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

VERSION 2 - APRIL 2025

LYNX SMART BMS NG MULTICONNECTOR (TERMINAL BLOCK) DETAIL (ZOOM IN ON PDF)

5-CONDUCTOR WAGO LEVER LOCK CONNECTOR OR SMALL FUSE BLOCK TO DISTRIBUTE THE 'DVDC +' FROM THE AUX TERMINAL TO VARIOUS RELAYS

DC + SUPPLY TO CERBO GX

OPTIONAL 'ATD' SIGNAL TO SMART BATTERYPROTECT

5 AMP FUSE SPLICED INLINE

AUX ATC ATD RELAY REM
1 2 3 4 5 6 7 8 9 10 11 12 13

VE.CAN / RJ45 CABLE TO CERBO GX

VE.CAN DATA TERMINATOR

M8 BATTERY CABLES FROM BATTERIES

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.

GREY R310 CABLE TO LYNX DISTRIBUTOR (INCLUDED WITH DISTRIBUTOR)

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

200A MRBF/TERMINAL FUSE

DC + SUPPLY TO CERBO GX

1/0 AWG BATTERY CABLES

VICTRON ENERGY 48v 100Ah SMART LITHIUM NG BATTERIES
- Each battery: 9.25" tall x 25.5" width x 6.38" deep
- Each battery recommended continous discharge: ≤100A, recommended continous charge ≤100A.
- 51.2 nominal voltage

LYNX POWER IN M10 (SHOWN WITH COVER OFF)

LYNX SMART BMS NG

LYNX DISTRIBUTOR M10 (SHOWN WITH COVER OFF)

GREY WIRE FROM BMS DATA CABLE INCLUDED WITH LYNX DISTRIBUTOR

CHASSIS GROUND

MULTIPLUS II 48/3000/35 INVERTER/CHARGER

BLUE SEA 8077 30A BREAKER

10/3 WIRE

FURRION 30A SHORE POWER INLET

HDMI VIDEO/USB POWER FOR TOUCH 50/70 SCREEN

6 AWG

5A INLINE FUSE

WAKESPEED DC+ POWER SUPPLY

1/0 AWG

2/0 AWG

6/3 WIRE

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

Orion-Tr 48 | 12 - 30

10 AWG

CERBO GX

WAKESPEED TO VICTRON CAN CROSSOVER CABLE CONNECTS WAKESPEED CAN PORT TO 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 PRO

WAKESPEED

WAKESPEED "VAN HARNESS"

WAKESPEED TERMINATOR

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 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!

SUPER AWESOME BUNDLE PRICE

FAST & FREE GROUND SHIPPING

SUPER FAST CHARGING FROM A DEDICATED SECONDARY ALTERNATOR

NO SALES TAX IN MANY STATES

WORLD-CLASS SERVICE & SUPPORT

SCAN FOR DETAILS

Pricing and offers subject to change.