

# Nissan LEAF Battery Pack Assembly Instructions

Nissan LEAF - Gen 1

7s4p Module Configuration

14s8p Cell Configuration

8~10 kWh









[www.OGSolarStore.com](http://www.OGSolarStore.com)

**OFF GRID  
SOLAR**

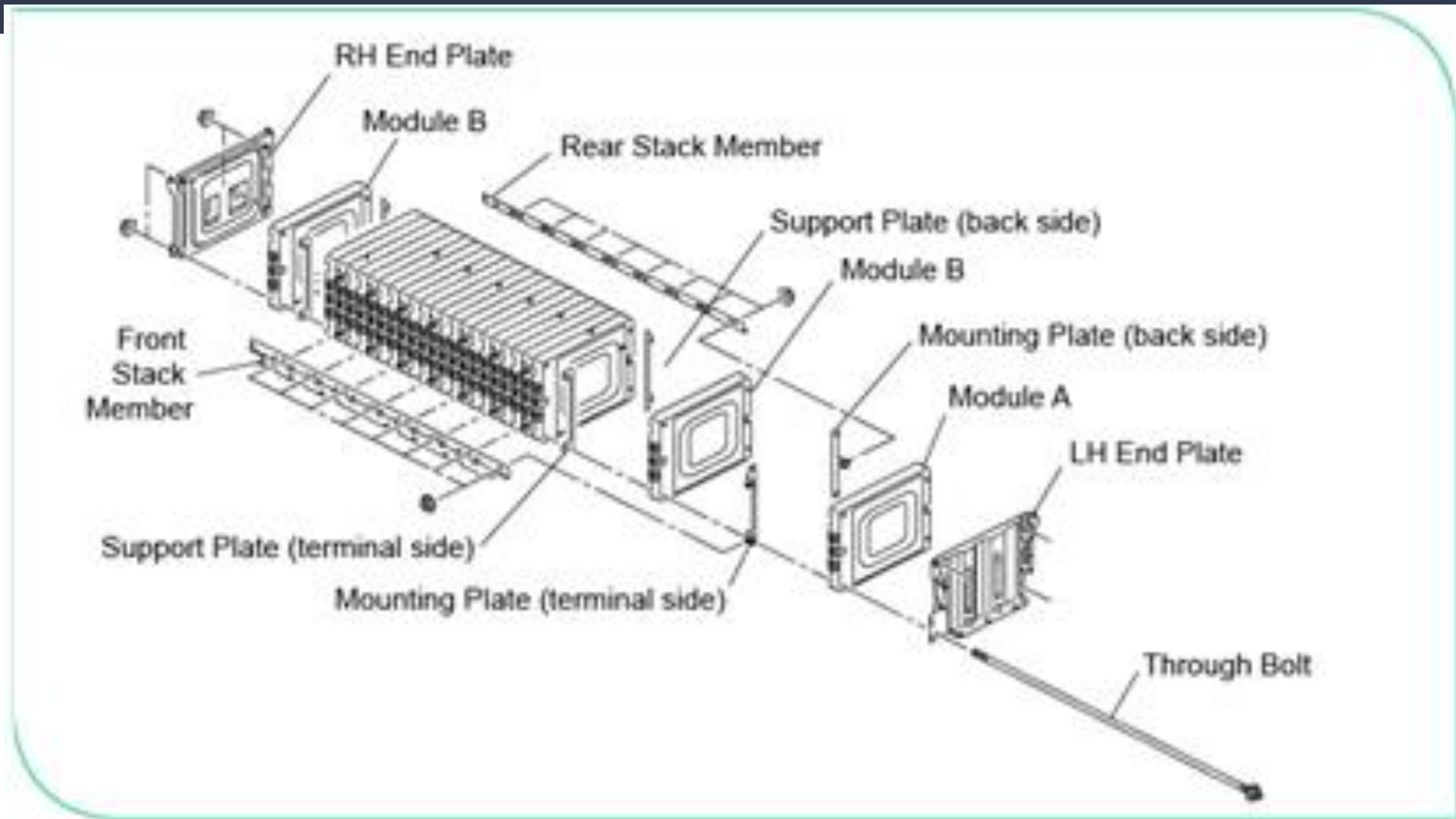
# Summary

1. Overview
2. Module Block Assembly
3. Attached Busbars to Packs
4. Attach Sense Wires between BMS and Pack
5. Attach High Current Cables between BMS and Pack

# Overview: Bus bar Components Included

Item	Description	QTY	Picture
1	Busbar, Center tap – 4P	7	
2	Busbar, Long – 4P	5	
3	Busbar, Short – 4P	4	
4	Busbar, Jumper	1	
5	Bolt, M6 (For Long/Short busbar)	56	
6	Washer, M6 (For Long/Short busbar)	56	
7	Bolt, M4 (For Center tap busbar)	28	
8	Washer, M4 (For Center tap busbar)	28	

# Overview: Nissan LEAF Pack Assembly



This is how it is assembled in the vehicle. We are reusing many of the same components.

# Overview: Module Types

Sort and label your modules by Type A and Type B.

- You should have:
  - 12x Type A
  - 16x Type B

**Note:** If you have 16x of Type A and 12x of Type B, then you can do the reverse of this layout.

## NISSAN LEAF MODULE GEN 1

**TYPE A**

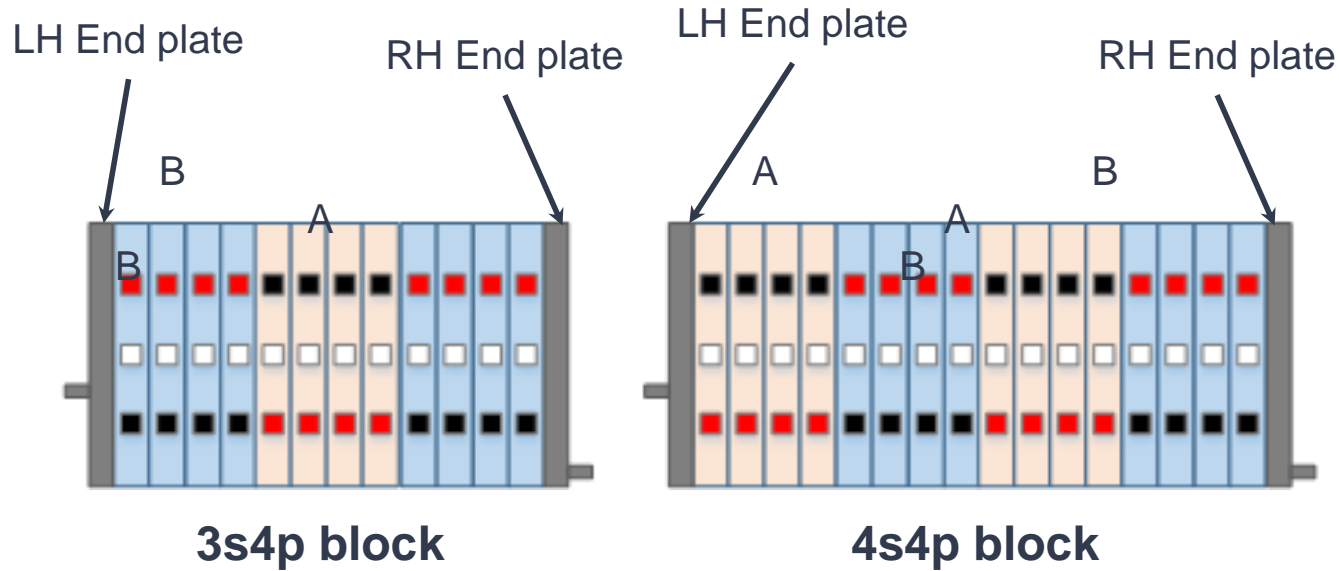
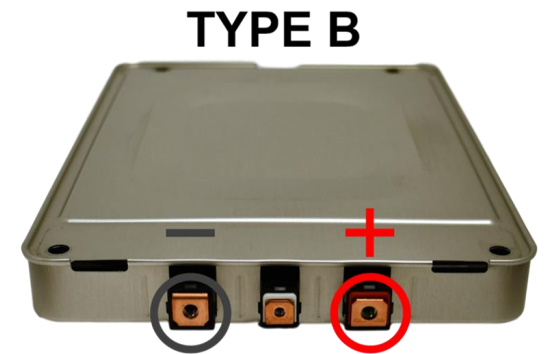
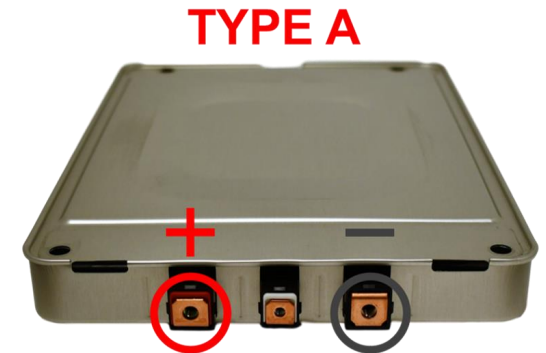
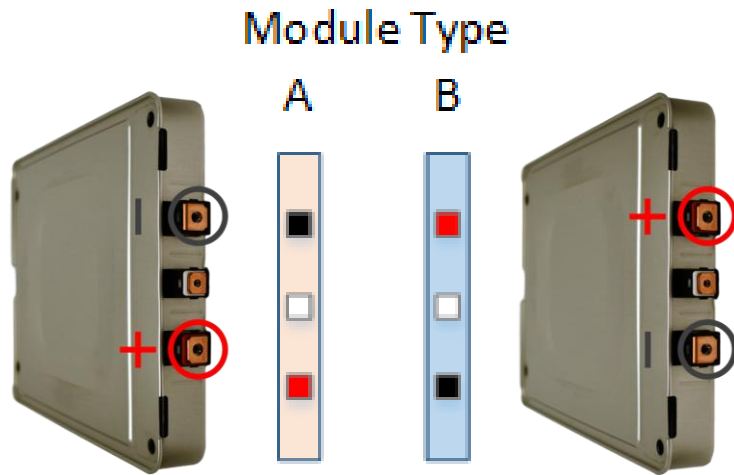


**TYPE B**

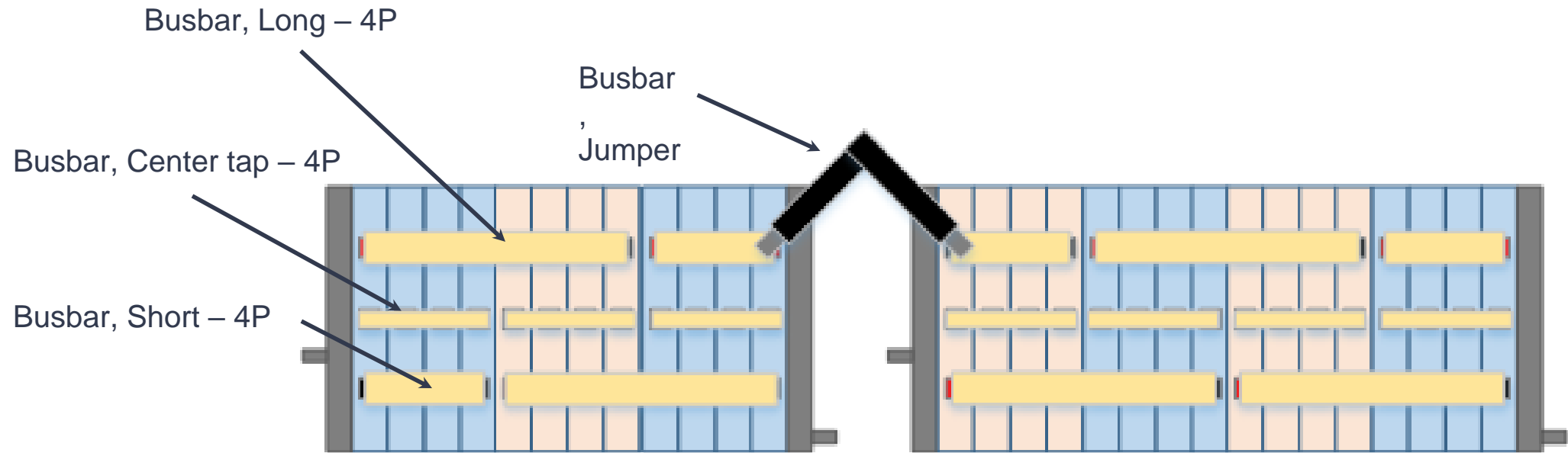


# Overview: Module Types

## NISSAN LEAF MODULE GEN 1



# Overview: Busbars



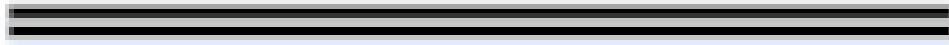
# 2. *Module Block Assembly*

Assembling the Modules Blocks

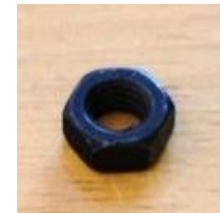


# 3s4p Pack Assembly

- Thread a nut onto the threaded rod approximately 1" from the end.
- Slide on a washer down the long-length of the rod.
- Repeat to make 4 rod assemblies.



**4x**



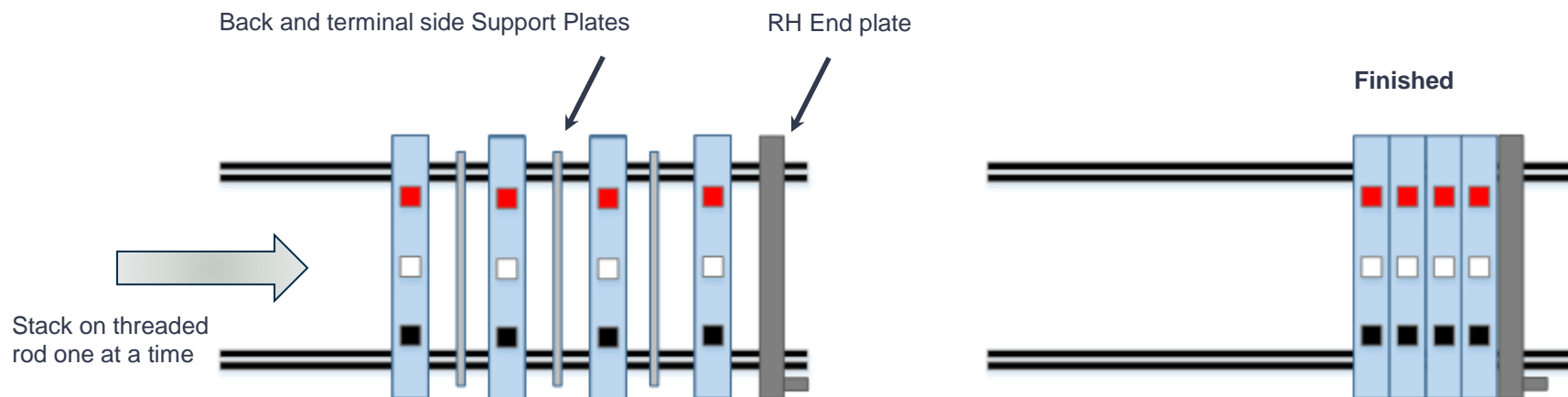
**8x**



**8x**

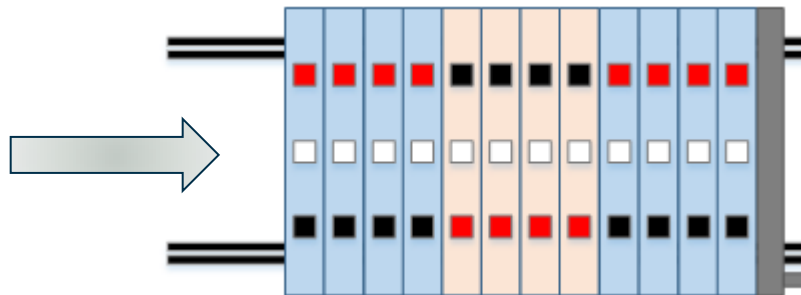
# 3s4p Pack Assembly

- Insert 4 rod assemblies into the **Nissan RH End Plate**.
- Insert a **Nissan LEAF Module – Type B**.
- Insert a **Nissan Support Plates** for both terminal side and back side.
- Repeat last two steps until there are 4x **Type B** modules in a stack.



# 3s4p Pack Assembly

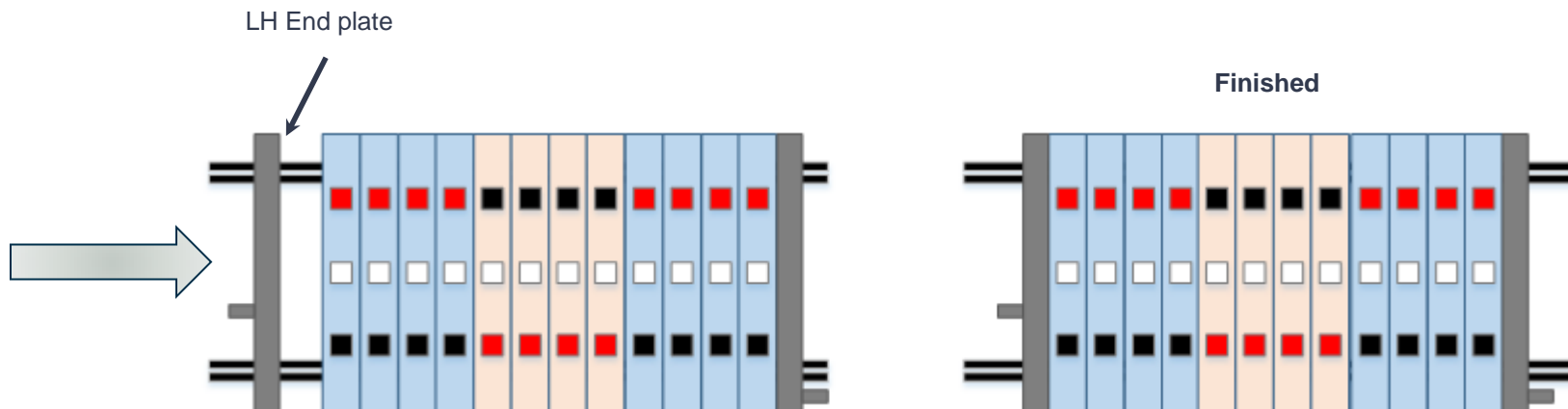
- Insert a Nissan **LEAF Module – Type A**.
- Insert a **Nissan Support Plates** for both terminal side and back side.
- Repeat last two steps until there are 4x **Type A** modules in a stack.
  
- Insert a **Nissan LEAF Module – Type B**.
- Insert a **Nissan Support Plates** for both terminal side and back side.
- Repeat last steps until there are 4x **Type B** modules in a stack.



# 3s4p Pack Assembly

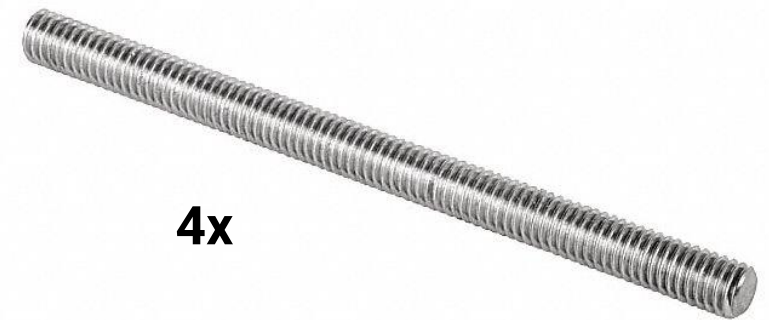
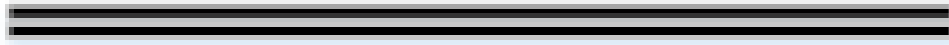
- Insert a **Nissan LH End Plate**.
- Insert a washer on each road and thread a nut onto each rod.
- Continue tightening the nuts until all nuts have 7.38-ft.lb of torque (10Nm).
- Cut any excess threaded rod such that it sticks out 1”.

**You have now finished building the 3s4p module block.**



# 4s4p Pack Assembly

- Thread a nut onto the threaded rod approximately 1" from the end.
- Slide on a washer down the long-length of the rod.
- Repeat to make 4 rod assemblies.



**4x**



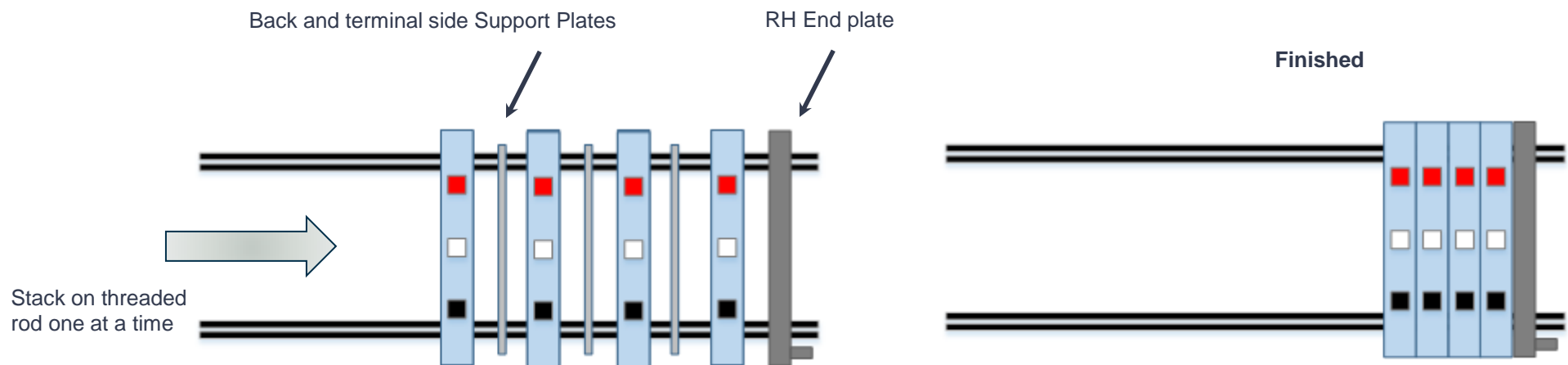
**8x**



**8x**

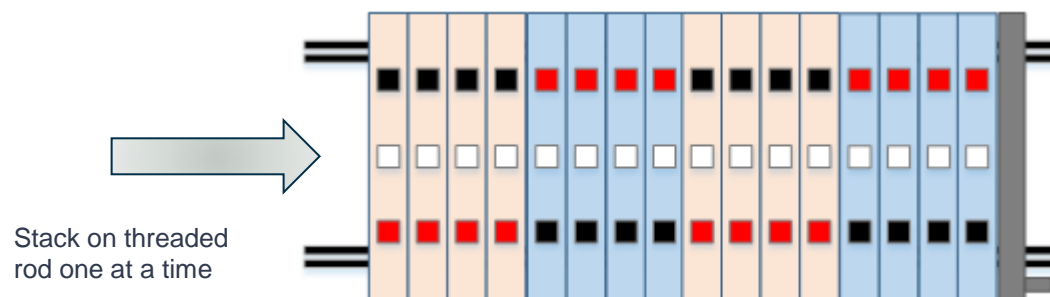
# 4s4p Pack Assembly

- Insert 4 rod assemblies into the **Nissan RH End Plate**.
- Insert a **Nissan LEAF Module – Type B**.
- Insert a **Nissan Support Plates** for both terminal side and back side.
- Repeat last two steps until there are 4x **Type B** modules in a stack.



# 4s4p Pack Assembly

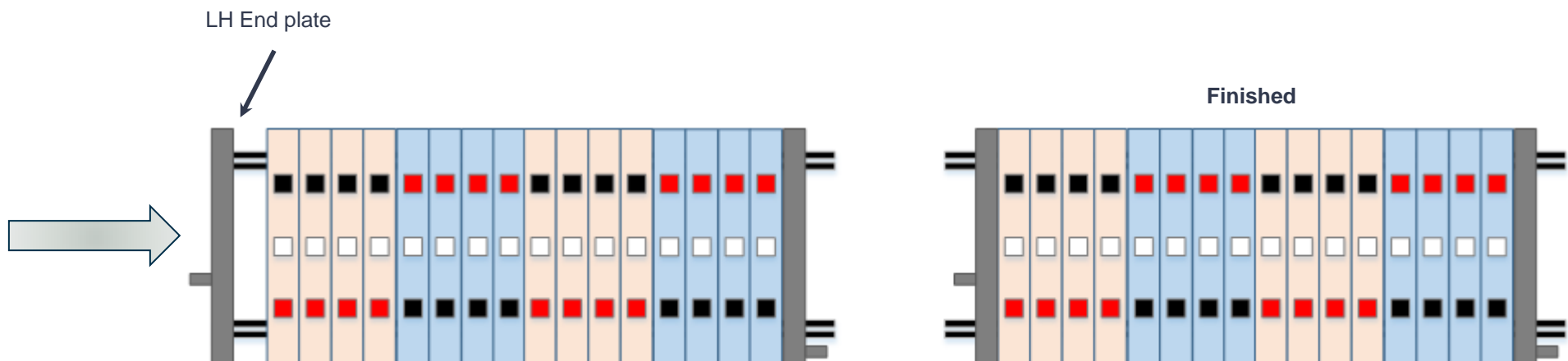
- Insert a Nissan **LEAF Module – Type A**.
- Insert a **Nissan Support Plates** for both terminal side and back side.
- Repeat last two steps until there are 4x **Type A** modules in a stack.
- Repeat with 4x **Nissan LEAF Module – Type B**. Don't forget the **Nissan Support Plates** for both terminal side and back side.
- Repeat with 4x **Nissan LEAF Module – Type A**. Don't forget the **Nissan Support Plates** for both terminal side and back side.



# 4s4p Pack Assembly

- Insert a **Nissan LH End Plate**.
- Insert a washer on each rod and thread a nut onto each rod.
- Continue tightening the nuts until all nuts have 7.38-ft.lb of torque (10Nm).
- Cut any excess threaded rod such that it sticks out 1”.

You have now finished building the 4s4p module block.

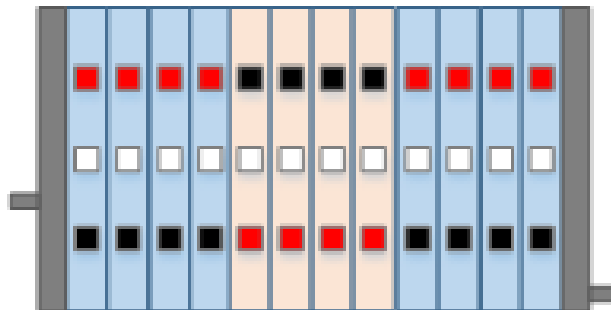




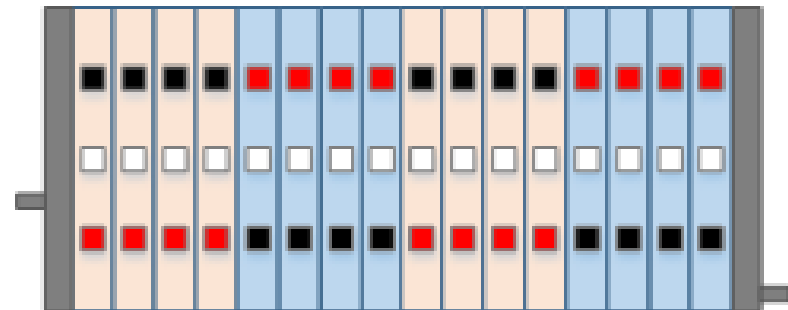
# Finished 3s4p and 4s4p

- Place the 3s4p to the left of the 4s4p if you are looking at the terminals.
- Both are blocks are heavy, but possible for two people to carry and place in an enclosure.
- Besure to use the mounting holes in the Nissan LEAF End plate brackets and secure inside the enclosure.

**3s4p block**



**4s4p block**

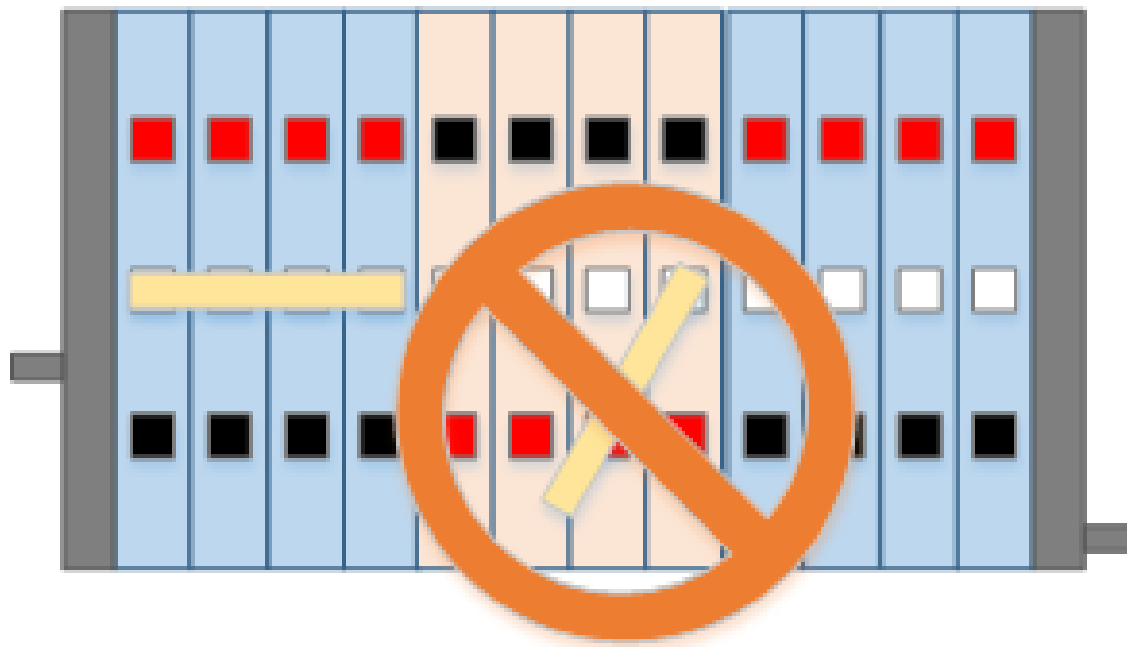


# 3. Attaching Busbars to Pack

Assembling the busbars

# Attaching Busbars - Center Tap

**SHORT CIRCUIT / FIRE DANGER:  
BE CAREFUL TO NOT CROSS THE BUSBARS  
BETWEEN OTHER TERMINALS!**

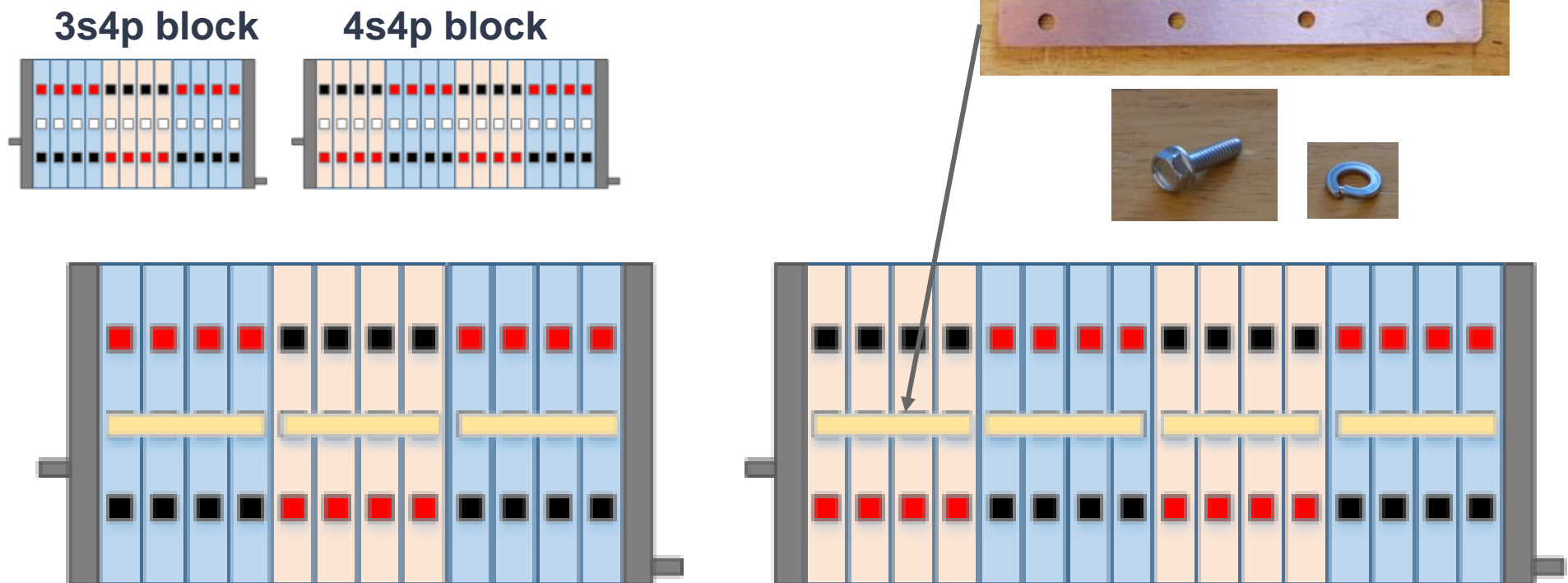


When attaching the busbars, hold on tight and make sure you have at least two screws in before you let go.

# Attaching Busbars - Center Tap

**SHORT CIRCUIT / FIRE DANGER: BE CAREFUL TO NOT CROSS THE BUSBARS BETWEEN OTHER TERMINALS!**

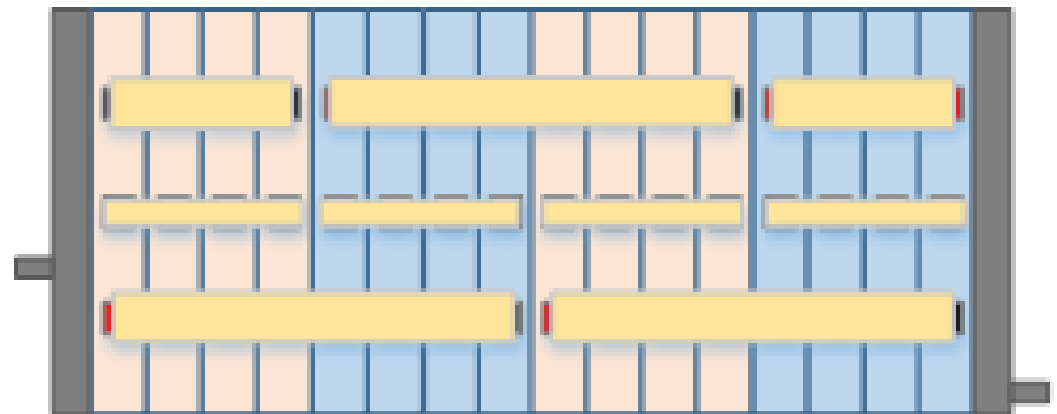
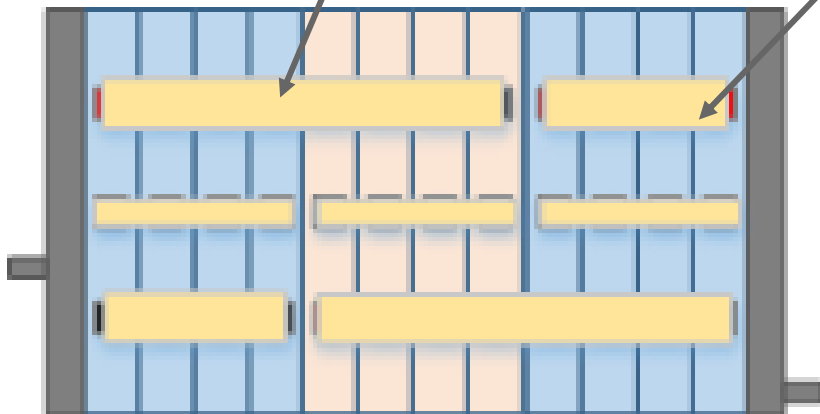
- Carefully hold the “Busbar, Center tap” in place and attach the far left and the far right M4 bolt with M4 washer (hand tight)
- After the Busbar is held in place, attach the middle M4 bolts and M4 washers hand tight



# Attaching Busbars – Long & Short

**SHORT CIRCUIT / FIRE DANGER: BE CAREFUL TO NOT CROSS THE BUSBARS BETWEEN OTHER TERMINALS!**

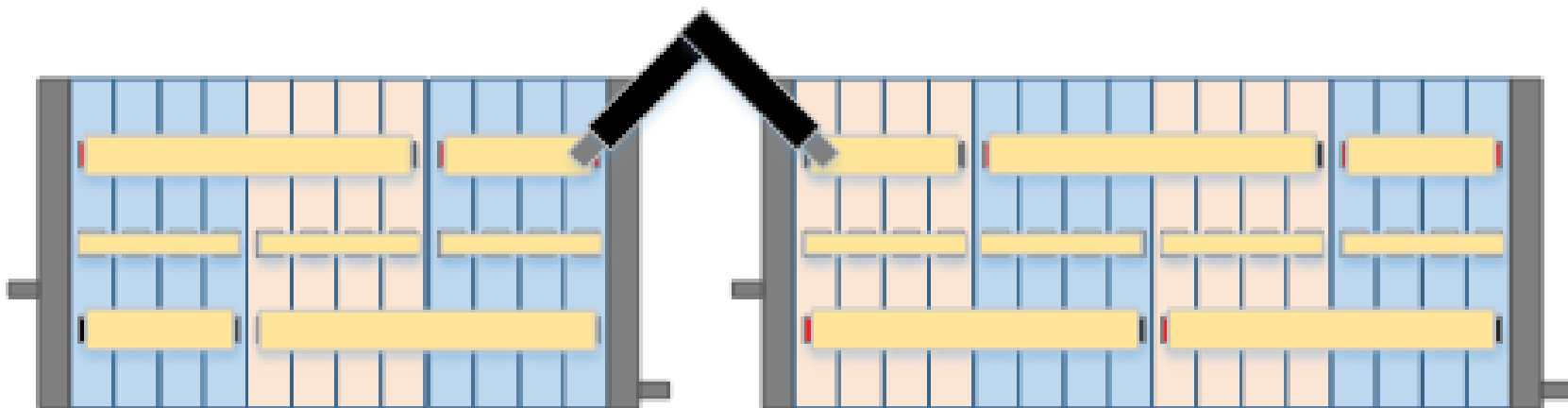
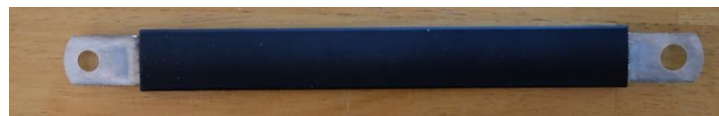
- Carefully hold the Busbar in place and attach the far left and the far right M6 bolt with M6 washer (hand tight)
- After the Busbar is held in place, attach the middle M6 bolts and M6 washers hand tight



# Attaching Busbars - Jumper

**SHORT CIRCUIT / FIRE DANGER: BE CAREFUL TO NOT CROSS THE BUSBARS BETWEEN OTHER TERMINALS!**

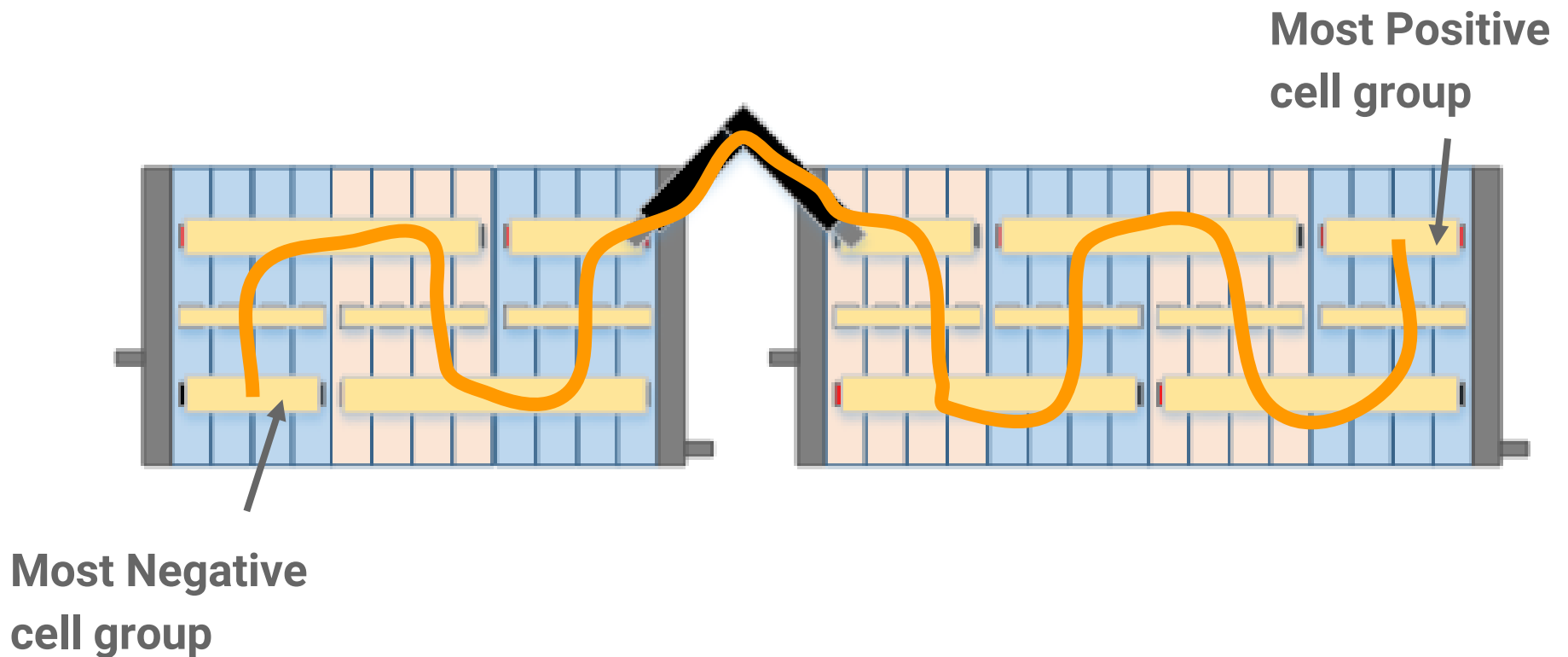
- Carefully hold the Busbar, jumper and attach with the same M6 bolts and M6 washers used on the other busbars. Finish hand tight.



# Attaching Busbars

You have finished the busbars. Good job!

The orange line below shows how the current flows through the battery.



# 4. Attach Sense Wires

Attach Sense Wires between BMS and Pack





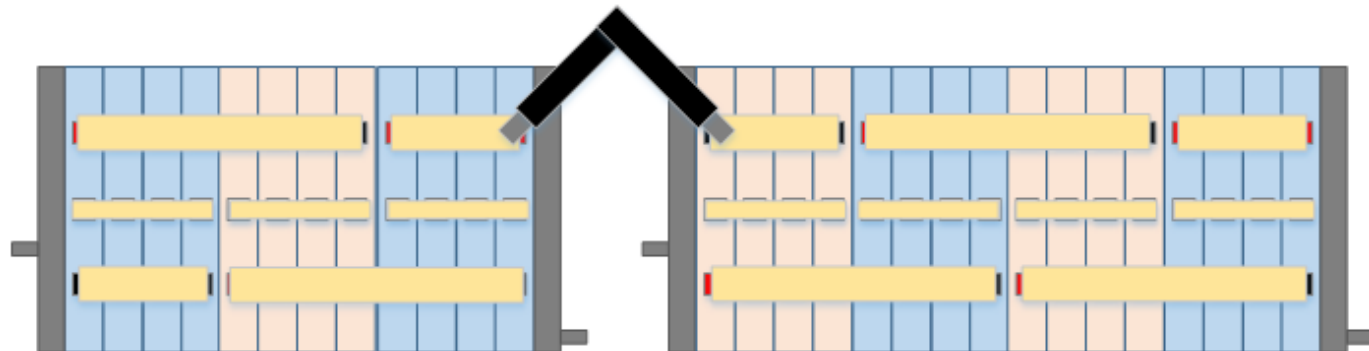
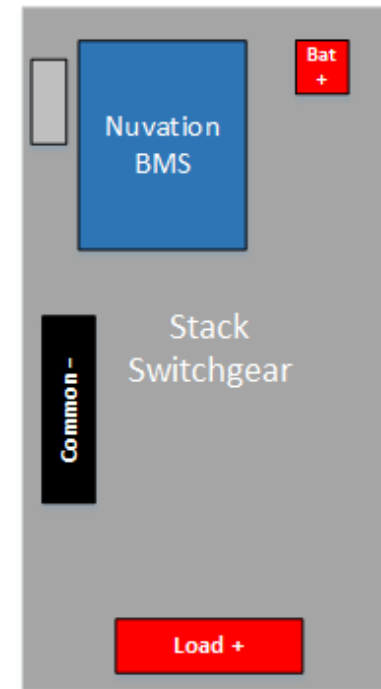
# Attaching Wires

## Nuvation Voltage Sense wire harness

- Extend the wires to their location and prepare to cut them to length and crimp on ring terminals
- Be sure to leave enough length to tie off the wires after you finish the install



NUVW-C03A03-010 - Cable, Voltage, Thermistor, 12 channel, 2 sensors, 300VDC, 1m



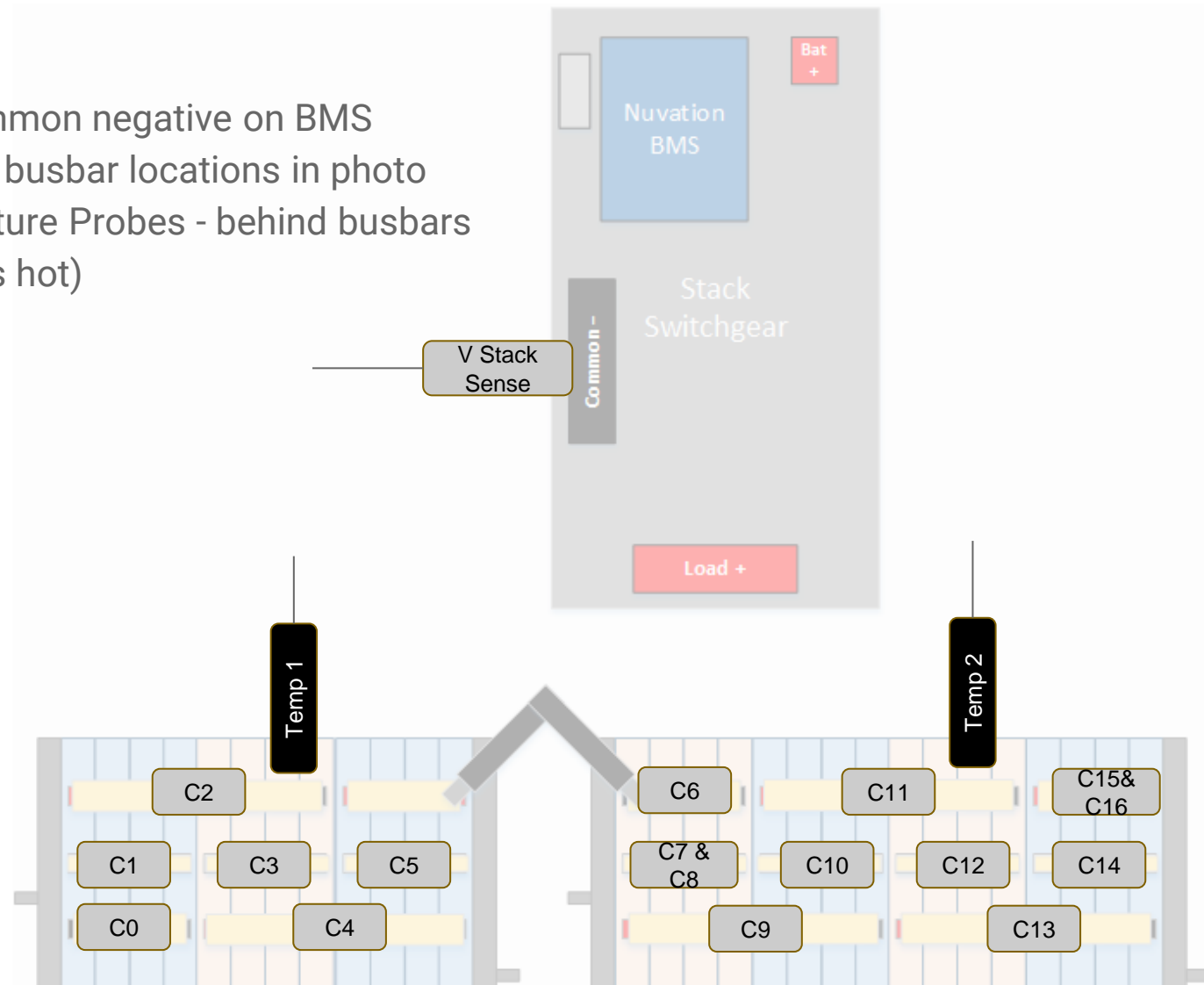
# Voltage Sense Cable

## Nuvation Sense wires

- x1 - VStack Sense - to common negative on BMS
- x17 - C0, C1, C2,... C16 - to busbar locations in photo
- x2 - Thermistors Temperature Probes - behind busbars  
(Because that is what gets hot)



NUVW-C03A03-010 - Cable, Voltage, Thermistor, 12 channel, 2 sensors, 300VDC, 1m



# Ring Terminals on the Voltage Sense Wires

9x Big - 5/16" Ring Terminals  
8x Small - #10 Ring Terminals



NUVW-C03A03-010 - Cable, Voltage, Thermistor, 12 channel, 2 sensors, 300VDC, 1m



Layout out your wires and cut to length

Then crimp the ring terminal and place on busbar bolt.

CELL WIRE	Ring Terminal
C0	Big (5/16")
C1	Small (#10)
C2	Big
C3	Small
C4	Big
C5	Small
C6	Big
C7	Small
C8	Small
C9	Big
C10	Small
C11	Big
C12	Small
C13	Big
C14	Small
C15	Big
C16	Big

# 4. Attach High Current Cables

Attach High Current Cables between BMS and Pack

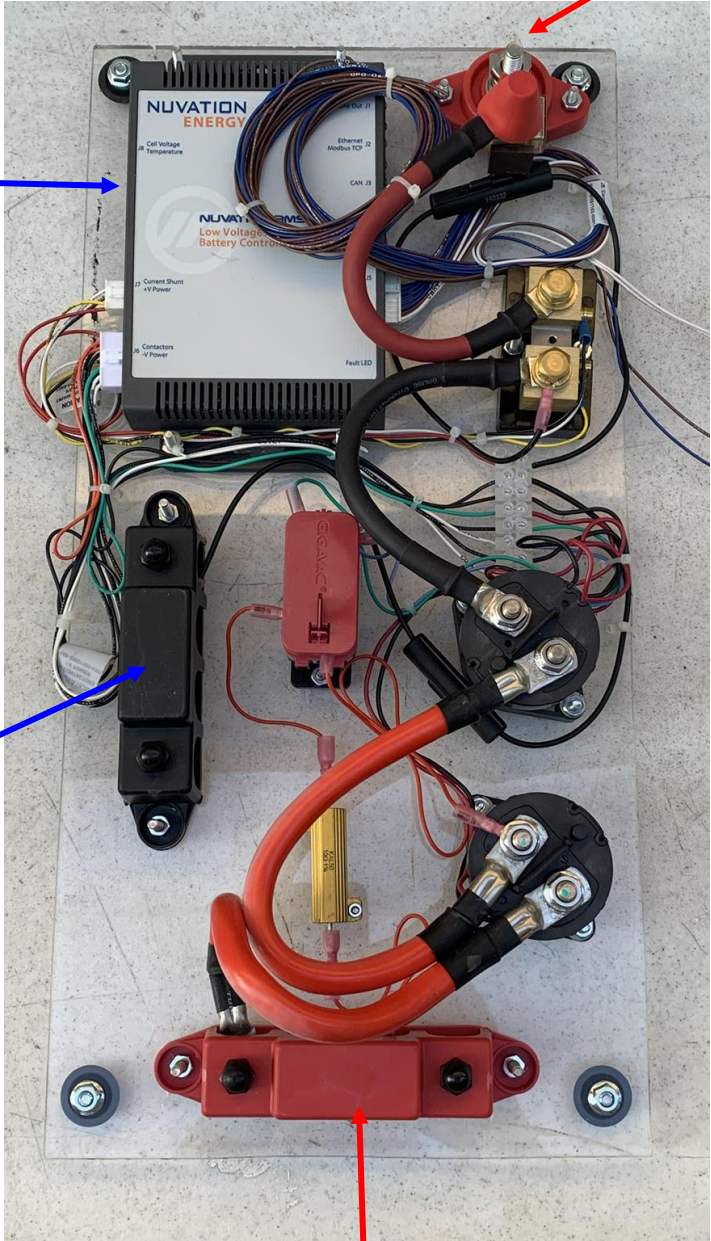


**Cell Voltage Sense  
Wire Harness  
(Connects to Battery)**



**+ Battery  
Terminal**

**Common  
Negative  
(For both Battery  
and Load)**



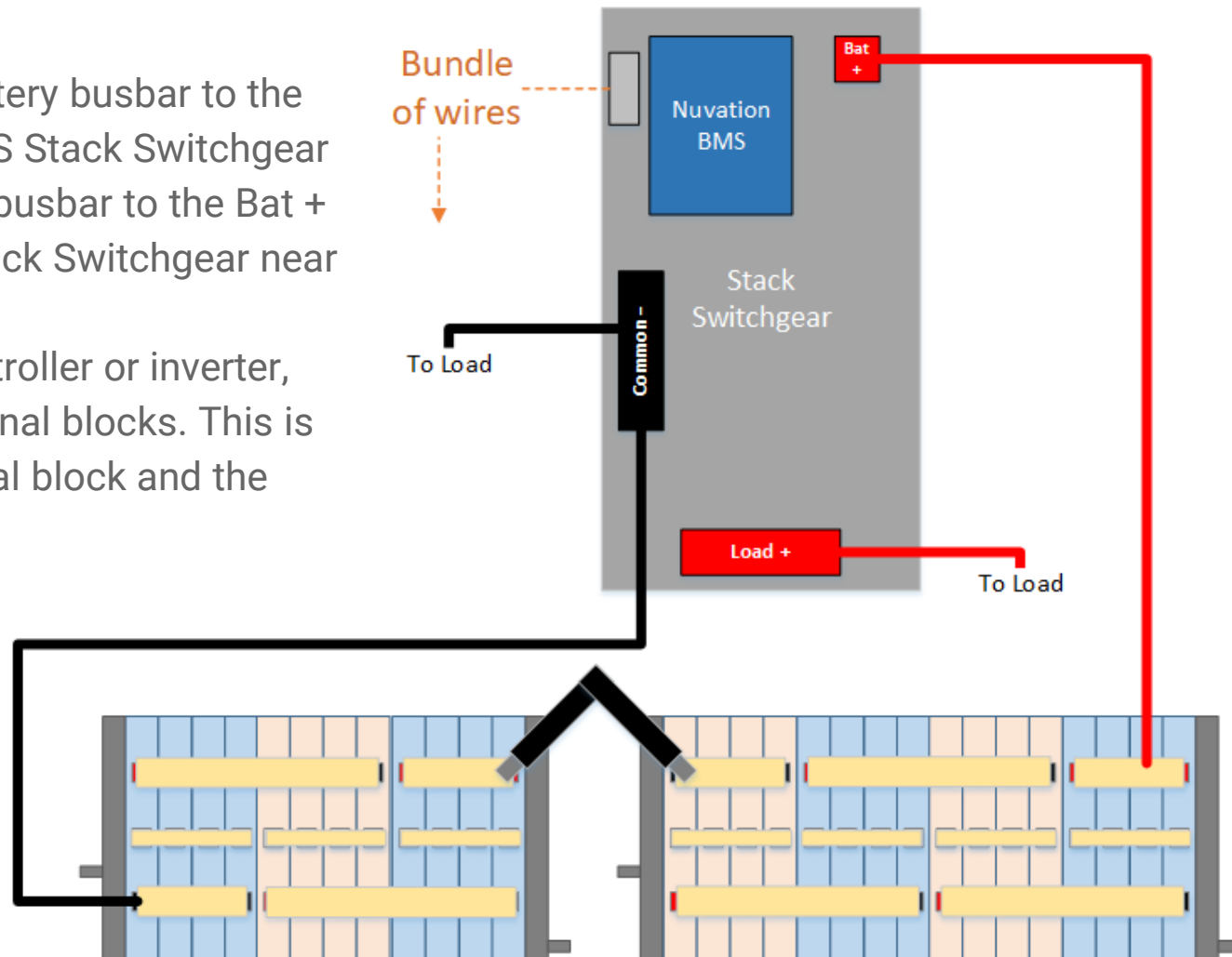
**+ Load**

**BMS  
Stack  
Switchgear**

# Power Cables

After the sense wires are connected, connect the power cables

- Attach the most negative battery busbar to the common negative on the BMS Stack Switchgear
- Attach most positive battery busbar to the Bat + on the top left of the BMS Stack Switchgear near the fuse
- If you are using a charge controller or inverter, attach that to the LOAD terminal blocks. This is the common negative terminal block and the LOAD positive terminal block.

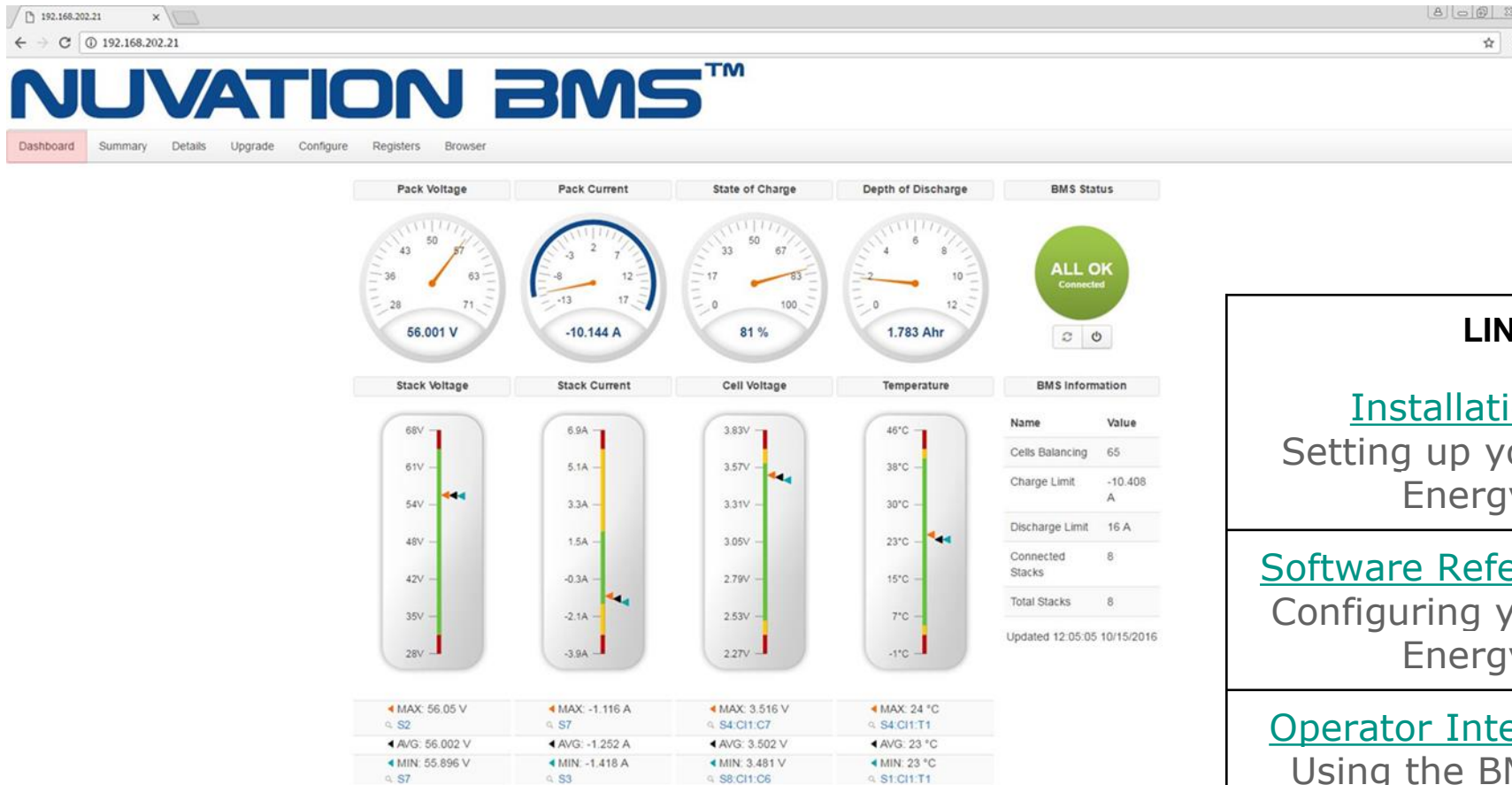


# Using the BMS





# Nuvation BMS Interface



## LINKS

[Installation Guide](#)  
Setting up your Nuvation Energy BMS

[Software Reference Manual](#)  
Configuring your Nuvation Energy BMS

[Operator Interface Manual](#)  
Using the BMS Operator Interface