48-VOLT EXAMPLE SYSTEM (4x BATTERY) - NATIONS SECONDARY ALTERNATOR / WAKESPEED WS500 REGULATOR / VICTRON SMART LITHIUM BATTERIES

VERSION 2 - DECEMBER 2023

TERMINAL BLOCK DETAIL/BLOWUP (ZOOM IN ON PDF)

lynx smart BMS 500 IP22 CE

VE.CAN TO CERBO GX

VE.CAN TERMINATOR

M8 BATTERY CABLE TO BATTERIES

5A FUSE SPLICED INLINE

OPTIONAL 'ATD' SIGNAL TO SMART BATTERYPROTECT

DC - SUPPLY TO CERBO GX

5-CONDUCTOR WAGO LEVER LOCK CONNECTOR TO DISTRIBUTE THE 12VDC + FROM THE AUX TERMINAL TO VARIOUS RELAYS

DC + SUPPLY TO CERBO GX

THE REMOTE TERMINALS ON THE LYNX BMS CAN BE WIRED TO A TOGGLE SWITCH AS SHOWN TO MANUALLY OPEN/CLOSE THE CONTACTOR IN THE BMS TO TURN THE SYSTEM POWER ON/OFF MUCH LIKE A TRADITIONAL MAIN DISCONNECT SWITCH BUT WITH THE *ADVANTAGE* OF COMMUNICATING SUCH A DISCONNECT WITH THE WAKESPEED PRIOR TO THE DISCONNECT HAPPENING THUS PREVENTING DISASTEROUS LOAD DUMP SITUATIONS.

THIS IS ONLY PART OF THE INFO! BE SURE TO CHECK OUT THE BLOG POST THAT ACCOMPANIES THIS POST AND SAVE A TON WITH THE PRODUCT BUNDLE FROM VANLIFE OUTFITTERS THAT INCLUDES EVERYTHING YOU NEED AT THE VERY BEST PRICING AND WORLD-CLASS SUPPORT.

M8 BATTERY CABLES FROM BATTERIES TO BMS

SERIES SET #1

Note: the Blue Sea ML Link is perfectly sized for this bridge wire if batteries are against eachother.

200A MRBF/TERMINAL FUSE

SERIES SET #2

Note: the Blue Sea ML Link is perfectly sized for this bridge wire if batteries are against eachother.

200A MRBF/TERMINAL FUSE

2x - SETS OF SERIES BATTERIES THEN WIRED IN PARALLEL TO SYSTEM

- Each set is 2x 24V/200Ah Smart Lithium batteries wired in series. 25.6 nominal voltage per battery, 51.2 nominal voltage in series
- The 2X series sets are wired in parallel to the system at the Lynx Smart BMS
- Each battery: 9.3" tall x 25.6" width x 6.4" deep
- Each "set" in series is a max of 2x batteries
- with a max of 5 "sets" in parallel
- Recommended continous discharge: ≤400A, recommended continous charge ≤200A

Note: each battery should be pre-charged individually before installing into system: https://bit.ly/pre-charge-batteries

LYNX SMART BMS

LYNX DISTRIBUTOR (SHOWN WITH COVER OFF)

1/0 AWG

1/0 AWG

RING DATA CABLE

6 AWG

CHASSIS GROUND

MULTIPLUS II 48/3000/35 INVERTER/CHARGER

MultiPlus-II 48 | 3000 | 35

BLUE SEA 8077 30A BREAKER

AC MAIN 30A

10/3 WIRE

FURRION 30A SHORE POWER INLET

HDMI VIDEO/USB POWER FOR TOUCH 50/70 SCREEN

10/3 WIRE

1/0 AWG

1/0 AWG

6/3 WIRE

2/0 AWG

5A INLINE FUSE

WAKESPEED DC+ POWER SUPPLY

EXTRA FUSED LOCATION COULD BE USED FOR OTHER 48-VOLT LOADS SUCH AS A 48-VOLT AIR CONDITIONER

LITTELFUSE MIDI FUSE BOX (SHOWN WITH COVER OFF)

2x 48|12 - 30 DC-DC CONVERTER
STEP DOWN 48-VOLT POWER TO 12-VOLT FOR DC LOAD CENTER

isolated DC/DC converter Orion-Tr 48 | 12 - 30

isolated DC/DC converter Orion-Tr 48 | 12 - 30

10 AWG

10 AWG

CERBO GX

WAKESPEED TO VICTRON CAN CROSSOVER CABLE
BLUE SIDE TO CERBO GX VE.CAN PORT
BLACK SIDE TO WAKESPEED CAN PORT

THE WAKESPEED REGULATOR SHOULD BE LOCATED WITH THE REST OF YOUR MAIN SYSTEM COMPONENTS LIKE THE LYNX DISTRIBUTOR. TYPICALLY THIS IS OVER A REAR WHEEL WELL IN A VAN. DO *NOT* EXTEND THE RED AND BLACK WIRES IN THE WAKESPEED VAN HARNESS. THAT "LEG" IS ABOUT 27' LONG. IF YOU NEED FURTHER DISTANCE, PLEASE USE THE "STANDARD HARNESS" WHERE THERE ARE SEPARATE WIRES FOR POWER AND VOLTAGE SENSING (RED/BLACK AND RED/YELLOW STRIPE AND BLACK/YELLOW STRIPE RESPECTIVELY).

NATIONS 48-VOLT 100 AMP ALTERNATOR

POSITIVE WIRE TO B+ TERMINAL ON ALTERNATOR

2/0 AWG

NEGATIVE WIRE TO B- TERMINAL ON ALTERNATOR CASE

2/0 AWG

5A FUSES SPLICED INTO GREY/PURPLE WIRES

BLACK WIRE: TEMPERATURE SENSOR FROM WAKESPEED HARNESS WITH MATCHING/MATING CONNECTOR

BLUE (FIELD) WIRE & YELOW (STATOR) WIRES FROM ALTERNATOR LEG

WS500 ADVANCED ALTERNATOR REGULATOR

WAKESPEED

CANbus CANbus HARNESS

WAKESPEED TERMINATOR

WAKESPEED "VAN HARNESS"

WHITE "FEATURE IN" WIRE SHOWN AS BLACK-DASHED

POWER SYSTEM LEG

ALTERNATOR LEG

IGNITION LEG

OPTIONAL TOGGLE SWITCH ON THE IGNITION CONNECTION. ADDING THE "OFF" POSITION ALOWS YOU TO DISABLE CHARGING FROM THE SECONDARY ALTERNATOR. IF YOU HAVE YOUR BATTERIES DISCONNECTED USING THE SELECTION/DISCONNECT SWITCH YOU MUST ALSO DISABLE THE SECONDARY ALTERNATOR TO PREVENT DAMAGE TO THE ALTERNATOR.

IGNITION CONNECTION

THIS BROWN IGNITION TRIGGER CABLE INCLUDED IN THE WAKESPEED REGULATOR HARNESS IS APPROX. 20" IN LENGTH. THIS WIRE SHOULD BE FUSED BUT IS OFTEN PROTECTED BY THE CIRCUIT YOU'RE CONNECTING INTO.

NOTE THIS RED POWER SUPPLY WIRE SHOULD BE CONNECTED TO THE SAME FUSED TERMINAL ON THE LYNX DISTRIBUTOR THAT THE ALTERNATOR CHARGING OUTPUT IS CONNECTED TO AND CAN BE 48V.

VICTRON ENERGY SMART SOLAR CONTROLLERS FOR 48-VOLT ADVENTURE VAN SYSTEMS
- 100/20
- 150/35
- 150/40
- 150/60-tr

SmartSolar charge controller MPPT 150 | 35

10 AWG CASE GROUND

VE.DIRECT TO CERBO GX

10 AWG

SOLAR DISCONNECT

ENTRY GLAND

4x 200 WATT RICH SOLAR 24V PANELS (RS-M200D)
2X PAIRS IN SERIES THEN WIRED IN PARALLEL
~70-100 volts input voltage, ~14-17 amps charging output @ 48-volt

10 AWG MC4 SOLAR WIRING

FURRION COMBO 120VAC AND 12VDC LOAD CENTER

50A SINGLE POLE MAIN BREAKER

15A OR 20A TANDEM BREKERS FOR 120VAC BRANCH CIRCUITS

12VDC FUSES FOR BRANCH CIRCUITS

2X 6AWG WIRES CONNECT TO 12VDC POSITIVE TERMINALS

2X 6AWG WIRES CONNECT TO 12VDC NEGATIVE TERMINALS

WIRE GAUGES ARE EXAMPLES ONLY. REFER TO ABYC AMPACITY CHARTS TO SIZE YOUR WIRES CORRECTLY BASED ON YOUR SYSTEM'S SPECIFIC CONDITIONS

THIS IS NOT ELECTRICAL ADVICE. THIS IS AN ILLUSTRATION OF ELECTRICAL SYSTEMS THAT WE HAVE USED IN OUR VANS. ALWAYS DO YOUR OWN RESEARCH AND USE THIS INFORMATION AT YOUR OWN RISK.

WARNING: 48-VOLT POWER SYSTEMS REQUIRE ADDITIONAL SAFETY AND CARE COMPARED TO LOWER VOLTAGE (12-VOLT, ETC.) SYSTEMS.

DO NOT ATTEMPT TO INSTALL A 48-VOLT POWER SYSTEM UNLESS YOU ARE CONFIDENT IN YOUR KNOWLEDGE AND SKILLS AND HAVE A QUALIFIED INDIVIDUAL INSPECT YOUR SYSTEM PRIOR TO USE.

USE EXTREME CAUTION TO PREVENT A DISCONNECT OF THE CHARGING CURRENT FROM THE NATIONS ALTERNATOR TO YOUR BATTERIES. AN UNMANAGED DISCONNECT/LOAD DUMP WILL CAUSE A MASSIVE (~400-VOLT) VOLTAGE SPIKE THAT IS EXTREMELY DANGEROUS AND WILL SEVERLY DAMAGE YOUR EQUIPMENT.

ONLY USE WAKESPEED APPROVED BATTERIES THAT HAVE A CAN DATA CONNECTION.

VANLIFE OUTFITTERS

48-VOLT SYSTEM FOR MASSIVE POWER!

SPECIAL BUNDLE PRICE

BEST PRICING!

FAST & FREE GROUND SHIPPING

SUPER FAST CHARGING FROM A DEDICATED SECONDARY ALTERNATOR

NO SALES TAX TO MOST STATES

WORLD-CLASS SERVICE & SUPPORT

SCAN FOR DETAILS

Pricing and offers subject to change.