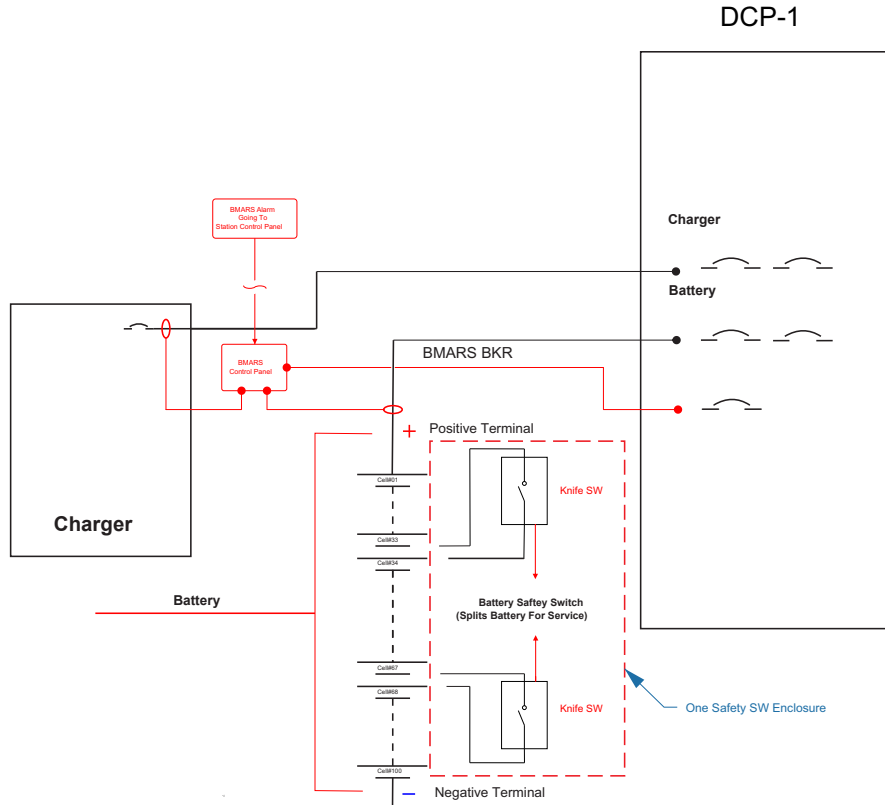


B·M·A·R·S

Preparing for field Installation of BMARS: (08/16/22)

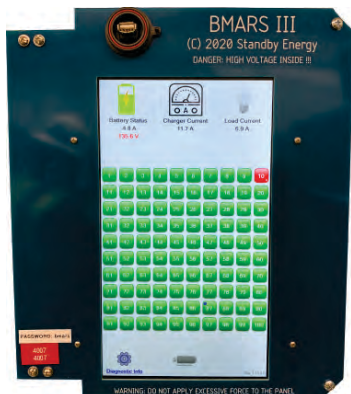
Below is a functional block diagram of a typical System. Your System may have more or less hardware, however this description will give you a guide of what you will need to prepare for.



BMARS Consists of the following equipment:

- 1 ea. BMARS Main Control Panel
- BMARS Monitor Board and Cable (1ea Monitor Board and 1ea Monitor Cable for each 5 cells of the Battery, see the "BMARS Wire Harness Connections" drawing).
- 1 ea. Split Core BMARS Hall Effect Transformer (HET) Module and Cable for monitoring the Charger Current.
- 1 ea. Split Core BMARS Hall Effect Transformer (HET) Module and Cable for monitoring the Battery Current.

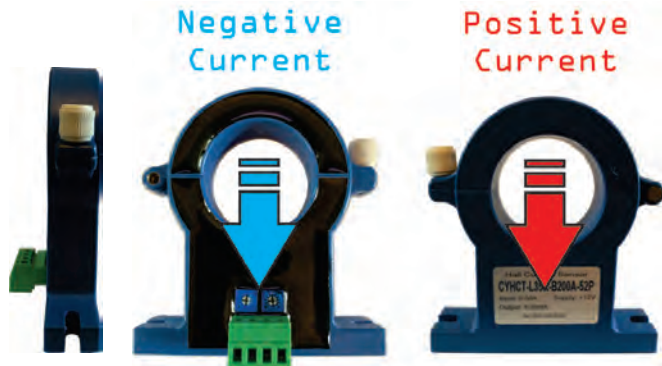
ITEM #1 MAIN CONTROL PANEL



ITEM #2 MONITOR BOARD (4" x 2.75" x 1.5") ONE FOR EACH 5th CELL OF THE BATTERY



ITEM #3 & 4 HALL EFFECT TRANSFORMER



For BMARS Amp Hour Remaining Calculation: The Hall Effect Sensors should always be installed as positive current out of the Charger and positive current out of the Battery.

ACTION ITEMS:

1.

BMARS is powered from the Station Battery it is monitoring. BMARS is internally fused with a 1 A Fuse. However, because this power is usually fed from a DC Breaker in the Stations Main DC Panel, many times the smallest DC Breakers for these Panels is in the 10-15 ADC range. A Conduit and Cable for this must be taken to the location where the BMARS Main Control Panel (Item 1.) will be installed. The cable must be sized for the DC Breaker used. NOTE: If SEI Supplied this DC Panel let us know if you want us to supply this Breaker to be installed in the Station DCPanel.

2.

Each BMARS Monitor Board (Item 2.) will mount on or near each 5th Cell of the Battery. It will communicate via 2.4GHz wireless with the BMARS Main Control Panel (Item 1.) NOTE: Because of this wireless communication, the area between the Battery and the BMARS Main Control Panel (Item 1.) must not be walled off.

3.

The Charger, Split Core BMARS Hall Effect Transformer (HET) Module (Item 3.) will be placed over the Positive Charger Output Cable, with the cable running out through the Clamp On Transformer from the Connector side of the Module and out to the Load side. This HET Module Cable Conduit must be adequate to accept the Cable and Connector, 1" ID. All current "out" of the charger is positive current.

4.

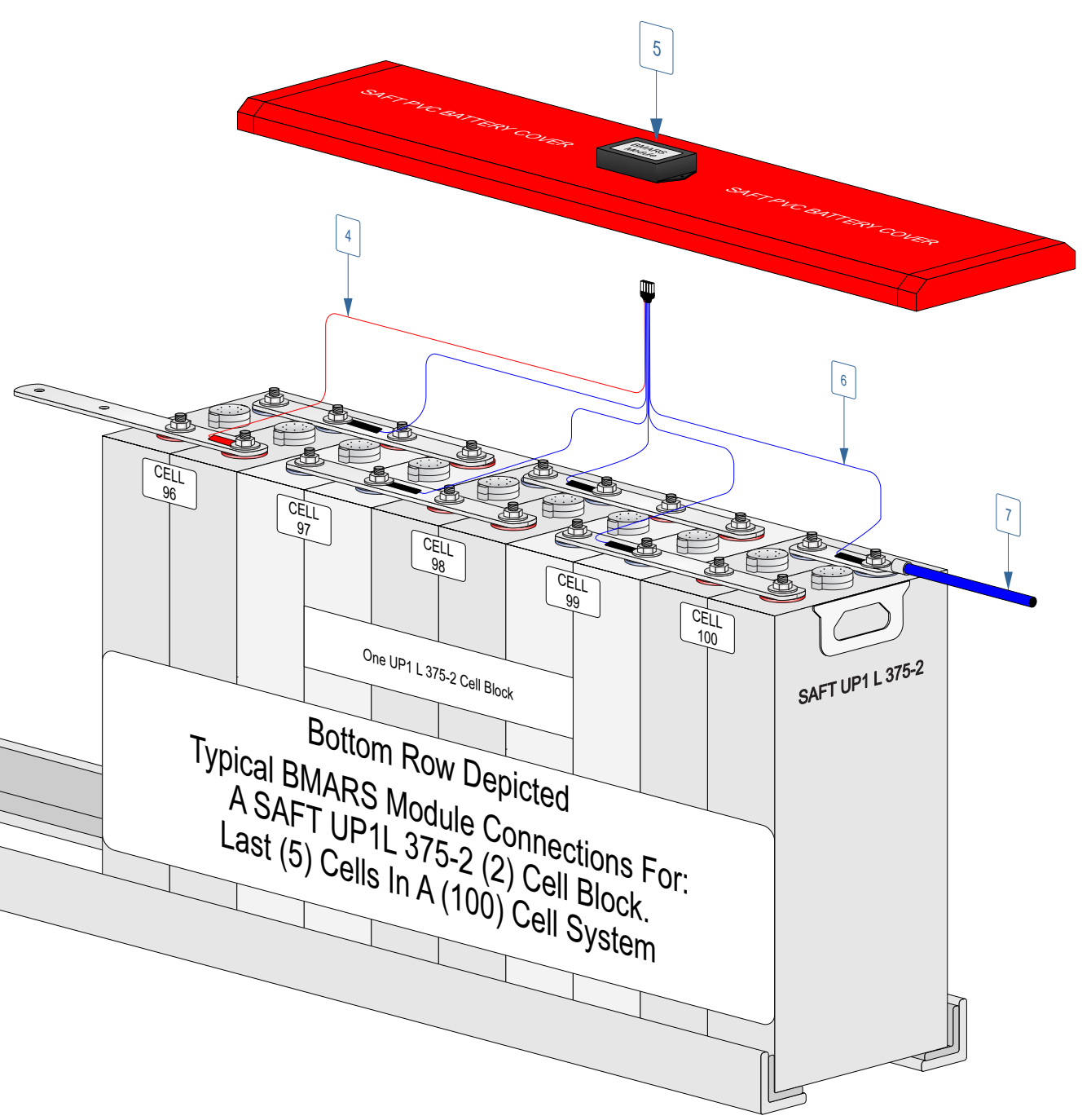
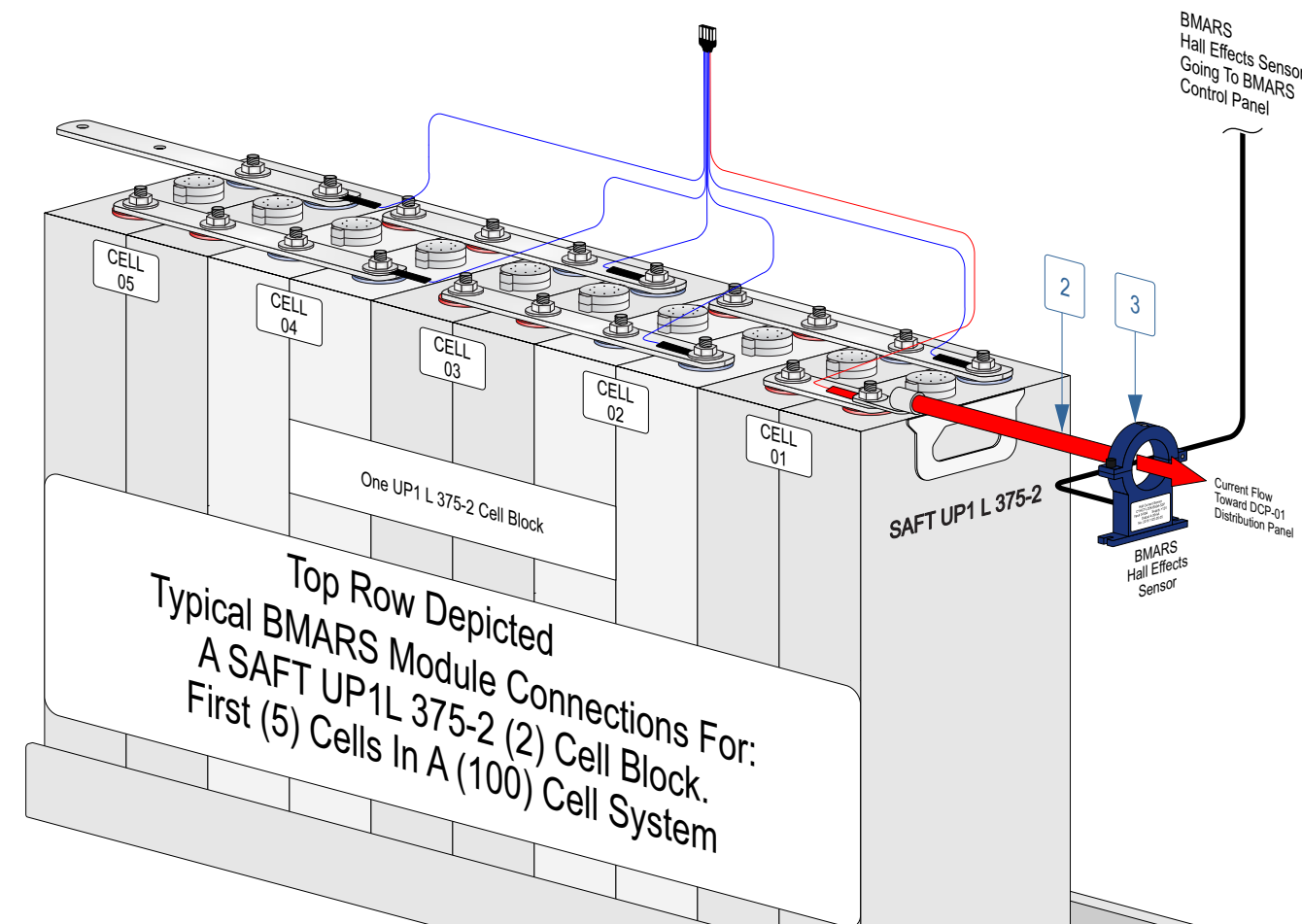
The Battery, Split Core BMARS Hall Effect Transformer (HET) Module (Item 4.) will be placed over the Positive Battery Input/Output Cable, with the cable running out through the Clamp On Transformer from the Connector side of the Module and out to the Load side. This HET Module and Cable Conduit must be adequate to accept the Cable and Connector, 1" ID.

All current "into" the battery is negative current.
All current "out" of the battery is positive current.

end

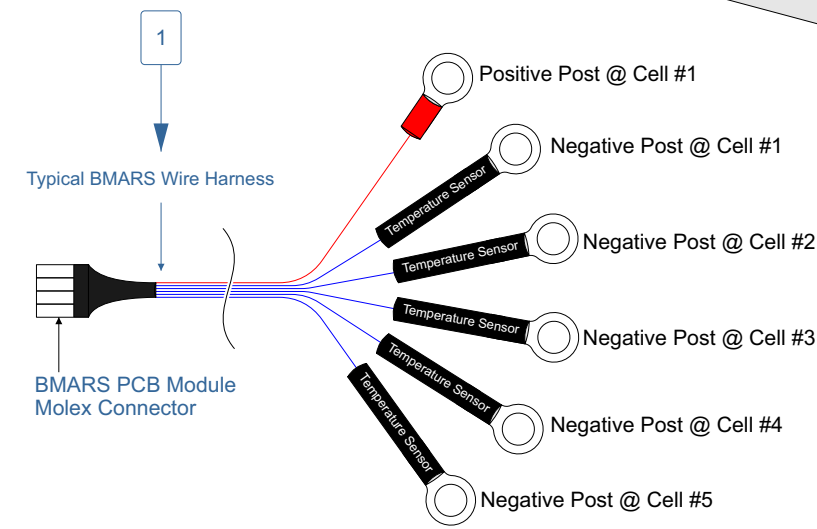
REVISIONS

REV-01	Revised Wire Harness Specifications	08/15/2022



Top Row Depicted
 Typical BMARS Module Connections For:
 A SAFT UP1L 375-2 (2) Cell Block.
 First (5) Cells In A (100) Cell System

Bottom Row Depicted
 Typical BMARS Module Connections For:
 A SAFT UP1L 375-2 (2) Cell Block.
 Last (5) Cells In A (100) Cell System



BMARS Components

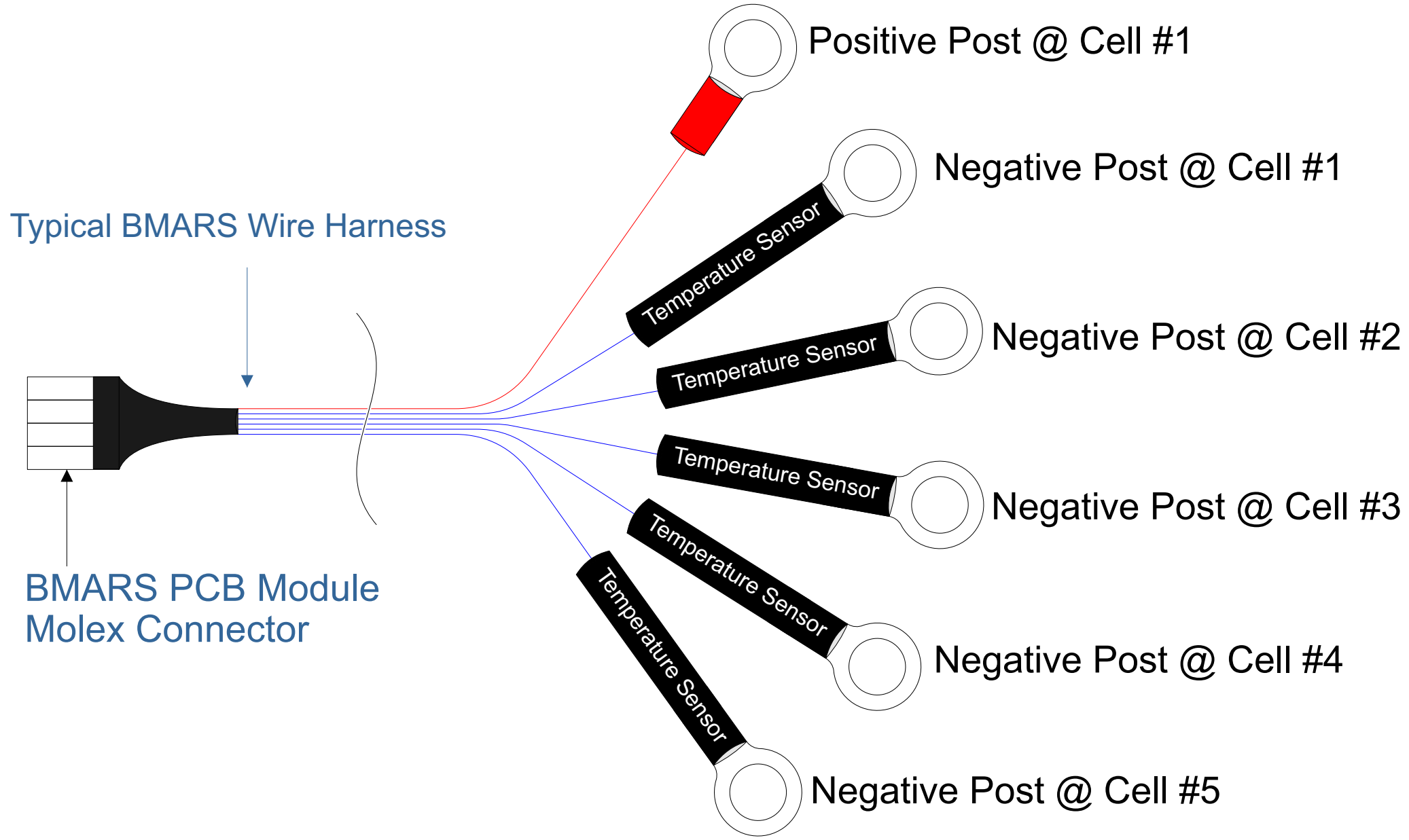
1	BMARS PCB Module Pigtail Wire Harness
2	Positive DC Conductor
3	BMARS Hall Effects Communicating With BMARS Control Panel
4	BMARS PCB Module Wire Harness Positive Terminal Ring Connector (1)
5	BMARS PCB Module
6	BMARS PCB Module Wire Harness Negative Terminal Ring Connectors (5)
7	Negative DC Conductor

STANDBY ENERGY
 14134 CASTOR ST.
 TOMBALL, TX 77375


BMARS Modules Top Mount IOM		
BMARS Wire Harness Connections		
DRAWING # BMARS TYPICAL		
SCALE: NTS	T.A.C.	SHEET: 1 of 4

REV-01	Revised Wire Harness Specifications	08/15/2022

**ATTENTION:
WIRES MUST BE PLACED ON CELLS IN THE SAME ORDER IN WHICH THEY EXIT THE PCB MODULE MOLEX CONNECTOR**



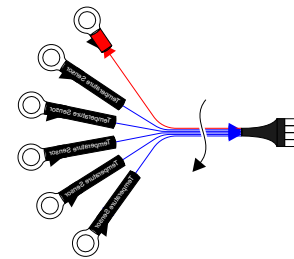
36"

 STANDBY ENERGY 14134 CASTOR ST. TOMBALL, TX 77375	BMARS Modules Top Mount IOM	
	BMARS Wire Harness Connections	
DRAWING # BMARS TYPICAL		
SCALE: NTS	T.A.C.	SHEET: 2 of 4

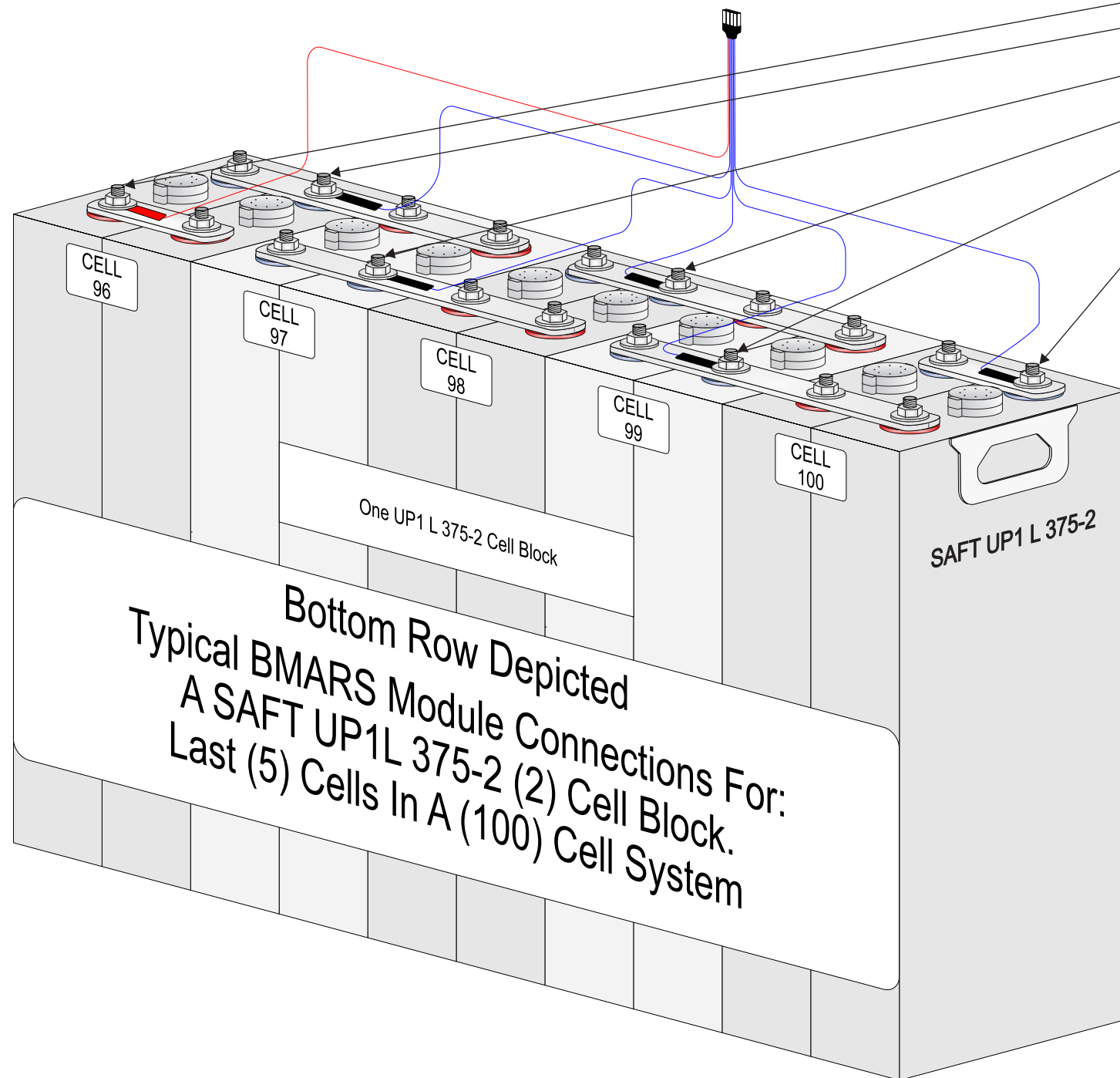
REVISIONS


REV-01	Revised Wire Harness Specifications	08/15/2022

Please note that Temperature Sensors need to run along the bus bars as shown in the picture below. This is so that the red battery covers will fit onto the top of the batteries for safety.

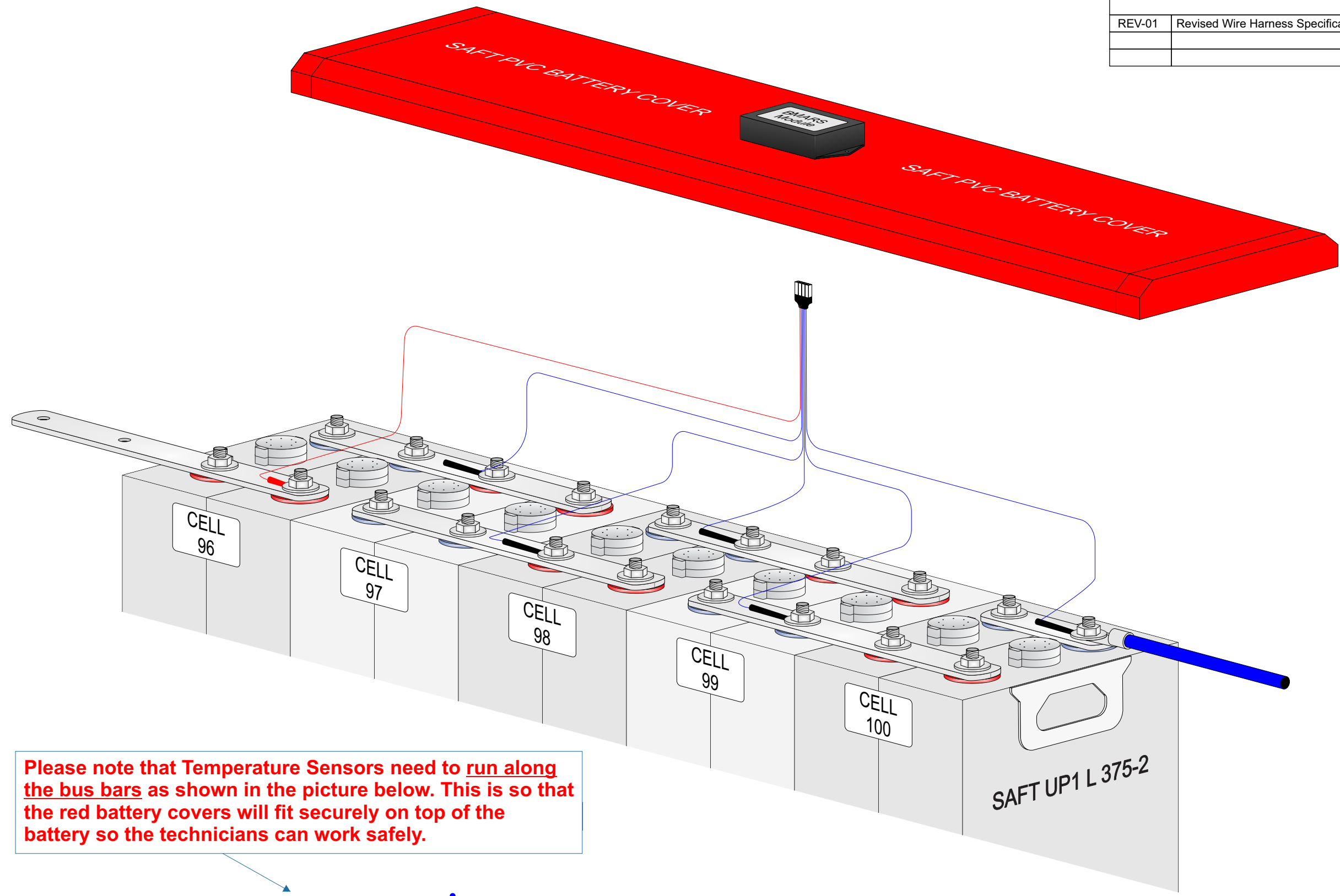


1. **(One Red connection)** to the 1st Positive cell post, and the **(One Temperature Sense Probe)** going to the Negative Post.
2. **One Temperature Sense Probe** going to the Negative Post of the 2nd cell.
3. **One Temperature Sense Probe** going to the Negative Post of the 3rd cell.
4. **One Temperature Sense Probe** going to the Negative Post of the 4th cell.
5. **One Temperature Sense Probe** going to the Negative Post of the 5th cell.
6. **(One Red connection)** to the 6th Positive cell post, and the **(One Temperature Sense Probe)** going to the Negative Post.
7. **One Temperature Sense Probe** going to the Negative Post of the 7th cell.
8. **One Temperature Sense Probe** going to the Negative Post of the 8th cell.
9. **One Temperature Sense Probe** going to the Negative Post of the 9th cell.
10. **One Temperature Sense Probe** going to the Negative Post of the 10th cell.
11. **Etc. etc. etc.**

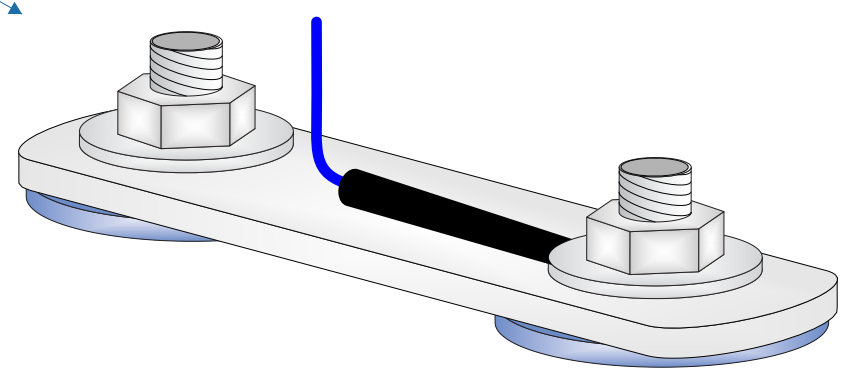


 <p>STANDBY ENERGY 14134 CASTOR ST. TOMBALL, TX 77375</p>	BMARS Modules Top Mount IOM	
	BMARS Wire Harness Connections	
DRAWING # BMARS TYPICAL		
SCALE: NTS	T.A.C.	SHEET: 3 of 4

REVISIONS		
REV-01	Revised Wire Harness Specifications	08/15/2022



Please note that Temperature Sensors need to run along the bus bars as shown in the picture below. This is so that the red battery covers will fit securely on top of the battery so the technicians can work safely.



STANDBY ENERGY
14134 CASTOR ST.
TOMBALL, TX 77375

BMARS 3 Modules Top Mount IOM		
BMARS 3 Wire Harness Connections		
DRAWING # BMARS 3 TYPICAL		
SCALE: NTS	B.R.V.	SHEET: 4 of 4