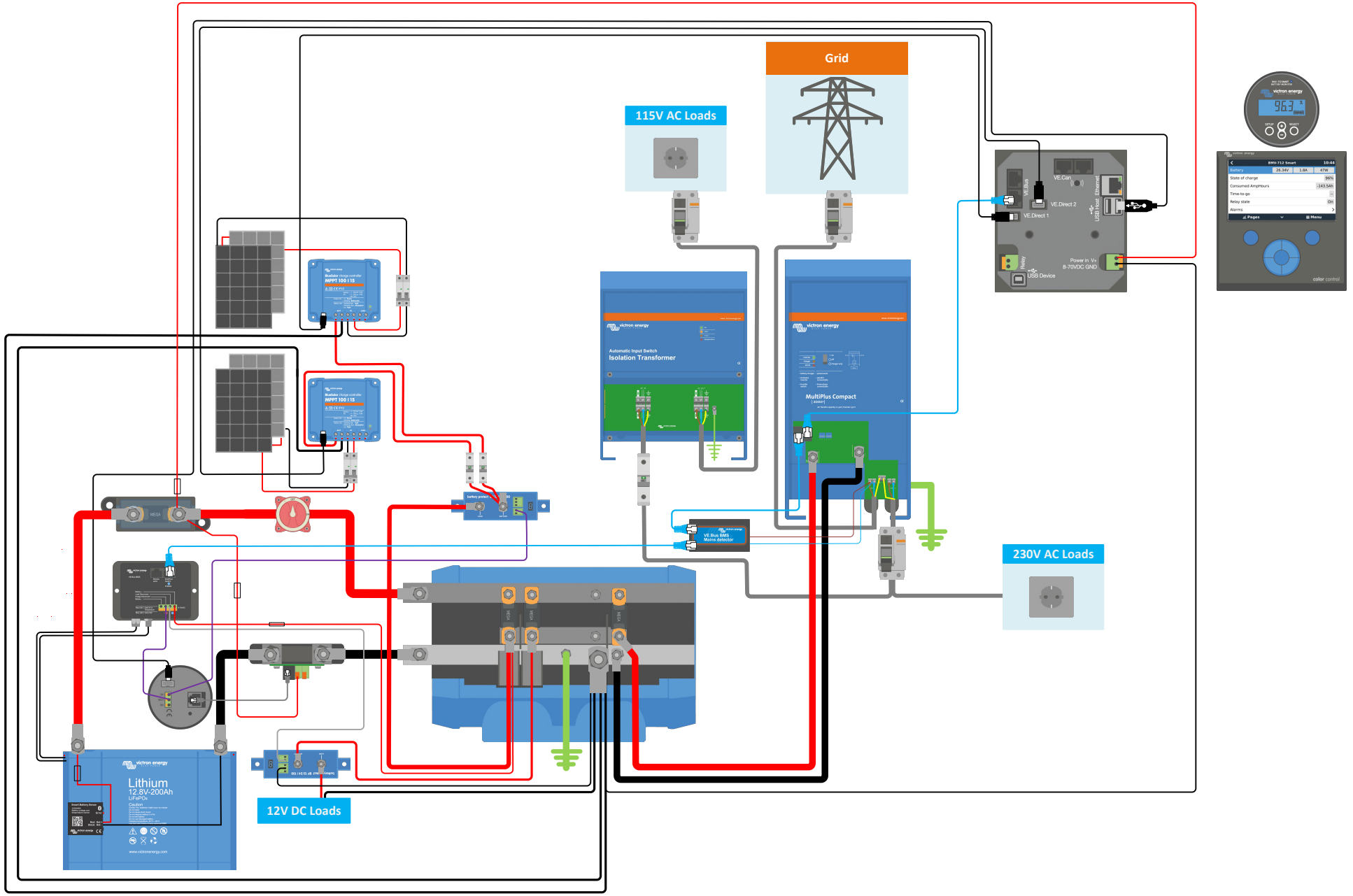


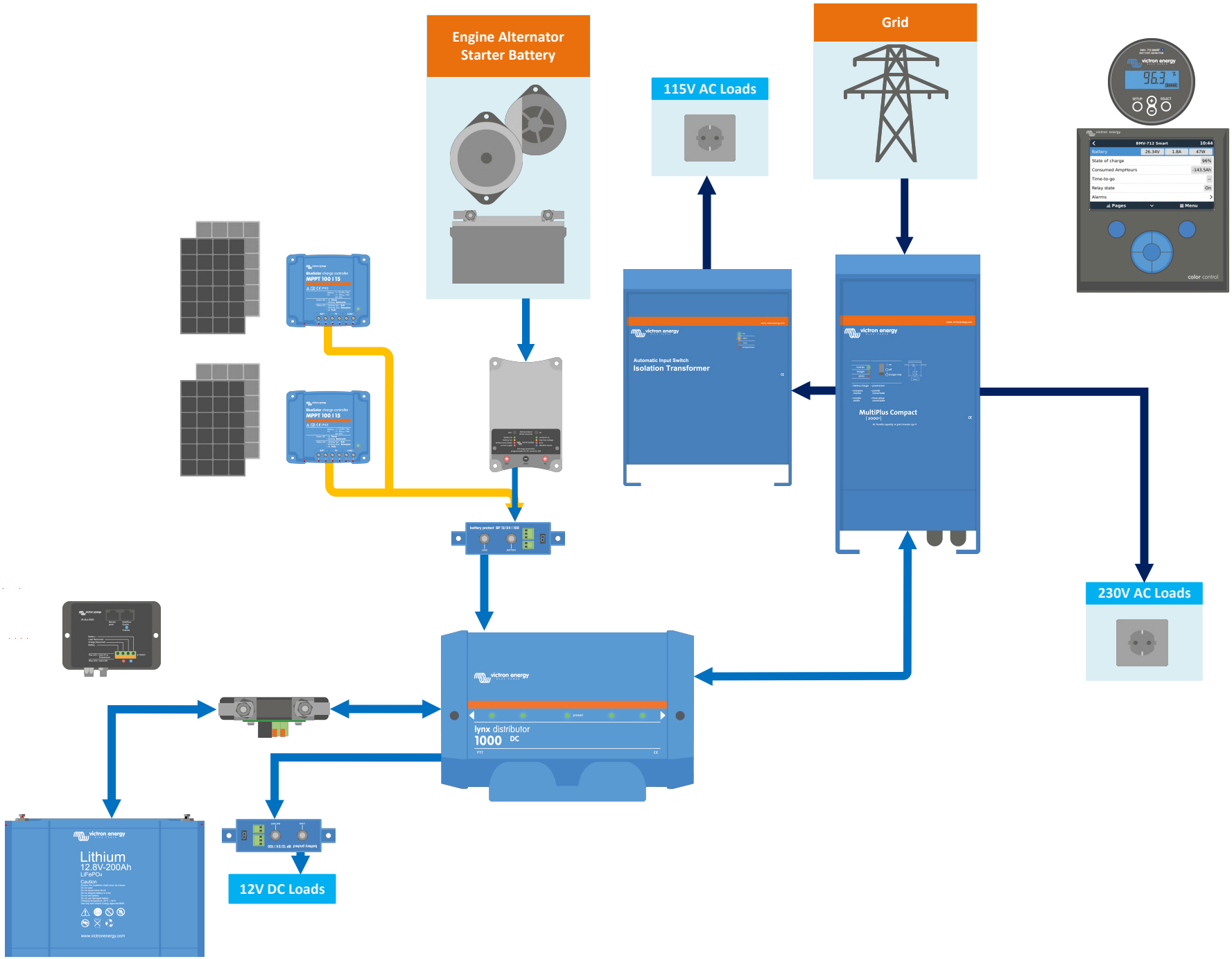
Specifications:
Maximum input voltage: 70 V
Maximum output voltage: 70 V
Minimum input voltage needed for pull down: approximately 6 V
Maximum pull down current:approximately 30 mA (short circuit proof)

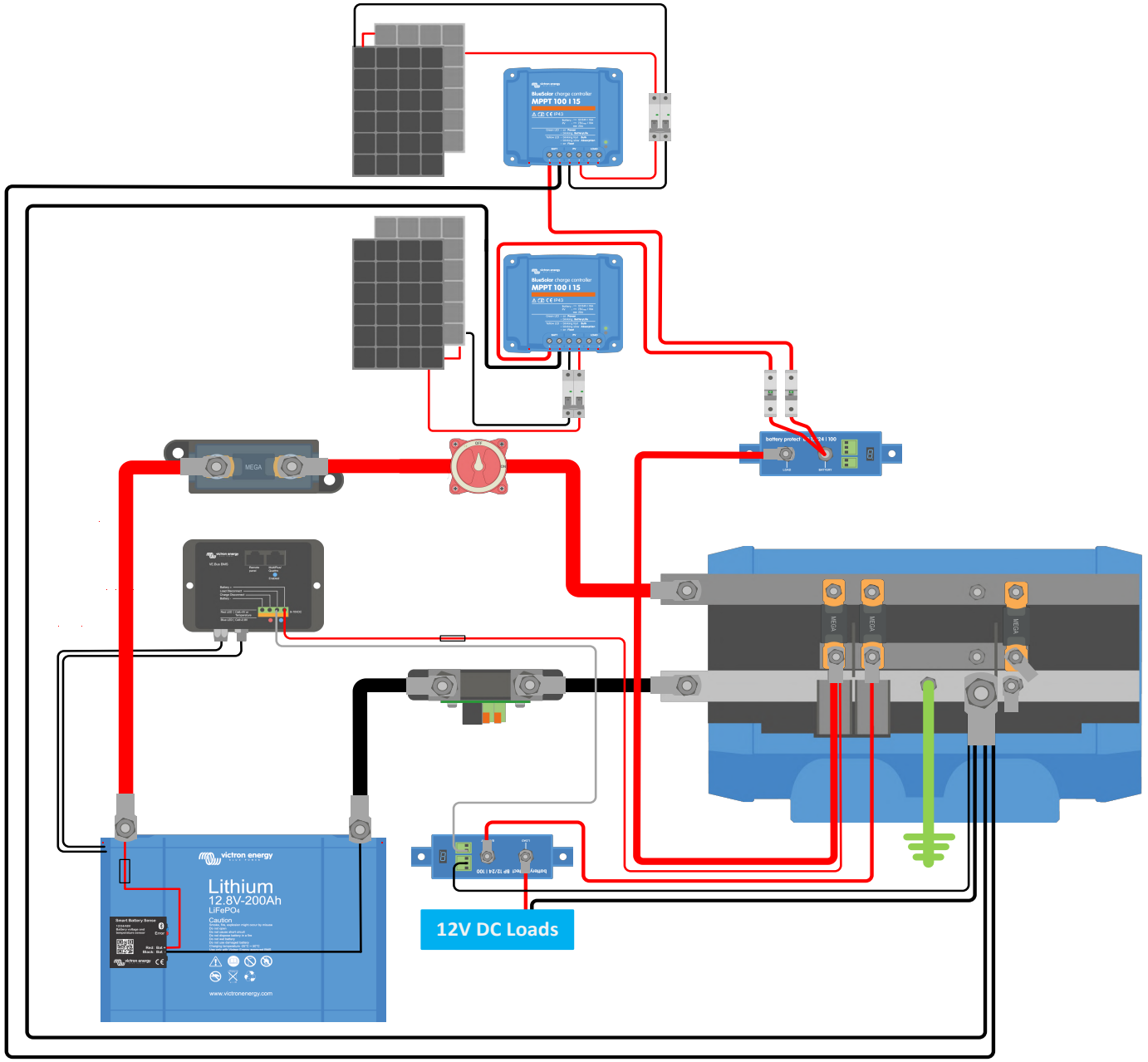


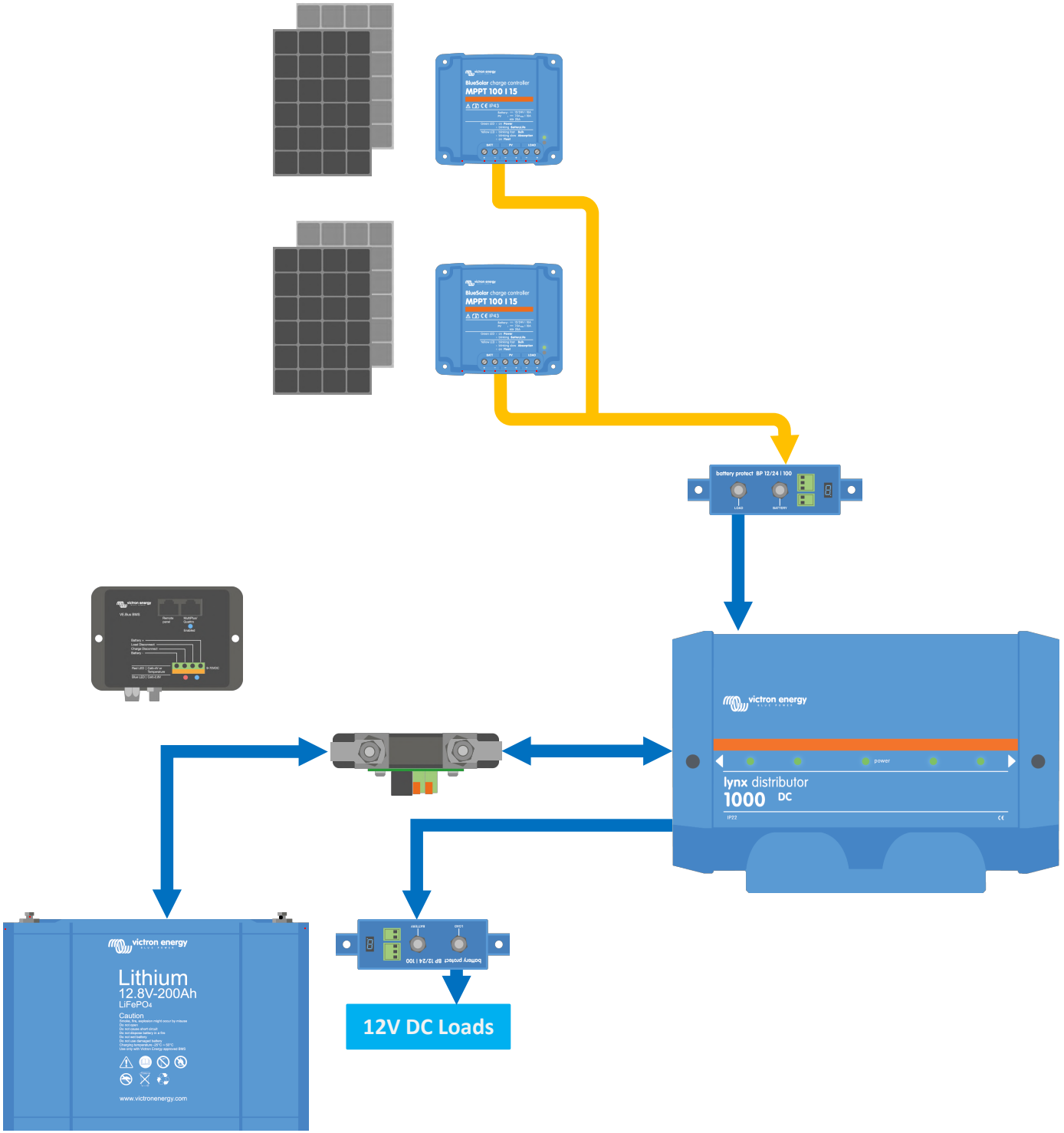
Recommended AC Out cable/breaker size MultiPlus	Recommended DC cable/fuse size MultiPlus	Recommended AC In cable/breaker size MultiPlus	WARNING
With Power assist the MultiPlus can add 1 KW to the output load when needed. Together with the adjustable 16A input this all adds up to the max sum of input and output current of 16+4.3=20.3A. An Earth leakage with breaker or a combination MCB/RCD must be installed on the output. Cable size must be adjusted accordingly.	0-5 m cable length: 35SQmm 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.	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.	230 VOLT IS EXTREMELY HAZARDOUS DO NOT TOUCH ANY LIVE WIRED PARTS OF THE INSTALLATION ! WHEN IN DOUBT, ALWAYS CONSULT YOUR VICTRON DEALER !


Engine Alternator
Starter Battery
115V AC Loads
Grid
Automatic Input Switch
Isolation Transformer
MultiPlus Compact
VE.Bus BMS
Mains detector
VE.Can
VE.Direct 2
VE.Direct 1
USB Host
Ethernet
Power in V+
8-70VDC GND
Relay
USB Device
GX GSM
230V AC Loads
Lithium
12.8V-200Ah
LiFePO4
12V DC Loads


Grid
115V AC Loads
230V AC Loads
12V DC Loads
Automatic Input Switch
Isolation Transformer
MultiPlus Compact
Lithium
12.8V-200Ah
LiFePO4


Engine Alternator
Starter Battery
Grid
115V AC Loads
Automatic Input Switch
Isolation Transformer
MultiPlus Compact
230V AC Loads
lynx distributor
1000 DC
Lithium
12.8V-200Ah
LiFePO4
12V DC Loads


MPPT 100 | 15
MPPT 100 | 15
MEGA
MEGA
MEGA
MEGA
Lithium
12.8V-200Ah
LiFePO4
Caution
www.victronenergy.com
12V DC Loads



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