

OWNERS MANUAL

ITM129 & ITM129ADL and ITM129-T20 & ITM129ADL-T20 Platform Lift Interlock System for Ford Transit Chassis



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1. Introduction

This system is intended for installation in Ford Transit 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 compatibility.

The 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.

2. Product Description

InPower's Model ITM129 and ITM129-T20 platform lift interlock system consists of a control module with integral driver's status display and a chassis wiring harness (See Interlock System Diagram on Page 3). The interlock's control/display module is designed to mount on the dash with its wiring harness routed through the dash. The harness contains two T-cables that connect to the shift lock solenoid and parking brake switch. The harness also contains a set of blunt-cut wires for connection to the three door switches, lift door switch and Lift Enable output to the platform lift system.

The ITM129, ITM129-T20, ITM129ADL, and ITM129ADL-T20 interlock systems provide inputs from the platform lift door switch and three other door switches (Door 1 Switch, Door 2 Switch and Door 3 Switch); however, each model responds differently to the door switch signals.

ITM129 and ITM129-T20: When Door Switches 1, 2 or 3 are activated (door not fully closed) the DOOR AJAR display indicator will flash. When the Lift Door Switch is activated (door not fully closed) the DOOR AJAR display indicator will flash and the shift lock will be set. If the vehicle is in PARK and the parking brake is set, the Lift Enable will be set, allowing the platform lift to be operated.

ITM129ADL and ITM129ADL-T20: When any door switch is activated (door not fully closed), the DOOR AJAR display indicator will flash and the shift lock will be set. If the vehicle is in PARK and the parking break is set, the Lift Enable will be set, allowing the platform lift to be operated.

Installation Note: The Standard ITM129 gets +12Vdc power from the Pin 2 of the Shifter T-harness (Chassis 2019 and Prior) and 2020 and later comes from the Group 2 Red 12V Batt wire attached to an ignition source fused appropriately. +12vdc comes from Auxilliary Junction Box (AJB), Fuse-31 and should be a 10 Amp Fuse. Depending on the truck options installed (ex. Auxilliary Brake Controller), the Fuse-31 may or may not be installed.

Fuse-31 is a 10 Amp fuse for the Auxilliary Brake Controller or options. If these options and/or the fuse are not installed, the ITM129 doesn't require much power so a 5 or 10 Amp fuse is acceptable to put in the F-31 location for the ITM129.

Alternately, if F31 and the AJB are not available, any reliable fused and ignition switched +12VDC source will do as a power souce for the ITM129 red wire in the T Harness.

3. System Operation

The interlock system is powered only when the Ignition Switch is on. The following is the interlock system sequence of operation:

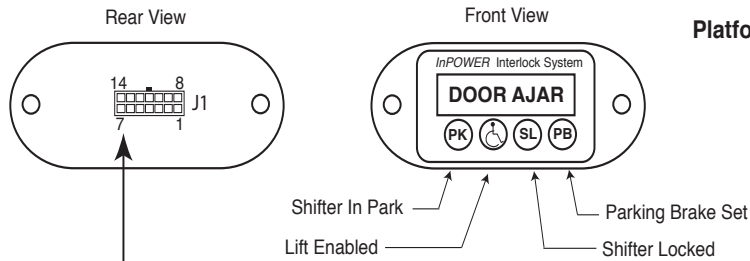
- Step 1 - Turn the Ignition switch on and start the engine.
- Step 2 - Press the service brake and place shifter in Park.
- Step 3 - Set the parking brake.
 - The Shift Lock will activate
- Step 4 - Open lift door.
 - The display Door Ajar indicator will flash
 - The Lift Enable will activate, allowing operation of platform lift.
- Step 5 - The platform lift may now be operated (Refer to the platform lift operating instructions).
 - During the Lift Enable sequence, if the parking brake is released the Lift Enable will be deactivated, preventing lift operation.
- Step 6 - When the lift cycle is completed return the lift to its fully stowed position.
- Step 7 - Close the lift door.
 - The Lift Enable is now deactivated.
- Step 8 - Release parking brake. When released, the interlock will release the shift lock.
- Step 9 - The cycle is now complete and the vehicle can be taken out of Park and driven.

Notes:

1. For model ITM129 and ITM129-T20, anytime Doors #1, #2 or #3 are opened (or ajar) the Door Ajar indicator will flash but the shifter will not lock unless the parking brake is also set.
2. For model ITM129ADL and ITM129ADL-T20, anytime any door is opened (or ajar), the Door Ajar indicator will flash and the shifter will lock.

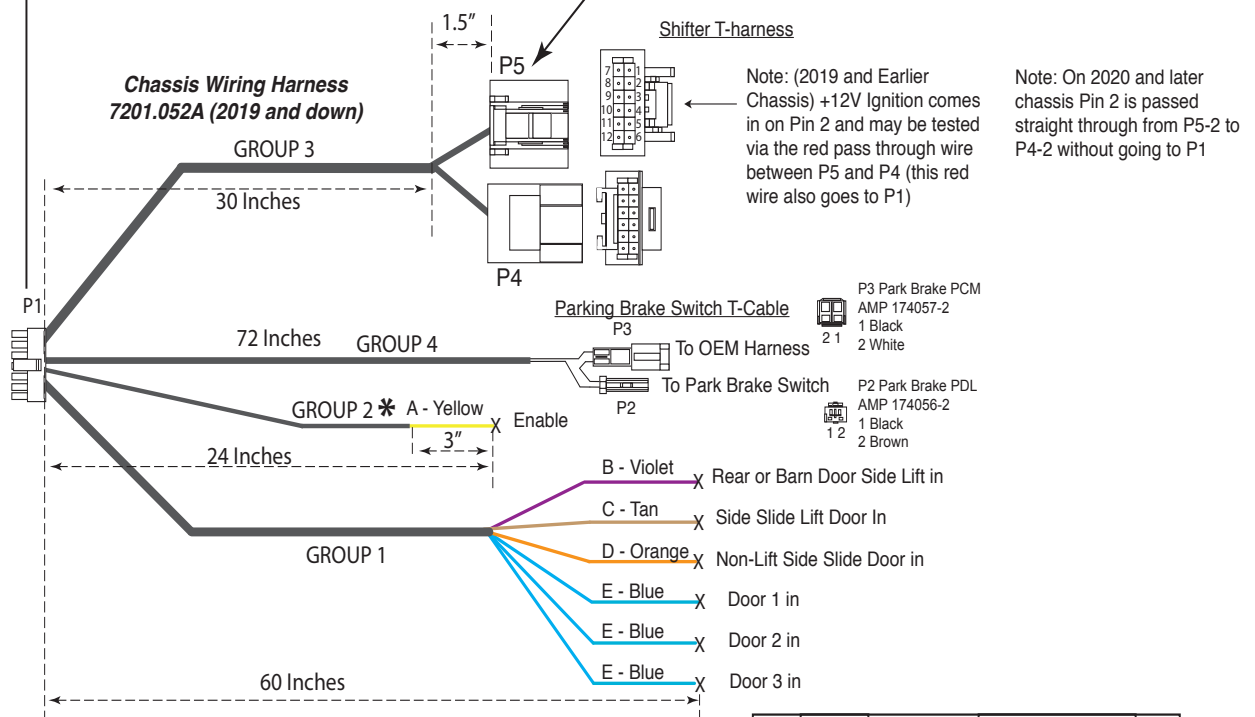
4. Interlock System Diagram

Interlock Control Module



Platform Lift Interlock System

Note: Fuse 31 on the Auxiliary Junction Box normally supplies 12Vdc Power to Shifter T-harness (Pin 2, 2019 and earlier) which powers the ITM129. If F31 is not populated, install a 5 amp or 10 amp fuse to power the ITM129. Alternatively, the red wire (properly fused with a 5 amp) may be connected to any switched ignition source.

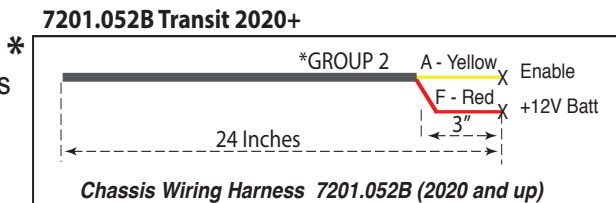


Note: (2019 and Earlier Chassis) +12V Ignition comes in on Pin 2 and may be tested via the red pass through wire between P5 and P4 (this red wire also goes to P1)

Note: On 2020 and later chassis Pin 2 is passed straight through from P5-2 to P4-2 without going to P1

- P3 Park Brake PCM
AMP 174057-2
1 Black
2 White
- P2 Park Brake PDL
AMP 174056-2
1 Black
2 Brown

In Transit Chassis 2020 and above



Note: On the Transit 2020 and up the red wire (properly fused with a 5 amp) must be connected to any switched ignition source to provide the ITM129 with Power.

| Item | Color | Description | Sensor Position | Qty |
|------|--------|-------------|-----------------------------|-----|
| A | Yellow | 12V Enable | Enable | 1 |
| B | Violet | Gnd=Closed | Rear or Barn Door Side Lift | 1 |
| C | Tan | Gnd=Open | Side Slide Lift | 1 |
| D | Orange | Gnd=Open | Non-Lift Side Slide | 1 |
| E | Blue | Gnd=Closed | Non-Lift Door | 3 |
| F | Red | +12V Power | Rev B Only! System Pwr | 1 |

5. Installation Procedures

5.1 Safety Precautions



WARNING

This interlock product has been designed and manufactured to meet the intended application requirements and specifications, complying with FMVSS 403/404. 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 any other applicable 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.

5.2 Getting Started

This manual provides instructions for installing the InPower Interlock System in a Ford transit chassis with a FMVSS compliant, public use (commercial) platform lift. It is important that you follow these instructions carefully and contact InPower if you need assistance or more information. Note that product technical documents are available on InPower's web site.



WARNING

This interlock system installation requires additional parts and materials that are not supplied with the interlock product. Identify all required parts before starting the installation and ensure that these items are the correct type and quality (See Section 10.2).

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 @ 1.8 amps Enable Lift output to allow the platform lift to be operated. If the lift system is not compatible with this interface signal, 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 interlock control module is on the center console of the dashboard, with the wiring harness through the dash. Be certain that the chosen location permits the cables to reach the parking break and shift lock connectors. The wiring harness will connect to the shift lock solenoid, located under the center console and parking brake switch, beside the driver's seat. The unit must not be located in the engine compartment or any location that is not protected from the environment.

6. Wiring 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.

Installation Procedure

1. Remove steering column cover. (See Figures 1 and 2)



Figure 1. Steering column



Figure 2. Steering column with panel removed.

2. Drop down glove box

3. Remove HVAC controls cover, cup holder and lift shifter cover. (See figures 3 and 4)



Figure 3. Center console



Figure 4. Covers removed

4. Remove console cover screws and pull back center cover enough to gain access to shifter connector. (See figure 5)



Figure 5. Shifter connector.

5. Mount module in center cover where desired.

6. Install T-harness to shifter connector 2810. Tuck chassis connector and T-harness under shifter to ensure the paneling fits correctly. (See figure 6)

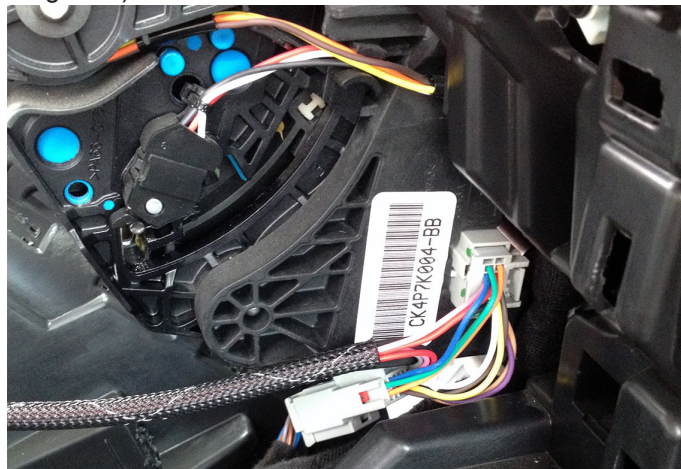


Figure 6. Shifter connector 2810

7. Run parking brake harness under carpet to parking brake connector. (See figures 7 and 8)

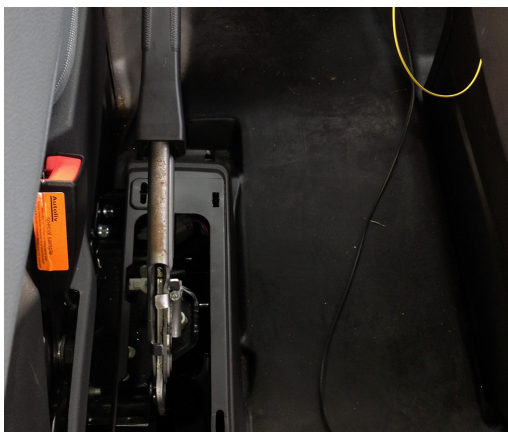


Figure 7. View of brake connector area.



Figure 8. View of parking brake connector.

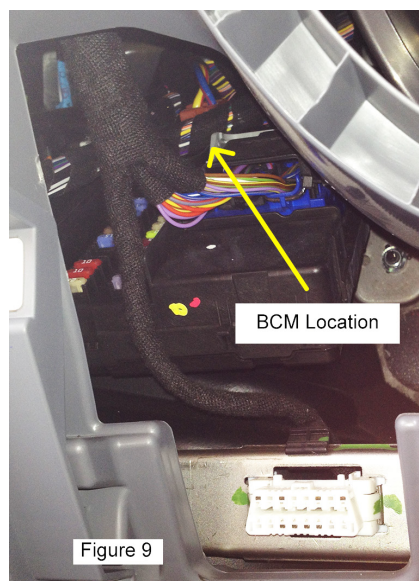
8. Run door wires to BCM. (See figure 9 on next page)

9. On the Ford Transit, the front driver's, front passenger and rear doors all generate a +12V signal when the doors are open are ajar. The side door, however, generates a ground signal. The lift may be installed on either the rear door or the side door. Therefore, there are two lift door wires. The rear lift door input wire is violet, while the side lift door input wire is tan. There are three blue wires for the driver's, front passenger and rear door ajar signals, and there is one orange wire for the side door ajar signal.

If the lift is installed on the rear door, one blue wire and the tan wire will not be used. If the lift is installed on the side door, the violet wire and the orange wire will not be used.

Connect the four wires to be used to their respective connections in the BCM connector 2280C.

The driver door ajar signal comes from pin 44 (green/violet wire); the passenger door ajar signal comes from pin 34 (white wire); the right side door ajar comes from pin 51 (yellow wire); and the rear door ajar comes from pin 50 (brown/violet wire).



10. Review the platform lift installation manual to determine how to wire the interlock system to the platform lift's interlock interface. The yellow blunt cut wire in the interlock harness will supply a +12 volt @ 1.8 amp output to operate the lift. Verify that this is the correct polarity for the platform lift and then connect the yellow wire to the lift enable input on the lift.

11. Test

7. System Troubleshooting

This owners manual describes the InPower Model ITM129 Platform Lift Interlock Systems. Note that the control module contains an integral driver's status display which should be used for system troubleshooting. The interlock systems provide a Lift Enable signal output that is wired to the platform lift system to enable the lift operation when the chassis interlock conditions are satisfied. The Lift Enable signal is +12 volts when the lift can be operated.

Replacement Parts

- | | |
|-------------------------------------|-----------------------|
| 1. ITM129 Control/Display Module | P/N: ITM129-MODULE |
| OR ITM129ADL Control/Display Module | P/N: ITM129ADL-MODULE |
| 2. Chassis Wiring Harness | P/N: 7201.052 |

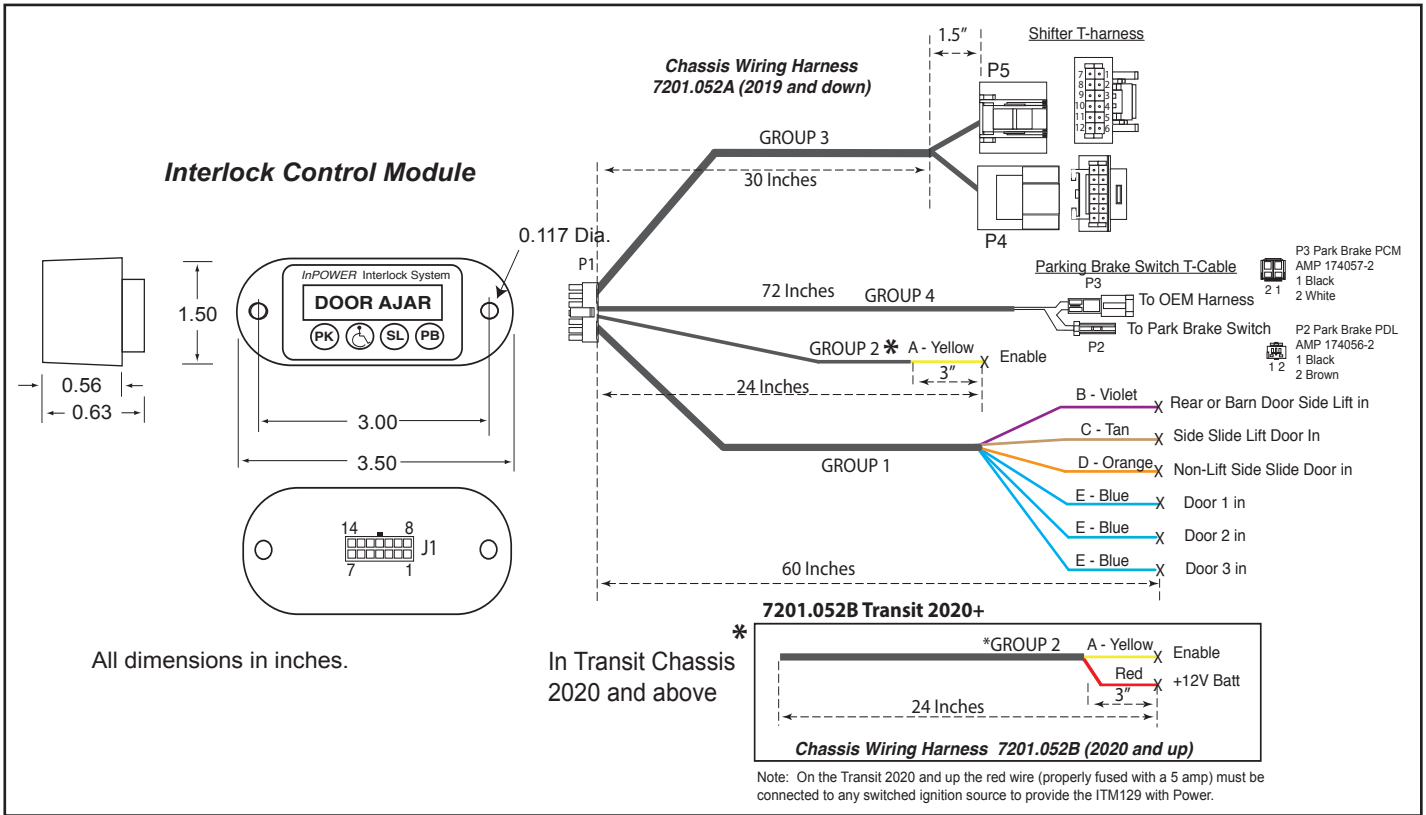
Troubleshooting Procedures and Tips:

- Determine if the interlock system is getting power. +12 volts should be present on pin 2 in shifter T Harness connector 2810 (2019 and prior). On Chassis from 2020 and up, +12V should be available on the Group 2 Red Wire. With power, you should have some display lights on. Note that the interlock system gets its ground from pin 11 of the same connector. If everything is properly connected, and you are not getting power, check fuse F31 located in the auxiliary junction box.
- If the interlock system has power and is not operating there is a high probability that the control module is good but that there is a problem with one or more of the system inputs (e.g., the Lift Door Switch not working correctly). Operate each remote door switch and determine if the correct display indicator operates properly. You can also measure voltage at the J1 connector pins to see if the remote devices are working correctly. A common problem on interlock systems is the lift door switch failing or sticking in the open position. This will cause the interlock system to not fully complete its cycle.

Troubleshooting cont.

3. If the interlock system appears to be working properly but the platform lift system will not work check the voltage on the Lift Enable output to the lift system. This signal is on pin 4 of connector J1. There should be +12 volts present to operate the lift. **CAUTION - Do not apply an external +12 volt power source to this circuit to see if the lift will operate without disconnecting the wire from the interlock system! Applying power will cause a circuit breaker to trip in the Lift Enable output circuit. If tripped, remove the power source and the circuit breaker will reset automatically.** With the Lift Enable wire disconnected from the interlock control module it is safe to apply +12 volts to the lift system's Enable input to see if the lift will operate.

8. Mechanical Drawing



9. Reference Information

Company Contacts:

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