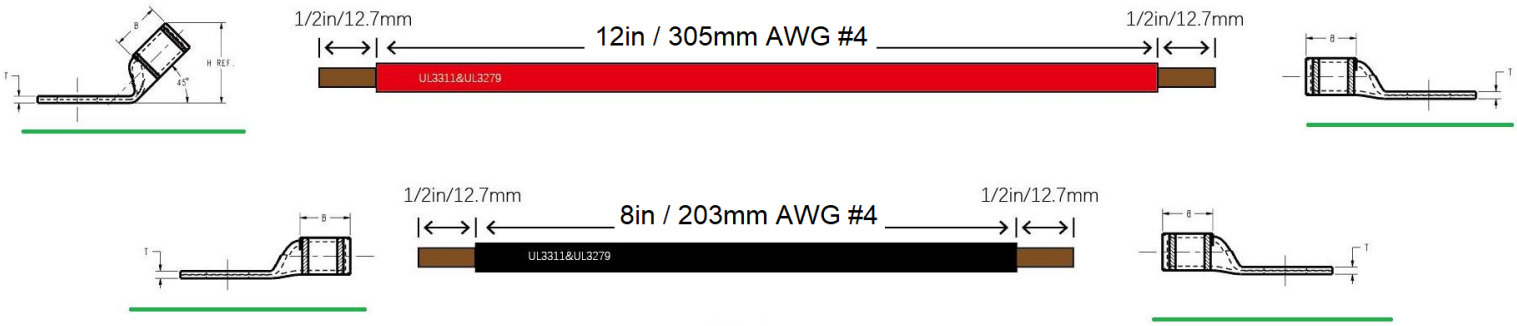
FlexRack Technical Notes 9/12/21

1. The 500A busbar is only intended to contain eFlex batteries + approved 48V accessories.

2. The Flexrack does not come with the M6 hammer bolts and flange nuts needed to secure the eFlex to the shelving system at this time. We recommend 1.5" (35mm) M6 hammer bolts and flange nuts (or washers with locknuts). Only one bolt per eFlex is needed.
   Ex. https://www.amazon.com/PZRT-Hexagon-Standard-Aluminum-Profile/dp/B08V1QQXWY/

3. The FlexRack does not come with battery cables.



4. For best results, use #4AWG or #2AWG fine-stranded "flexible, high ampacity cable (see NEC Table 400.5) such as UL3311 Battery Cable. If using #2 wire, please confirm the compression lugs are compatible with fine stranded wire.

   If using regular stranded cable, create longer battery cables with minimum #1 AWG than pictured above and angle the cables coming off the eFlex stud terminals to achieve minimum bend radius.

5. The cable lengths should be 12" positive + 8" negative for each eFlex, plus what is necessary to string back for the crimp lug barrel (typically ½" per side).

6. Use a 3/8ths or 10mm compression ring size for the eFlex lugs. The inverter lugs are a larger bolt size requiring either 7/16ths to ½" or 12mm compression ring sizes.

7. The longer, positive eFlex cable requires a 45 degree angled crimp ring terminal lug in order to kick the positive cable around the negative busbar. Research will indicate that #4 regular stranded crimp ring terminals have the same barrel diameter as #4 fine stranded crimp ring terminals - so any #4AWG crimp ring terminal with a 45 degree kick will suffice. If using a straight ring terminal, use zip ties to keep the positive battery cable from touching the negative busbar.

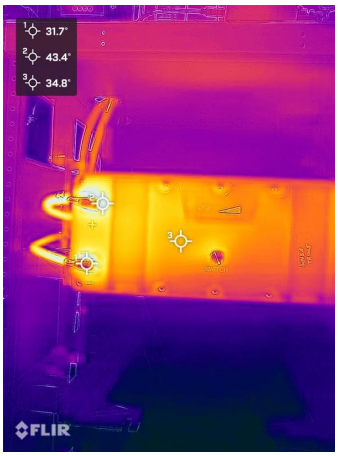
8. When installing parallel inverters, it is acceptable to land parallel conductors on both sides of the busbar bolt. *In this case, one of the negative inverter-to-battery conductor compression lugs will require a 45 degree kick - see example materials.*

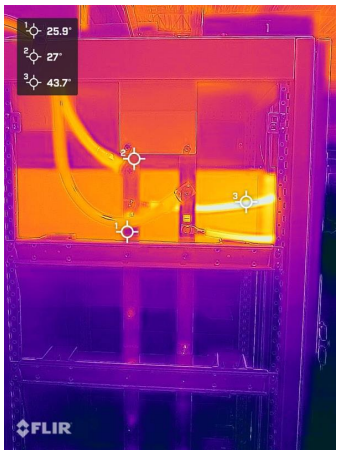
9. The Flexrack maintains a protected ½" clearance from cabinet side walls to energized parts components per NEC 310.10(3) even when the sidewall is deflected inward.

Do not use "double barrel" universal terminal lugs inside the FlexRack. They are too large to maintain adequate clearance.

10. Use the 2.5" knockout be run to an inverter or raceway or use a hydraulic punch to knock out your own holes for parallel cable runs via conduit or cord grip.

11. Like most busbars, the FlexRack busbar is not listed. Your AHJ may require a thermal scan at full operating capacity for 1 hour to demonstrate suitability. Here is our thermal scan after running an assembled FlexRack for 1 hour, maxing out the maximum eFlex amperage rating of 100A per eFlex):





12. You are allowed to use red tape to denote positive cables or use red cable.

13. Our example material lists show #4/0AWG from the inverter to the FlexRack, as typical to a 9kW battery inverter. This cable size can be reduced if installing small inverters or if abiding by *NEC Table 400.5 Footnote 1*. Please verify you have the capability to crimp #4/0 compression terminals.

Example Material List for 4 eFlex + 1 Battery Inverter

Note: You are welcome to use other equivalent parts by other manufacturers.

Location	Item	Part Number Examples	Quantity
eFlex to busbar	3/8ths Compression Ring Lug AWG #4 Fine Stranded Straight	Burndy YAV4CLTC38FX Thomas&Betts 54140 SelTerm MDH0438	12
	3/8ths Compression Ring Lug AWG #4 Fine Stranded 45 Degree	Burndy YAV4CLTC38FX45 Thomas&Betts 54140UF Panduit lcaf4-38h-l	4
	9" AWG #4 Flexible Cable	CobraWire C9904B	4
	13" AWG #4 Flexible Cable	CobraWire C9904B	4
Inverter to busbar	7/16ths or ½" / 12mm Crimp Ring Terminal Straight AWG #4/0 Regular Stranded	Burndy YA28TC38 *Actual Wire Gauge Can Vary Depending on Inverter	2
	X" AWG 4/0 Regular Stranded	*Actual Wire Gauge Can Vary Depending on Inverter	2

Example Material List for 4 eFlex + 2 Battery Inverter

same as above except...

Inverter to busbar	7/16ths or ½" / 12mm Compression Ring Terminal Regular Stranded Straight	*Actual Wire Gauge Can Vary Depending on Inverter*	3
	7/16ths or ½" / 12mm Compression Ring Terminal AWG #4/0 Regular Stranded 45 Degree	*Actual Wire Gauge Can Vary Depending on Inverter*	1
	X" AWG 4/0 Regular Stranded	*Actual Wire Gauge Can Vary Depending on Inverter **Wire Length depends on Inverter Location	2