

# OWNERS MANUAL

## Model ETM64

### Electronic Throttle Module

for

### Chevy/GMC Gas & Diesel Engines

### with Automatic Transmissions



#### A. Introduction

The InPower Model ETM64 electronic throttle module is designed for installation in the following 2003 through 2006 Chevy/ GMC truck, van and sport utility vehicles:

4.8 L *Vortec* Gas with Automatic Transmission  
5.3 L *Vortec* Gas with Automatic Transmission

8.1 L *Vortec* Gas with Automatic Transmission  
6.0 L *Vortec* Gas with Automatic Transmission

The ETM64 electronic throttle module also works with 2003-2005 Chevy/GMC 6.6 L Duramax Diesel with Automatic Transmission.

Five available modes of fast idle control are provided, including: three fast idle preset speeds (user adjustable), a variable speed input (remote variable resistor), and *Charge Protect*, which will advance the engine speed from 680 rpm until it senses sufficient voltage at the battery to maintain its charge (1700 rpm maximum).

The ETM64 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 ETM64 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 ETM64 module via 0.25 inch Faston terminals. The ETM64 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 ETM64 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.

On gas engine vehicles, a characteristic of the GM engine control system is that when operating in the fast idle mode the speed will momentarily drop when the air conditioner's compressor cycles, then return to the fast idle rpm setting. As this is undesirable for many speed sensitive fast idle operations the ETM64 system's default mode is to disable A/C operation when in fast idle mode. If A/C operation is required during fast idle a jumper wire may be installed to enable the A/C operation. A terminal ("ACON") is provided on the ETM64 that can be wired to +12 volts if the A/C is to be operated during fast idle mode. If it is not connected to +12 volts the A/C will be disabled during fast idle mode.

#### B. Operation

When the vehicle is parked and **Chassis Ready Conditions** are satisfied the engine speed may be controlled by one of the five available modes (three preset speeds, *Charge Protect*, or variable rpm). The preset speed may be adjusted by three calibration potentiometers on the top of the ETM64 module.

##### **Chassis Ready Conditions:**

1. Parking brake is set. This can be optionally either a hardwired input from the parking brake switch or the internal monitoring of the parking brake sensor via the engine data bus by the ETM-64 system.
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)

## B. Operation (Cont'd)

### 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: 680 to 2000 rpm
  - Type of Adjustment: Internal potentiometers
2. Charge Protect Mode:
  - Function: Varies rpm to maintain battery charge voltage
  - Control Terminal: CHRG
  - Activation: Apply +12V to CHRG terminal
  - RPM Range: 680 to 1700 rpm
3. Variable RPM Mode:
  - Function: Varies rpm as a function of voltage on VRPM
  - Terminal: VRPM
  - Adjustment: 10K Ohm potentiometer between the VRPM terminal and ground
  - Enable: Turn potentiometer down to zero resistance, then slowly increase until the desired rpm is reached
  - Disengage: Turn potentiometer down to zero and rpm will drop to standard idle speed
  - RPM Range: 680 to 2000 rpm
4. 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 modes
Charge Protect	Fourth - Will override lower modes
Variable RPM	Lowest - Will only activate when other modes are off

### 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, Charge Protect, or Variable RPM) is selected.**

LED	Status	Indication
BUSS	On Solid	Module ON and functioning
BUSS	Flashing	Module ON, but a problem was detected
GEAR	On Solid	Transmission in PARK
GEAR	Flashing	Transmission <u>not</u> in PARK
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
RPM1	On Solid	RPM1 mode selected, engine at fast idle
RPM1	Flashing	RPM1 mode selected, engine not at fast idle (Interlocks not satisfied*)
RPM2	On Solid	RPM2 mode selected, engine at fast idle
RPM2	Flashing	RPM2 mode selected, engine not at fast idle (Interlocks not satisfied*)
RPM3	On Solid	RPM3 mode selected, engine at fast idle
RPM3	Flashing	RPM3 mode selected, engine not at fast idle (Interlocks not satisfied*)
CHRГ	On Solid	CHRГ mode selected, engine at fast idle
CHRГ	Flashing	CHRГ mode selected, engine not at fast idle (Interlocks not satisfied*)
VRMP	Off	VRPM terminal at zero resistance value (engine at idle)
VRPM	On Solid	VRPM terminal increases above threshold level (0.6v) and engine speed increases accordingly.
VRPM	Flashing	VRPM terminal increases above threshold level (0.6v) but engine does not respond with elevated speed.

\* See *Chassis Ready Conditions* on page 1 for required conditions to satisfy interlocks.

## C. Installation

### 1. Getting Started

The recommended location for the ETM64 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 ETM64 Module

Mount the ETM64 module under the dash using the two mounting holes. Ensure that you have sufficient distance to install the 36 inch long DLC cable.

### 3. Install the DLC Cable

Connect the three Faston terminals on the DLC cable to the ETM64 module terminals (Black wire to GND terminal, Red wire to +12V terminal, and White wire to BUSS 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

The ETM64 system requires an interlock input to detect that the parking brake is set before it can go to fast idle. Normally this is done by a communication between the ETM64 and the GM engine controller via the data bus. However, on certain variations of C6500, C7500 and C8500 chassis, this data bus communications does not take place. In these cases a hardwired input is available ("PK BRK" terminal) so that when a ground is applied the interlock is satisfied. For these applications install a wire from the PK BRK terminal on the ETM64 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. Note that if no wire is connected to the PK BRK terminal the ETM64 will default to use the data bus communications for the interlock.

### 5. Wire the ACON Terminal

For gas engine vehicles only, if the air conditioner is desired to operate during the fast idle mode wire the ACON terminal to +12 volts. This may cause variations in engine speed when the A/C compressor cycles. **If you do not connect the ACON terminal to +12 volts the air conditioner will be turned off during the fast idle operation, allowing a more stable engine speed.**

### 6. Wire the Mode Selection Controls

The following wiring is required by the customer to select the operating modes required to run the ETM64 system. You will need to supply contact closures such as a toggle switch or relay contact to supply +12 volts at the ETM64 terminals for the three preset rpm modes and the Charge Protect mode. **It is important that the +12 volts used to feed the mode select terminals is from the Ignition Switch power source. That is, it must be +12 volts when the Ignition Switch is On, and zero volts when the Ignition Switch is Off.**

#### A. Preset Speed Modes

If you are using any of the three preset speed modes (RPM1, RPM2 or RPM3) you will need to supply a separate contact closure to each preset terminal. The contacts need to supply +12 volts (Ignition Switch power) to activate the preset modes.

#### B. Charge Protect Mode

If you are using the Charge Protect mode you will need to supply a contact closure between the CHRG terminal on the ETM64 and the +12 V Ignition Switch power.

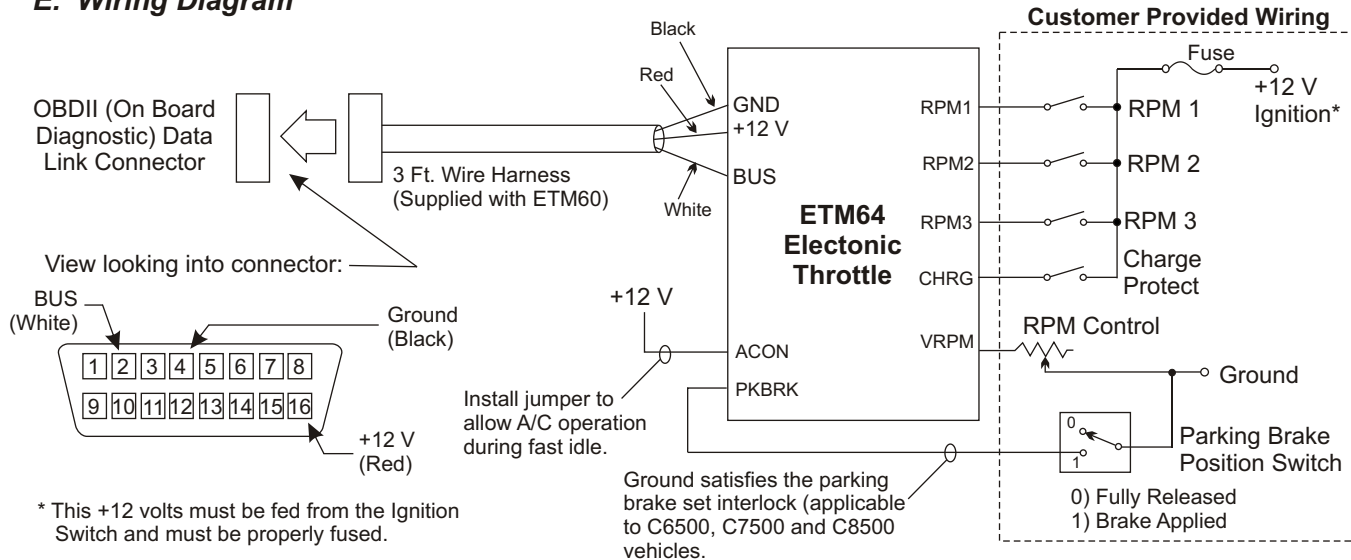
#### C. Variable RPM Mode

If you are using the Variable RPM mode you will need to supply a 10,000 ohm variable resistor (potentiometer) between the VRPM terminal on the ETM64 module and ground. We recommend a three-turn or more potentiometer.

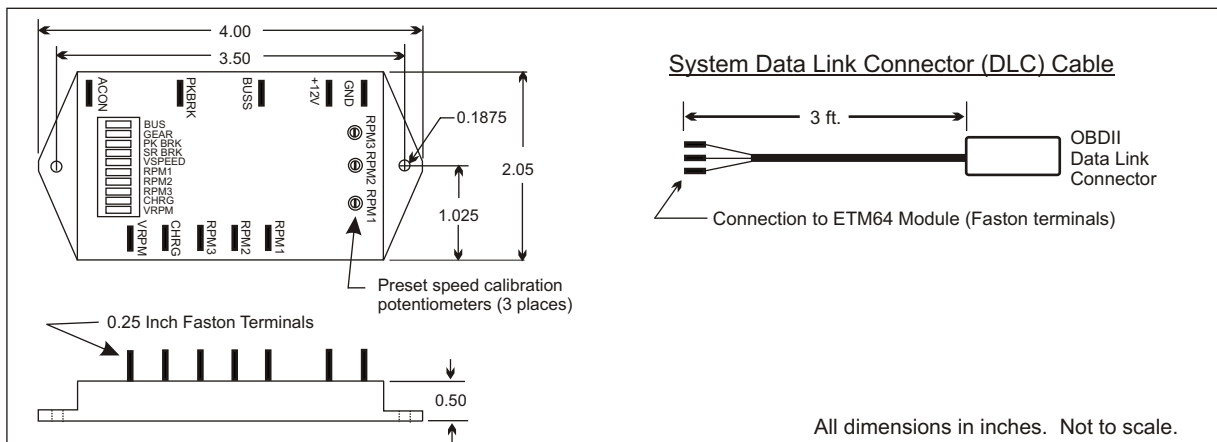
## D. Setup and Calibration

The only calibration required is to select each of the three preset rpm modes (RPM1, RPM2 & RPM3) and adjust the three respective calibration potentiometers on the top of the ETM64 module to the desired speed (680 through 2,000 RPM). Adjustments can be made with a 1/16" (1.6 mm) or smaller screw driver.

## E. Wiring Diagram



## F. Mechanical Drawing



## G. Specifications

### Electrical

Input Voltage (+12V Terminal): 8 to 16 volts  
 Input Current (+12V Terminal): 30 mA

### Mechanical

Weight: 0.17 lbs  
 Connections: Faston 0.25 inch terminals  
 Case Material: Cyolac thermoplastic (UL 94VO)  
 Encapsulation Material: Epoxy potting compound, resistant to most fuels, oils, acids, and cleaning agents.

## H. Customer Support

### Technical Support

For product support, contact InPower at 740-548-0965 or 866-548-0965. Product bulletins and owner's manuals are available on our web site: [www.InPowerDirect.com](http://www.InPowerDirect.com).

### Warranty

InPOWER LLC warrants its products to be free from defects in material and workmanship under normal use, care and maintenance for a period of two (2) years from the date of shipment. Please see [www.inpowerdirect.com/warranty.htm](http://www.inpowerdirect.com/warranty.htm) for specifics or call 866-548-0965 for a copy of our warranty policy.

### Customer Evaluation

InPower wants to ensure total customer satisfaction. Please download a product evaluation form at [www.InPowerDirect.com/Customer\\_evaluation.htm](http://www.InPowerDirect.com/Customer_evaluation.htm) or call us toll free at 866-548-0965 to be sent a form by mail.