INTERMOTIVE VEHICLE CONTROLS

An ISO 9001:2008 Registered Company

UIM301/401/501
Upfitter Interface Module

See UIM Programming Utility software for latest list of supported vehicles

Ford 2011-12 F-Series Superduty 6.2L, 6.7L, and 6.8L
Ford 2010-12 E-Series 4.6L, 5.4L, and 6.8L
Chevy 2010-12 Express/Savanna 4.8L, 5.3L, 6.0L, and 6.6L
Nissan 2012 NV 4.8L and 5.6L

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, you can easily determine what information is available on a particular chassis (free download from www.intermotive.net). The UIM kit provides a T-Harness for easy connection to the vehicles OBDII connector. A second 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 battery before proceeding with the installation.

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.

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Data Link Harness Installation

- Locate the vehicles OBDII Data Link Connector. It will be mounted below the lower left dash panel. Nissan NV is on the lower right side.
- Remove the mounting screws for the OBDII connector. Plug the Red connector from the UIM Data Link Harness into the vehicle's OBDII connector. Ensure the connection is fully seated and secure with the supplied wire tie. (Nissan NV connector uses side tabs for retention instead of screws and the UIM301 data link harness matches the OEM connector).

- Mount the pass through connector from the UIM Data Link Harness in the former location of the vehicle's OBDII connector.
- Secure the UIM Data Link harness so that it does not hang below the lower dash panel.
- Do NOT plug the Data Link harness into the module at this time.

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:

12 Pin IO

Back of Connector

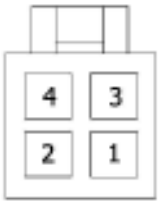
- Pin #1 (Purple wire) Configurable Output, **Active High***
- Pin #2 (Green wire) Configurable Output, Active Low
- Pin #3 (White wire) Configurable Output, Active Low
- Pin #4 (Gray Wire) Configurable Output, Active Low
- Pins #5-6 are no-connects
- Pin #7 (Red Wire) fixed jumper to pin 12
- Pin #8 (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) = pulses per minute. E.G. 600rpm = 2400ppm (8 cylinders)
- Pin #12 (Red Wire) fixed jumper to pin 7

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 Digikey #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

4 Pin IO

Connect inputs as needed. Tape up unused input wires.

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. Reconnect the vehicles battery.
3. Turn the key on, engine off
4. 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: This last step must be repeated if a module is moved to a new vehicle.

UIM Programming Utility Instructions

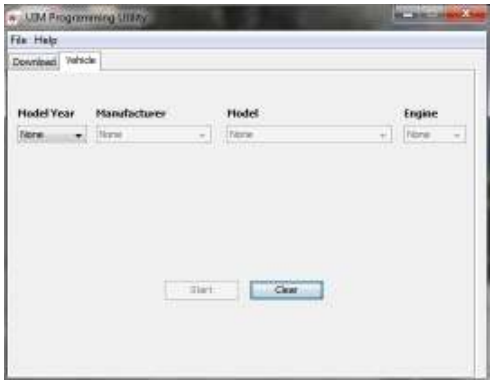
(Used for configuring the four programmable outputs)

Requirements:

- The UIM Programming Utility is a free Intermotive software program that will need to be loaded onto your PC.
- The Java Runtime Environment (v1.6.0_18 or later) must be installed on your computer prior to running this utility. Most PC's have Java installed. You can get the most recent version for free at http://java.com/en/download/manual.jsp.
- The UIM Programming Utility files are available from the download page at www.intermotive.net. We suggest you create an "Intermotive" folder and save the files there.
- The next page describes installing and using the UIM Programming Utility. Once you have run the UIM Programming Utility and created your specific configuration, you'll want to download it to your module(s). Intermotive provides a USB to Serial cable for this.

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 your local hard drive.
- Create a shortcut on the desktop if necessary, but do not separate the UIM Programming Utility.exe file from the rxtxSerial.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.

InterMotive Module Desktop Power/Ground Supply

The InterMotive Module Desktop Power/Ground Supply (s-6w-powersupply) 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 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.
- Now 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

- Reconnect the vehicle battery to enable system testing.
- Turn the ignition on to wake module up.
- 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

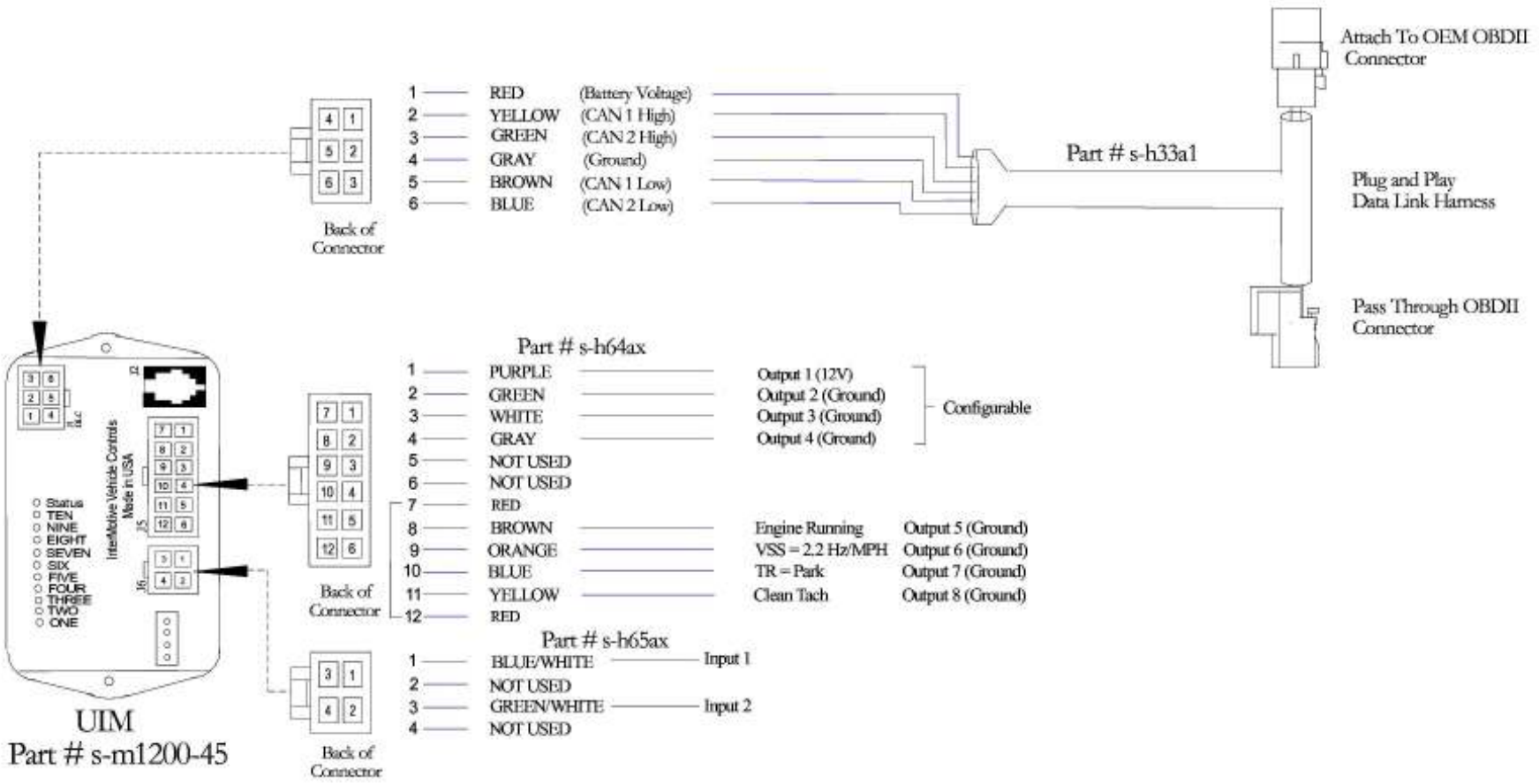
Additionally, the LED's may scroll indicating one of the following errors:

- 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 your GUI configuration. 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.