MCM Instructions with cruise,tach and speedo option

Rev 1 (speed and tach output)

Pin 1: Ignition Power (pink)
Pin 2: AC Relay (Ground Output) (Dark Green)
Pin 3: Tach output (Light Blue)
Pin 4: Speed outpt(Purple)
Pin 5: Empty
Pin 6: (Empty)
Pin 7: Cruise Status Output (12V Output, OTHER end of Lamp goes to Ground) (Red)
Pin 8: Reverse Status Output (12V Output, OTHER end of Relay goes to Ground)(Org)
Pin 9: Tap Shift Circuit Ground (Blk)
Pin 10: GM CAN High (Dark Blue)
Pin 11: GM CAN Low (White)
Pin 12: (Empty)
Pin 13: (Empty)
Pin 14: (Empty)
Pin 15: Chassis Ground (Black)
Pin 16 (Empty)
Pin 17: 4x4 Low Mode Input (0V to Change Shift Mode) (Light Green)
Pin 18: Tap Shift Input(Yellow)
Pin 19: Cruise ON Switch Input (0V, momentary)(Org)
Pin 20: Cruise Set Switch Input (0V, momentary)(Purple)
Pin 21: AC Request Switch Input (0V = AC ON)(Brown)
Pin 22: Tow/ Haul Switch Input (0V, momentary)(Grey)
Pin 23: (Empty)

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Muscle car module explained

The muscle car module (MCM) is a network interface that operates on the GM Can Bus communications protocol. It takes analog and can bus commands to control the engine and transmission extra functions.

Specifications

Tested Operating Temperatures:

-20 to 85 Celsius (-4 to 185 Fahrenheit)

NOTE: The Battery and Chassis Ground wires contain overvoltage, undervoltage, overcurrent, and reverse polarity protection.

NOTE: All of the inputs also contain overvoltage and overcurrent protection

Functionality:

The MCM is programmed to replicate the following GM GenV BCM functions: Tap Shifting, Tow/Haul Mode, Cruise, 4x4 low, reverse signal and A/C Request via wired inputs.

Additionally, the MCM is listening to engine RPM from the ECU, and at RPMs higher than 300 is driving a 12V output at 2 pulses per revolutions to drive factory or aftermarket gauges.

Similarly, the MCM is listening to the vehicle speed signal from the ECU, and at speeds above 3 MPH is driving a 12V output at 4000 pulses per mile to drive factory or aftermarket gauges.

Lastly, the MCM is listening to the shift lever gear position signal from the TCU, and activating two 12V drivers. These are meant to drive relay coils, and not direct loads. When the transmission is in Park or Neutral, the Park/ Neutral output is driven at 12V. When the transmission is in any other gear, the output is left open, and floats towards ground. When the transmission is in Reverse, the Reverse output is driven at 12V. When the transmission is in any other gear, the output is left open, and floats towards ground.

Cruise without speed and tach output

Pin 1: Ignition Power
Pin 2: AC Relay (Ground Output)
Pin 3: 4-Low Status Output (Ground Output, OTHER end of Lamp goes to 12V)
Pin 4: Tow Haul Status Output (Ground Output, OTHER end of Lamp goes to 12V)
Pin 6: Diag LED (12V Output, OTHER end of Lamp goes to Ground)
Pin 7: Cruise Status Output (12V Output, OTHER end of Lamp goes to Ground)
Pin 8: Reverse Status Output (12V Output, OTHER end of Relay goes to Ground)

Pin 9: Tap Shift Circuit Ground
Pin 10: GM CAN High
Pin 11: GM CAN Low
Pin 15: Chassis Ground

Pin 17: 4x4 Low Mode Input (0V to Change Shift Mode)
Pin 18: Tap Shift Input (Resistor Ladder, see image below)
Pin 19: Cruise ON Switch Input (0V, momentary)
Pin 20: Cruise Set Switch Input (0V, momentary)
Pin 21: AC Request Switch Input (0V = AC ON)
Pin 22: Tow/ Haul Switch Input (0V, momentary)

Cruise

Pin 7: Cruise Status Output (12V Output, OTHER end of Lamp goes to Ground) (Red)
Pin 19: Cruise ON Switch Input (0V, momentary)(Org)
Pin 20: Cruise Set Switch Input (0V, momentary)(Purple)

Cruise Status- This sends a 12v signal to turn on a led or indicator when cruise is engaged
Cruise on- A momentary ground will activate cruise on- Cruise is now ready to be set
Cruise Set- A momentary ground will activate cruise as long as no DTC’s are active and speed is above 20 mph

A/C Control

The MCM will safely control the ac compressor via a relay. It outputs a ground signal to control the relay. It operates with many built in safeties including rpm, tps, ac pressure, and voltage.

Pin 2- AC relay output. Connect to relay that operates the ac compressor. Ground activated to ground side of the relay.

Pin 21- AC input. This a a ground activated signal to activate the AC system control. This turns on the AC programming and will output through pin 2 as long as the above safeties have been met.

4x4 Low

4x4 Low mode is to active the transmission 4x4 shift patterns. This allows for factory shifting and throttle control when in a 4 low range.

Pin 17- Ground latching activated. Input a ground signal while in 4 low to activate 4 low shifting and throttle control

Tow/Haul

Tow/Haul function for safe towing

Pin 22- Ground input to activate tow/haul

Speed output

This sends a 12V output at 4000 pulses per mile to drive factory or aftermarket gauges.

Pin 4- Connect to speedo

Tach

Tach output

RPMs higher than 300 is driving a 12V output at 2 pulses per revolutions to drive factory or aftermarket gauges.

Pin 3- connect to tach signal

Tap Shift

Tap Shift

You must you factory truck programming for this to work.

To engage manual mode be aware of your **PRNDM** shift positions. The shifter **must be placed manual mode 1 detent** after drive. Once this is done it should hold current gear or down shift a gear depending on speed. Activating the provided switch will allow manual shifting.

Transmission settings