

From: [INFOCNTR \(PHMSA\)](#)
To: [Baker, Yul \(PHMSA\)](#)
Cc: [Hazmat Interps](#)
Subject: FW: Letter of Interpretation UN 38.3
Date: Wednesday, August 13, 2025 13:57:04
Attachments: [image003.png](#)
[image006.png](#)
[image001.png](#)

Hello Yul,

Please see the below interpretation request.

Let us know if you need anything,

-Breanna

From: Keller, Robert J [US] (SP) <robert.j.keller@ngc.com>
Sent: Tuesday, August 12, 2025 5:31 PM
To: INFOCNTR (PHMSA) <INFOCNTR.INFOCNTR@dot.gov>
Subject: Letter of Interpretation UN 38.3

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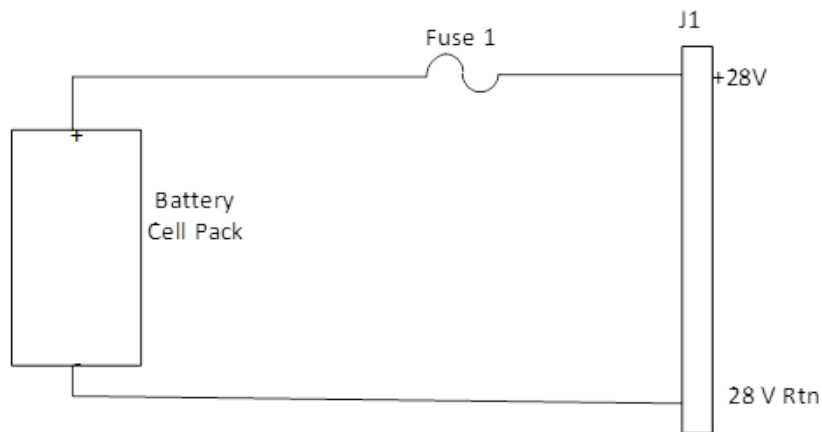
I was hoping you could assist me in clarifying some UN 38.3 requirements. I am looking for a written reply. This is in regards to short circuit testing of Li-Ion batteries and acceptable methods to mitigate thermal runaway. I believe the point of the short circuit testing is to show that the battery is single fault tolerant. When an external short is introduced, the batteries are not to explode or catch fire. This can be accomplished a number of ways. With the higher capacity cells currently available today, this requires more intentional design considerations at a battery assembly level.

I have a number of battery configurations. All use the same 18650MJ1 cell made by LG. Below is a photo of one of the battery assemblies. This is what would be transported via truck in an approved shipping container at 10% State of Charge. Currently I ship no more than 100 per year so I fall under the shipping exemption. It is a solid housing with lid and two connectors. The one on the left is the output power and the one on the right is used to monitor and charge the battery assembly. I anticipate in the future I will need to pass the short circuit testing. I would then need to modify the internal configuration of this design.

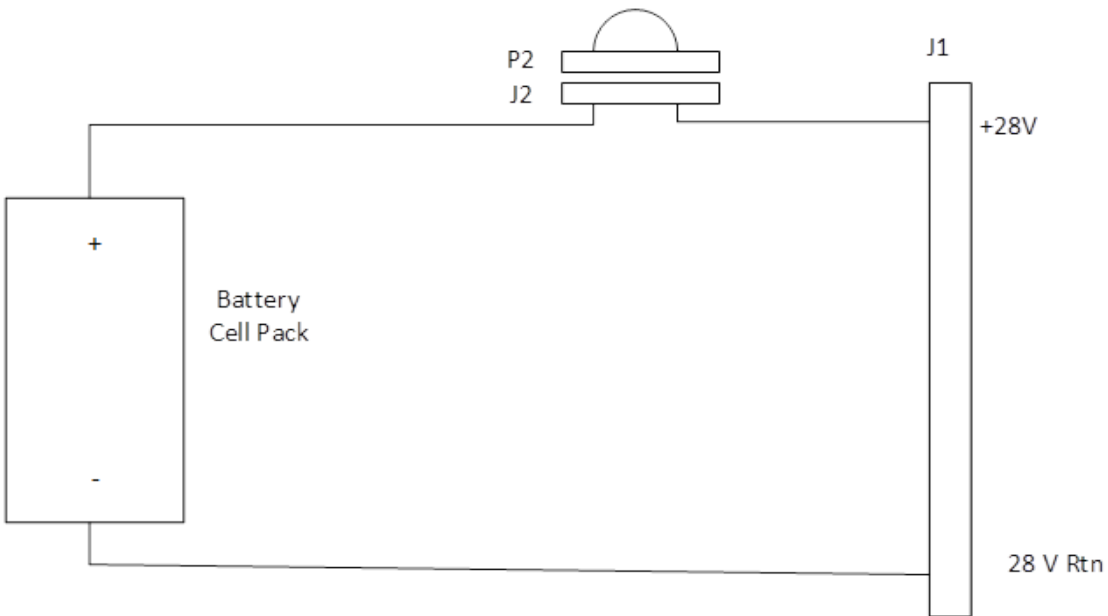


Below are a couple of options to prevent a battery assembly from emitting smoke or fire during the UN 38.3 short circuit testing.

1. Fuse or Current limiting resistor. (Install either a fuse or resistor). By limiting the current you can eliminate current levels that will cause thermal runaway. For this configuration to fail, you would have to short the battery across J1 and have the fuse or resistor also short. All of the below is inside the above housing. J1 is the connector on the left in this example.



2. Adding a second connector (J2) that acts with an arming plug (P2) that would manually disable the output terminals during transport as P2 would not be installed. This would make the battery open circuit. Like example 1, you would need to have the short present at the output J1 and have a short present at the J2 connector.



Option 2 appears to provide the same single fault tolerance that option 1 provides. Is this an acceptable approach? All of the items in option 2 are within the same housing and J1 and J2 are the external interfaces. Thank you in advance for any insight you can provide.

Regards,
Bob Keller
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