



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.

