

2008 Chevy Truck Silverado 1500 2WD V6-4.3L

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COMPONENTS

Data Link Communications Description and Operation

Circuit Description

The communication among control modules is performed through the high speed GMLAN serial data circuits and the low speed GMLAN serial data circuit. The modules that need real time communication are attached to the High Speed GMLAN network. The body control module (BCM) is the gateway between the high and low speed networks. Refer to Body Control System Description and Operation for more information about the gateway.

Signal supervision is the process of determining whether an expected signal is being received or not. Some messages are sent on a periodic basis and are interpreted as a heartbeat of a device. If such a signal is lost, the signal supervision part of the software will set a no communication DTC (U. code) against the missing device. This code is mapped on the Tech 2 screen as a code against the physical device. A lost communication DTC typically is set in modules other than the module with a communication failure.

GMLAN High Speed Circuit Description

The data link connector (DLC) allows a scan tool to communicate with the high speed GMLAN serial data circuit. The serial data is transmitted on 2 twisted wires that allow speed up to 500 Kb/s. The twisted pair is terminated with two 120-ohm resistors, one is internal to the engine control module (ECM) and the other is after the electronic brake control module (EBCM), or if equipped, the suspension control module. The high speed GMLAN is a differential bus. The high speed GMLAN serial data bus (+) and high speed GMLAN serial data (-) are driven to opposite extremes from a rest or idle level. The idle level, which is approximately 2.5 volts, is considered recessive transmitted data and is interpreted as a logic 1. Driving the lines to their extremes, adds 1 volt to the high speed GMLAN serial data bus (+) and subtracts 1 volt from the high speed GMLAN serial data bus (-) wire. If a communication signal is lost, the application will set a no communication code against the respective control module. This code is mapped on the Tech 2 screen as a code against the physical device. Note: a loss of serial data DTC does not represent a failure of the module that the code is set in.

The high speed GMLAN serial data allows communication between the body control module (BCM), ECM, transmission control module (TCM), vehicle communication interface module (VCIM), 4WD control module, EBCM, and the suspension control module depending on RPO.

GMLAN Low Speed Circuit Description

The data link connector (DLC) allows a scan tool to communicate with the low speed GMLAN serial data circuit. The serial data is transmitted over a single wire to the appropriate control modules. Under normal vehicle operating conditions, the speed of the buss is 33.33 Kb/s. This protocol produces a simple pulse train sent out over the GMLAN low speed serial data bus. When a module pulls the buss high, 5 volts, this creates a logic state of 0 on the buss. When the buss is pulled low, 0 volts, it is translated as a logic state of 1. To wake the control

modules connected to the GMLAN low speed serial data buss, a wake up signal is sent out over the buss. Modules connected to the GMLAN low speed buss can be part of a virtual network as described in GMLAN High Speed Circuit Description above. The modules on the GMLAN low speed serial data buss are connected to the buss using several splice or "star" connectors separating groups of modules. The following lists state the splices and modules connected to the low speed serial data circuits:

I/P Splice

- * Data link connector (DLC), connected only to the instrument panel (I/P) splice
- * Amplifier (Amp)
- * Rear seat audio (RSA)
- * Vehicle communication interface module (VCIM)
- * Digital radio receiver (DRR)
- * Inside rearview mirror module (ISRVM), connected through the mid I/P fuse block
- * Instrument panel cluster (IPC)
- * Body control module (BCM)
- * Theft deterrent module (TDM)
- * Heater ventilation and air conditioning (HVAC)
- * Radio
- * Driver door switch (DDS), connected through the left I/P fuse block
- * Passenger door switch (PDS), connected through the right I/P fuse block

Body Splice

- * Articulating running board module (ARBM)
- * Ultrasonic park assist (UPA)
- * Memory seat module (MSM)
- * Liftgate module (LGM)
- * Passenger presence system (PPS)
- * Inflatable restraint vehicle rollover sensor (ROS)
- * Inflatable restraint sensing and diagnostic module (SDM)

Data Link Connector (DLC)

The data link connector (DLC) is a standardized 16-cavity connector. The DLC low speed serial data circuit is connected directly to the instrument panel (I/P) splice then to all other splices or modules. Connector design and location is dictated by an industry wide standard, and is required to provide the following:

- * Pin 1 GMLAN low speed communications terminal
- * Pin 4 scan tool power ground terminal
- * Pin 5 common signal ground terminal
- * Pin 6 high speed GMLAN serial data bus (+) terminal
- * Pin 14 high speed GMLAN serial data bus (-) terminal
- * Pin 16 scan tool power, battery positive voltage terminal

Serial Data Reference

The scan tool communicates over the various busses on the vehicle. When a scan tool is installed on a vehicle, the scan tool will try to communicate with every module that could be optioned into the vehicle. If an option is not installed on the vehicle, the scan tool will display No COMM for that options specific control module.

In order to avert misdiagnoses of No Communication with a specific module, refer to Data Link References for a list of modules, the busses they communicate with, and the RPO codes for a specific module.