



Accumulator Verification: ATP-01

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This document contains information about how to verify the electrical connections inside the pack.

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Desired objectives

This test verifies all mechanical connections in the TSV circuit are electrically connected.

Required Hardware

- 1 Pack
- Simulated load
- Basic GLV safety loop
- PPE per safety plan
- Danger zone per safety plan
- Cables as specified in Appendix A
- Multi-meter
- Current probe

Required Software

None

Hardware Setup

Single pack

Since there are 4 different setups there are sometimes different wires required. If this is the case then all four are listed as:

- Pack 1
- Pack 2
- Pack 3
- Pack 4

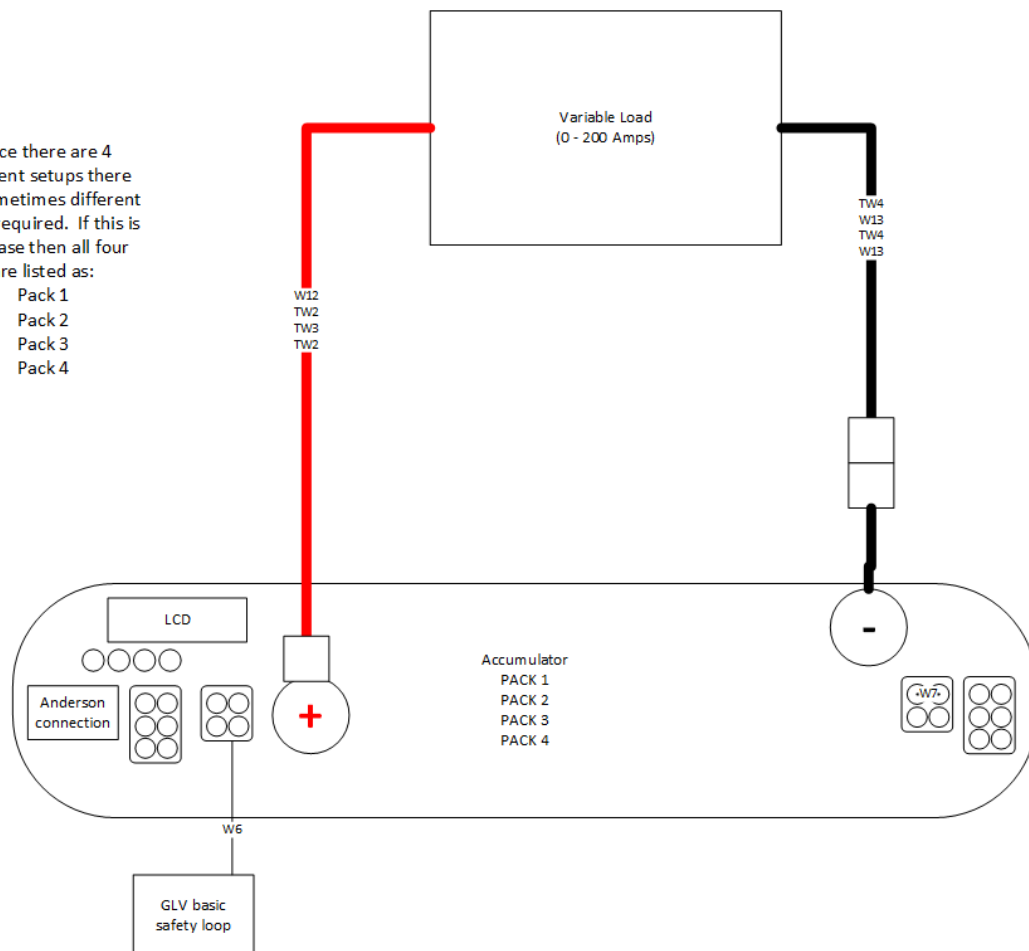


Figure 1 Single pack connections

Software Setup

N/A

Test

Suggestion: Run test at 20A.

Desired data

It is desired to get the resistance between all connections. Use the picture in Appendix B. Note that in figure five pack one has an air between X1 and X2.

Contact Measurement	Resistance ($\mu\Omega$)	Limit ($\mu\Omega$)
A1 - A2		200
B1 - B2		200
C1 - C2		200
D1 - D2		200
E1 - E2		200
F1 - F2		200
G1 - G2		200
H1 - H2		200
W1 - W2		200
J1 - J2		200
K1 - K2		200
L1 - L2		200
M1 - M2		200
N1 - N2		200
X1 - X2		
P1 - P2		
Q1 - Q2		
R1 - S1		
S1 - T1		
T1 - T2		
T2 - U1		
W1 - X1		
W2 - X2		

Witness/examiner signature

Date

Pass/Fail

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Appendix A: Wiring requirements

Pin	Color	Label	Wiring Diagram	Notes
1	WHT	SL1		1 WHT SL1
2	BRN	SL2		2 BRN SL2
3	RED	AIRs+		3 RED AIRs+
4	BLK	AIRs-		4 BLK AIRs-
1	WHT	SL1		1 Jump pin
2	BRN	SL2		2 1 and 2
3	RED	AIRs+		3 Leave pin
4	BLK	AIRs-		4 3 and 4
1	RED	TSV HV		1 RED TSV HV
			NLDFT-E-GN-L-S120-M40A	
1	RED	TSV HV		1 RED TSV HV
			NLS-3-GY-S120-M40A	
1	RED	TSV HV		1 RED TSV HV
			NLS-N-BL-S120-M40A	
1	RED	TSV HV		1 RED TSV HV
			NLDFT-3-GY-L-S120-M40A	
1	RED	TSV HV		1 RED TSV HV
			NLDFT-N-BL-L-S120-M40A	

Cable	What packs use it	Total count for full test
W6	1,2,3,4	4
W7	1,2,3,4	1
W12	1	1
TW2	2,4	1
TW3	3	1
TW4	1,3	1
W13	2,4	1

Appendix B: Measurement location images

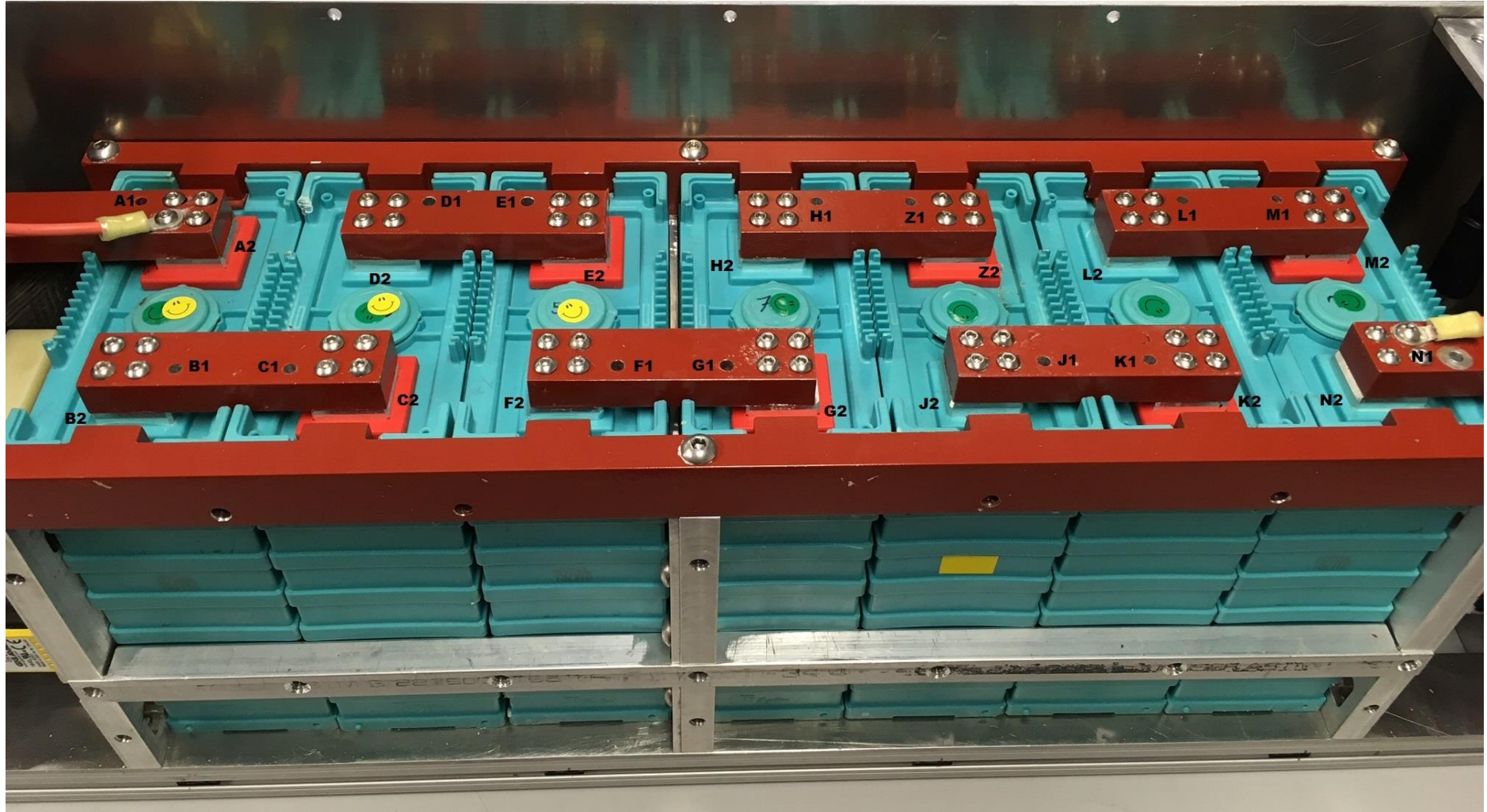


Figure 2 Top of cells

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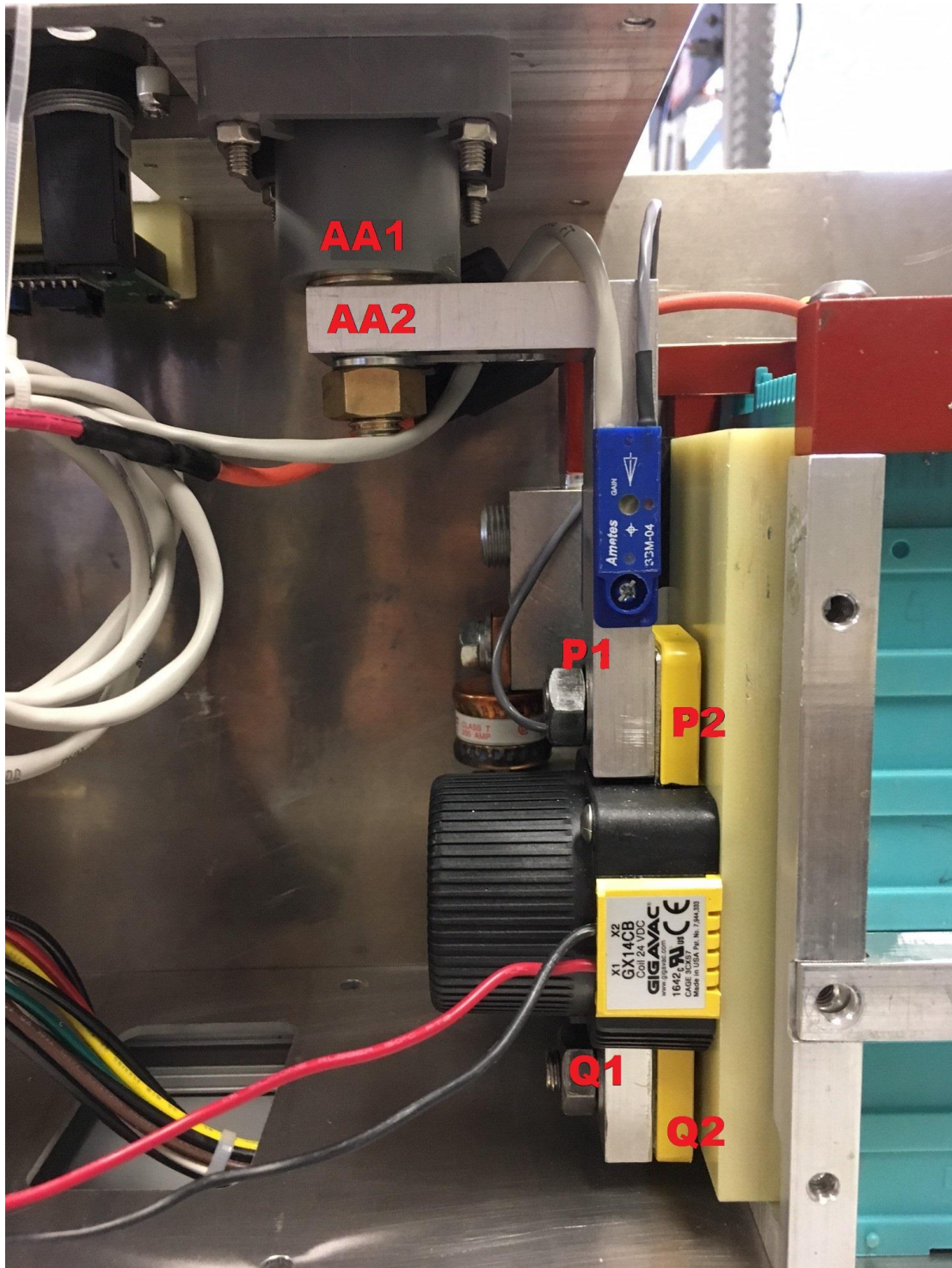


Figure 3 Positive connections front



Figure 4 Positive terminal side

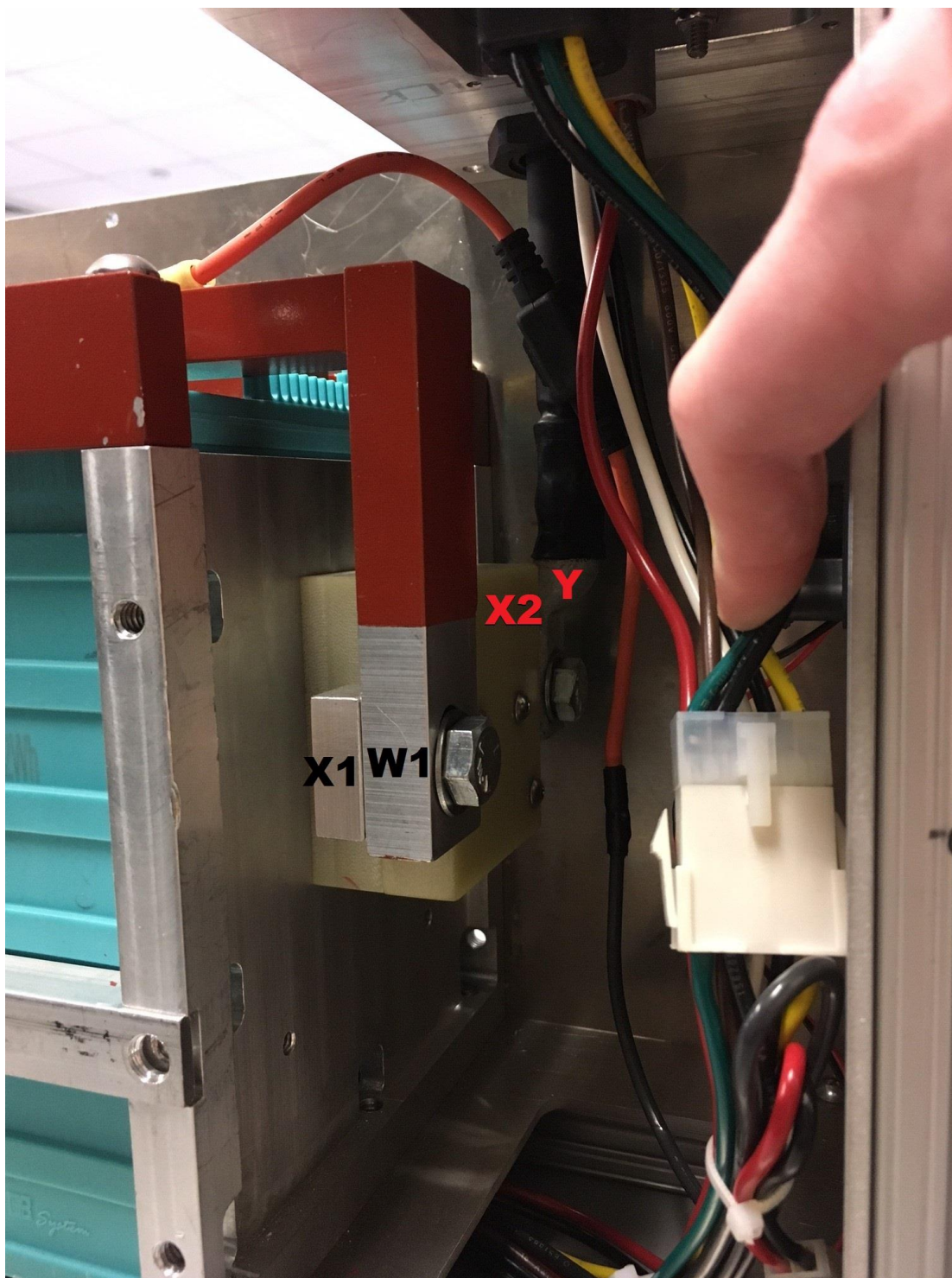


Figure 5 Negative connection side