



This guide is designed to assist you with the wiring and CANbus connection between the Wakespeed WS500 Alternator Regulator and Lithionics Battery® NeverDie® BMS equipped LiFePO4 battery systems. Please ensure that the WS500 regulator has the most up-to-date firmware revision and Lithionics battery profile from [www.wakespeed.com/technical.html](http://www.wakespeed.com/technical.html).

NeverDie enabled Lithionics batteries are available with two CANbus connection styles, depending on application. In automotive/RV applications, the NeverDie equipped battery or external BMS unit is normally equipped with the Delphi Aptiv automotive-type connector. In marine applications, the battery or BMS is likely to be equipped with a 5-pin circular M12 connector. Ensure that the Wakespeed wiring harness you order is equipped with the appropriate connector, based on your batteries.

#### Required Components:

- WS500 Alternator Regulator – Updated to the current firmware revision and configured with the Lithionics Batteries charging profile as specified for internal or external Never-Die BMS
- CAN augmented WS500 harness, such as the WS500/PH-CAN
- Wakespeed Deutsch to Delphi/Aptiv wiring adapter, Wakespeed Deutsch to 5-Pin M12 cable adapter
- An appropriate CAN terminator, based on the wiring adapter used. *See the last page of this document for a list of specific part numbers, based on installation type.*

In Lithionics Battery systems, key information such as battery status, battery temperature, battery voltage and current requirements are provided by the BMS to the Wakespeed regulator via the CANbus connection, so separate battery temperature sensors and current sensing via a separate current shunt are not required.

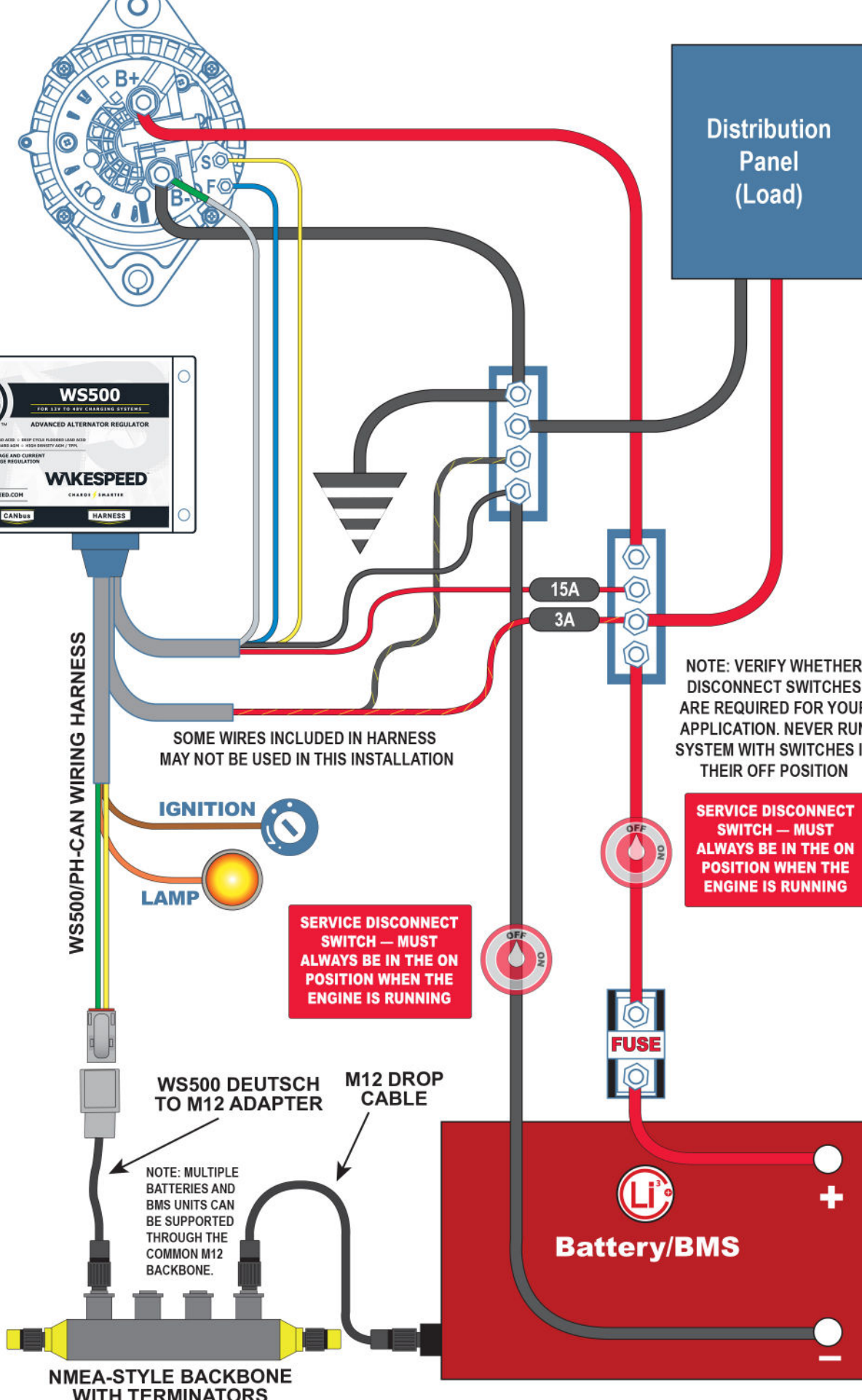
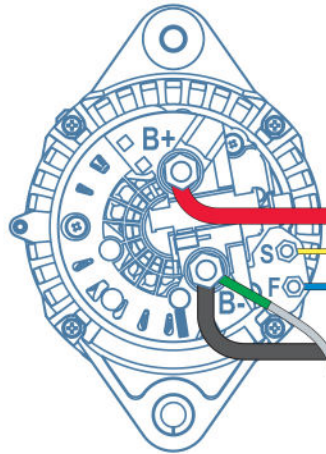
Note that Wakespeed/Lithionics systems are capable of supporting multiple battery banks and BMS units. Wakespeed's adapter for Delphi Aptiv connections can be chained to support up to three batteries or BMS units. In larger systems, a backbone can be created to support multiple regulators and up to ten batteries or BMS units.

In any CANbus networked system, proper termination at each end of the network is required. See illustrations included in this document for examples.

---

**IMPORTANT:** The information is provided for reference, and is intended to provide guidance required to tailor the configuration profile to your system. Please refer to the Wakespeed Communications and Configuration Guide and Configuration Utility Users Guide for detailed configuration instructions.

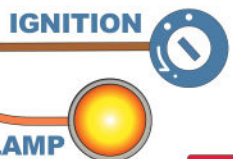
---



LITHIONICS BATTERY WITH MARINE M12 CONNECTOR  
CANBUS CONNECTION

WS500/PH-CAN WIRING HARNESS

SOME WIRES INCLUDED IN HARNESS  
MAY NOT BE USED IN THIS INSTALLATION



**SERVICE DISCONNECT SWITCH — MUST ALWAYS BE IN THE ON POSITION WHEN THE ENGINE IS RUNNING**

**NOTE: VERIFY WHETHER DISCONNECT SWITCHES ARE REQUIRED FOR YOUR APPLICATION. NEVER RUN SYSTEM WITH SWITCHES IN THEIR OFF POSITION**

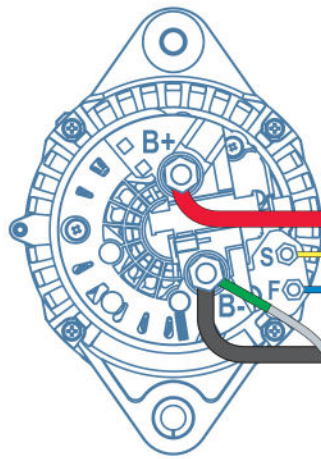
**SERVICE DISCONNECT SWITCH — MUST ALWAYS BE IN THE ON POSITION WHEN THE ENGINE IS RUNNING**

WS500 DEUTSCH TO M12 ADAPTER  
M12 DROP CABLE

NOTE: MULTIPLE BATTERIES AND BMS UNITS CAN BE SUPPORTED THROUGH THE COMMON M12 BACKBONE.

NMEA-STYLE BACKBONE WITH TERMINATORS





# Lithionics Battery With Delphi CAN Connector

WS500/PH-CAN WIRING HARNESS

SOME WIRES INCLUDED IN HARNESS MAY NOT BE USED IN THIS INSTALLATION



**SERVICE DISCONNECT SWITCH — MUST ALWAYS BE IN THE ON POSITION WHEN THE ENGINE IS RUNNING**

**NOTE: VERIFY WHETHER DISCONNECT SWITCHES ARE REQUIRED FOR YOUR APPLICATION. NEVER RUN SYSTEM WITH SWITCHES IN THEIR OFF POSITION**

**SERVICE DISCONNECT SWITCH — MUST ALWAYS BE IN THE ON POSITION WHEN THE ENGINE IS RUNNING**

WS500 DEUTSCH CANBUS DATA TERMINATOR

WS500 LITHIONICS CAN CABLE ADAPTER

NOTE: MULTIPLE WS500 CAN ADAPTERS CAN BE CHAINED TOGETHER WHEN SUPPORTING MORE THAN ONE BATTERY OR BMS UNIT

Delphi Aptiv CAN Connector