Upfitter Interface Module® +

A-UIMP752-A 2025 RAM 2500-5500



Introduction

The Upfitter Interface Module® + provides access to a broad range of vehicle data such as MPH, RPM, Park Brake, Service Brake, temperatures, transmission range, accelerator pedal, doors, lights, door locks, ABS, MIL, etc. Specific data is vehicle dependent. For particular vehicle application, contact InterMotive Technical Support at: (530) 823-1048

The module provides eleven programmable outputs, which allow logical combinations (AND, OR, =, >, <) of various vehicle data for control. 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). There are also two analog inputs, four high true inputs, and four low true inputs that can be used as part of the programmable logic.

The UIMP752 also translates and transmits proprietary vehicle data over a separate J1939 protocol network. This allows third-party J1939 devices to be installed on light duty vehicles which do not support J1939 protocol.

Disconnect vehicle battery before proceeding with installation



CAUTION

All electronic products are susceptible to damage from Electrostatic Discharge or ESD. Ground yourself before handling or working with the module and harnessing by first touching chassis ground, such as the barrel of the cigarette lighter.



IMPORTANT—READ BEFORE INSTALLATION

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.

Avoid placing the module where it could encounter strong magnetic fields from high current cabling connected to motors, solenoids, etc. Avoid radio frequency energy from antennas or inverters next to the module. Avoid high voltage spikes in vehicle wiring by always using diode clamped relays when installing upfitter circuits.

Installation Instructions

UIMP Module

Remove the lower dash panel below the steering column area and find a suitable location to mount the module. Place the module in an area away from any high heat sources (engine heat, heater ducts, etc.). Do not mount the module until all wire harnesses are routed and secure. The last step of the installation is to mount the module.

Data Link Harness Installation (**A-UIMP752-A**)

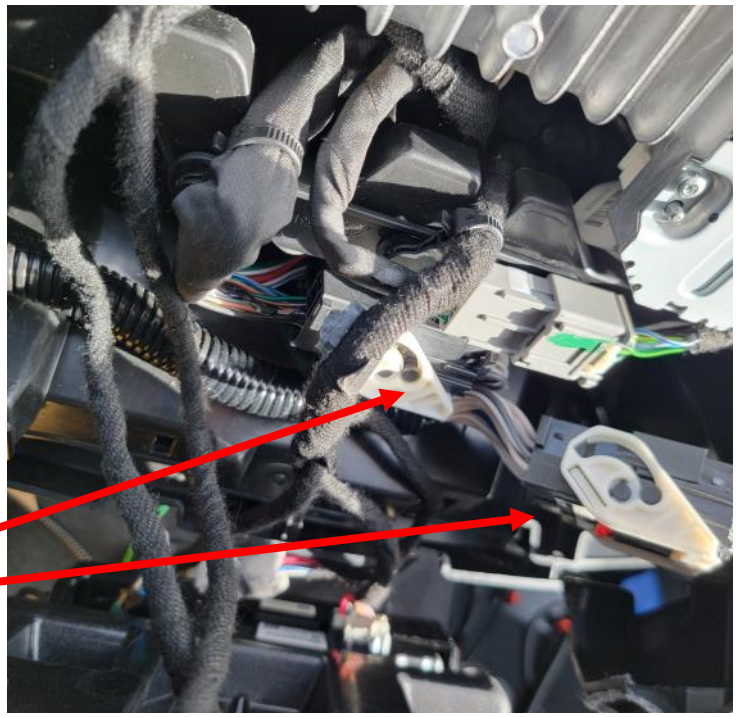
The vehicle has two vehicle connections that need to be made. One is in the Driver side foot well and the other is behind the radio screen.



- Locate the black 30w connector in the Drivers side foot well. Press the release tab while moving the white lever lock to release the connectors
- Plug the mating connectors from the 840-00407 harness into the OEM connectors.
- Route the 2w connector towards the center of the vehicle.



- Remove the plastic insert and remove 2 screws on the top of the radio.
- The radio stack is held in place by clips.
- Either disconnect the various connectors from the radio or have a helper hold the radio stack.
- Locate the black 30w connector. Press the release tab while moving the white lever lock to release the connectors.
- Plug in the mating connectors from the 840-00412 harness into the OEM connectors.
- Route the harness over towards the Drivers side foot well. Plug the 2w connector into the mating 2w connector from the 840-00407 harness



Finalizing Installation

When all harnessing has been installed and routed, it is safe to plug the connectors into the module.

Reverse installation steps to reassemble the vehicle interior.

Reconnect the vehicle battery

Configurable Output Mode Settings

The outputs can be set for various modes, as described below. Momentary mode is the most commonly used, where an output is 'active' only when the proper conditions have been met.

Momentary: Output follows condition set but with a turn on delay, and a turn off delay. Setting 'On Delay' and 'Off Delay' to zero causes the output pin to simply "follow" the condition set being true (ON) and false (OFF).

Latching: This mode will latch an output pin ON, starting 'On Delay' seconds after the conditions are met, and will keep it ON even after the conditions are no longer true. It will then latch the output OFF, following 'Off Delay' seconds after the conditions are met again. Think of it as toggle on—toggle off. The simplest use would be when using a momentary button as the only input condition and setting the Delays to zero. Thus a load could be turned on by pushing a momentary button, and turned back off by pushing the button a second time.

Time Hold: The output pin goes ON after the conditions become true, and stays ON for the selected 'On Time', regardless of the conditions. Off Time is Not Applicable.

Time Delay: Output is turned ON after the selected 'delay' time after the conditions are met. It stays on for the selected 'On time', regardless of input conditions.

Timeout: Output is turned ON after the selected 'delay' time after the conditions are met. It stays on for the selected 'On time' and will turn off early if conditions are no longer met.

Flashing—Momentary: Used for creating a flashing output. When conditions are met, output flashes. When conditions are no longer met, flashing stops. Flashing ON and OFF times (duty cycle) are controlled by entering the following values.

Flashing - Latching: Same as above, except flashing will continue after conditions are no longer true, and will stop when conditions become true again—toggle ON, toggle OFF. Duty cycle is controlled by the ON and OFF times.

Key-Off Operation: If Key-Off operation is selected, outputs will continue to update once the key goes off. These outputs will continue to update until the vehicle goes to sleep.

Additional Configurable Options

Active Data Enable: Some vehicles support additional network data (PGN/SPNs) which may be required by the third-party device that will be connected to the module. As this data must be requested over the vehicle network and may cause compatibility issues with other upfitter equipment, the module comes from the factory with this optional data disabled. If the third-party device requires this data, it must be enabled in the configuration.

Desktop Programming



The InterMotive "A-IPU" kit is sold separately and allows programming the module on your desktop. It consists of a 12VDC wall adapter and download cable and works with the InterMotive Download Manager.

Note: Do not have the InterMotive Download Manager opened until instructed to do so.

1. Plug the Module Desktop Power/Ground Supply inverter into a 120V AC power source.
2. Locate the 8-Pin Female connector on the module but do not connect the AC adapter to the module until indicated in the following steps.
3. Plug the phone jack end of the download cable into the J13 COMM port of the UIMP module and the USB end into your PC.

Loading Configuration File

Open the InterMotive Download Manager and choose the COM Port the USB cable is connected to.

Note: This can be determined on Windows 11 by holding down the windows key and pressing x, then selecting Device Manager. In the Device Manager window, expand the 'Ports' menu and the download cable will display as 'USB Serial Port (COM#).'

Click the 'Open File' button.

1. Open the UIMP*.ims or configuration file to load on the module. (This file must already be loaded on the computer).
2. Click the load button on the computer screen. "Waiting" will come up next to the progress bar. This means the program is waiting for the download cable to be plugged into the module.
3. Plug in the 6-pin connector of the power adapter into the 8-pin connector of the module. The progress bar on the computer screen will display status as the configuration loads and takes approximately 2 seconds or less. Configuration is loaded once the screen says "DONE" and programming is complete.
4. To verify that the correct data was loaded into the module, disconnect the 6-pin connector from the module and press the "Get" button on the screen. Plug in the 6-pin connector and the information will be displayed.

To program another module with the same configuration file, start with step 2.

UIMP Pin-Out Definitions

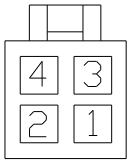
This module has 11 configurable outputs and 10 general purpose inputs.

Note: when driving relays, a diode-protected type must be used.

The 11 outputs are defined as follows:

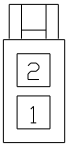
J5:

- Pin #1 (Green/White wire) Configurable Output 1, Active Low (0.5 A)
- Pin #2 (Violet wire) Configurable Output 2, Active High (1 A)
- Pin #3 (Pink wire) Configurable Output 3, Active Low (0.5 A)
- Pin #4 (Tan wire) Configurable Output 4, Active High (1 A)



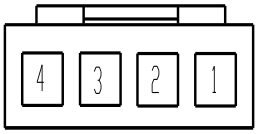
J12:

- Pin #1 (Brown wire) Configurable Output 5, Active Low (0.5 A)
- Pin #2 (Light Green wire) Configurable Output 6, Active High (0.5 A)



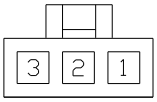
J8:

- Pin #1 (Yellow wire) Configurable Output 7, Relay (5 A)
- Pin #2 (White wire) Configurable Output 8, Relay (5 A)
- Pin #3 (Gray wire) Configurable Output 9, Relay (5 A)
- Pin #4 (Brown wire) Configurable Output 10, Relay (5 A)



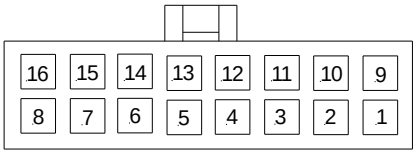
J10:

- Pin #1 (Light Blue wire) Output 11 Source
- Pin #2 (Blue/Brown wire) Configurable Output 11, Relay (5 A)



J7:

- Pin #10 (Yellow/Black) Output 7 Source
- Pin #12 (White/Black) Output 8 Source
- Pin#14 (Gray/Black) Output 9 Source
- Pin #16 (Tan/Black) Output 10 Source



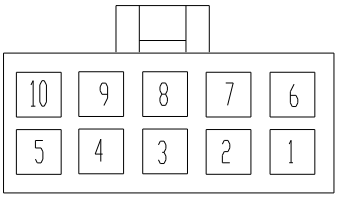
UIMP Pin-Out Definitions

This module has 11 configurable outputs and 10 general purpose inputs.

Note: when driving relays, a diode-protected type must be used.

There are 10 inputs defined as follows:

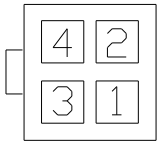
J4:



- Pin #1 (Violet/White) Input 1, Active Low
- Pin #2 (Tan/Black) Input 2, Active High
- Pin#3 (Green/Black) Input 3, Active High
- Pin #4 (Blue/White) Input 4, Active Low
- Pin #5 (Red/White) Input 5, Active Low
- Pin #6 (Violet/Black) Input 6, Active High
- Pin #7 (Yellow/Blue) Input 7, Analog Input
- Pin #8 (Black/White) Input 8, Active Low
- Pin #9 (Yellow/Green) Input 9, Analog Input
- Pin #10 (Orange/Black) Input 10, Active High

UIMP Translator Connection Output

The UIMP Data Link Harness has a 4-Pin White connector that provides J1939 CAN 1 High and CAN 1 Low signals for connecting to a 3rd party device.



Pin #1 (Orange) - J1939 CAN 1 High Pin 2 (Red Wire) - Battery Voltage

Pin #3 (Violet Wire) - J1939 CAN 1 Low Pin 4 (Black Wire) - Ground

Mating connectors: Molex 39012040 Termination: 39000038 18-24 awg 39000077 16 awg

Default Configuration Settings

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

The default configuration for the 11 outputs are as follows:

- 1: J5 Pin #1 (Green) Service Brake = On
- 2: J5 Pin #2 (Violet) ECT > 230F or TFT > 250F
- 3: J5 Pin #3 (Pink) Vehicle Speed 2.2 Hz/Mph
- 4: J5 Pin #4 (Tan) Transmission Range != Park
- 5: J12 Pin #1 (Brown) Transmission Range = Park
- 6: J12 Pin #2 (Lt Green) Ignition = On
- 7: J8 Pin #1 (Yellow) Engine Running = True
- 8: J8 Pin #2 (White) High Beams = On
- 9: J8 Pin #3 (Gray) Transmission Range = Reverse
- 10: J8 Pin #4 (Brown) AC Switch = On
- 11: J10 Pin #1 (Lt Blue) Engine Cranking = True

Initial Installation Power-Up

When the module is first plugged in, it attempts to acquire the vehicle's VIN to interpret vehicle data on the CAN network. The key must be in the Run position for network traffic to be present (engine off is OK).

1. Turn the ignition switch to the Run position.
2. Plug the 8-pin Data Link connector into the module.

- If the module LEDs "scroll" , then it has NOT acquired a recognized VIN. The chassis may be a new Model Year which the module does not recognize, or the chassis has an unrecognized engine. Ensure your chassis is listed at the top of page 1 of these instructions. Contact InterMotive Tech Support for assistance.
- If no LEDs come on when the module is plugged in and powered up, it is working properly. Proceed to post installation testing.

UIMP Module Mounting

Ensure all the harnesses are properly connected and routed, and are not hanging below the dash area. Mount the module using screws or double sided tape. Reinstall the lower dash panel.

UIMP Post Installation Testing

1. Turn the ignition ON to wake up and initialize the module.
2. With the conditions met, ensure that all desired outputs are responding correctly per their programmed condition set (e.g., default condition of output 5 goes low when engine is running).

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

UIMP Operation

Turning the vehicle ignition ON will wake up and initialize the module. Outputs are controlled based on the module's configuration.

When the key enters the Off state, the module will shut off all outputs and prepare to enter a low-power sleep state. If Key-Off operation is selected, outputs will continue to update once the key goes off. These outputs will continue to update until the vehicle goes to sleep. The Diagnostic LEDs (if active) on the module will also turn off once in sleep mode. This may take up to five minutes from when the key enters the Off state. Other vehicle activity, such as opening doors, inserting key in the ignition, etc. may delay sleep mode.

Diagnostics

To enter diagnostic mode, momentarily press the red test button on the module with the ignition on. There are 12 'pages' of diagnostic data. Each time the red test button is momentarily pressed the module will advance to the next 'page'. The Status LED will flash the page number (e.g. the Status LED will flash 5 times when in 'page' 5).

	Page 1: Outputs 1-4	Page 2: Outputs 5-8	Page 3: Outputs 9-11	Page 4: Inputs 1-4
LED1	Output 1 Active	Output 5 Active	Output 9 Active	Input 1
LED2	Output 2 Active	Output 6 Active	Output 10 Active	Input 2
LED3	Output 3 Active	Output 7 Active	Output 11 Active	Input 3
LED4	Output 4 Active	Output 8 Active	Unused	Input 4

	Page 5: Inputs 5, 6, 8, 10	Page 6: Fault Status	Page 7: CAN Transmission	Page 8: CAN Reception
LED1	Input 5	Inputs Valid	CAN 1 Transmitted Message	CAN 1 Received Message
LED2	Input 6	Battery Voltage Valid	CAN 2 Transmitted Message	CAN 2 Received Message
LED3	Input 8	None	CAN 3 Transmitted Message	CAN 3 Received Message
LED4	Input 10	LCO Fault Status	None	None

	Page 9: Idle-Lock Status	Page 10: Horn Mute Status	Page 11: Panic Mute Status	Page 12: Radio Mute Status
LED1	Idle-Lock Enabled	Not Used	Not Used	Not Used
LED2	Idle-Lock Lockdown	Input 1 Grounded	Input 4 Grounded	Input 5 Grounded
LED3	Door Ajar	Received Diagnostics	Received Diagnostics	Radio is Being Muted
LED4	Fob Present	Horn is Being Muted	Horn is Being Muted	Mute Request

LCO Fault Status

If there is an issue with one of the UIMP outputs, LED 4 will flash a two-digit code while in diagnostic mode, page 6. A 1-1 code means everything is working properly. The first digit flashed will correspond to the output number and the second digit will indicate the specific problem. The second digit can be:

- 2 - Output fault (overcurrent or overvoltage)
- 3 - Invalid data (The data associated with the output is invalid)
- 4 - Data timed out (The data associated with the output has timed out)
- 5 - Unsupported data (The data associated with the output is not supported on the current vehicle)
- 6 - Invalid Operation Mode (The output is not configured to operate in the current ignition state)

Scrolling LEDs may indicate one of the following errors:

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

J1939 Data Definitions

Function	SPN	PGN	Dflt / Opt
VSS - Vehicle Speed	SPN84	PGN65265	Default
RPM - Engine Revs per Minute	SPN190	PGN61444	Default
ECT - Engine Coolant Temp	SPN110	PGN65262	Default
TFT - Trans Fluid Temp	SPN177	PGN65272	Default
FL - Fuel Tank Level	SPN96	PGN65276	Default
APP - Accelerator Pedal Position	SPN91	PGN61443	Default
PB - Park Brake	SPN619	PGN65274	Default
SB - Service Brake	SPN597	PGN65265	Default
ABS - Anti Lock Brake System Event	SPN563	PGN61441	Default
TR - Transmission Range	SPN163	PGN61445	Default
ODO - Odometer	SPN917	PGN65217	Default
EOP On/Off - Engine Oil Pressure		PGN61452	Default
ENG RUN - RPM > 400		PGN61452	Default
MIL - Malfunction indicator Lamp		PGN61452	Default
AC Clutch - Air Conditioner Clutch On		PGN61452	Default
Key Position		PGN61452	Default
DFDR - Driver Side Front Door		PGN61452	Default
DRDR - Driver Side Rear Door		PGN61452	Default
PFDR - Passenger Side Front Door		PGN61452	Default
PRDR - Passenger Side Rear Door		PGN61452	Default
RDR - Rear Door		PGN61452	Default
Park Lamp		PGN61452	Default
Low Beam		PGN61452	Default
High Beam		PGN61452	Default
DRL - Daytime Running Lights		PGN61452	Default
Turn Signal		PGN61450	Default
Security Alarm		PGN61452	Default
Door Locks		PGN61452	Default
DTC Count - Diag Trbl Codes (Emissions)		PGN61452	Optional
EFR - Eng Fuel Rate	SPN183	PGN65266	Optional
BP - Barometric Pressure	SPN108	PGN65269	Optional
ELD - Engine Load	SPN92	PGN61443	Optional
AAT - Ambient Air Temperature	SPN171	PGN65269	Optional
VIN - Vehicle Identification Number		PGN59904	Requested
Horn		PGN61452	Optional
Horn Switch		PGN61452	Optional

Custom PGNs
All PGNs having an SPN designation will be formatted and transmitted as stated in the SAE J1939-71 (Rev. AUG2002) standards document. Some of the PGNs on the previous chart do not have SPNs specified. These are custom-defined and have chassis data in the locations described below. NOTE: For any of the 2-bit definitions below, a value of "01" indicates a TRUE condition (as defined), a "00" indicates a FALSE condition, and if both bits are HIGH, data is to be considered invalid.

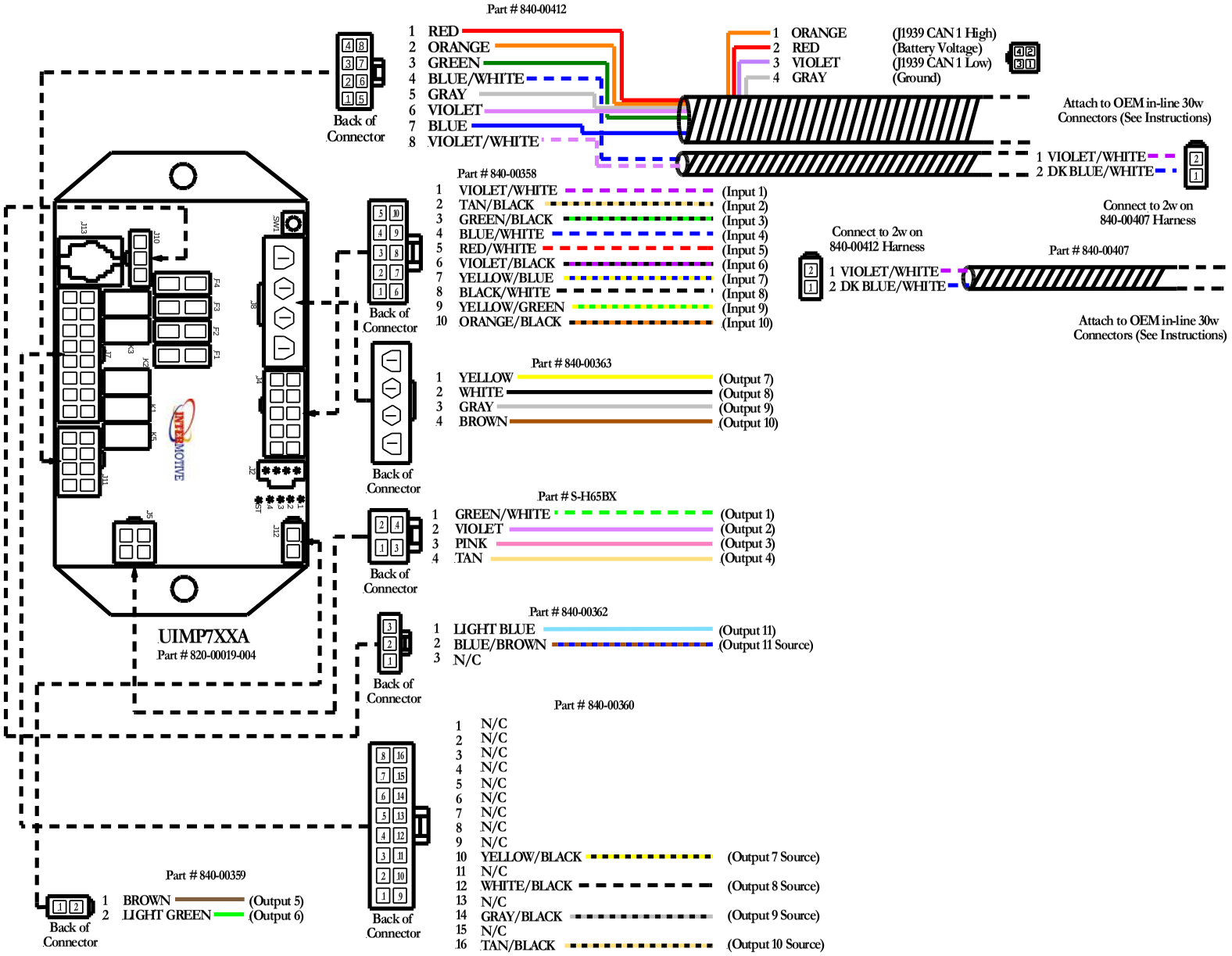
PGN 61452 Format:

Key Position (4 bits)	Byte 0 bits 0-3 1 = OFF (0001) 2 = ACC (0010) 4 = Run (0100) 8 = Crank (1000) F = Data invalid (1111)
Doors Open/Closed (2 bits)	Driver Front – Byte 0, bits 6&7 Passenger Front – Byte 1, bits 0&1 Driver Rear – Byte 1, bits 2&3 Passenger Rear – Byte 1, bits 4&5 Rear – Byte 1, bits 6&7
Engine Run (2 bits)	Byte 2, bits 0&1
MIL (2 bits)	Byte 2, bits 2&3
DRL (2 bits)	Byte 2, bits 4&5
AC clutch (2 bits)	Byte 2, bits 6&7
Park Lamp (2 bits)	Byte 3, bits 0&1
Low Beam (2 bits)	Byte 3, bits 2&3
High Beam (2 bits)	Byte 3, bits 4&5
Door Locks (3 bits)	Byte 4, bits 0-2 001 – All doors locked 010 – All doors unlocked 011 – Driver door unlocked 111 – Data invalid
EOP On (2 bits)	Byte 4, bits 4&5
DTC count (7 bits)	Byte 5, bits 0-6
Horn (2 bits)	Byte 6, bits 0&1
Security Alarm (2 bits)	Byte 6, bits 2&3
Horn Switch(2 bits)	Byte 6, bits 4&5
UNDEFINED	Byte 7

PGN 61450 Format:

MAF (2 bytes)	Bytes 0&1
Turn Signals (3 bits)	Byte 4 bits 0-2 001 – Right 010 – Left 011 – Hazard (both) 111 – Data invalid

NOTES on certain PGN data:
DTC count is defined to be only for Emissions-related DTCs at present.
ODO is read in meters (as defined)
MAF is 0.05 kg/h per bit
VIN must be requested - J1939 REQ PGN 59904 using destination address 65260. VIN will then be transmitted in a multi-frame packet to this address (65260).



Submit product registration at www.intermotive.net

If the UIMP fails any step in the Post Installation Test, review the installation instructions and the loaded configuration by running the InterMotive Download Manager. If necessary, call InterMotive Technical Support at (530) 823-1048.