

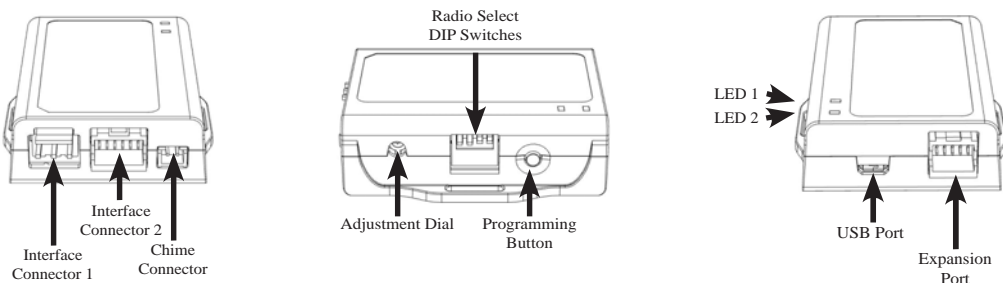
## Introduction and Features

The GM1A-RS interface allows the replacement of a factory radio in select General Motors vehicles with the Class II Data-Bus. Using this interface will retain factory features such as steering wheel controls (SWC), rear seat controls, warning chimes and the factory Bose amplifier when the original radio is removed. Use of this interface also allows you to program two radio functions to each SWC button by using short press long press dual command functionality. The GM1A-RS provides data bus driven outputs such as retained accessory power (RAP), vehicle speed signal (VSS), illumination, reverse trigger and parking brake. You can also add multiple camera inputs to your aftermarket radio with Data-Bus controlled automatic activation (front camera only) by connecting a VS41 into the expansion port on the GM1A-RS.

## Important Notes

1. Does not retain OnStar.
2. Does not provide RSE audio to aftermarket radio.
3. Compatible with Premium (Y91 / UQ7) Bose, standard Bose (UQA) and non amplified systems. To verify the RPO code on your vehicle, check the glove compartment for a silver sticker with these codes. The RPO codes will be listed in alphabetical order.
4. Aftermarket radios with a 2-wire resistive based SWC circuit will not have default button assignments programmed. Please refer to the owners manual of the radio you are installing to find out the proper SWC programming procedure.
5. The included chime speaker should be used when: The vehicle has a standard Bose system, the vehicle does not have a factory amplifier at all, or if you are connecting an aftermarket amplifier to the cabin speakers.
6. The Programming Button and Adjustment Dial on the side of the interface have multiple functions. Please see Page 2 for more details.
7. When used in conjunction with the add on camera controller (VS41) the GM1A-RS will only provide Data-Bus controlled automatic activation for the front camera. Please refer to the vehicle specific VS41 instructions for more detail.
8. Fade is adjusted using the RadioPRO app. The GM1A-RS module needs to be connected to the vehicle, and the PC, to adjust chime volume.
9. In vehicles with Premium Bose (Y91 / UQ7), dynamic fade is only supported by GM1A-RT and GM1A-RST.
10. In vehicles with Premium Bose (Y91 / UQ7), if the audio level is too low, or too high, the level can be fine tuned using the adjustment dial on the side of the interface. See Page 5 for more details. **The level adjust does not operate with standard Bose Systems (UQA) or non amplified systems.**

## Module Layout



## Installation Steps



Set DIP switches that correspond with your radio to the ON position.  
Set all other DIP switches to the OFF position.



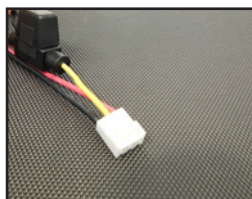
Alpine	JVC	Kenwood / Lightning Audio	Clarion / Nakamichi	2-Wire Resistive	Pioneer / Other*	Sony	Fusion
1	2	1 & 2	3	2 & 3	1, 2, & 3	4	1 & 4

\*Other - Dual / Axxera (these brands could also have 2-wire resistive), Jensen, Rockford Fosgate

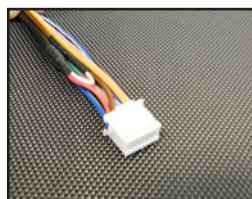
1. Set the Radio Select DIP switches according to the radio you are installing.
2. Wire your aftermarket radio to the GM1A-RS's harness according to the wiring connections chart on the next page.
3. Plug Interface Connectors 1 and 2 into the appropriate port on the GM1A-RS interface (using the illustration above or the label on the bottom of the interface).
4. Plug interface connector 3 into the LOC-1 module. Connection will be dependent upon whether or not the vehicle has a factory amplified system. Plug this connector into the appropriate port on the included line output converter (Part # LOC-1; using the illustration on the next page or the text stamped into the housing). Improper connection will result in either very over-driven audio in amplified systems or very low audio in non-amplified systems. If this occurs, disconnect the harness from the LOC-1 Module, and connect it into the port on the opposite side of the LOC-1.

## Installation Steps (cont.)

5. Remove the factory radio and plug in the GM1A-RS's vehicle harness into the factory vehicle harness.
6. If you wish to reassign functions to the SWC, follow the programming instructions in the next section.
7. If the vehicle has a standard Bose system, does not have a factory amplifier at all, or if you are connecting an aftermarket amplifier to the cabin speakers, connect the chime speaker to the chime connector on the interface and install the chime speaker in a place free of obstructions where it can be easily heard (usually low in the dash facing downward).



Interface Connector 1



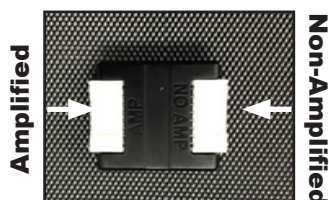
Interface Connector 2



Interface Connector 3



Vehicle Connector 1



Line Output  
Converter (LOC-1)



Chime Speaker

## Wiring Connections

Yellow	12v+
Red	Accessory Output (10 amp)
Black	Ground
Blue / White	Remote On Input
Orange	Not Used
Orange / White	Illumination Output (+)
Purple / White	Reverse Output (+)
Blue / Yellow	SWC Output / Key 1
Brown	SWC Output / Key 2
3.5 mm Jack	SWC Output
Light Green	Parking Brake Output (-)
Pink	Vehicle Speed Signal Output (VSS)
Purple	Rear R + input
Purple / Black	Rear R - input
Green	Rear L + input
Green / Black	Rear L - input
Gray	Front R + input
Gray / Black	Front R - input
White	Front L + input
White / Black	Front L - input

## VS41 Wiring

The VS41 can be connected to the GM1A-RS and used to switch multiple cameras. Please refer to the document labeled **"Instructions for wiring the VS41 into 2003-2006 Chevy / GMC Trucks and SUVs"**.

## Adjustable Settings

These products have settings that are adjustable through our RadioPRO PC app or through the push-button on the module. Some settings are only adjustable through the PC app. Some of these settings require the module to be connected to the vehicle. Below is a breakdown of these settings.

SETTING	AVAILABLE ON PC APP		AVAILABLE ON MODULE
	CONNECTED TO CAR	NOT CONNECTED TO CAR	
Chime volume (excluding Premium Bose Y91/UQ7)	YES	NO	YES
Factory amplifier settings: Bass, Mid, Treble, Gain, and Fade (Premium Bose Y91/UQ7 only)	YES	NO	GAIN ONLY
OnStar volume (RST or RT products only)	YES	NO	YES
Read product version	YES	YES	N/A
Update firmware	YES	YES	N/A
Camera settings (VS41 required)	YES	YES	NO

## Programming Button and Adjustment Dial Functions

You can **press and hold the programming button** on the side of the interface to access different programming modes. Once the LED is lit to the mode you desire (see below for modes), immediately release the programming button to access that mode.

### PLEASE NOTE:

- This process must be done with the interface in the vehicle and the key in the ignition position.
- If there is a Premium Bose system (Y91 / UQ7), and you are also installing an amplifier on the cabin speakers, make sure that the chime speaker is connected before proceeding. See the RadioPRO app section on Page 5 for more details.
- A. **1 Chime and LED 2 flash green: SWC re-assignment**. This allows you to re-assign the SWC functions to the buttons of your choice. Please see the Optional Steering Wheel Control Programming instructions on Page 4 for more details.
- B. **2 Chimes and LED 2 flash amber: SWC re-calibration** (this mode is available in the **Corvette only**). This allows you to re-calibrate the analog SWC in the event they fall out of the expected range and do not function properly. If data control SWC are detected by the interface, this mode will be automatically skipped.
- C. **3 Chimes and both LEDs flash green: Chime volume adjustment** This allows you to adjust the volume of the chimes generated by the interface using the adjustment dial on the side (this mode is not available in vehicles equipped with Premium Bose (Y91 / UQ7) amps). If a Premium Bose amp is detected by the interface, this mode will be skipped as the factory amp is what generates the chimes. Please see the vehicles owner's manual for adjustment of chime volume in vehicles with Premium Bose (Y91 / UQ7).
- D. **4 Chimes and LED 2 flash red: Master reset**. LED 1 will flash red and you will hear four chimes. This does a master reset of the interface and restores the following settings to factory defaults:
  - SWC Mapping
  - Infotainment Settings
  - SWC Calibration
  - Interface User Options
  - Camera Settings

## Default Steering Wheel Control Programming

### Default SWC Button Assignments

	Alpine	JVC	Kenwood	Clarion	Pioneer	Sony	Fusion
<b>Volume +</b>	Volume +	Volume +	Volume +	Volume +	Volume +	Volume +	Volume +
<b>Volume -</b>	Volume -	Volume -	Volume -	Volume -	Volume -	Volume -	Volume -
<b>Source Up</b>	Source	Source	Source	Source	Source	Source	Source
<b>Source Down</b>	Band	Band	Mute	Band	Band	Band	Off
<b>Seek Up</b>	Track +	Track +	Track +	Search +	Track +	Track +	Track +
<b>Seek Down</b>	Track -	Track -	Track -	Search -	Track -	Track -	Track -
<b>Voice</b>	OnStar	OnStar	OnStar	OnStar	OnStar	OnStar	OnStar
<b>Prog</b>	Preset Up	Preset -	Preset	Mute	Preset +	Preset +	Audio

### Default SWC Button Assignments (Corvette)

	Alpine	JVC	Kenwood	Clarion	Pioneer	Sony	Fusion
<b>Volume +</b>	Volume +	Volume +	Volume +	Volume +	Volume +	Volume +	Volume +
<b>Volume -</b>	Volume -	Volume -	Volume -	Volume -	Volume -	Volume -	Volume -
<b>Seek Up</b>	Track +	Track +	Track +	Search +	Track +	Track +	Track +
<b>Seek Down</b>	Track -	Track -	Track -	Search -	Track -	Track -	Track -
<b>Preset</b>	Preset Up	Preset/Disk Down	Preset	Mute	Preset Up	Preset Up	Audio
<b>Voice</b>	VR	VR	VR	VR	VR	VR	Mute
<b>End</b>	End	Reject	On Hook	End	End	Answer / End	Source

## Optional Steering Wheel Control Programming

### Programming

1. Turn the key to the ignition position.
2. Press and release programming button on the side of the interface.
3. Within 7 seconds, press the button that is to be learned on the steering wheel. LED 2 will turn red when the button is pressed.

**At this point you have two options:**

**A. For short press functionality:** Release the button within 1.5 seconds. LED 2 will turn back to green.

**B. For long press functionality:** Hold the button until LED 2 starts blinking. Release the button and the LED will go back to green.

4. Repeat step 3 for each additional audio function on the steering wheel.
5. If you come across a function in the chart that your steering wheel does not have, or you do not want to program, press and release the program button on the side of the interface to skip that function.
6. Once programming is completed, wait seven seconds. LED 2 will flash three times indicating end of programming
7. Test the interface for proper functionality. Whenever a SWC is pressed LED 2 will illuminate green.
8. If any function does not work, repeat the programming steps.

### Optional Programming Order

	Alpine	JVC	Kenwood / Lightning Audio	Clarion / Nakamichi	2-Wire Resistive	Pioneer	Other *	Sony	Fusion
1	Volume +	Volume +	Volume +	Volume +	No specific programming order. Please refer to the owners manual of your particular radio for programming instructions..	Volume +	Volume +	Volume +	Volume +
2	Volume -	Volume -	Volume -	Volume -		Volume -	Volume -	Volume -	Volume -
3	Mute	Mute	Mute	Mute		Mute	Mute	Mute	Mute
4	Preset +	Source	Source	Source		Preset +	Preset +	Preset +	Source
5	Preset -	Track +	Play	Search +		Preset -	Preset -	Preset -	Track +
6	Source	Track -	Track +	Search -		Source	Source	Source / End Call	Track -
7	Track +	Band / Disc +	Track -	Band		Track +	Track +	Track +	Audio
8	Track -	Preset / Disc -	Disc / FM +	Send / End		Track -	Track -	Track -	Power
9	Power	Select	Disc / AM -	Send		Band	Band	Band	
10	Enter / Play	Attenuation	Answer	End		Phone Menu	Answer **	Power / End Call	
11	Band / Program	Phone Receive	Voice Dial	VR		Answer Call	End **	Voice Dial / Answer / End Call	
12	Receive	Phone Reject	On Hook			End Call	PTT **	VR (Android Auto & Car Play) Answer / End Call***	
13	End	Voice Dial	Off Hook			VR			
14	VR	Power	Mute						
15			Preset +						
* Advent, Boyo, Dual, Lightning Audio, Jensen, Rockford Fosgate & Visteon    ** Jensen & Advent ONLY    *** XAV-AX100 Only									
Please Note: On any entry with multiple commands, the commands shown are source dependent.									

## SWC Re-calibration Procedure (Corvette Only)

**Please Note: This is only necessary if after installation, the SWC are acting erratic or unresponsive in the Corvette.**

1. Turn the key to the ignition position.
2. Press and hold the programming button until LED 2 turns amber and you hear two chimes. When this happens, release the programming button.
3. Within 7 seconds, press and hold the button that is to be learned on the steering wheel. The LED will turn off when the button is pressed and begin blinking when the value has been learned. Once the LED begins blinking, release the button.
4. Repeat step 3 for each additional function on the steering wheel.
5. If you come to a button in the list that your vehicle does not have, skip it by pressing the programming button on the interface. Any buttons not learned during this process will not function.
6. Once programming is completed, the LED will flash indicating end of programming
7. Test the interface for proper functionality. Whenever a SWC is pressed LED 2 on the interface should blink green. If any function does not work, repeat the programming steps.

### Button Programming Order

Volume Up
Volume Down
Seek Up
Seek Down
Preset
Answer / Voice
Hang Up
Preset Up

## Testing and Verification

1. Turn the ignition on. LED 2 will illuminate red and the +12v accessory wire will turn on.
2. Turn on the radio and check chimes, volume, and balance. **Note: Premium Bose Systems (Y91 / UQ7)** will not fade from the aftermarket radio. If you want to adjust the fader you must use the RadioPRO app. Please see the RadioPRO app section, at the bottom of this page, for more details.
3. **In vehicles equipped with Premium Bose (Y91 / UQ7)** : If the overall volume is too low, use the adjustment dial on the side of the interface to set it to the desired level. The best way to do this is to turn the volume on the radio to 3/4 volume, then turn the adjustment dial on the GM1A-RS clockwise until some distortion is heard, then counter-clockwise a little.
4. Verify that all SWC buttons are functioning properly. If you are installing the GM1A-RS into a Corvette, and are experiencing erratic SWC behavior, you may need to follow the SWC re-calibration procedure in the next section.
5. Turn off vehicle and remove key. RAP will be active and keep the radio on for 10 minutes or until any door is opened.
6. LED 2 and the radio will turn off when RAP turns off.

## Rear Seat Entertainment (RSE); If equipped

The factory RSE system will function independently from the aftermarket radio. The unit will power up and pass audio through the headphones as long as the vehicle's ignition is on. Audio from the RSE cannot be passed to the aftermarket radio when using the GM1A-RS. If you wish to pass audio to the aftermarket radio you must use the GM1A-RT or GM1A-RST.

## RadioPRO App

- Configure User Interface Options such as
  - Factory amplifier settings (Bass, Mid, Treble, Gain, Fader and Balance)\*
  - Chime Volume
  - Camera Settings
- Update Product Firmware
- Read Firmware/Hardware Versions

**\*Available only in vehicles equipped with a Bose Smart Amplifier**

### PLEASE NOTE:

The interface must be connected to the vehicle when using the following features of the RadioPRO App:

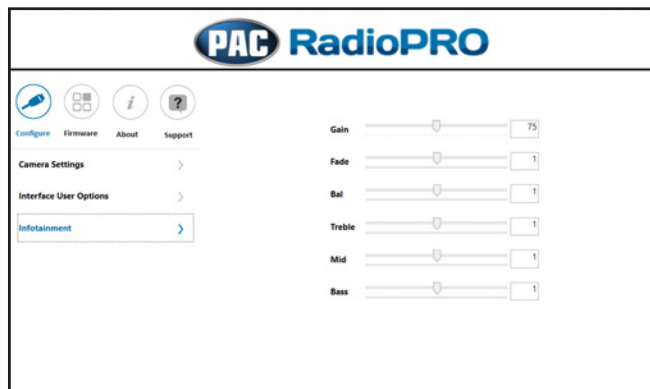
- Factory Amplifier Settings
- Chime Volume

The interface does not need to be connected to the vehicle when using the following features of the RadioPRO App:

- Interface User Options
- Camera Settings
- Firmware Updates
- Reading firmware/hardware versions

## Infotainment/Factory Amplifier Adjustments

The RadioPRO app will also allow you to adjust the settings of the factory amplifier (Y91 / UQ7 Premium systems only). You can adjust Amp Gain, Fader, Balance, Bass, Mid and Treble. When real time fade is enabled in amplified systems, it will allow fading to be controlled directly from the aftermarket radio. Restoring factory settings on the module will default all values back to middle.



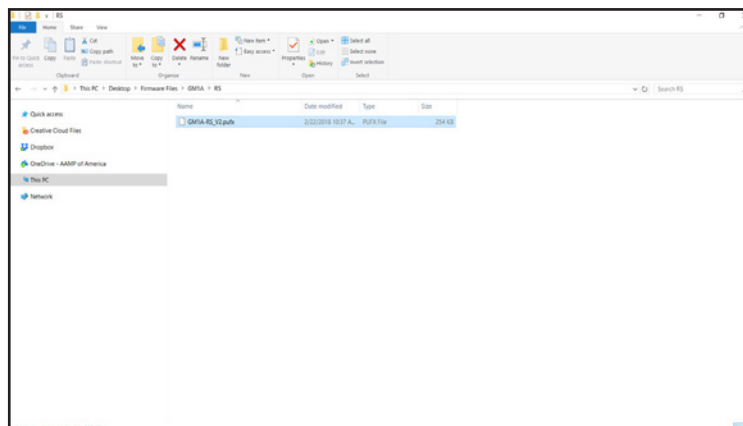


## Product Updates (Firmware)

### Firmware Updates

The RadioPRO app will also allow you to update the interface with new firmware as it becomes available. The GM1A-RS can be updated with new firmware as it becomes available.

Connect the interface to your PC and select "Firmware", then "Update Firmware". Now select "Select File". Finally, browse to the place where you saved the file and select it. This will begin the updating process. Once finished, disconnect the interface from the PC and test operation.



# VS41

Vehicle Specific Instructions for use with RadioPRO ADVANCED  
In Select 2003-2006 Chevrolet / GMC Trucks and SUVs

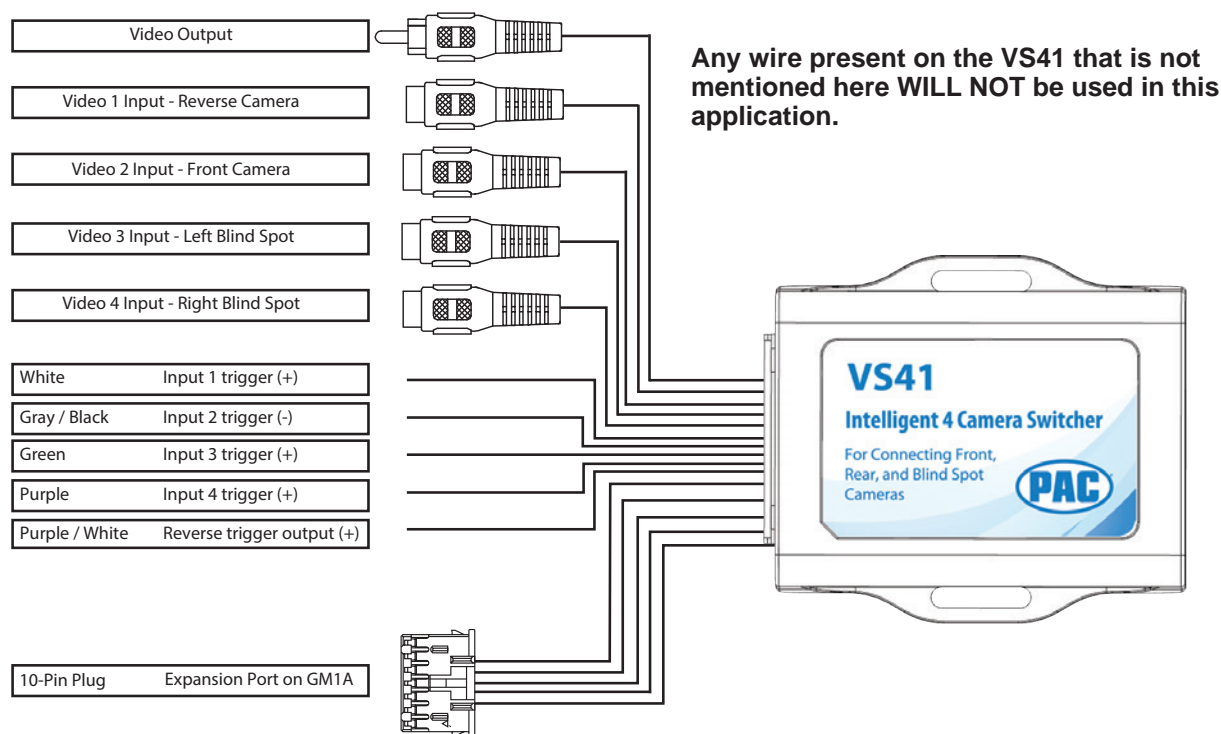
## Introduction & Features

The VS41 is an intelligent 4 camera switcher for controlling front, rear, and blind spot cameras. It is designed to be used with PAC radio replacement interfaces.

## Important Notes

1. These instructions are specifically for adding reverse, blind spot, and front cameras (or any combination of the three) to a aftermarket radio in the following vehicles:
  - 2003-2006 GM Trucks / SUVs
2. You must locate and connect to the analog turn signal wires in the vehicle, as well as connect the reverse output trigger from the GM1A to the VS41. Please wire the VS41's analog input triggers 1, 3 and 4 according to the instructions below.
3. Analog input trigger 2 on the VS41 only needs to be connected if you want manual activation of the front camera via toggle switch. Automatic activation of the front camera (Input 2) via Class II Data-Bus commands can be set using the RadioPRO PC application. See page 2 for more details on the RadioPRO PC app.
4. The reverse trigger output will provide a 150 mA 12v (+) trigger while any of the input triggers are activated.
5. The VS41 video output will always default to the signal from Input 1 when none of the input triggers are activated. This Input is ideal for connecting the rear (reverse) camera.
6. The VS41 inputs have priority in descending numerical order. For example: If you have Input 3 or 4 triggered, then you trigger a lower number input (for example Input 2), Input 2 will take priority over the higher numbered Input.
7. If there is poor video quality after installation of this module, please ensure quality connections on all RCA connections.

## Wiring Connection Chart



VS41 Wire	Connection
White	Reverse Trigger Input (+) - Connect to the Purple / White reverse trigger output provided by the GM1A
Gray / Black	Front Camera Trigger (-) - If you would like to manually force the front camera, hook this wire to a ground (-) trigger through a toggle switch.
Green	Left Blind Spot Trigger Input (+) - *Dark green at turn signal switch on top of steering column. See diagrams next page.
Purple	Right Blind Spot Trigger Input (+) - *Light green at turn signal switch on top of steering column. See diagrams next page.
Purple / White	Reverse Trigger Output (+) - Connect this wire to the aftermarket radio's reverse trigger input.

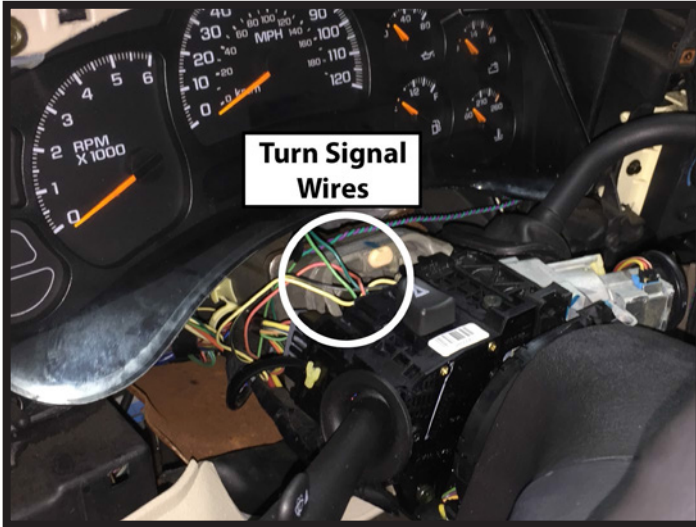
\*Please verify all signals with a multi-meter before connecting the VS41



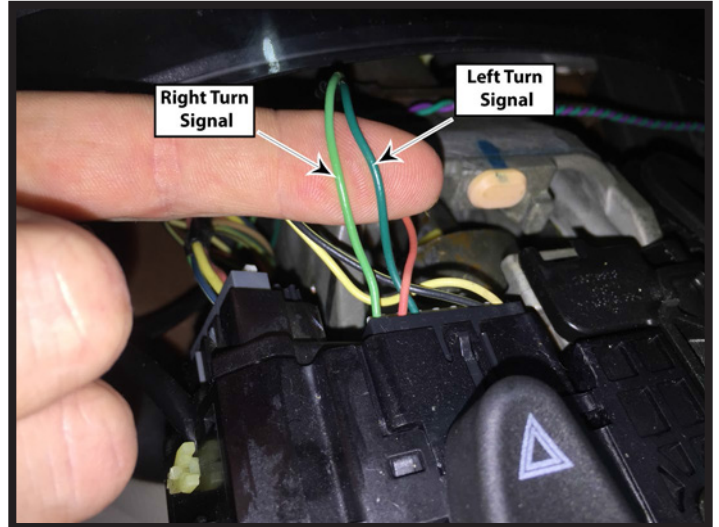
## Installation Steps

1. Connect the 10-pin expansion plug to the GM1A interface.
2. Wire up all the triggers and inputs as indicated in the chart on page 1.
3. See diagrams below for location of turn signal wires.
4. Once connected, verify all cameras are showing properly. The front camera behavior can be setup using the RadioPRO app. Please see the next section for more details on the RadioPRO app.

**Fig. A**



**Fig. B**



## RadioPRO App

### Use of the RadioPRO App allows you to do the following:

- Set the behavior of the front camera

Connect the GM1A interface to the PC and select the behavior of the front camera. Use the chart below to understand how each mode works. The GM1A does not have to be connected to power or in the vehicle to access camera settings.



Mode	Description	Notes
Greater than 0MPH and less than *xMPH	This will activate the camera input whenever the vehicle is going faster than 0 mph or less than the designated number.	*Options are: 3 mph, 5mph, or 7 mph.
On when Shift into D until 6MPH or 30Sec	This will activate the camera input whenever the vehicle is placed into Drive. The camera input will turn off once the vehicles speed is faster than 6MPH, or after 30 seconds.	This mode should be used in vehicles that have an <u>automatic</u> transmission
On when Shift out of R until 6MPH or 30Sec	This will activate the camera input whenever the vehicle is shifted out of reverse. The camera input will turn off once the vehicles MPH is faster than 6MPH, or after 30 seconds.	This mode should only be used in vehicles that have a <u>manual</u> transmission.



## INSTALLATION INSTRUCTIONS

1. If this is the first time using the RadioPRO PC Application, download the Radio PRO PC Application. This can be found at the "Download" tab at the very bottom of the firmware list on this page.
2. Download the firmware file.
3. Install the Radio PRO PC Application using the .exe file you downloaded in step one.
4. Open the RadioPRO PC Application using the new shortcut created on your desktop.
5. Connect the interface to the computer using a standard to micro USB cable.
6. Click the "Firmware" icon.
7. Click "Select File" and browse to the new firmware file. The new firmware can be found where you saved it before beginning.
8. Once the file is chosen the update will begin. When successful it will show the text "Update Completed".