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2005 Chevrolet Corvette

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Power Mode Description and Operation

Serial Data Power Mode

On vehicles that have several control modules connected by serial data circuits, one module is the power mode master (PMM). On this vehicle the PMM is the BCM. The BCM will monitor the mode switch only with battery voltage above 7 volts to prevent invalid input readings during low voltages encountered during vehicle cranking. If the mode switch input or the battery voltage input changes, a ratiometric calculation of mode switch input value is performed. The BCM discerns four thresholds:

- | Inactive
- | Start active
- | Off active
- | Short detect

To determine the correct power mode the BCM uses:

- | The mode switch data received from the ignition mode switch
- | The status of the engine run flag (ERF)

The following power mode states are transmitted on the class 2 network:

- | Off
- | RAP
- | Accessory
- | Run
- | Crank

The following power mode states are transmitted on the GMLAN network:

- | Off
- | Accessory
- | Run
- | Crank

The power mode message is a periodic with event message type and is transmitted by the PMM or BPMM at every 2 seconds on class 2 link and at every 250 ms on GMLAN link.

The Accessory power mode times out after 20 minutes and will transition to Off/Awake or RAP power mode.

Fail-safe Operation

The remote control door lock receiver (RCDLR) is the back up power mode master (BPMM). The both

BCM and RCDLR receive signals from the ignition mode switch, representing the mode switch data, through 2 different circuits. Therefore if BPMM becomes enabled, it can determine and transmit all the system power modes per the lists above, except RAP. There is no degradation in system operation if the BPMM is the RCDLR. Since the operation of the vehicle systems depends on the power mode, there is a fail-safe plan in place if the power mode message is not received from the BCM or RCDLR. The fail-safe plan covers modules with discrete ignition signal inputs as well as those modules using exclusively serial data control of power mode. The engine control module (ECM) behaves differently.

Serial Data Messages

If no power mode message can be received, the modules remain in the last power mode received and check for the ERF message. If the ERF serial data is true, indicating that the engine is running, the modules fail-safe to "Run" power mode. In this state the modules and their subsystems can support all operator requirements. If the engine run flag serial data is false, indicating that the engine is not running, the modules fail-safe to "Off" power mode.

Discrete Ignition Signals

Those modules that have Run/Crank discrete ignition signal input also remain in the state dictated by the last valid power mode message from the BCM or the RCDLR. They then check the state of their Run/Crank discrete ignition signal input to determine the current valid state. If the discrete ignition input is active, the modules will fail-safe to the "Run" power mode. If the discrete ignition input is inactive, the modules will fail-safe to "Off" power mode.

PCM and TCM Power Mode Backup Strategy

The PCM and TCM remain in the last known power mode state until it can determine its backup system power mode based on their discrete Accessory/Wake up and Run/Crank signal inputs.

PCM and TCM Power Mode Backup Strategy

Accessory/Wake Up Signal State	Run/Crank Signal State	Power Mode Determined
Inactive	Inactive	Off
Active	Inactive	Accessory
Active	Active	Run
Inactive	Active	Crank

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