

OWNERS MANUAL
Model ETM67A & ETM68A
Electronic Throttle Module
for 2006 through 2009
Chevy/GMC Gas and Diesel Engines
with Automatic Transmissions

A. Introduction

This owners manual describes the InPower Model ETM67A and ETM68A electronic throttles used on Chevy & GMC vehicles with gas and diesel engines. Note that the ETM67A and ETM68A systems support the exact same vehicles, but differ only in functionality. The ETM68A provides three fast idle preset speed modes (RPM1, RPM2 & RPM3). The ETM67A provides three fast idle preset speed modes (RPM1, RPM2 & RPM3) plus a *Charge Protect* (CHRG) mode.

The electronic throttle installation requires customer-supplied control wiring to select the required mode of operation. For example, a remote toggle switch or a relay contact from a compressor or aerial lift circuit could be wired to the RPM1 terminal on the electronic throttle controller to activate the RPM1 fast idle mode. The RPM1 mode is then adjusted to the desired fast idle engine speed rpm. Likewise, the RPM2 and RPM3 mode inputs could be wired if you need additional fast idle engine speed functions.

The customer wiring connects to the electronic throttle module via 0.25 inch Faston terminals. The electronic throttle system is supplied with a three foot data cable. This cable contains a 16-pin connector at one end and 0.25 inch Faston terminals at the other end. The Faston terminals will connect at the electronic throttle module and the 16-pin connector plug will attach to the vehicle's OBDII (On Board Diagnostic) data link connector (DLC). The DLC is usually located at the lower part of the dash on the driver's side.

B. Vehicle Applications

The ETM67A and ETM68A support the following GM vehicle configurations.

<u>Model Year</u>	<u>Chassis</u>	<u>Engine</u>	<u>Transmission</u>
2006, 2007, 2007i, 2008, 2009	Silverado/Sierra Classic C2500, C3500	6.6 L Diesel	Automatic
2007i, 2008, 2009	Silverado/Sierra Classic C2500, C3500	6.0 L Gas	Automatic
2006, 2007, 2007i, 2008 2009	Kodiak/Topkick C4500, C5500	6.6 L Diesel	Automatic
2006 - 2009	Express, Savanna 4.8 L & 6.0 L Gas	6.6 L Diesel,	Automatic
2007 - 2009	Tahoe/Suburban/Yukon & 6.2 L Gas	4.8 L , 5.3 L, 6.0 L,	Automatic

C. Operation

When the vehicle is parked and **Chassis Ready Conditions** are satisfied, the engine speed may be controlled by one of the three available preset speed modes. The preset speed is adjusted by three calibration potentiometers on the top of the ETM module.

Chassis Ready Conditions:

1. Parking brake is set.
2. Gear shift in "Park"
3. Foot is off the service brake
4. Foot is off the accelerator pedal
5. Vehicle is stationary (no speed)
6. Engine is started and idling below 1000 RPM

Modes Of Operation:

1. Three Preset RPM High Idle Modes:

Function:	Increase idle to a preset rpm value
Terminals:	RPM1, RPM2, RPM3
Activation:	Apply +12 V to terminal
Range of Calibration:	650 to 1500 rpm (Diesel), 650-2000 rpm (Gas)
Type of Adjustment:	Internal potentiometers

2. Mode Priorities:

A mode priority selection scheme is provided that will eliminate conflicts if more than one mode is selected at a time. In the case of one or more modes being selected, the following priorities will be established:

RPM1	Highest - Will override all other modes
RPM2	Second - Will override lower modes
RPM3	Third - Will override lower mode
CHRG	Fourth

3. Charge Protect Mode (Only on ETM67A):

Function:	Varies rpm to maintain battery charge voltage
Control Terminal:	CHRG
Activation:	Apply +12V to CHRG terminal
RPM Range:	900 to 1700 rpm
Battery Voltage Levels:	13.3 Vdc Increase rpm; 13.5 Vdc Decrease rpm

Status Indicators

A 10 segment LED provides status and problem detection information. Refer to the following table for coding of these functions. **NOTE - These LED indicators will only be powered when a Mode (RPM1, RPM2, RPM3, CHRG) is selected.**

LED	Status	Indication
BUSS	On Solid	Module ON and functioning
BUSS	Flashing	Module ON, but a problem was detected with Data Buss
GEAR	On Solid	Transmission in PARK position
GEAR	Flashing	Transmission not in PARK position
PK BRK	On Solid	Park Brake set
PK BRK	Flashing	Park Brake not set
SR BRK	On Solid	Service Brake off
SR BRK	Flashing	Service Brake applied
VSPEED	On Solid	Vehicle is stationary
VSPEED	Flashing	Vehicle is moving

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LED	Status	Indication
RPM1	On Solid	RPM1 mode selected, engine at fast idle
RPM1	Flashing	RPM1 mode selected, engine not at fast idle (Chassis Ready Conditions not satisfied*)
RPM2	On Solid	RPM2 mode selected, engine at fast idle
RPM2	Flashing	RPM2 mode selected, engine not at fast idle (Chassis Ready Conditions not satisfied*)
RPM3	On Solid	RPM3 mode selected, engine at fast idle
RPM3	Flashing	RPM3 mode selected, engine not at fast idle (Chassis Ready Conditions not satisfied*)
APDL	On Solid	Accelerator pedal at rest position
APDL	Flashing	Accelerator pedal actuated (not at rest position)

* See *Chassis Ready Conditions* on page 2 for required conditions to allow increased idle speed.

D. Installation

1. Getting Started

The recommended location for the ETM system is under the dash due to the proximity of the wiring connections and cable length. **The unit should not be located in the engine compartment, or any location that is not protected.** You will need a crimping tool for the 0.25 inch Faston (blade) terminals, and a wire stripping tool. Be sure to follow the crimping tool instructions for the proper wire size and terminals.

2. Mount the ETM Module

Mount the ETM module under the dash using the two mounting holes. Ensure that you have sufficient distance to install the 36 inch long DLC cable. **DO NOT EXTEND THE LENGTH OF THIS CABLE.**

3. Install the DLC Cable

Connect the two Faston terminals on the DLC cable to the ETM module terminals (Green wire to CANL terminal and Yellow wire to CANH terminal). Route the cable to the OBDII (On Board Diagnostic) Data Link Connector and plug it in. The OBDII connector will be located on the lower part of the dash on the driver's side. Using a cable tie, secure the plug to the OBDII connector so that it will not vibrate out. We recommend that you route the cable of the plug back across the bottom of the connector and loop the cable tie around the plug, socket and cable, thereby keeping the cable out of the way. Also ensure that the entire cable is routed and secured to keep it out of the way.

4. Wire the Parking Brake Switch Input

Note - Follow this procedure for the following chassis configurations:

1. 2006 - 2007 Silverado/Sierra Classic C2500, C3500 with 6.6 L Diesel
2. 2006 - 2008 Kodiak/Topkick C4500, C5500 with 6.6 L Diesel
3. 2006, 2007 Express, Savanna with 6.6 L Diesel

The ETM67A/68A systems requires an input to detect that the parking brake is set before it can go to fast idle. Install a wire from the PK BRK terminal on the ETM module to the chassis parking brake switch. Connect this wire on the side of the switch that is not grounded. Verify that the wiring is correct by measuring the voltage at the PK BRK terminal when the parking brake is operated. The terminal should be at ground when the brake is depressed and at + voltage when not depressed.

5. PTO Enable Wiring

Note - Follow this procedure for the following chassis configurations:

1. 2006 - 2009 Silverado/Sierra Classic C2500, C3500 with 6.6 L Diesel
2. 2007i, 2009 Silverado/Sierra Classic C2500, C3500 with 6.6 L Diesel
3. 2006 - 2009 Kodiak/Topkick C4500, C5500 with 6.6 L Diesel
4. 2006 - 2009 Express, Savanna with 6.6 L Diesel

For proper operation of the ETM67A/68A electronic throttle it is necessary to activate the GM Electronic Control Module (ECM) *PTO Enable Switch Input*. This input activates certain ECM functions that enable the ETM67A/68A to operate effectively. **If this input is not activated when using the ETM67A/68A system, unstable speed control over 1400 rpm and no fast idle operation in cold weather (15° F) will result.**

Prior to wiring the ETM67A/68A it is necessary to determine if the *PTO Enable Switch Input* is being activated from a control device such as a PTO Enable Switch or High Idle Switch. If so, you will need to install a wire from this switch to the RPM1 input terminal on the ETM module. This will activate the ETM module's RPM1 preset speed when the ECM's *PTO Enable Switch Input* is activated.

For applications that do not contain a PTO Enable Switch or High Idle Switch it is necessary to activate the ECM's *PTO Enable Switch Input* from the ETM67A/68A module's PTO output terminal. For these applications you will need to install a remote device (e.g., toggle switch) to activate the ETM 67A/68A module's RPM1 input, and install a wire between the ETM module's PTO output terminal and the ECM's *PTO Enable Switch Input*. As the location of the ECM's *PTO Enable Switch Input* will vary with chassis type refer to **Section F wiring diagrams for further details.**

6. Wire the Mode Selection Controls

The following wiring is required by the customer to select the operating modes required to run the ETM system. You will need to supply contact closures such as a toggle switch or relay contact to supply +12 volts at the ETM module's terminals for the required preset rpm modes (RPM1, RPM2, RPM3 and CHRG). **It is important that the +12 volts used to feed the mode select terminals is from the Ignition Switch power source, and it should be properly fused. That is, it must be +12 volts when the Ignition Switch is On, and zero volts when the Ignition Switch is Off.**

7. Wire the Power and Ground

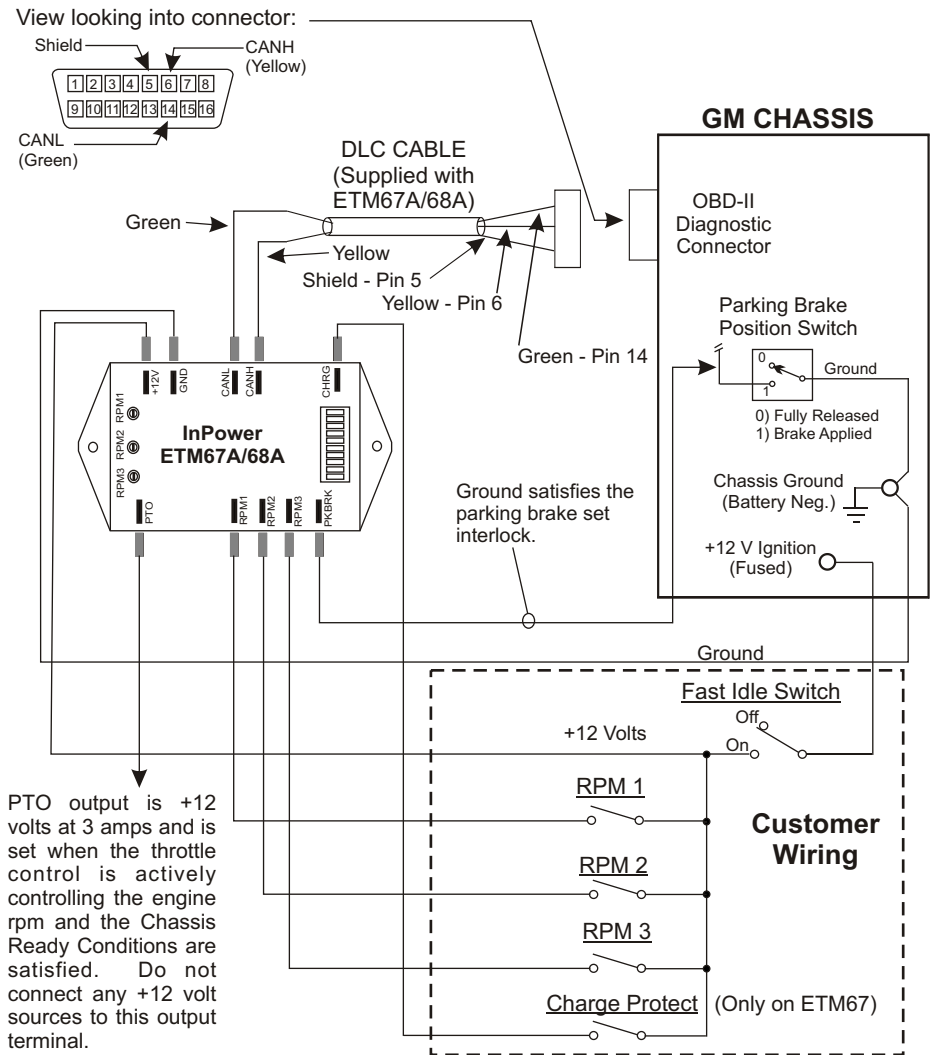
Install a wire from a good ground (battery negative) to the GND terminal on the ETM67A/68A module. Install a Fast Idle Switch (not supplied with ETM system) and wire one side of the switch to a source of +12 volts that is fused and only powered when the ignition switch is in the On position. Wire the other side of the switch to the +12V terminal on the ETM module and to the contacts that select the RPM1, RPM2 & RPM3 modes (see diagram on page 4).

E. Setup and Calibration

The only calibration required is the speed rpm setting for the three preset rpm modes (RPM1, RPM2 & RPM3). To perform the calibration activate the desired preset mode, then adjust the respective speed calibration potentiometer (RPM1, RPM2 or RPM3) for the required speed. **NOTE - The calibration potentiometers are located on the top of the module in recessed holes. Take care to use a proper size screwdriver (3/64" / 1.5mm) or damage to the potentiometers may result.**

F. Wiring Diagrams

F.1 General Wiring



Tools and Parts Required to Wire Into the GM PCM

Crimper: Bosch p/n 1 928 498 213

Terminal: Bosch p/n 1 928 498 135

GM p/n 12595687

Delphi p/n 15438364

Note - Located in the GM Terminal Repair Kit J-38125, Tray 19.

1/4 inch Female Blade Terminal

Wire rated for under-hood temperatures

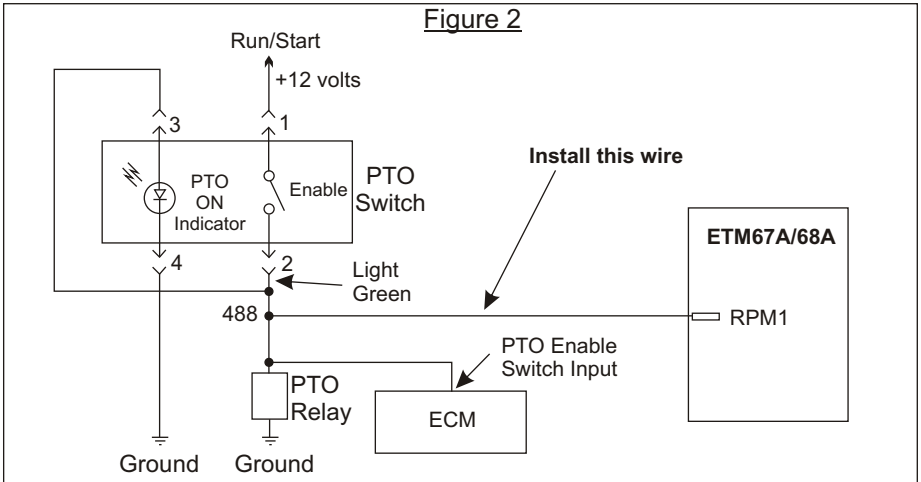
Convuluted tubing or braided mesh wire covering

Small flat bladed tool

InPOWER

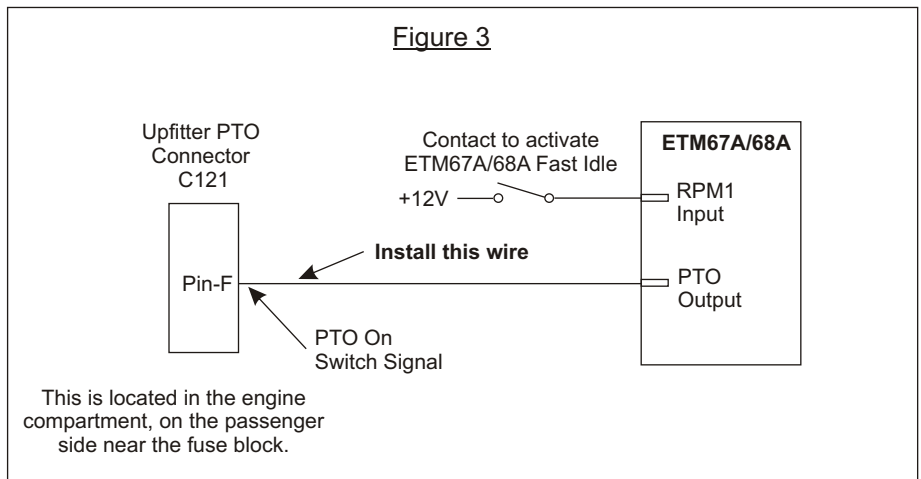
F.2 Wiring for C4500 and C5500 Chassis

A. Follow this wiring diagram if a PTO Switch or High Idle Switch is installed in the vehicle.



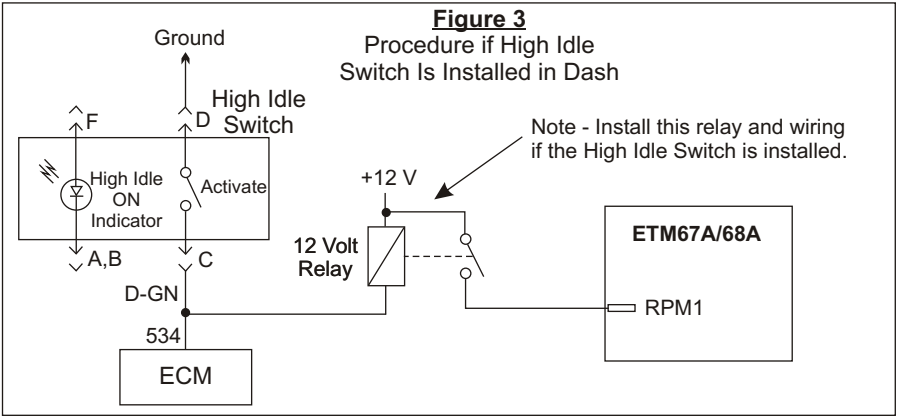
F.2 Wiring for C4500 and C5500 Chassis

B. Follow this wiring diagram if a PTO Switch or High Idle Switch is not installed in the vehicle.



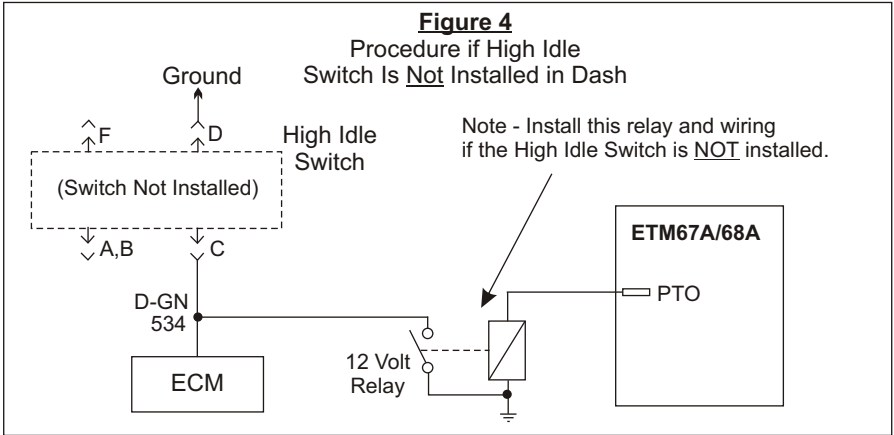
F.3 Wiring for 2006/2007 G/H Vans

A. Follow this wiring diagram if a High Idle Switch is installed in the vehicle.

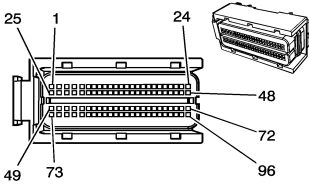


F.3 Wiring for 2006/2007 G/H Vans

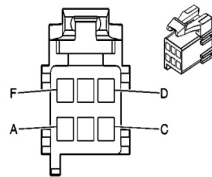
B. Follow this wiring diagram if a High Idle Switch is not installed in the Vehicle.



ECM 96-Pin Connector C1 (View looking into connector plug on harness)



High Idle Switch Connector

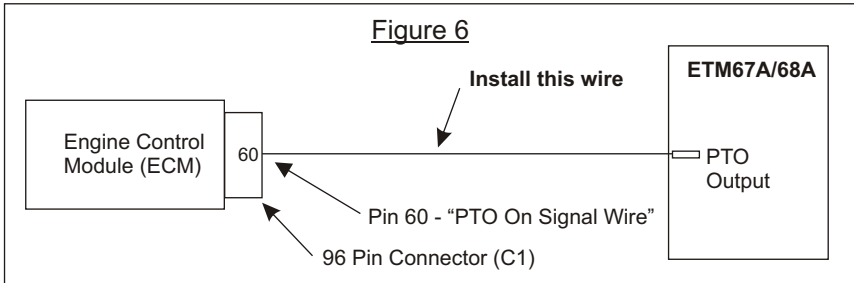


11. Crimp terminal 1 928 498 135 to wire rated for under-hood temperatures using crimpers 1 928 498 213 and insert terminal into connector C1 cavity #60.

F. Wiring Diagram (Continued)

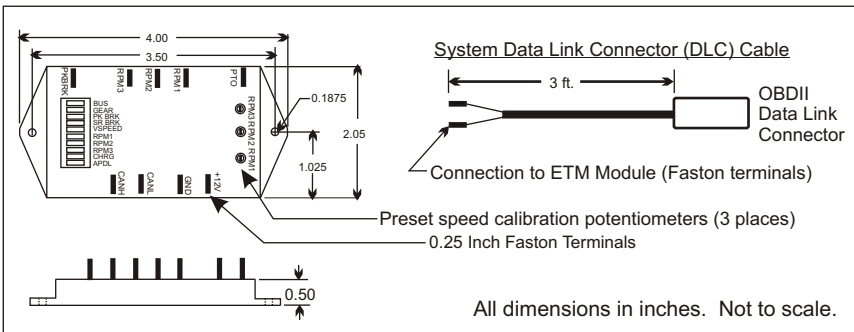
F.3 Wiring for C2500 and C3500 Chassis

This procedure requires installing a wire from the ETM module PTO terminal to pin-60 on the GM Engine Control Module (ECM). Pin-60 is "PTO On Switch Signal" and is identified in the GM documents as wire #488 (LT-GRN). Most, if not all vehicle builds do not have this wire installed. Therefore it is necessary to install a wire with a crimped terminal that inserts into pin-60 of the ECM connector, with the other end connected to the ETM67A/68A module's PTO output terminal. For a more detailed description of this wiring procedure see InPower Technical Bulletin TB-49.



If there is a wire installed you must determine if it is connected to a switch that powers this wire with +12 volts, such as a PTO Switch or High Idle Switch. In this case you must splice into the wire and connect it to the ETM module's RPM1 input. Note - 2500 and 3500 chassis do not have a PTO option. Only 3600 chassis have a PTO option.

E. Mechanical Drawing



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