

OWNERS MANUAL

InPower Model ITM115A

Platform Lift Interlock

2005 - 2007 Ford E-Series

1. Introduction

This product is intended for installation in 2005 thru 2007 Ford E-Series chassis with FMVSS compliant, public use platform lifts manufactured by The Braun Corporation, Ricon Corporation or Maxon Mobility. If another type of lift is to be used, contact the lift manufacturer to determine its compatibility.

The ITM115A interlock system is designed to meet the requirements of FMVSS 403/404 and therefore must be installed in accordance with the lift manufacturer's instructions. The installer must be trained and skilled in installing FMVSS compliant lift systems. The installation must also comply with SAE (Society of Automotive Engineers) and Ford Motor Company electrical wiring procedures.

Note that the Model ITM115A is identical to the Model ITM115 with one exception. The ITM115A has an additional *Lift Stowed* input for a ground potential signal when the platform lift is in the fully stowed position. Therefore the ITM115A is compatible with the new Braun lifts (e.g., Millennium 2 & Century 2) that provide only a ground potential *Lift Stowed* output.

2. Product Description

The ITM115A interlock system contains an Interlock Control Module and the Interface Wiring Harness. The control module is a solid state device that performs FMVSS 403 platform lift vehicle safety interlocks. The wiring harness connects the control module to the vehicle chassis wiring, the platform lift and other devices using "plug and play" tee-cables as well as color-coded blunt-cut wires.

3. Installation Procedures

3.1 Safety Precautions



WARNING

This interlock product has been designed and manufactured to meet the intended application requirements and specifications. Any modifications to the product or to the installation procedure can be dangerous and will void InPower's warranty.

Read and understand the instructions in this manual and other manuals before starting the installation.

Make sure that the vehicle battery power is disconnected during installation of the Interlock and lift systems. Reconnect the battery when the system installation is complete.

Wear appropriate safety equipment, such as protective eyeglasses, face shield and clothing when installing equipment and handling the battery.

Be careful when working near a battery. Make sure that the area is well ventilated and that there are no flames near the battery. Never lay objects on the battery that can short the terminals together. If battery acid gets in your eyes, immediately seek first aid. If acid gets on your skin, immediately wash it off with soap and water.

3.2 Getting Started

This manual provides instructions for installing the InPower Model ITM115A Interlock System in a 2005 thru 2007 Ford E-Series van with a FMVSS compliant public use platform lift. It is important that you follow these instructions carefully and contact InPower if you need assistance or more information.

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Owners Manual

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3.2 Getting Started (Continued)



WARNING

Before installing and operating this interlock system, read and understand the lift manufacturer's safety, operating and installation instructions.

This interlock system requires the installer to be trained to install and work on vehicle electrical systems. We require that all wiring meet SAE and Ford wiring specifications.

This interlock system installation requires additional parts and materials that are not supplied with the interlock product (See Section 8.3). Identify all required parts before starting the installation and ensure that these items are the correct type and quality.

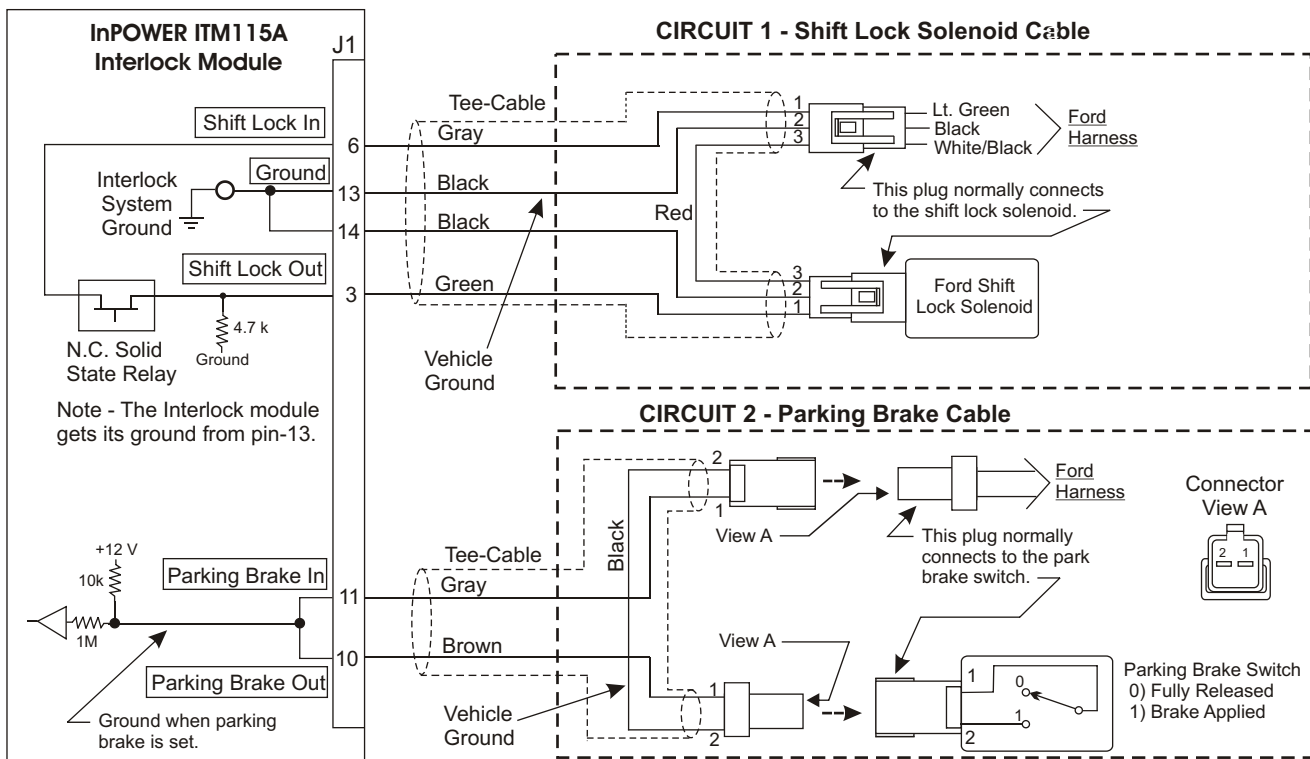
Inspect the interlock product and all other components for damage before starting the installation. Do not perform the installation if any problems exist.

Determine the type of interlock interface required for the platform lift. This interlock system provides a +12 volt @ 8 amps *Lift Enable* output to allow the platform lift to be operated. It also requires a *Lift Stowed* signal from the lift system that is +12 volts when the lift is in the fully stowed position. If the lift system is not compatible with these two interface signals you must take the necessary actions to adapt the lift system interface to the interlock system's interface. Refer to the lift manufacturer's installation instructions for further details.

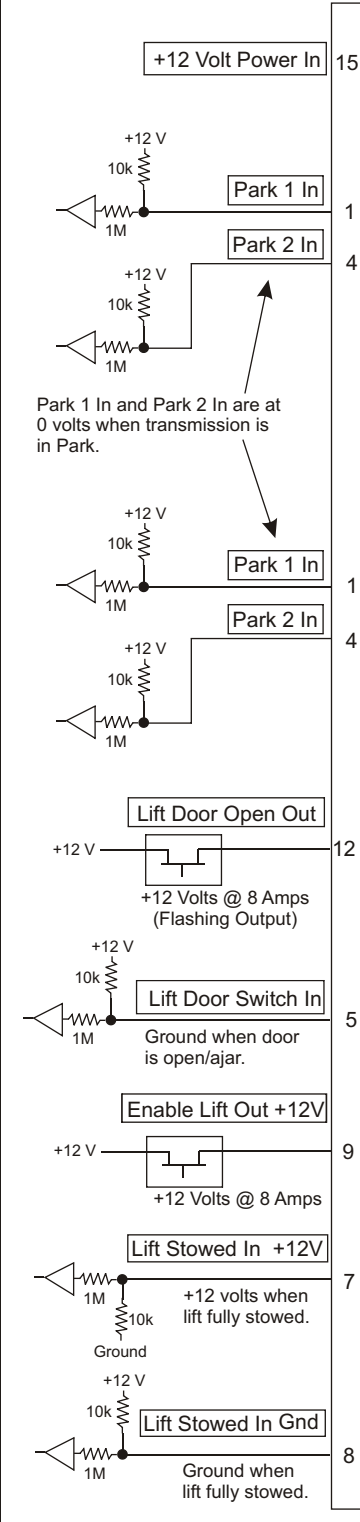
The recommended mounting location for the ITM115A interlock module is under the dash, to the left of the steering column due to the proximity of the wiring connections. **The unit should not be located in the engine compartment or any location that is not protected from the environment.**

4. Circuit Diagrams

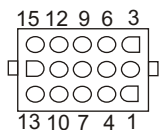
The following pages show the individual circuits that need to be wired. The following section, 5. Installation Instructions, describes how to wire these circuits.



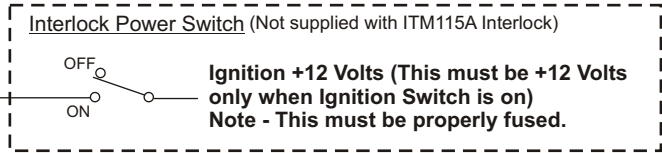
InPOWER ITM115A Interlock Module



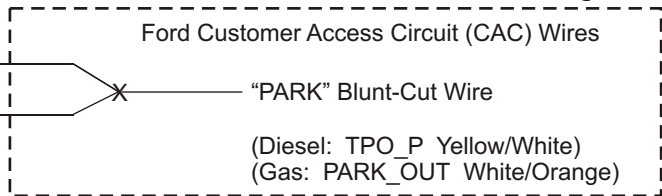
View looking into J1 connector on the ITM115A module.



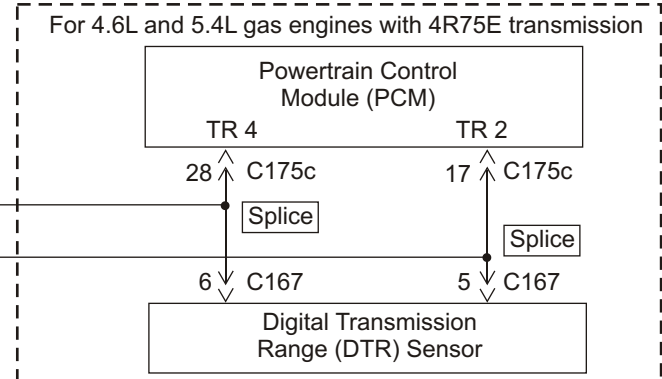
CIRCUIT 3 - Power Switch



CIRCUIT 4A - Transmission Park Position Signal

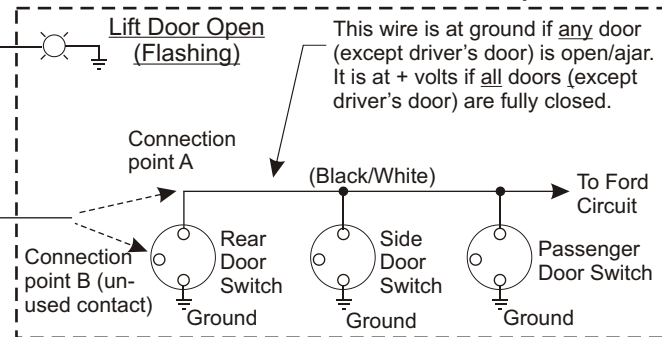


CIRCUIT 4B - Transmission Park Position Signal

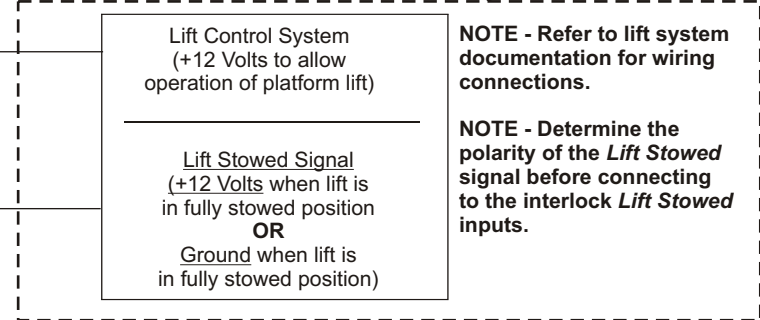


OR

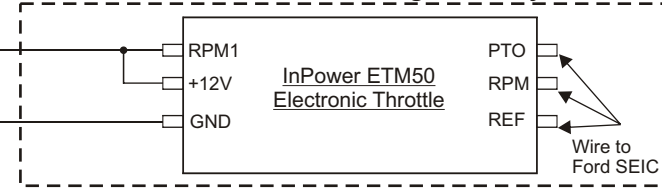
CIRCUIT 5 - Lift Door Switch & Lamp



CIRCUIT 6 - Platform Lift System



CIRCUIT 7 - Fast Engine Idle System



5. Installation Instructions



WARNING

Make sure that the vehicle battery power is disconnected during installation of the Interlock and lift system. Reconnect the battery when the system installation is complete.

Circuit 1 Wiring (Shift Lock Solenoid Cable)

1. Locate the shift lock solenoid that is on the bottom left of the steering column behind the dash panel. It has a three-wire harness plugged into it.
2. Remove the harness plug from the solenoid assembly.
3. Install the tee-cable supplied with the interlock between the solenoid connector and the harness plug that you removed from the solenoid. When complete, the interlock tee-cable will be connected to the Ford harness plug and the shift lock solenoid as shown in Circuit #1 diagram.

Circuit 2 Wiring (Parking Brake Switch Cable)

1. Locate the Parking Brake Switch connector C2015 that is near the parking brake pedal assembly. It has a two-wire harness plugged into it.
2. Remove the harness plug from the switch connector.
3. Install the tee-cable supplied with the interlock wiring harness between the parking brake switch connector and the harness plug that you removed from the parking brake switch connector.
4. When complete, the interlock tee-connector will be connected to the Ford harness plug and to the parking brake switch connector as shown in Circuit # 2 diagram.

Circuit 3 (Interlock System Power Switch)

The installer must supply a two-position On-Off Interlock Power Switch. This switch may be mounted on the dash at a convenient location.

1. Mount the Interlock Power Switch.
2. Wire the common side of the switch to a properly fused +12 volt ignition switch source (powered when the ignition switch is On).
3. Wire the On position side of the switch to the Red harness wire that goes to pin 15 on the interlock module.
4. When complete, you should have +12 volt power on the interlock module pin 15 when the ignition switch is On and the Interlock Power Switch is On. **Do not power the interlock system directly from the Battery or any power source that is not turned off with the ignition switch.**

Circuit 4 (Transmission Park Position)

There are two ways to wire to the transmission Park position signal, depending on the chassis type. The recommended method is Circuit 4A, and this requires the vehicle to have the *Ford Stationary Elevated Idle Control (SEIC)/Customer Access Circuits (CAC)* feature. If your vehicle does not have the SEIC/CAC feature, refer to Circuit 4B (These are usually 2005 vans with gas engines and 4-speed automatic transmission).

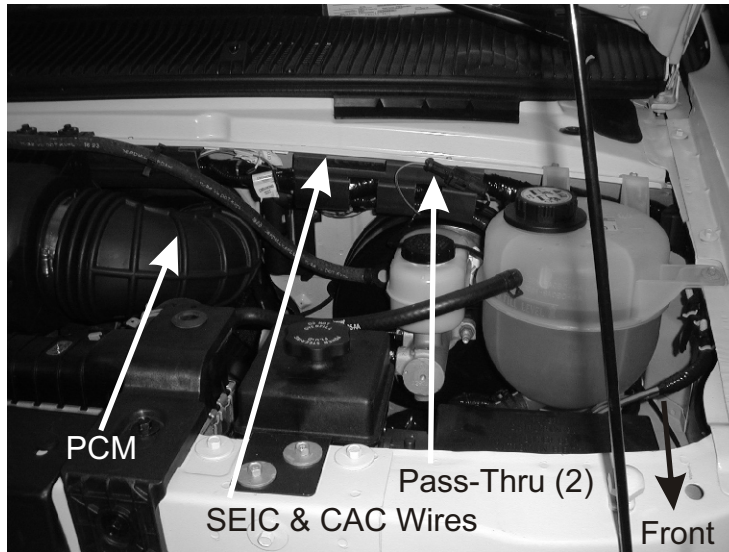
Circuit 4A (Vehicles With SEIC/CAC Park Wire)

The Ford PARK position signal is a blunt-cut wire that is supplied as part of the *Ford Stationary Elevated Idle Control (SEIC)* and *Customer Access Circuits (CAC)* feature. This blunt-cut wire is located in the engine compartment on the top driver's side of the firewall. It is in the large harness running below the windshield/cowl. Refer to Ford's Body Builders Layout Book for further details relating to the Ford SEIC and Customer Access signals.

1. Locate the blunt-cut wire #1857 (On gas engine it is a White/Orange wire tagged: "PARK_OUT"; on diesel engines it is a Yellow/White wire tagged: "TRO_P") in the large wire harness running below the windshield/cowl in the engine compartment (Figure 1). Remove some of the plastic harness tape where the harness exits its plastic support gutter above the engine air induction tube to reveal the blunt-cut wires.
2. Route the Park 1 (White) and Park 2 (Pink) wires (they are 60 inches long) from the ITM115A wiring harness through the firewall to the blunt-cut wire #1857. Splice the Park 1, Park 2 and wire #1857 together. Note - Alternatively, you can use the Ford pass-through wires that run from the engine compartment (see Figure 1) into the cab above the driver-side kick panel. All under hood splices must be sealed and insulated. For proper procedure, refer to the Electrical Wiring General Practices section of the Ford Body Builders Layout Book.

5. Installation Instructions (Continued)

Figure 1
Engine Compartment



Circuit 4B Vehicles Without SEIC/CAC Park Wire

Note - Refer to Ford's Body Builders Layout Book for instructions dealing with pass-through wires and under the hood wire splices.

1. Locate the Powertrain Control Module (PCM) connector C175. See Figure 1 for location. Remove the air cleaner and air cleaner outlet tube for access to the PCM connectors.
2. Locate the TR 4 wire (Circuit #1146 - Lt. Green/Red) on pin 28 of connector C175. See Figures 2 & 3 For connector pin layout and Circuit 4B for circuit reference.
3. Splice into this wire with the ITM115A wire harness White wire that goes to pin 1 on the ITM115A Module.
4. Locate the TR 2 wire (circuit #1145 - Lt. Blue/Black) on pin 17 of connector C175.
5. Splice into this wire with the ITM115A wire harness Pink wire that goes to pin 4 on the ITM115A module.

Figure 2
Powertrain Control Module (PCM)

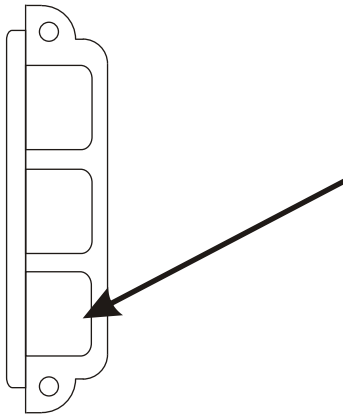
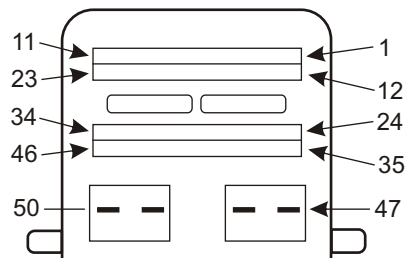


Figure 3
View Looking Into The
Transmission Connector
Showing Pin Numbers



Circuit 5 (Lift Door Switch and Light)

Wire the switch as shown in the Circuit #5 diagram. Wire the interlock wiring harness Violet wire that goes to pin 5 to either Connection Point A on the door switch or to Connection Point B. If wired to A, the rear, side and passenger doors interact to provide the following operation. If any door is opened the lift can be operated (providing the vehicle is in Park and park brake is set). And all doors (except the driver's door) must be closed to complete the interlock sequence (release the shift lock). If wired to Connection Point B only the door switch wired will be monitored by the interlock system. Note that you will need a switch connector pin to attach to the switch when using Connection Point B.

5. Installation Instructions (Continued)

Circuit 5 (Lift Door Switch and Light Continued)

If a Lift Door Open (flashing) light is required, wire the light to the Lift Door Open Output interlock wire harness Blue wire that goes to pin 12. This output supplies a flashing +12 volts @ 8 Amps output. The other side of the light must be wired to ground.

Circuit 6 (Platform Lift)

1. Review the platform lift installation manual and determine how to wire the ITM115A interlock to the following lift interface connections:

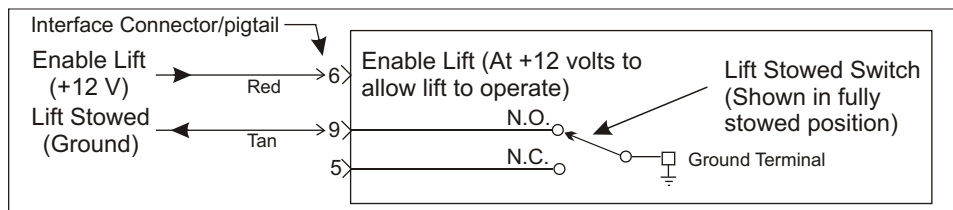
A. Enable Lift - This is an **input** to the lift system. When at +12 volts, the platform lift can be operated. Install a wire from the platform lift's Enable Lift input to the ITM115A Yellow blunt-cut wire pin 9.

Note - The ITM115A will supply a +12 volt @ 8 amp output to allow operation of the lift. Verify that this is the correct polarity for the platform lift.

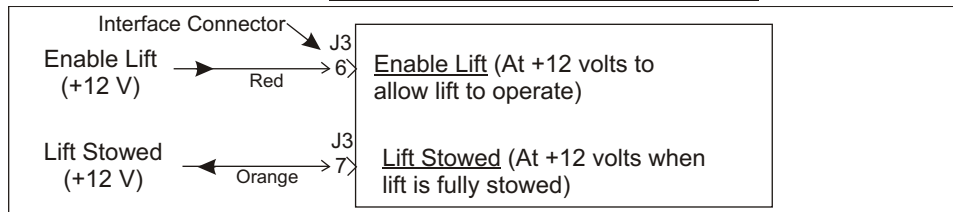
B. Lift Stowed - This is an **output** from the lift system. **Verify the polarity of this signal.** If it is +12 volts when the lift is fully stowed, wire it to the ITM115A Orange blunt-cut wire pin 7. If it is at ground when the lift is fully stowed, wire it to the ITM115A Tan blunt-cut wire pin 8.

The following diagrams show the wiring interface of typical platform lift systems. **Be sure to verify the exact wiring interface for the lift system that you have.**

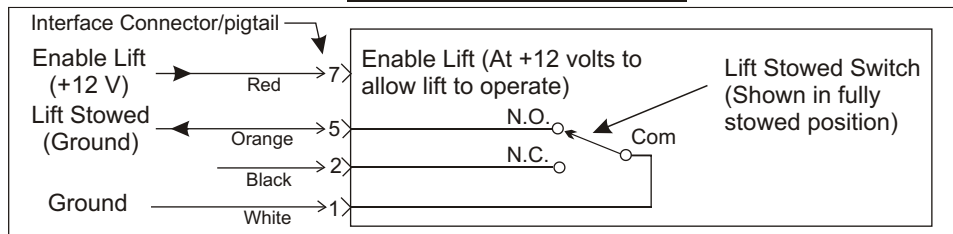
Braun Series 2, 3, A3, 4, A4, AA Platform Lifts



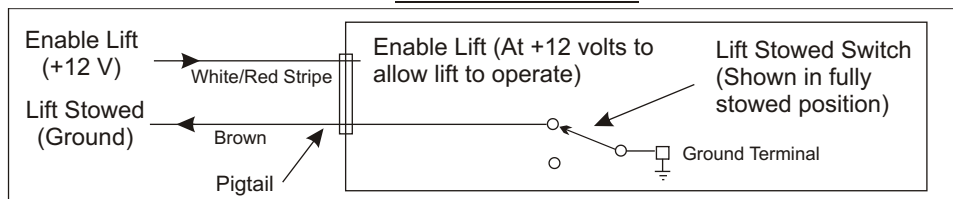
Braun Series 1 and A1 Platform Lifts



Ricon Series S Platform Lifts



Maxon Platform Lifts



5. Installation Instructions(Continued)

Circuit 7 (Fast Engine Idle Control)

If your installation requires a fast engine idle function, this can be accommodated by installing the InPower Model ETM50 Electronic Throttle. (Refer to InPower ETM50 Owners Manual, document OM-26.) The ETM50 fits 2005 and later Ford vehicles equipped with the Stationary Elevated Idle Control (SEIC). Wire the Lift Enable (+12 volts during platform lift operation) to the RPM1 and +12V inputs on the ETM50 and adjust the fast idle speed to the desired RPM value. Note that the wiring between the ETM50 and the Ford SEIC is different for gas and diesel applications.

6. Interlock System Operation

The interlock system is powered from the Interlock Power Switch and the Ignition Switch when they are both in the On position. The following is the interlock system sequence of operation:

Step 1 - With the interlock powered on, place the transmission in the Park position.

Step 2 - Set the parking brake.

Step 3 - Open the lift door. When opened, the transmission shift lock will be set to prevent the transmission from being taken out of Park, and the Lift Enable will be set to allow operation of the platform lift. The Lift Door Open flashing light, if installed, will operate.

Step 4 - The platform lift may now be operated (Refer to the platform lift operating instructions). Note - During the Lift Enable sequence, if the parking brake is released the Lift Enable will be deactivated, preventing lift operation.

Step 5 - When the lift cycle is completed return the lift to its fully stowed position.

Step 6 - Close the lift door. Note - Depending on how the door switch is wired, all doors may need to be closed.

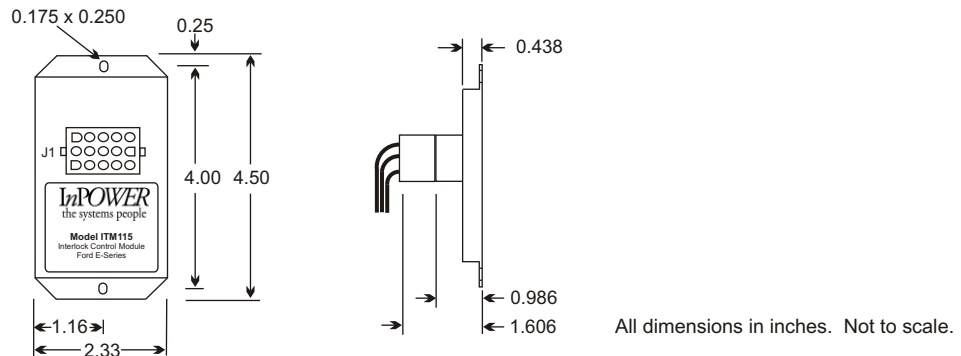
Step 7 - Release the parking brake. When released, the shift lock will be automatically released.

Step 8 - The cycle is now complete and the vehicle can be taken out of Park and driven.

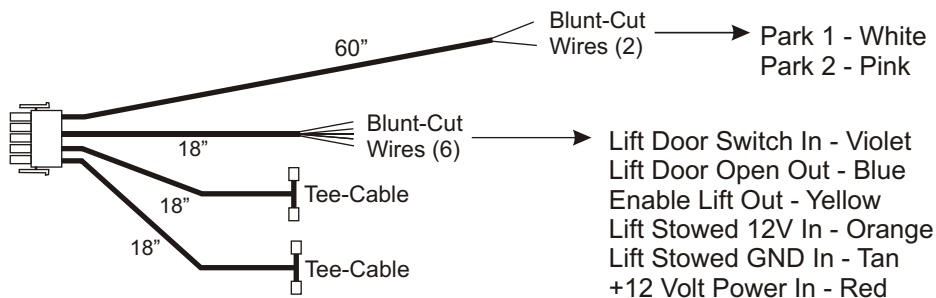
Note - The Door Open output flashes whenever the door is open, independent of other interlock inputs.

7. Mechanical Drawing

Model ITM115A Interlock System
Control Module



Interface Wiring Harness



8. Reference Information

8.1 Company Contacts

Ford Motor Company

Truck Body Builder Advisory Service
Product Development Center
MD 410
PO Box 2053
Dearborn, MI 48121-2053
1-877-840-4338
www.fleet.ford.com/truckbbas/index.htm
bbasqa@ford.com

Ricon Corporation

7900 Nelson Road
Panorama City, CA 91402
(818) 267-3038
(800) 322-2884
www.riconcorp.com

The Braun Corporation

631 West 11th Street
Winamac, IN 46966
(574) 946-6153
(800) 946-6158
www.braunlift.com

Maxon Lift Corp.

11921 Slauson Avenue
Sante Fe Springs, CA 90670
(562) 464-0099
(800) 227-4116
www.maxonlift.com

8.2 InPower Document Reference

1. Model ETM50 Fast Idle Electronic Throttle
Product Data Sheet PDS-31
Owners Manual OM-26
2. Model ITM115A Interlock System
Product Data Sheet PDS-xx

8.3 Required Parts Not Supplied with ITM115A Interlock

1. Power switch. See page 3, Circuit 3.
2. Lift Door Open indicator light, if required. See page 3, Circuit 5.
3. Lift Door Closed switch, if not using Ford door switch. See page 3, Circuit 5.
4. InPower Model ETM50 Electronic Throttle, if fast idle is required. See page 3, Circuit 7.
5. Miscellaneous wire, mounting hardware, wire tie wraps, wire loom.
6. Fuse