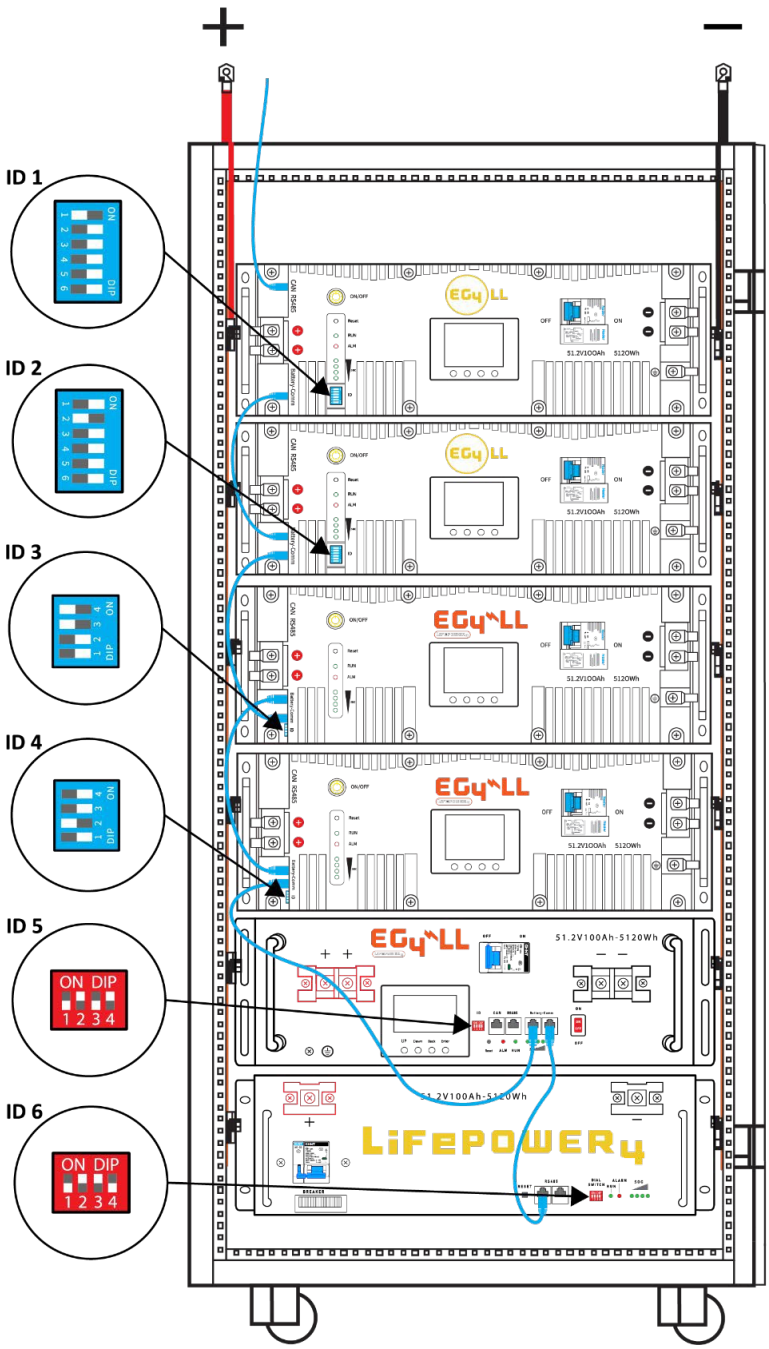
EG4 ELECTRONICS

INTERFACING EG4 LL-S WITH OTHER EG4 SERVER RACK BATTERIES

EG4® LL-S batteries are designed for backwards compatibility with other EG4 server rack batteries. By following this guide, the end-user will have successful communications between any variation of the batteries described in this document.

EXAMPLE DIAGRAM

The image below showcases all 5 models of EG4 server rack batteries communicating in closed loop with an ESS.



1. **Always use the newest model of LL** at the top of the rack as this will need to be the battery that communicates with the system. This battery is also known as the master and will need to have ID number 1.
2. When installing the batteries, ensure that the same models are grouped together in the bank. This allows for communication to flow between the batteries consistently.
3. After installing the batteries into the rack, refer to the DIP Switch ID table to assign the address code of the bank in numerical order, beginning with the master and progressing among the different models.

   The image on the left shows a bank with the following EG4 modules:

   1. *LL-S (6 DIP) [ID-1]*
   2. *LL-V2 (6 DIP) [ID-2]*
   3. *LL-V2 (4 DIP) [ID-3]*
   4. *LL-V2 (4 DIP) [ID-4]*
   5. *LL-V1 [ID-5]*
   6. *Lifepower4 [ID-6]*

VERSION 1.1 | INFORMATION SUBJECT TO CHANGE WITHOUT NOTICE.

PARALLEL CABLES NEEDED

NOTE: If utilizing an external E-Stop switch on the LL-S battery, the following pinout information stays relevant to the function. Once the E-Stop engages, all batteries in the bank will initiate the stop function.

To successfully communicate between each model of battery, a standard Cat5e (or higher) cable will need to be connected between each battery.
Refer to the list below for specifics:

BATTERY-TO-BATTERY CABLE PINOUT

The pins utilized for battery-to-battery communication are as follows:

LL-S/LL-V2 (4&6 DIP)	
Pin	Description
7	RS485-B
8	RS485-A

LL-V1/LifePower4	
Pin	Description
7	RS485-B
8	RS485-A

The battery will only send a transmit/receive signal over these two pins. Ensure the battery-to-battery communication cable is only utilizing pins 7 & 8.

NOTE: When using LL-V1 and LifePower4 batteries in communications with the LL-S/LL-V2 multi-pack firmware, ensure the communications cable between the LL-V2 and all older model batteries down are pinned to this standard. If there are extra pins populated, the LL-S will trip its breaker if it receives a signal from pins 3 or 6 along with all other batteries in this parallel configuration.

FIRMWARE UPDATES

Visit https://eg4electronics.com/resources/downloads to get the latest version of the software. The file can be located on the downloads page underneath the product in question.
Once the file has been downloaded, unzip the file. Once the file is unzipped, refer to the included "Connection guide for BMS Tools V1.0.pdf" for an extensive walkthrough to set up BMS Tools.
If confirmation of the port numbers for battery to PC communications is needed, please consult the following section.

UPDATE CABLES NEEDED

Each battery requires the same RS485 cable to apply the firmware updates. Please refer to the table below for the pinout description.
Ensure all batteries' firmware matches the numbers listed below for seamless communication.

Pin	Description
1	RS485-B
2	RS485-A

MULTIPACK FIRMWARE VERSIONS NEEDED

Listed below are the multipack firmware version numbers that need to be used for each battery type:

1. EG4 LL V2/S (ID:6) 51.2V 100ah: Z02T12
2. EG4 LL V2 (ID:4) 51.2V 100ah: Z01T16
3. EG4 LL V1 51.2V 100ah: V15P15
4. LifePower4 51.2V 100ah: V3.37 or V2.16