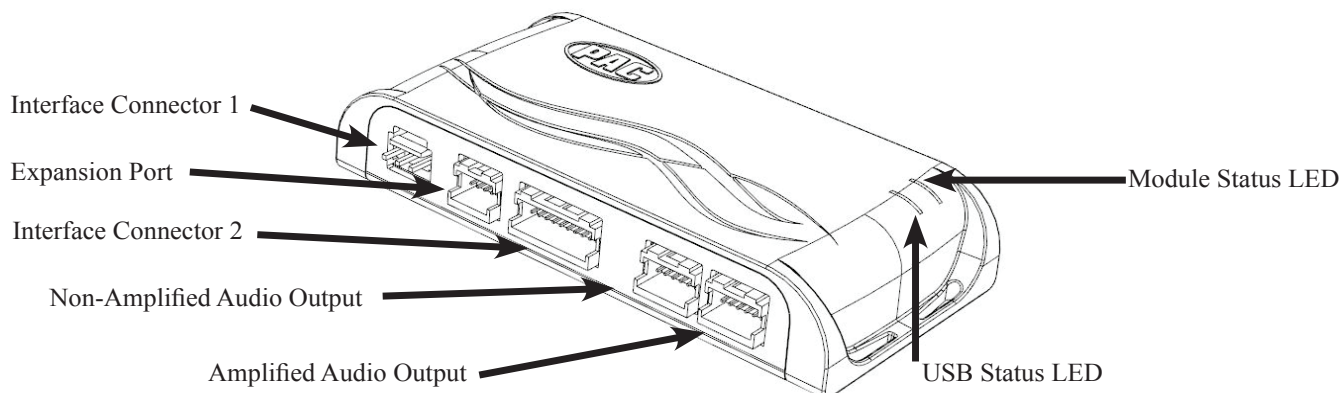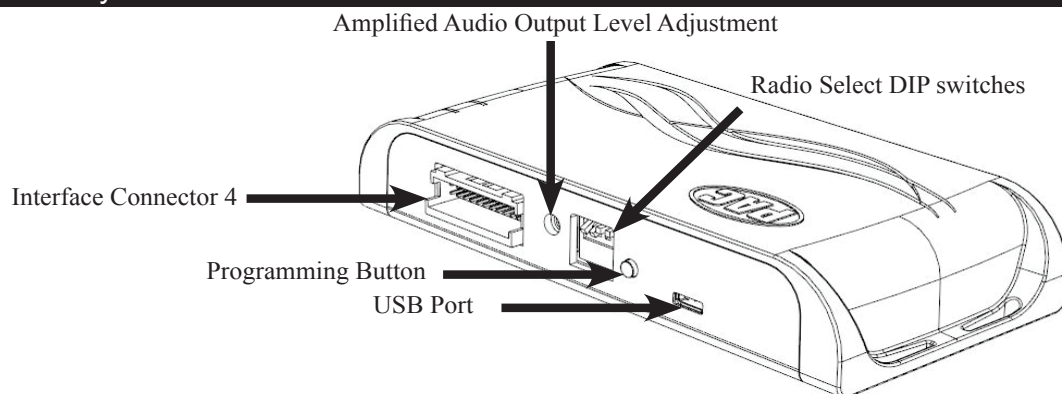# RP4.2-TY11

Introduction and Features

The RP4.2-TY11 interface allows the replacement of a factory radio in select Toyota/Lexus/Scion vehicles and will retain factory features such as steering wheel controls (SWC) and the factory audio amplifier. This interface also allows you to program two radio functions to each SWC button by using short press long press dual command functionality, and also provides outputs such as: vehicle speed signal (VSS), illumination, reverse trigger and parking brake.

Important Notes

1. These instructions only apply to R.3.1.2.46 or later revisions. The revision info can be found on a small white sticker on the interface and packaging.
2. Connection of the OBD connector, with the White / Red and White / Black wires, is not always necessary. Use of these wires will be dependent on whether or not the aftermarket radio requires specific connections, and whether the vehicle provides these outputs at the radio. See the "Installation Steps" section starting on page 3 for additional information.
3. Adjustment of the vehicle settings through the original radio's vehicle settings menu will be disabled after installation of the new radio. It is advised to make sure all settings are as you desire prior to removal of the original radio.
4. The RP4.2-TY11 does not retain Rear Seat Entertainment.
5. After installation, if you do not initially hear any audio, you may need to cycle the ignition again to initialize the factory amplifier.
6. Speaker fading on factory amplified systems is only supported with the "amplified output" connection of the RP4.2-TY11.
7. When using real time fade, if the fader setting is biased more to the front or rear, as the radio turns on the sound may begin at the default setting and then quickly transition to your custom setting.
8. Aftermarket radio features such as High Pass Filters (crossovers), DSP or "Network Mode" will interfere with proper fader function. In order for the RP4.2-TY11's fader function to work, the audio from the aftermarket radio's output must match so it can compare the front and rear audio levels and determine the proper fader setting for the factory amplifier.
9. The USB-TY1 or USB-TY2 must be purchased in order to retain the factory USB port. Please refer to www.pac-audio.com to see which harness you will need.
10. The CAM-TY11 or CAM-TY12 must be purchased in order to retain the factory reverse camera. Please refer to www.pac-audio.com to see which harness you will need. If the required harness is not available, it is possible to hardwire the reverse camera using the information provided in Appendix A on Page 7.
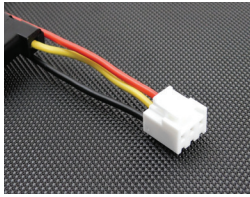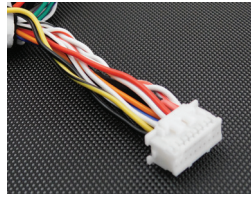
Module Layout

Amplified Audio Output Level Adjustment
Radio Select DIP switches
Interface Connector 4
Programming Button
USB Port

Interface Connector 1
Expansion Port
Interface Connector 2
Non-Amplified Audio Output
Amplified Audio Output
Module Status LED
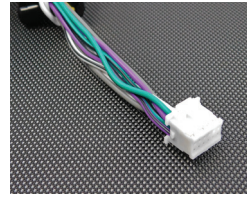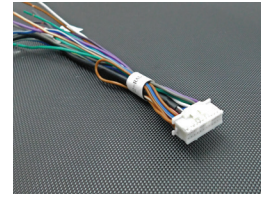USB Status LED

RP4.2-TY11

Interface Connectors

Interface Connector 1

Interface Connector 2

Interface Connector 3

Interface Connector 4

Plug Interface Connectors 1, 2 and 4 into the appropriate port on the RP4.2-TY11 interface (using the diagram on page 1 or the label on the bottom of the RP4.2-TY11 interface). The Connector 3 connection will be dependent upon whether or not the vehicle has a factory amplified system. Connect to the appropriate port on the RP4.2-TY11.

Vehicle Connectors

Vehicle Connector 1
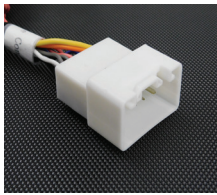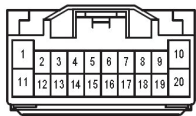
Vehicle Connector 2
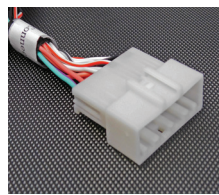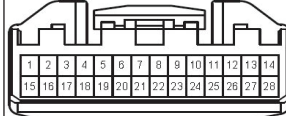
Vehicle Connector 3
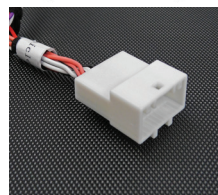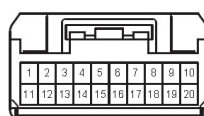
Vehicle Connector 4
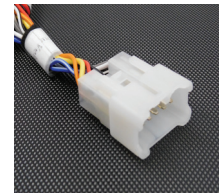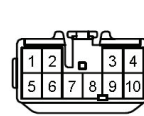
Vehicle Connector 5
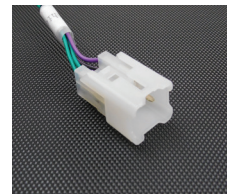
Depending on the application, the RP4.2-TY11 will need 2 or 3 of the 5 vehicle connectors. The additional connectors will be left unused on the harness. Any additional radio harnesses in the vehicle that do not plug into one of the vehicle connectors shown above, will not be used. Below you will find the combinations needed for most vehicles.

*OBD-2 V3
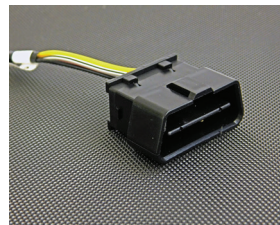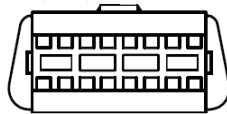
*The OBD-2 V3 harness provides CAN bus from the vehicle to the RP4.2-TY11 for select vehicles that do not already provide CAN bus to the radio. **Only use the OBD-2 V3 if the aftermarket radio requires connections for Vehicle Speed Sense, Parking Brake, or Reverse Signal for the following applications:**
1. **Combination 1 from below.**
2. **Combination 2 from below.**

Combination 1
Typical 2004 to 2013 NON-AMPLIFIED
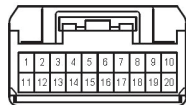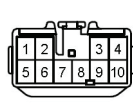
Vehicle Connector 3   Vehicle Connector 4   Vehicle Connector 5

Combination 3
Typical 2014 to 2017 AMPLIFIED AND NON-AMPLIFIED
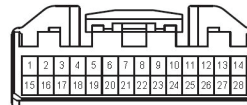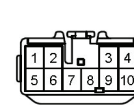
Vehicle Connector 2   Vehicle Connector 4   Vehicle Connector 5

Combination 2
Typical 2004 to 2013 AMPLIFIED
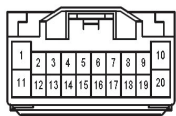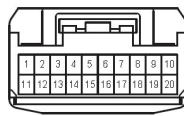
Vehicle Connector 1   Vehicle Connector 3

Combination 4
Non-Typical 2012 to 2014 AMPLIFIED
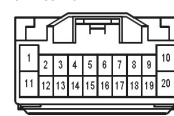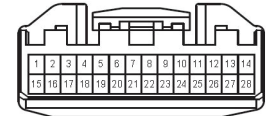
Vehicle Connector 1   Vehicle Connector 2

RP4.2-TY11

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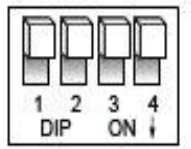
Set DIP switches that correspond with your radio to the ON position.
Set all other DIP switches to the OFF position.

DIPSWITCH ON = DOWN

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 the aftermarket radio harness per the tables to the right and the information below. If the aftermarket radio does not require connections for Vehicle Speed Sense, Parking Brake, or Reverse Signal, proceed to step "3".
   a. If the vehicle does not use the 28-pin connector (Vehicle Connector 2), proceed to step "III" below. There are three different methods for obtaining the analog navigation outputs from the interface:
   I. **Vehicles that have the analog signals at the radio:** Plug the 28-pin connector (Vehicle Connector 2) from the RP4.2-TY11 into the vehicle harness. Find the Pink (pin 17), Light Green (pin 15) and Purple / White (pin 2) wires in the   RP4.2-TY11 harness and check for wires populating these positions on the factory side of the connector. If the wires are present, you can use the analog navigation outputs coming from Vehicle Connector 2 in the PAC harness.

      II. **Vehicles that have CAN data at the radio:** Plug the 28-pin connector (Vehicle Connector 2) from the RP4.2-TY11 into the vehicle harness. Find the White / Red (pin 9) and White / Black (pin 10) wires in the RP4.2-TY11 harness and check for wires populating these positions on the factory side of the connector. If the wires are present, you can use the "nav wires" coming from Interface Connector 4 in the PAC harness.

      III. **Vehicles that do not have the CAN data or the analog wires at the radio: Insulate the Yellow and Black loose wires in the OBD-2 V3 connector (they will not be used).** Connect the OBD-2 V3 connector to the vehicle's OBDII connector (found under the dash on the driver's side). Run the two wires from the OBD-2 V3 from the OBDII connection, up to the radio cavity in the dash. Next, unplug the 2-pin connector between Interface Connector 4 and Vehicle Connector 2. Connect the OBD-2 V3 2-pin connector into the 2-pin connector that comes from Interface Connector 2. This will allow for use of the "nav wires" coming from Interface Connector 4 in the PAC harness.

3. Wire your aftermarket radio to the RP4.2-TY11 harness according to the wiring connections chart on this page.
4. Once all connections have been made, plug the interface into the vehicle.
5. Turn the ignition on and set the gain on the side of the interface to the desired level. See "Testing and Verification" section on page 6 for further details on how to set the gain. If the radio does not turn on and the LED on the interface is solid orange, check the DIP switches on the side of the interface to make sure they are not all in the on position.

. If you wish to reassign functions to the SWC, or utilize short press, long press dual command functionality, follow the programming instructions starting on the following page.

Aftermarket Radio Wiring Table
Wires from Interface Connector 4

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
Blue / Yellow	SWC Output / Key 1
Brown	SWC Output / Key 2
3.5 mm Jack	SWC Output
Pink	Vehicle Speed Sense Output
Light Green	Parking Brake Output
Violet / White	Reverse Signal Output
Orange / White	Illumination Output
Blue / White	Amp Turn On Input
Blue	Not Used

Wires Labeled "Connect To Aftermarket Radio"

Yellow	+12v
Red	Accessory Output (10 amp)
Black	Ground
Pink	Vehicle Speed Sense Output
Light Green	Parking Brake Output
Violet / White	Reverse Signal Output

OBD-2 V3 Wires

Yellow	Not Used
Black	Not Used
White / Red	HS CAN + Input
White / Black	HS CAN - Input

Insulate the unused Yellow and Black wires in the OBD-2 V3 Connector

Wires Labeled "OEM CAMERA POWER"

Yellow / Black	+6v Camera Power
Black	Camera Ground

OEM Camera Retention 6v Power and Ground (see page 7 for more details)

**Rev: V6
Date:050319**

Steering Wheel Controls

Default Steering Wheel Control Programming

IMPORTANT! The interface comes pre-programmed for all of the vehicles factory SWC functions and does not require programming unless you wish to re-assign the SWC functions, utilize short press long press dual command functionality, or assign the programmable 12v output to a SWC button. The SWC can always be restored to default settings by pressing and releasing the program button on the side of the interface once and waiting 7 seconds for the LED to flash 3 times.

Default SWC Button Assignments

	Alpine	JVC	Kenwood	Clarion	Pioneer	Sony	Fusion
Volume +	Volume +	Volume +	Volume +	Volume +	Volume +	Volume +	Volume +
Volume -	Volume -	Volume -	Volume -	Volume -	Volume -	Volume -	Volume -
Mode	Source	Source	Source	Source	Source	Source	Source
Back	Band	Att	Play	Band	Band	Band	N/P
Voice	Voice	Voice	Voice	Voice	Voice	Voice	Mute
Answer	Receive	Receive	Off Hook	Send	Answer	Answer	Power
End	End	Reject	On Hook	End	End	Reject/Source	N/P
Enter	Power	Power	Preset Up	N/P	Mute	N/P	Power
Arrow Up	Track Up	Track Up	Track Up	Track Up	Track Up	Track Up	Track Up
Arrow Down	Track Down	Track Down	Track Down	Track Down	Track Down	Track Down	Track Down
Arrow Left	Preset Down	Disc Down	Disc Down	N/P	Preset Down	Preset Down	N/P
Arrow Right	Preset Up	Disc Up	Disc Up	N/P	Preset Up	Preset Up	N/P

Optional Steering Wheel Control Programming

If you wish to re-assign the SWC functions, utilize short press long press dual command functionality, the interface must be programmed in the specific order shown in the chart on page 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 programming button on the side of the interface to skip that function. The LED will flash off and on confirming that you have successfully skipped that function and are ready to proceed to the next one.

Short Press Long Press Dual Command Functionality
This feature allows you to assign two aftermarket radio functions to each of the vehicles SWC buttons. It can be used with as many of the buttons as the user likes or none at all. When this functionality is implemented, quickly pressing and releasing a SWC button will initiate the short press command while pressing and holding a SWC button for longer than two seconds will initiate the long press command. Please note that no long press commands are programmed by default. If you wish to assign dual command functionality to the SWC please follow the programming steps below.

Steering Wheel Controls (cont.)

Optional SWC Programming Procedure

1. Turn the key to the ignition position.
2. Press and release programming button on the side of the interface. The Status LED will turn green.
3. Within 7 seconds, press the button that is to be learned on the steering wheel. The LED 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. The LED will turn back on.
   B. **For long press functionality:** Hold the button until the LED starts blinking. Release the button and the LED will go back to solid.
4. If you need to program more buttons, 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. The LED will flash three times indicating end of programming.
7. Test the interface for proper functionality. Whenever a SWC is pressed the LED on the interface should blink. 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

1. Turn the key to the ignition position.
2. Press and hold the programming button until the LED begins blinking amber. When the LED begins blinking, release the programming button. The LED will light solid amber.
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. **Please Note: the buttons must be calibrated in the order shown in the chart. If you press the wrong button the LED will not respond at all.**
4. If you need to program more buttons, 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, press and release the program button on the side of the interface to skip that function.
6. Once programming is completed, wait seven seconds. The LED will flash indicating end of programming.
7. Test the interface for proper functionality. Whenever a SWC is pressed the LED on the interface should blink. If any function does not work, repeat the programming steps.

After you have re-calibrated the SWC buttons, the default SWC button assignments will be the same as what is listed in the chart on page 4. If you wish to re-assign button functions you must also go through the programming listed above (Optional SWC Programing Procedure).

Re-Calibration Programming Order
Volume Up
Volume Down
Seek Up
Seek Down
Mode
Voice
Phone Answer
Phone Hang Up
Enter
Back
Arrow Right
Arrow Left

PAC

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Page 5

Testing and Verification

1. Turn the ignition on. The LED on the interface will turn on and the +12v accessory wire will turn on.
2. Turn on the radio and check volume, balance and fade.If you do not hear any audio you may need to cycle the ignition to initialize the factory amplifier.
3. If the overall volume is too low, use the gain adjustment on the side of the RP4.2 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 gain on the RP4.2 until some distortion is heard, then back it down a little.
4. If you have a JBL system and there is no audio, please make sure the Blue / White wire in the radio connector is hooked up properly. If there is still no audio, reset the interface according to the procedure in the next section.
5. If fading is acting inconsistent, please ensure that all speakers are connected to the proper polarity.
6. Verify that all SWC are functioning properly. If any of the SWC are not functioning properly you may need to reset the interface or follow the re-calibration procedure above.
7. The LED and radio will turn off when the ignition is turned off.

Restoring Factory Settings

You can restore the interface to factory default settings by pressing and holding the programming button on the side of the module until the status LED starts blinking red. Once the LED starts blinking red, release the button. You must release the button while the LED is blinking red in order to perform the reset. Please note, the LED will go through two stages before it starts blinking red. First it will blink green, then amber, then red.

This reset will restore the following settings to their factory defaults:
• SWC Mapping
• Parking Brake Output Settings
• Factory Amplifier Settings
• Real Time Fade will be reset to on

RadioPRO App

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

• Configure User Interface Options such as:
  • Aftermarket radio Parking Brake Sequencing
  • Factory amplifier settings (Bass, Mid, Treble, Gain, Fader and Balance)
  • Real Time Fading
• Update Product Firmware
• Read Firmware/Hardware Versions
• Access Product User Manuals
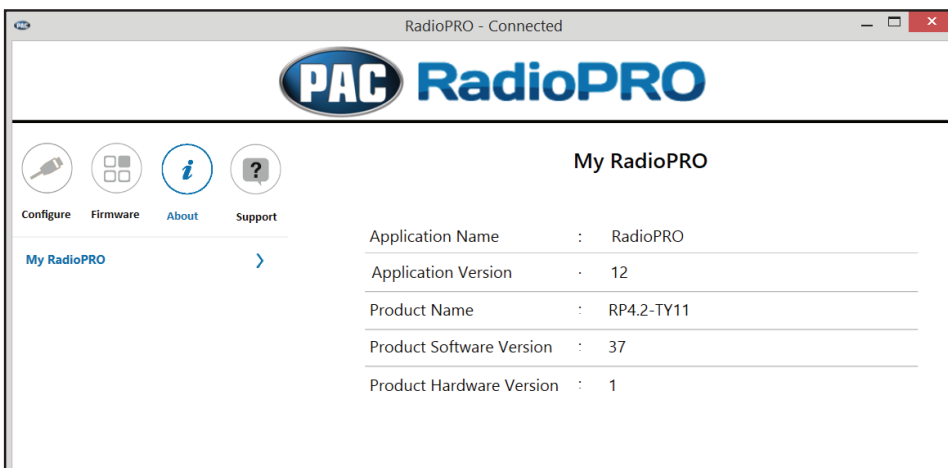
PLEASE NOTE:
The interface must be connected to the vehicle when using the following features of the Radio PRO App:
• **Factory Amplifier Settings**
The interface does not need to be connected to the vehicle when using the following features of the Radio PRO App:
• **Firmware Updates**
• **Reading firmware/hardware versions**

RadioPRO App (cont.)

Infotainment/Factory Amplifier Settings

The RadioPRO app will also allow you to adjust the settings of the factory amplifier. You can adjust Amp Gain, Fader, Balance, Bass, Mid and Treble and real time fade. 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.

Firmware Updates

The RadioPRO app will also allow you to update the interface with new firmware as it becomes available. Please visit www.pac-audio.com or contact our tech support department to see if there is a firmware update for your interface.

In order to update the interface all DIP switches must be set to the down position. Connect the interface to your PC and select "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 set the DIP switches back according to the radio you have installed.
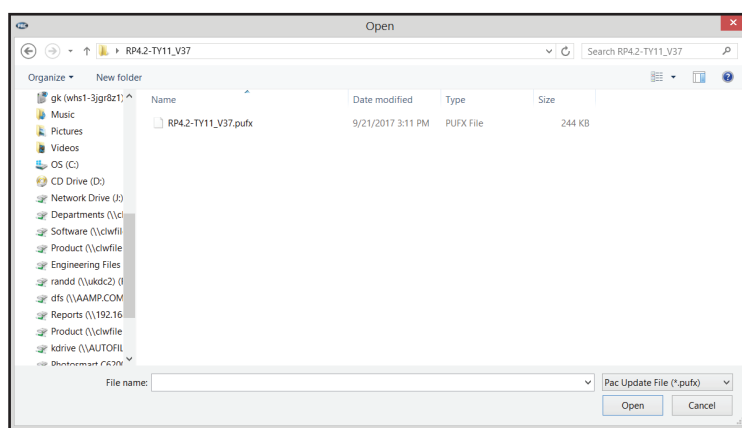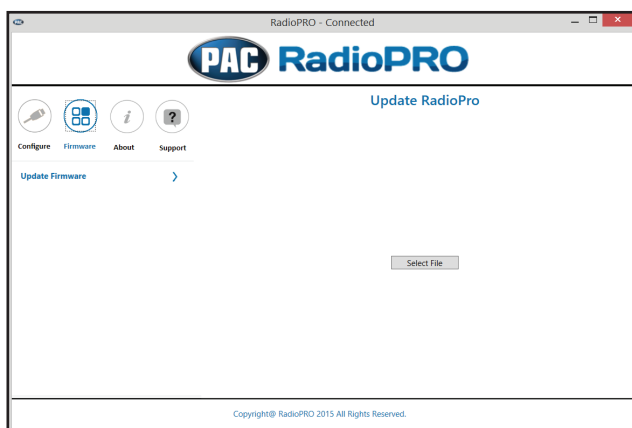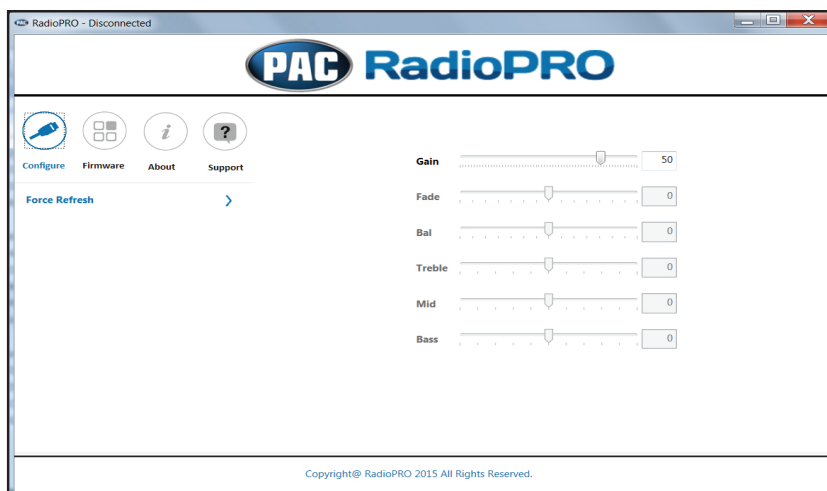
Appendix A

Reverse Camera Retention

If you do not have the CAM-TY11 or CAM-TY12 harness available, follow the schematics below to retain the factory reverse camera. Older vehicles (pre 2014) will be equipped with the 16-pin harness (Fig. 1) and newer vehicles (2014+) will be equipped with the 24-pin harness (Fig.2). Some years may overlap.

You can obtain the necessary 6v+ and ground for the factory camera from twisted Yellow / Black and Black wires labeled "OEM CAMERA POWER" in Interface Connector 2.
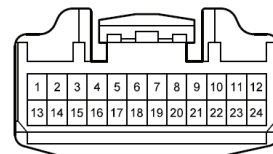
Connectors are viewed from pin side

Fig. 1
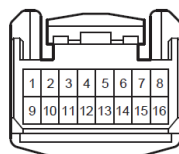
Function	Pin
Camera Power 6V +	7
Video +	8
Camera Ground	15
Video -	16

Fig. 2

Function	Pin
Camera Power 6V+	11
Video +	12
Camera Ground	23
Video -	24