Preliminary Energy Meter Integration Information

Requests have been made for integration information for the competition year 2025 energy meter. More and exact details will be provided in the future. This document provides general, preliminary information to allow teams to begin design work and planning.

The housing will utilize the Amphenol EXCEL|MATE MSD XL. For initial vehicle design work, plan on integrating Amphenol part number MSDXLF000F (Figure 1 shows the rear mount, but the front mount version will be required). The actual receptacle will need to be purchased by the team from SAE (or the designated supplier).

The main power terminals need to be in series with the negative TS path. The general locations of two electrical connections are shown in Figure 1. One will be for the TS+ connection. The other will be for GLV connections such as power (6-42 V target), ground, and optional CAN H/L for real-time energy meter data. Additionally, the HVIL pins of the Amphenol receptacle will need integrated into the shutdown circuit.

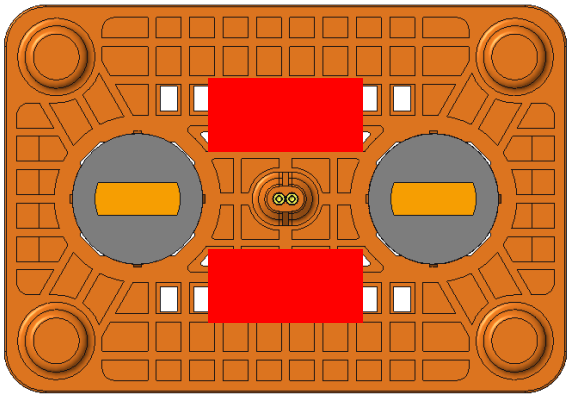

Fig. 1: Connector General Locations

The energy meter itself will be integrated into the mating plug. The Amphenol part number is MSDXLM000. There will be extrusions from this plug. To account for this additional space claim, the suggestion is to provide enough for the plug's lever to swing through its full arc. The blue connector shown in Figure 2 is the download connector. Teams should plan on purchasing an MSDXLM000 to use as a dummy plug when the energy meter is not installed.

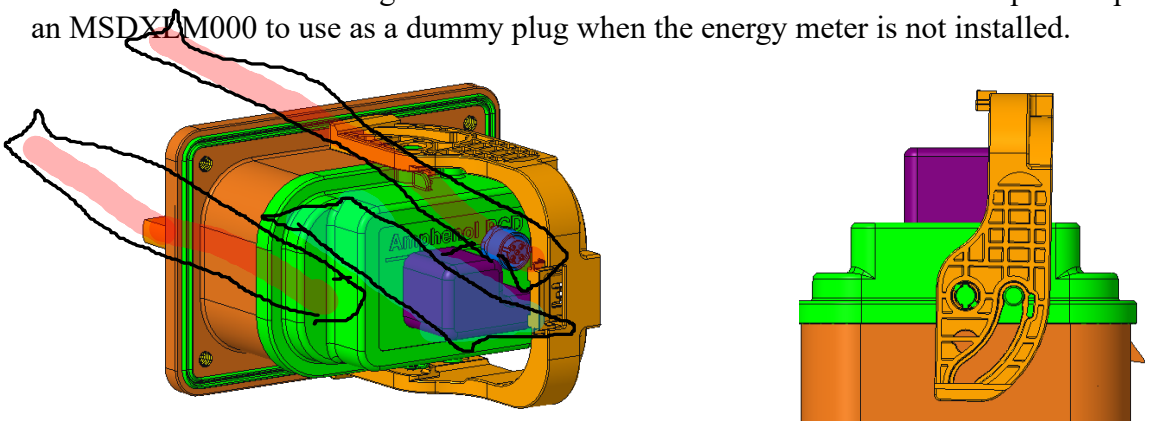

Fig. 2: Additional Plug Space Claim