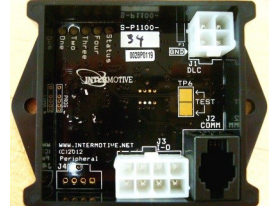


B-DLM506-A
Door Lock/Unlock Module
2017-2021 Ford F250-F550
Contact InterMotive for additional vehicle applications.



Introduction

The Door Lock/Unlock Module provides ambulance and other builders the ability to lock or unlock the complete chassis using a hidden switch or keypad even with the key out of the ignition. It provides lock and unlock inputs which will trigger a lock or unlock for both the cab *and* patient compartment. It also recognizes lock/unlock requests from the OEM fob or cab door lock switches which also cause the patient compartment to lock/unlock.

The DLM506 requires minimal connections to OEM wiring since most of the functionality is managed through the vehicle network (Gateway connector). No removing door panels and tapping into door solenoids or switches is required. In addition to the Plug and Play Gateway connection, the only OEM connections required are two door ajar wires. See schematic on last page.

Installation Instructions

Disconnect vehicle battery before proceeding with installation



WARNING
Disconnect the battery to prevent setting a check engine light.

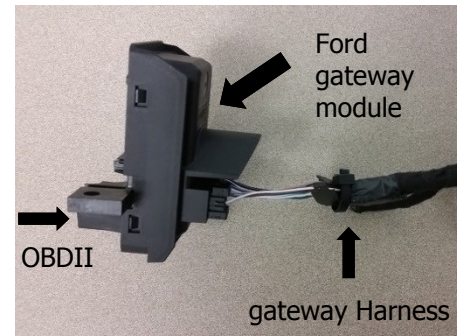
It is the installer's responsibility to route and secure all wiring harnesses where they cannot be damaged by sharp objects, mechanical moving parts and high heat sources. Failure to do so could result in damage to the system or vehicle and create possible safety concerns for the operator and passengers. It is important to avoid placing the module where it could encounter strong magnetic fields from high current cabling connected to motors, solenoids, etc. Also avoid radio frequency energy from antenna's or inverters near the module. Finally, avoid high voltage spikes in vehicle wiring by always using diode clamped relays when installing upfitter circuits.

DLM506 Module

Remove the lower dash panel below the steering column area and find a suitable location to mount the DLM506 module. Locate the module in an area away from any external heat sources (engine heat, heater ducts, etc.). Do not actually mount the module until testing is completed and all wire harnesses are routed and secure. The last step will be to mount the module.

Connecting DLM506 to vehicle network

- The Ford F-Series has an integral gateway module as part of its OBDII connector. It is mounted below the lower left dash panel. The Intermotive data link harness will "T in" to the existing gateway module's rear 24 pin connector.
- Remove the Ford 24-pin connector and harness from the rear of the gateway module by pressing the locking tab and pulling towards the front of the vehicle.
- Plug the Female end of the InterMotive plug and play data link harness (Pic 3) into the back of the gateway module (Pic 1). Ensure the connection is fully seated and secured by the locking tab.
- Plug the male side of the InterMotive Data Link Harness into OEM gateway harness.
- Plug the 4-pin free end of the Data Link harness into the mating 4-pin connector on the DLM506 module (Pic 2).



Picture 1. Ford OBDII connector with gateway module

Caution: Keying up the vehicle with the gateway harness disconnected will set multiple DTC's and illuminate the Instrument Cluster Wrench light. Make sure the 24 pin T harness is fully seated in the gateway module & connected to the OEM harness before turning the ignition switch on.



Picture 2.
DLM506 data link connector

Note: There are a few different types of data link harnesses available on this chassis. Below are two options. There may be other options available. Contact Sales for the latest information.



Plug and Play data link harness with single leg. Use when no other Intermotive modules will be installed.
Part # S-H107D2



Plug and Play data link harness. Shown is the dual module option with two harness legs.
Part # S-H133Q1

VIN Scroll

- Note: the module will "VIN scroll" its LEDs the first time it is plugged in with the battery connected and the key off. Turn key to Run to allow module to read the VIN and accept the vehicle. The LEDs should stop flashing.

8-pin I/O connector pinout definition

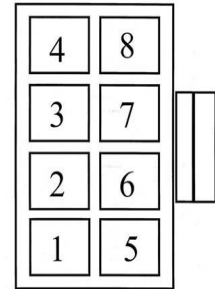
- **Lock Input**, Pin #5, TAN/BLACK - (Gnd activated input from switches). This input is intended to be connected to upfitter lock keypads/switches installed on the ambulance/vehicle. Multiple switches can be wired together to this input.
- **Unlock Input**, Pin #8, YELLOW/BLACK - (Gnd activated input from switches). This input is intended to be connected to upfitter unlock keypads/switches installed on the ambulance/vehicle. This input is low-true. Multiple switches can be wired together to this input.
- **Lock Output**, Pin #3 - BROWN - (pulsed 12V to patient compartment). Used to send signal to motor reversing relays which control door lock actuators to lock passenger compartment doors.
- **Unlock Output**, Pin #7 - ORANGE - (pulsed 12V to patient compartment). Used to send signal to motor reversing relays which control door lock actuators to unlock passenger compartment doors.
- **Door Ajar**, Pin #6 - WHITE - Driver/Passenger Door Ajar connection at BCM. Required for proper operation.
- **Ground**, Pin #2 - BLACK - Connect Eyelet securely to chassis ground. Be sure to remove paint from surface to achieve an adequate ground.
- **No Connects:** Pins #1, #4

Door Ajar Connections

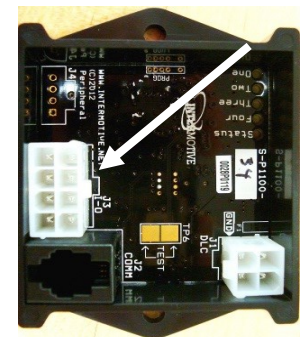
The DLM506 I/O Harness (S-H96CX) has a long Driver/Passenger Door Ajar white wire (pin 6) with convolute jacketing. It splits near the end into white and green wires. Route this wire over to the passenger side kick panel.



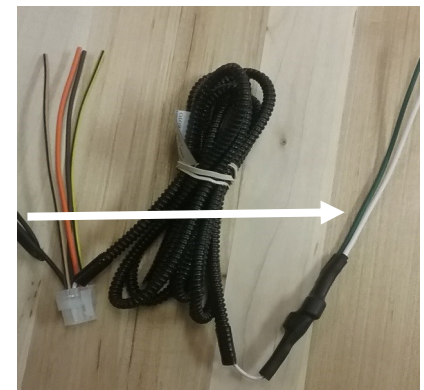
I/O Harness Part # S-H96CX



Back of Connector for Harness # S-H96CX



DLM506 I/O Connector



Door Ajar Connections (cont.)

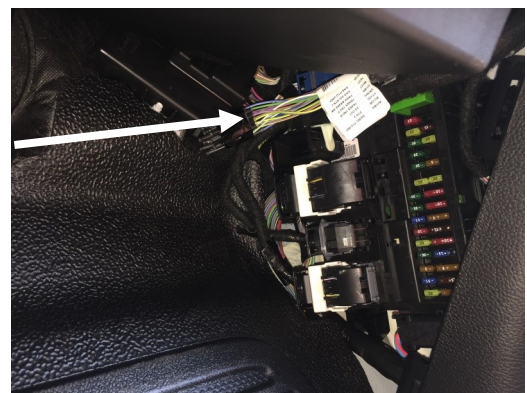
- Remove the plastic trim panel exposing the BCM below the glove box compartment.



- Locate the connector C2280E (blue connector) plugged into the BCM.



- You may need to trim back the electrical tape on the harness for better access to the wires from the C2280E connector.



- Note: Performing one step at a time, these connections must be made using solder and electrical tape.**
- Locate white wire of connector C2280E (front passenger door ajar). **NOTE: There are two White wires in this harness connected to C2280E. Make sure to perform test in Step 1 to verify the correct wire.**
 - With connector C2280E plugged into the BCM, verify with voltmeter and piercing probe there is 12 volts when corresponding door is open and 0V when door is closed.
 - Strip approx. 0.5" of insulation from this BCM wire, being careful not to cut the wire.
 - Connect the DLM506's Driver/Passenger Door Ajar matching color wire and solder and tape it.
- Locate green/violet wire of connector C2280E (front driver door ajar). **NOTE: There are two wires in this harness that have Green/Violet wires connected to C2280E. Make sure to perform test in Step 1 to verify the correct wire.**
- Repeat Steps 1-3 on green/violet wire.

Installation Instructions (cont.)

- Reconnect vehicle battery after all connections have been made.
- The DLM506 module should still be hanging down to allow viewing of the LEDs.

Post Installation Vehicle Verification

- If the vehicle key is Off, the module LEDs should be "VIN scrolling" if this is the first time it has been installed and powered up. Turn the key to Run to allow the module to acquire the VIN and recognize the vehicle. The LEDs should go off.
- With key in Run, module LEDs that continue to scroll indicate an unrecognized chassis or model year, and the module will not operate. Contact Intermotive. No LEDs on a powered up module indicate a compatible vehicle type.
- Shut off key and remove key from ignition for the following tests.

Post Installation Operational Test

The following tests ensure that all connections have been made correctly and that the module is functioning properly.

A lock command from any source on the vehicle (OEM door switches, key fob, upfitter switches/keypads) should lock **all** doors on the vehicle, including the cabin doors and the patient compartment. Similarly, any unlock command from any source should unlock **all** doors on the vehicle, including the cabin doors and the patient compartment.

Lock Verification Procedure:

The DLM506 implements a required verification procedure in which a lock command from any source on the vehicle will (after a 10 second delay) cause the door actuators in the cabin to go through a quick lock-unlock-lock sequence every time the doors are locked. This behavior is considered normal and verifies correct operation of the system. The lock actuators in the patient compartment do not do this, and will simply lock.

Test 1—Locking / Unlocking the Vehicle with the Key Fob

- Exit the vehicle, close all doors and perform an initial unlock with the key fob. Ensure that all doors on the cabin and patient compartment have been unlocked.
- Press lock with the key fob. After a 10 second delay, the vehicle will perform a lock verification procedure (lock-unlock-lock) as described above. Ensure that all doors on the cabin and the patient compartment are locked.
- Unlock with the key fob. Ensure that all doors on the cabin and the patient compartment have been unlocked.

Test 2—Locking / Unlocking the Vehicle with Upfitter Switch/Keypad

- Ensure that all doors on the cabin and the patient compartment can be locked and unlocked from any of the upfitter/patient compartment switches. Any lock procedure from any switch will cause the cabin locks to perform the verification procedure.

Test 3—Door Ajar Test

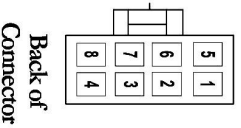
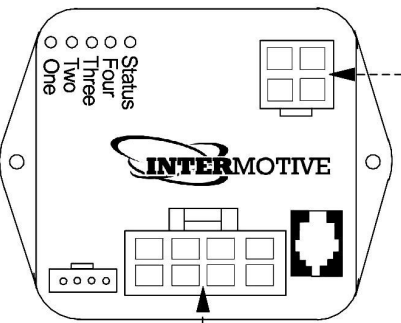
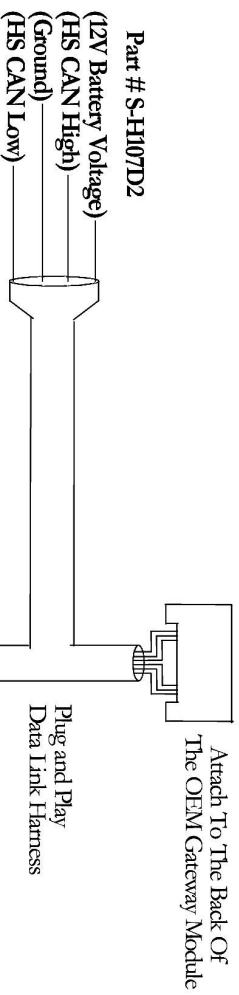
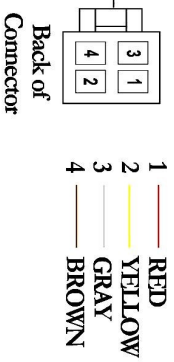
- Close all cabin doors and open the driver's door. Press lock on the driver's door switch while keeping the driver's door open.
- After a 10 second delay, the system should perform its lock verification procedure (lock-unlock-lock). If the vehicle enters into a continuous loop of locking and unlocking the doors, an incorrect connection has been made to the green/violet wire of connector C2280E at the BCM.
- Close all cabin doors and open the front passenger door. Press lock on the front passenger door switch while keeping the front passenger door open.
- After a 10 second delay, the system should perform a lock verification procedure (lock-unlock-lock). If the vehicle enters into a continuous loop of locking and unlocking the doors, an incorrect connection has been made to the white wire of connector C2280E at the BCM.

If the system fails any of the above tests, check the related wiring. If necessary, call InterMotive Technical Support at 530-823-1048. Do NOT release vehicle for service unless it has passed ALL of the above tests.

Secure Harnesses and Module

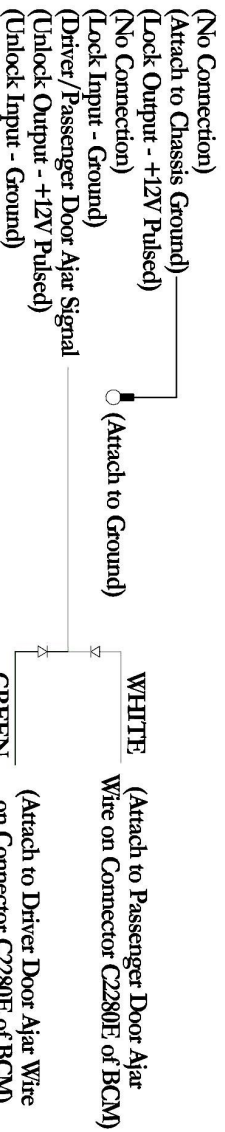
Once the system has passed all of the above tests:

- Mount the module in desired location.
- secure the module harnesses so they do not hang below the lower dash panel.



- | | |
|---|--------------|
| 1 | OPEN |
| 2 | BLACK |
| 3 | BROWN |
| 4 | OPEN |
| 5 | TAN/BLACK |
| 6 | WHITE |
| 7 | ORANGE |
| 8 | YELLOW/BLACK |

Part # S-H96CX



B-DLM506-A
Part # S-M1100-91

Submit product registration at www.intermotive.net

If the DLM506 fails any step in the Post Installation Test, review the installation instructions and check all connections. If necessary, call InterMotive Technical Support at (530) 823-1048.