

UIM-701

Upfitter Interface Module

2011-2012 RAM 2500/3500 and 4500/5500 6.7L Diesel

Introduction

The Upfitter Interface Module provides access to a broad range of vehicle data such as MPH, RPM, Park Brake, Service Brake, temperatures, trans range, accelerator pedal, doors, lights, door locks, ABS, MIL, etc. Specific data is vehicle dependent, and by running the UIM Programming Utility software (free download from www.intermotive.net), available information on a particular chassis can easily be determined. An upfitter harness provides four fixed outputs, and four programmable outputs, using the UIM Programming Utility. The Programmer allows logical combinations (AND, OR, =, >, <) of various vehicle data to control an output. For example, one output can be programmed to go active when ECT>230 OR TFT>250 AND RPM>300 (any numeric values can be used). This could drive a high temp dash indicator. Another output could be programmed to drive a warning buzzer/lamp when the vehicle speed exceeds some limit, such as 70mph. Electric doors can be disabled unless certain safety conditions are met and so on. There are also two general purpose inputs that can be used as part of the programmable logic.



Installation Instructions

Disconnect the vehicle battery before proceeding with the installation.



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

Remove the lower dash panel below the steering column area and find a suitable location to mount the Upfitter Interface Module (UIM). Do not mount the module until all wire harnesses are routed and secure. (The last step of the installation is to mount the module).

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.

Data Link Harness (6-pin connector)

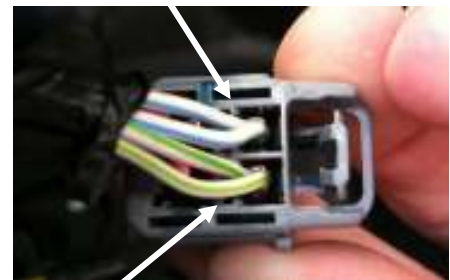
- Locate the 4-pin connector (Picture 1), which is located above the Parking Brake lever on the lower left side of the dash panel (Picture 2). This connector may be plugged into the Trailer Brake Control Module (if equipped).
- Identify the White/Lt Green and White/Lt Blue wires which come out the back of this connector. Do NOT cut these wires, but rather strip the insulation enough to allow the connection of the UIM701-A harness wires.
- Using solder and electrical tape, attach the Yellow wire from the UIM701-A harness to the White/Lt Green wire (Picture 3).
- Using solder and electrical tape, attach the Brown wire from the UIM701-A harness to the White/Lt Blue wire.
- Locate the Green 16-pin connector on the side of the dash, by the driver's door (Picture 4). It will be necessary to remove the panel to gain access to this connector.
- Identify the White/Gray wire (Pin #9) and White/Orange wire (Pin #1) which come out of the back of this connector (Picture 5). Do NOT cut these wires, but strip the insulation enough to allow the connection of the UIM701-A harness wires.
- Using solder and electrical tape, attach the Green wire from the UIM701-A harness to the White/Gray wire.
- Using solder and electrical tape, attach the Blue wire from the UIM701-A harness to the White/Orange wire.
- Locate a constant battery source and attach the Red wire from the UIM701-A harness to it. A convenient location is the Red/Pink wire found on the back of the OBDII connector (Pin 16).
- Attach the eyelet connected to the Black wire from the UIM701-A to a good ground point.
- Do NOT plug the UIM701-A harness 6-pin "Data Link" connector into the 6-pin connector on the UIM701-A module yet. This will be done at a later step.



Picture 1



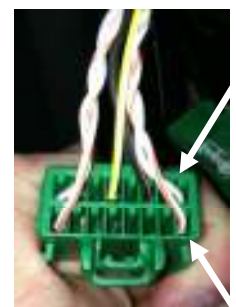
Picture 2



Picture 3



Picture 4



Picture 5



12 pin UIM connector pin-out definition

This connector contains the UIM's 8 output pins. Each output is rated at 1/2A and is intended to drive relay coils or other low current loads. Note that one of the eight outputs is active high (12V) while the rest are active low (ground). Output pins 8-11 are pre-configured and cannot be changed. **Note: when driving relays, a diode-protected type must be used.**

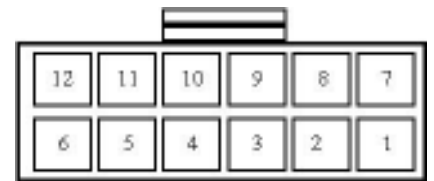
Intermotive recommends DigiKey #PB682-ND Relay.

The 8 outputs are defined as follows:

- Pin #1 (Purple wire) Configurable Output, **Active High***
- Pin #2 (Green wire) Configurable Output, Active Low
- Pin #3 (White wire) Configurable Output, Active Low
- Pin #4 (Gray Wire) Configurable Output, Active Low
- Pins #5-6 are no-connects
- Pin #7 (Red Wire) fixed jumper to pin 12
- Pin #8 (Brown Wire) Engine Running, Active Low
- Pin #9 (Orange Wire) VSS 2.2Hz/MPH, 0-12V pulsed
- Pin #10 (Blue Wire) Trans. Range Equals Park, Active Low
- Pin #11 (Yellow Wire) Clean Tach. Out, 0-12V pulsed
 $CTO = ((RPM/2)*\#Cyl) = \text{pulses per minute. E.G. } 600\text{rpm} = 2400\text{ppm (8 cylinders)}$
- Pin #12 (Red Wire) fixed jumper to pin 7



12 Pin IO



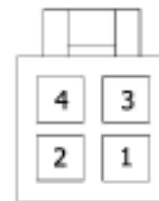
Back of Connector

Connect the desired outputs to vehicle equipment as needed. Tape up unused leads. When connecting to relays, be sure to use relays with appropriate kick-back suppression, such as Digi-key #PB682-ND. Unsuppressed relays will induce very high voltage spikes throughout modern vehicles sensitive computer electronics and should not be used, per Ford, GM, SAE, etc.

4 pin Input connector definition

This harness contains the UIM's 2 discrete wire inputs. These are both active low inputs which means external devices must pull these inputs to ground. These inputs have their own internal pull up resistors so they can be left floating when not used or not active. These inputs can be used as part of the programmable logic to configure the output pins.

- Pin #1 - (Blue/White stripe) Input 1, Active low
- Pin #2 - Not Used
- Pin #3 - (Green/White stripe) Input 2, Active low
- Pin #4 - Not Used



Back of Connector

Connect inputs as needed. Tape up unused input wires.



4 Pin IO

Reconnect the vehicle battery

Initial Installation Power-Up:

The initial installation is completed as follows:

1. Ensure the Data Link harness 6 pin connector is NOT connected to the module..
2. Turn the key on, engine off
3. Ground the silver mounting hole labeled "Test", while plugging in the 6-pin Data Link connector. This allows the UIM to capture the VIN to ensure proper operation.



Note: Step 3 must be repeated if a module is moved to a new vehicle.

Module Mounting Location

Ensure all the harnesses are properly connected and routed, and are not hanging below the dash area. Mount the module as described on page one. Verify the module is in an area away from any external heat sources (engine heat, heater ducts, etc.), and secure with two screws or double sided tape.

UIM Programming Utility Instructions

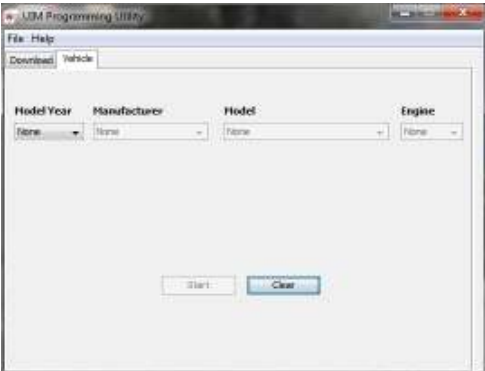
(Used for configuring the four programmable outputs)

Requirements:


- Java Runtime Environment (v1.6.0_18 or later) must be installed on your computer. Most PC's have Java installed. The most recent version can be obtained for free at <http://java.com/en/download/manual.jsp>.
- The UIM Programming Utility. This is a free InterMotive software program that will need to be loaded onto your PC. The files are available from the download page at www.intermotive.net. It is recommended that an "InterMotive" folder be created to store the files.
- USB to Serial cable (part number a-IPU) which is purchased separately .

Once the UIM Programming Utility has been run and the specific configuration has been created, it can be downloaded onto the module(s) with the Programming Utility.

Installation:

- Ensure that the proper driver is installed for the USB to Serial download cable. This driver can be found at: <http://www.ftdichip.com/Drivers/VCP.htm>
- To install the programming utility, unzip the UIM Programming Utility folder to the local hard drive.
- Create a shortcut on the desktop if necessary, but do not separate the UIM Programming Utility.exe file from the rtxSerial.dll file!
- Plug the USB cable (Part# s-h37a1) in prior to starting the application.
- Double click the UIM Programming Utility.exe file to launch.
- This screen will come up. 
- If the program does not launch, close all applications and reinstall the Java Runtime Environment and the UIM Programming Utility.

Setting the UIM Programming Utility Pin Configurations:

- Under the "vehicle" tab select the model year, manufacturer, model, and engine of the vehicle the UIM will be installed in.
- Click the "Start" button.
- This screen will come up. 
- Configure the module as desired. (go to www.intermotive.net to view a video on tips for configuring the module)
- Select "Save Configuration" under the "File" tab.
- Enter a configuration name (ABC### or AB###) and click "OK".
- Review the configuration summary and click "Yes".
- Enter a filename and choose a location that will be easy to locate.
- Under the "File" tab, select "Print Saved Configuration".
- Double click the .imc file previously configured.
- Enter Company Name and Phone Number and press "OK".

InterMotive Module Desktop Power/Ground Supply

The InterMotive Module Desktop Power/Ground Supply can be used to power the UIM away from the vehicle. This allows programming the UIM on your desk. The Module Desktop Power/Ground Supply consist of a 120V AC to 12VDC adapter with a Male 6-Pin Molex connector (also included is a 6-Pin to 4-Pin adapter harness—which is not needed for the UIM).



- Plug the Module Desktop Power/Ground Supply inverter (s-6w-powersupply) into a 120V AC power source.
- Locate the 6-Pin Female connector on the module but do not plug in the power adapter until indicated in the following steps.

Loading a UIM Configuration File:

- Under the "Download" tab on the UIM Programming Utility, choose the COM Port the USB cable is connected to.

Note: This can be determined on Windows XP by right-clicking on 'My Computer' and selecting 'Properties.' From this window select the 'Hardware' tab and click on 'Device Manager.' In the Device Manager window, expand the 'Ports' menu and the download cable will display as 'USB Serial Port.'

- Click the 'Open File' button.
- Open the UIM.imc file to load on the module.
(The file must already be loaded on the computer).
- Connect the RJ type modular connector of the harness to the J4 COMM port of the module.
- Click the load button.
- Plug in the 6 pin connector of the power adapter into the module.
- The progress bar will display status.
- The configuration file should load in about 10 seconds or less.



J4 COMM Port



UIM Post Installation Testing

- Turn on the ignition to wake up module.
- With the conditions met, ensure that the specific output has the desired output (e.g., output 5, goes low when engine is running).

Diagnostics:

To enter diagnostic mode, momentarily ground the round silver pad labeled "Test" while the ignition is on. At this point the on-board LED's will light as follows:

- LED1 - LED8: On when corresponding load is active.
LED1 = Pin1 LED2 = Pin2 LED3 = Pin3 LED4 = Pin4
LED5 = Pin8 LED6 = Pin9 LED7 = Pin10 LED8 = Pin11

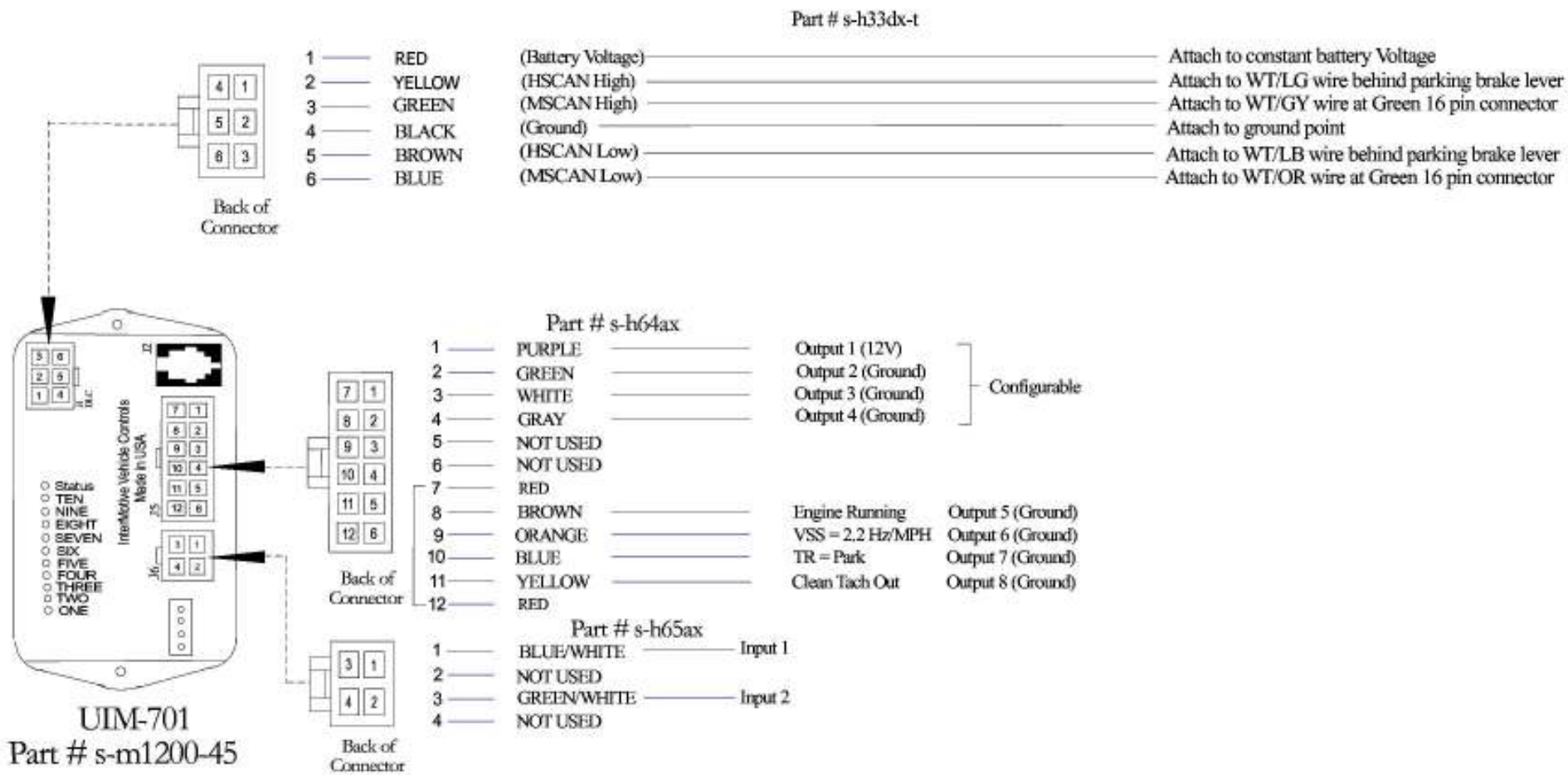
Additionally, the LED's may scroll indicating one of the following errors:

- LED's scrolling sequentially one at a time means that an invalid or incomplete VIN was captured.
- LED's scrolling from the middle outward indicates a configuration error. This can be the result of configuring the UIM for one chassis, but installing it in a different chassis.

The UIM is properly installed only if it passes the above tests. If any irregular operational issues persist, recheck the configuration data. Contact InterMotive at 530-823-1048 for technical assistance.

UIM Operation:

The UIM will go into a low power sleep mode when the key is turned off. This may take up to five minutes. Other vehicle activity such as opening doors, inserting key in the ignition may delay sleep mode. The module wakes up and initializes when the vehicle ignition is on. Outputs are controlled based on the module's configuration which was created using the InterMotive UIM Programming Utility program.



Submit product registration at www.intermotive.net

If the UIM fails any step in the Post Installation Test, review the installation instructions and the loaded configuration by running the Graphical User Interface application. If necessary, call

InterMotive technical support @ (530) 823-1048.