

INSTALLATION MANUAL

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Safety Guidelines



Work or maintenance on the BSL battery should be carried out by qualified personnel only. Do not attempt to open or dismantle battery cells.



The electrolyte contained in the battery cells is highly corrosive. In the event of any damage to or leakage from the cells, treat contents with care, do not allow contact with exposed skin or eyes.



The terminals of the BSL battery should always be considered live, therefore do not place tools or any other items across the terminals. Do not pierce, short or damage the terminals in any way.



Fire Hazard: Do not discharge battery below specified minimum level as this poses an increased fire risk. Do not attempt to charge a swollen or damaged battery. In the event of fire, a CO₂ or Dry Powder extinguisher should be used. Class D extinguishers are not suitable.



Dispose of batteries through the proper local regulations. Not suitable for regular refuse/recycling

ANATOMY OF BSL BATTERY

i	j	k	I	m	n	0	р
•	0		Pt	P-	3 0 0		
	SSL3ATT*					YNBNE*	
No Ma Ma Ma Por	Mito's collegae	DON'T DISASSEMBLE DON'T THROW INTO FIRE DON'T SHORT CIRCUIT DON'T HEAT ABOVE 60'C AVIDI MECHANICAL SHOCK RISK OF FIRE EXPLOSION OR BURN	RESET DIP	DRY R5485 CA	R5232 R5485		 Image: A state of the state of
	Ε 🔬 🖭 υ	Maskas Marcalon or BURN	RUN ALM	soc		OFF	
8	8						•
			/				
а	b	С	d	е	f	g	h

- a) Power indicator light
- b) Run light (battery activity)
- c) Alarm indicator light
- d) State of charge indicator lights
- e) Reset switch (BMS Power button)
- f) Dip switches for parallel connection
- g) Dry Contacts (mostly unused)
- h) RS485 Left port (Port 1)
- i) CAN Port (Port 2)
- j) RS232 Port (Unused)
- k) RS485 Right Ports (Ports 4 & 5)
- I) Circuit breaker (terminal power)
- m) Positive terminal
- n) Negative terminal
- o) Carry handles
- p) Mounting holes

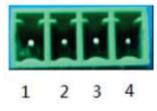
BATTERY SETUP

• A VE.Can to CAN-bus BMS "<u>Type B</u>" cable is required for CAN-Bus communication between the BSL battery and the Victron GX device. Some inverters will use different cable configuration, please check this with inverter suppliers.

Function	Victron VE.Can Side (GX)	Battery side
GND	Pin 3	Pin 2
CAN - L	Pin 8	Pin 5
CAN - H	Pin 7	Pin 4

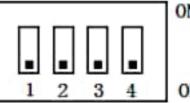
- A Battery Monitoring Device (Victron BMV/Smartshunt) is not required as State of Charge (SOC) is sent to the GX device via the CAN-Bus cable.
- A maximum of 15 batteries can be connected in parallel. Each battery will require a unique binary address which can be setup via the dipswitches located on the front of the battery. Please see appendix 2 for the dipswitch settings.
- The Master battery is the battery with <u>dipswitch 1</u> set to <u>on</u> and with the Can-Bus cable connected to the CAN port (port 2). No terminator is required for the battery.
- When installing more than one battery in parallel, a standard RJ45 patch network cable will be required for inter-battery communication. These cables will need to be connected to port 4 or 5 between all the connected batteries. The ports are paralleled therefore any port can be used for in or out connection. Please see appendix 2.
- The recommended battery cable sizes from the batteries (going towards inverter) in parallel are as follows:
 - 1 battery: 35 mm²
 - 2 batteries: 50 mm²
 - 3 batteries: $70 \text{ mm}^2 \text{ or } 2 \times 35 \text{ mm}^2$
 - 4 batteries: $95 \text{ mm}^2 \text{ or } 2 \times 50 \text{ mm}^2$
- It is recommended to make use of a common rail busbar when more than 4 batteries are to be installed. All positive cables running between the battery and busbar must be the same length and all negative cables must be the same length. The batteries should be evenly grouped where possible.
- Port 1 (RS485) and port 3 (RS232) are used for programming and retrieving information only and must be left open.
- Dry Contacts are mostly unused, but for communication with some non-smart systems please see the table below. Working current should be less than 2A, mainly to connect with an external indicator light or buzzer.

PIN1 to PIN2	Always open, will close with low battery signal
PIN3 to PIN4	Always Open, will close with fault/protection signal.



APPENDIX 2: DIP SWITCH SETTINGS

ON definition of the switch is as follows.



OFF

Note		Note	
	#4	#4	
	OFF	OFF stand-alone use	
	OFF	OFF master Pack	
t	OFF	OFF Auxiliary Pack	1
	OFF	OFF Auxiliary Pack	2
T	OFF	OFF Auxiliary Pack	3
T	OFF	OFF Auxiliary Pack	4
Γ	OFF	OFF Auxiliary Pack	5
	OFF	OFF Auxiliary Pack	6
	ON	ON Auxiliary Pack	7
	ON	ON Auxiliary Pack	8
	ON	ON Auxiliary Pack	9
	ON	ON Auxiliary Pack	LO
	ON	ON Auxiliary Pack	1
Auxiliary Pack12		ON Auxiliary Pack	2
	ON	ON Auxiliary Pack	13
	ON	ON Auxiliary Pack	4

BATTERY SETUP EXAMPLE

(VICTRON GX DEVICE)

- 1. The VE.Can to CAN-bus BMS Type B cable needs to be connected to the VE-Can port on the GX device and the second unused VE.Can port needs to be terminated with the Victron blue terminator. Ensure that the cable is marked CCGX at the end.
- 2. Press the enter button on the GX device. This should take you to the device list page. Scroll down to settings, press enter, and scroll to services and press enter again. Navigate to the CAN settings and change the CAN speed from 250 KB to 500 KB.
- 3. Scroll to DVCC and select Switch DVCC on. Flag SHARED VOLTAGE SENSE and CHARGE LIMIT. Set CCL to 50 amps/battery.

<	DVCC	্ল 08:38	hotkeys	
DVCC		Forced on		
Limit charge c	urrent			
Maximum cha	rge current	100A	esc ←	
SVS - Shared v	oltage sense	Forced off	↑	
STS - Shared t	emperature sense	Forced off		
SCS - Shared o	urrent sense			
<u>네</u> Page	es ^	≡ Menu		

- 4. Navigate back to the device list and the BSL battery should appear on the device list.
- 5. Select the BSL battery set the parameters as follows:
 - Charge Voltage 54.5V
 - Charge Current Limit: 80A per battery
 - Discharge Current Limit: 150A per battery.
- 6. Should the battery be appearing under a different name, please redetect the battery in the menu.

INVERTER SETTINGS (VE.CONFIG3) 1. General Tab

🕦 VE Configure 3 (MultiPlus	18/3000/35-2x50) —		×
File Port selection Target D	efaults Options Special Help		
MultiPlus	General Grid Inverter Charger Virtual switch Assistants System frequency		
viction Energy	Changes require reset	W	-n,

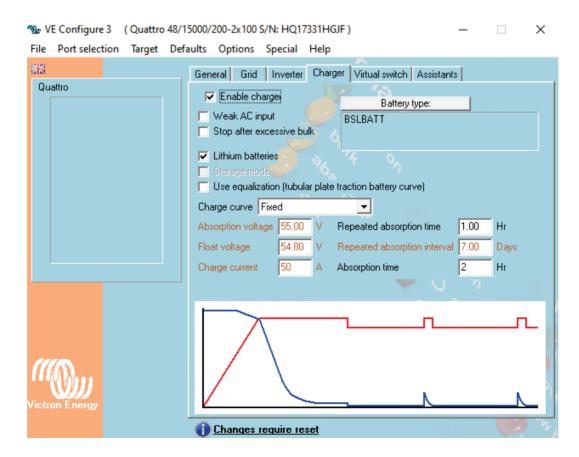
2. Grid Tab

NE Configure 3 (Qu	uattro 48/15000/200-2x100 S/N:	HQ17331HGJF)	_	×
File Port selection Ta	rget Defaults Options Spe	ecial Help		
3명 Quattro	General Grid Im Grid code selection	verter Charger Virtual switch Assi	stants	
	Country / grid code Other: n	standard not compliant to any grid code standard		•
		tion AC input 1 Type B (safe) 💌 tion AC input 2 Type B (safe) 💌		
Victron Energy	Transfer switch Accept wide i AC low disconnec AC low connect UPS function	207 V AC high disconnect	260 V 265 V	
	() <u>Changes requi</u>	ire reset		-h

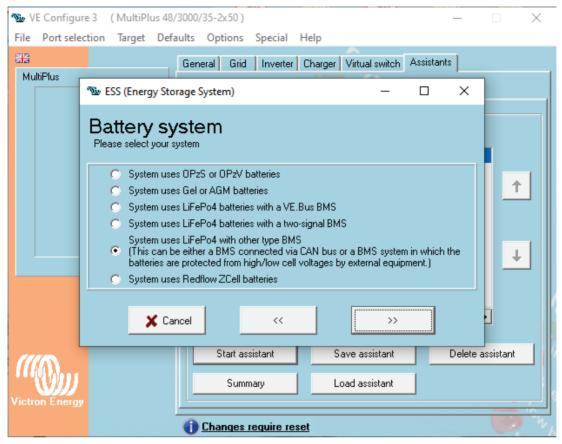
3. Inverter Tab

Ne Configure 3 (Quattro 48/	5000/200-2x100 S/N: HQ17331HGJF) — 🗌 🗙
File Port selection Target Def	ults Options Special Help
	General Grid Inverter Charger Virtual switch Assistants
Quattro	Inverter output voltage 20 V Ground relay DC input low shut-down 48.00 V DC input low restart 52.50 V DC input low pre-alarm 49.00 V
	Do not restart after short-circuit (VDE 2510-2 safety) enable AES Start AES when load lower than 138 W Stop AES when load 23 W higher than start level.
(((Q)))	AES type Methods 23 whigher than statutevel. AES type modified sine wave search mode // 18//
Victron Energy	Changes require reset

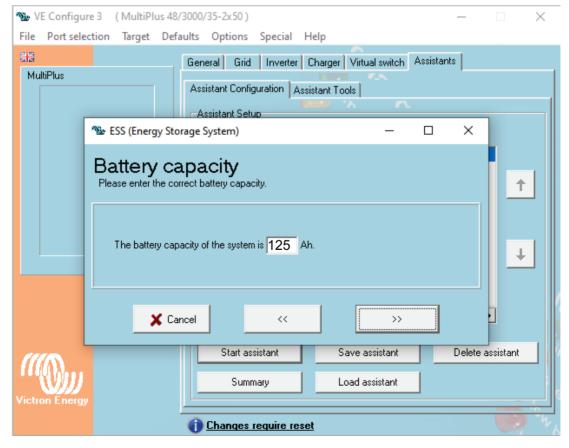
4. Charger Tab



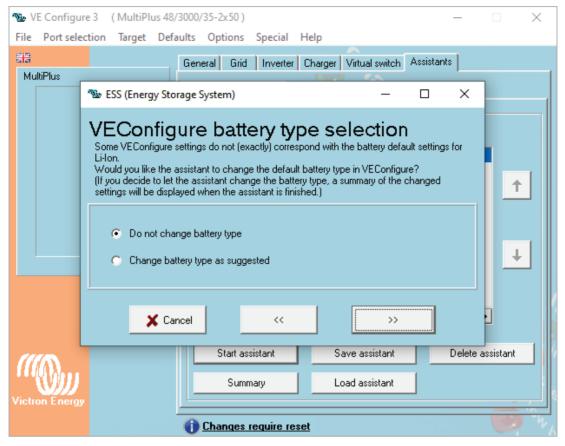
5. Assistant Tab (a)



5. Assistant Tab (b)



5. Assistant Tab (c)



5. Assistant Tab (d)

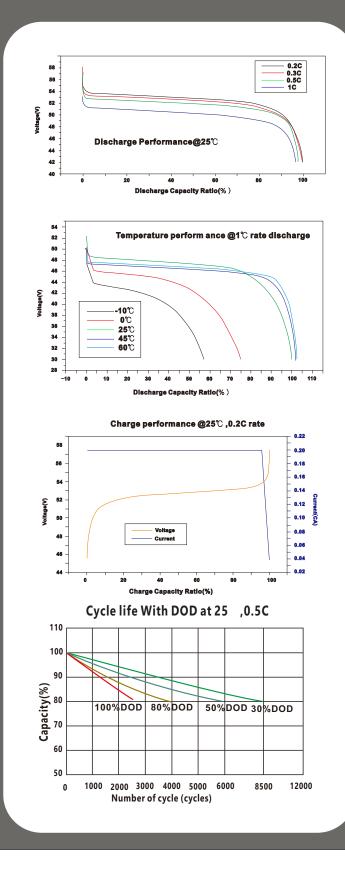
NE Configur	e 3 (MultiPlus 48/3000/35-2x50)	-	\times
File Port selec	tion Target Defaults Options Special Help		
	🐝 ESS (Energy Storage System) — 🗌	X	
MultiPlus	Sustain voltage When batteries are left in a deep discharged state during a prolonged period, there is a severe chance that they will be damaged. To prevent this, the sustain mechanism will kick in and keep the batteries at a minimum voltage by charging them with a small current whenever necessary. For more info, refer to the controlling depth of discharge chapter of the Energy Storage manual. Sustain voltage 50.00		↑
	Cancel < >> Start assistant Save assistant I Summary Load assistant I	Delete assi	stant
- interesting y	Changes require reset	(2

5. Assistant Tab (e)

ዄ VE Configu	🥸 ESS (Energy Storage System) − 🗆 🗙	
File Port sele	Dynamic cut-off This assistant uses so called dynamic cut-off. That is, the 'DC input low shut-down' level depends on the battery discharge current. There will normally be no need to adjust the curve used for this! Just accept below values which are already optimized for the selected battery type. In rare cases it might be advantageous to modify the curve. This can be done by changing the values below. Note: * Because dynamic cut-off is used, the 'DC input low shut-down'' related parameters in VEConfigure are ignored.	+
	X Cancel << >>	
Victron Energy	Summary Load assistant	assistant
	() Changes require reset	C. W.

5. Assistant Tab (f)

💁 VE Configur	e 3 (MultiPlus 48/3000/35-2x50)	_	
File Port selec	tion Target Defaults Options Special Help		
	🐝 ESS (Energy Storage System) — 🗌	×	
MultiPlus	Restart offset When inverting is stopped due to low battery, the battery voltage must rise above a conserved before inverting is allowed again. This level is determined as an offset to cut-off(0). (cut-off(0) is the cut-off voltage corresponding with a DC discharge of 0A.) Note: This same value is used as an offset to the cut-off voltage to determine the low bat Pre-Alarm indication) Inverting is allowed again when voltage rises 1.20 V above cut-off(0).	ertain	↑
Victron Energy	Cancel << >> Start assistant Save assistant Summary Load assistant	Delete as	ssistant
	Changes require reset		











SPECIFICATIONS	
Nominal Voltage	51.2V (16S)
Nominal Capacity	100 AH
Energy	5120 WH
Efficiency	99%
Self Discharge	<1% per Month
DISCHARGE SPECIFICATIONS	
Max. Discharge current	105A
Max. continues Discharge current	90A
RecommendDischarge current	90A
Voltage at end ofDischarge	47-48V
TEMPERATURE SPECIFICATIONS	
Discharge Temperature	(-20~60℃)
Charge Temperature	(0~45℃)
Storage Temperature	(-20~55℃)

MECHANICAL SPECIFICATIONS		
Dimensions (L x W x H)	442*520*177MM	
Weight	45KG	
Case Material	Steel	
Cell Type	Prismatic	
Chemistry	LiFePO4	
CHARGE SPECIFICATIONS		
Recommended Charge Current	50A	
Maximum Charge Current	80A	
Recommended Charge Voltage	55V	
COMPLIANCE SPECIFICATIONS		
Certifications	CE (battery)	
	UN38.3 (battery)	
	ROHS2.0 (cells)	
Shipping Classification	UN 3480, CLASS 9	

www.lithium-battery-factory.com

Certifications Applicable to the Design and Manufacture of Lithium Iron Phosphate Batteries

