



## Tru-Loc® Splitter for Harsh Environment CANbus Network

### BACKGROUND

Locomotive engines require sensors, actuators and other control devices to communicate on a network bus through a host processor – like an ECU, CAN controller and CAN transceiver. With ever more stringent environmental efficiency requirements manufacturers are requiring a larger number of monitoring and control devices in order to continuously measure and transmit data to effectively maximize fuel economy and power output.

### PROBLEM

Plastic connectors that are more routinely used in CANbus networks are not reliable enough and therefore do not perform as required over the long duration of a locomotive engine life span due to high vibration, exposure to chemicals, and environmental conditions like precipitation and temperature variances. With a growing quantity of control devices used, the number of number of engine harness mounted throughout the engine bay was also increasing exponentially. Manufacturers were asking for a solution that could incorporate I/O power (2 poles and shield) and CAN signal (2 poles and shield) into a single connector and also split the signal into other harness branches without degradation to the 120 Ohm impedance.

### AIPG SOLUTION

Amphenol Industrial used the platform of its already developed robust connector series, Tru-Loc®, to create a splitter for use with the 6-Way Plugs. True to the series, the Tru-Loc® Splitter is vibration resistant to 32 grms, IP67 rated and can withstand operating temperatures up to 150°C. Amphenol's Splitter offers a means to combine many sensors to a single Engine Control Unit. The Splitter effectively branches a single six-circuit connector harness into two individual six-circuit connector harnesses while maintaining a matched impedance of 120 Ohms between the I/O power circuits and CAN circuits. The greatest benefit is being able put both Power and CAN into a single connector harness reducing the number of connectors and harnesses produced by 2x for the CAN application. Amphenol Industrial offers a 6-Way Plug with contacts for either 16awg or 20awg wire and a 6-Way Terminating Resistor Plug - fitted with a 120 Ohm resistor for use at the end of the bus.

