RadioPRO 4
Radio Replacement Interface

Introduction & 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 sense (VSS), illumination, reverse trigger and parking brake.

Important Notes

1. Adjustment of the vehicle settings through the original radio's vehicle settings menu will be disabled after installation of your new radio. It is advised to make sure all settings are as you desire prior to removal of the original radio.
2. Does not retain Rear Seat Entertainment.
3. Speaker fading on factory amplified systems is only supported by the amplified output.
4. When using real time fade, if you have the fader set more to the front or back, upon start up the sound may begin at the default setting and then quickly transition to your custom setting.
5. 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.
6. 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 you do not have the harness required and need to retain the reverse camera, please refer to Appendix A on Page 8 for hard wiring options.

Wiring Connection Chart

Interface Connector 1

Red	Accessory Output (10 amp)
Yellow	12v+
Black	Ground

Vehicle Connectors

*Violet/White	Analog Reverse Signal
*Green	Analog Parking Brake Signal
*Pink	Analog Vehicle Speed Sense

* See note 6 in "Installation Steps" on the next page.

Interface Connector 2

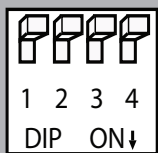|	
*White/Red	HS CAN + Input
*White/Black	HS CAN - Input
Pink	IE BUS + Input
Pink/Black	IE BUS - Input
Red	Accessory In
Orange	Illumination Input
White	Analog 1 In
Red/White	Programmable 12v+ Output
Blue/White	Remote Out
White/Black	Analog 2 Input
White/Red	Analog 3 Input

Radio Connector

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
3.5 mm Jack	SWC Output
*Pink	Vehicle Speed Sense Output
Brown Loop	Not Used
*Green	Parking Brake Output
Blue/White	Remote Input
*Violet/White	Reverse Signal Output
Orange/White	Illumination Output

PAC

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Page 1

Module Layout

Amplified audio output gain adjustment

Radio Select Dipswitches

Radio Connector

Programming Button

USB Port

Module Status LED

Interface Connector 1

Expansion Port

Interface Connector 2

Non-Amplified Audio Output

Amplified Audio Output

Programmable Output/ USB Status LED

Installation Steps

SET RADIO DIPSWITCHES TO THE ON POSITION						
Alpine	JVC	Kenwood	Clarion	Pioneer/Other	Sony	Fusion
1	2	1 & 2	3	1, 2, & 3	4	1 & 4

1 2 3 4
DIP ON↓

Other = Advent, BOYO, Dual, Lightning Audio, Rockford Fosgate, Visteon

1. **The radio select dipswitches on the side of the interface must be adjusted to the proper radio setting before plugging the interface into the vehicle.**

2. Make all connections as described in the connection chart on page 1. Please see page 6 for a full description of the functions and connectivity of the red/white wire.

3. Please ensure that all speakers are connected to the proper polarity, otherwise erratic fading behavior will occur.

4. Non-Amplified vehicles: Connect the 12-pin plug of the vehicle harness into the non-amplified output on the interface.

5. Amplified vehicles: Plug the 12-pin plug of the vehicle harness into the amplified output on the interface.

6. Navigation Outputs: There are three different methods of obtaining the navigation outputs from the interface:

   a. Some vehicles may have the analog signals behind the radio. This can be determined by looking in the factory side of the 28-pin harness (opposite the green, purple and pink wires) to see if the wires are populated. If the wires are there then you can use the nav wires coming from the Vehicle Connector in the PAC harness.

   b. Some vehicles may have CAN data behind the radio. This can be determined by looking in the factory side of the 28-pin harness (opposite the twisted pair white/red and white/black wires) to see if the wires are populated. If the wires are there then you can use the nav wires coming from the Radio Connector in the PAC harness.

   c. If the vehicle does not have the analog wires or CAN data behind the radio, you will need to connect the long White/Red HS-CAN+ wire to pin 6 and the long White/Black HS-CAN- wire to pin 14 in the OBDII connector (Fig.1). When this is done you can use the nav wires coming from the Radio Connector in the PAC harness.

7. Connect the SWC wire according to the chart on page 1 (aftermarket radio MUST support a wired remote input).

Fig. 1

PIN 14

PIN 6
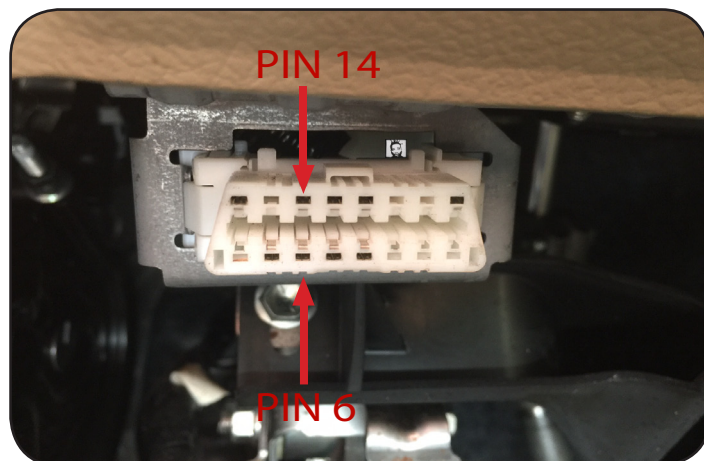
Installation Steps (cont.)

8. Once all connections have been made, plug the interface into the vehicle.

9. Turn the ignition on and set the gain on the side of the interface to the desired level. See "Testing & Verification" section on page 5 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 dipswitches on the side of the interface to make sure they are not all in the on position.

10. If you wish to reassign functions to the SWC, or utilize short press long press dual command functionality, follow the programming instructions on page 4.

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	VR	Mute	Mute	Mute	VR	Mute	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 or assign the programmable 12v output to a SWC button, the interface must be programmed in the specific order shown in the chart on page 4. 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 on the next page.

Programmable 12v Output
The red/white wire on the interface can be programmed via the RadioPRO app to do a pulsed or latched 12v output which can then be assigned to any of the vehicle's factory SWC buttons. When assigned, the factory SWC button will activate the pulsed or latched output to control external accessories. Please refer to page 6 for more details on how to use the app to set this feature.

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	Clarion	Other ▤	Pioneer	Sony	Fusion
1	Volume +	Volume +	Volume +	Volume +	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	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	12v+ Output
10	Enter/Play	Attenuation	Answer	End	Answer ▤	Phone Menu	Reject Call/Source (Bluetooth equipped radios only)	
11	Band/Program	Phone Receive	Voice Dial	12v+ Output	END ▤	Answer Call	Answer/End Call	
12	Receive	Phone Reject	On Hook		PTT ▤	End Call	12v+ Output	
13	End	Voice Dial	Off Hook		N/P	VR		
14	VR	Power	Mute (Multimedia units only)		12v+ Output	12v+ Output		
15	12v+ Output	12v+ Output	Preset +					
16			12v+ Output					
	▤ - Advent, Boyo, Dual, Lightning Audio, Jensen, Rockford Fosgate & Visteon ▥ - Jensen & Advent ONLY							

Steering Wheel Controls (cont.)

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.

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

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 3. If you wish to re-assign button functions you must also go through the programming process on page 4.

Testing & Verification

1. Turn the ignition on. The LED on the interface will turn on & 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 remote 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 erratic, 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. Verify that the programmable 12v+ output is functioning as intended.
8. The LED & 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
• Programmable 12v+ Output (Latched)
• Parking Brake Output Settings
• Factory Amplifier Settings
• Real Time Fade will be reset to on

RadioPRO App

PLEASE NOTE: The interface must be connected to the vehicle when using the RadioPRO App

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

- Configure User Interface Options such as:
    - Red/White wire output behavior
    - Aftermarket radio Parking Brake Sequencing
    - Factory amplifier settings (Bass, Mid, Treble, Gain, Fader & Balance)
    - Real Time Fading
- Update Product Firmware
- Read Firmware/Hardware Versions
- Access Product User Manuals
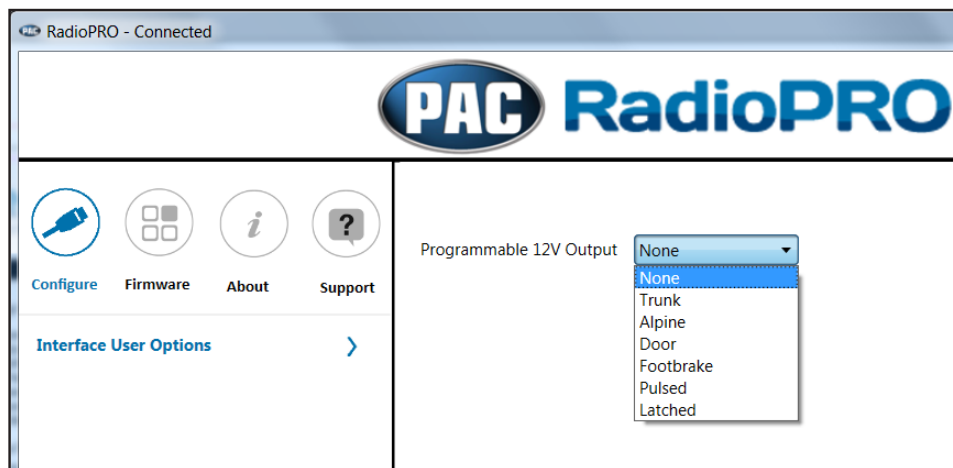
Programmable Red/White Wire

The red/white wire can be programmed to do a pulsed or latched trigger that is controlled by a user assigned steering wheel control button, or it can be set to provide an output when triggered by the vehicles foot brake, door or trunk. Select User Interface Options then set the behavior of the red/white wire using the drop down menu. PLEASE NOTE: Available triggers depend on what info is available on the vehicles data bus. Restoring factory settings on the module will default this wires output back to a latched SWC trigger.

Trunk - This selection will provide a 12v+ output on the red/white wire whenever the ignition is on and the trunk is opened.

Alpine - If you select the "Alpine" setting on the drop down menu, the red/white wire will then work in conjunction with the parking brake output to produce the necessary sequencing for settings menu access. This sequencing is based on the actual parking brake, meaning to produce this sequence you have to engage the parking brake in the vehicle. If you would like to manuallly do the necessary foot brake/parking brake sequencing for Alpine, select the "Foot Brake" setting (if available) and the red/white wire will output a 12v+ signal whenever the signal is available and the foot brake is pressed.

Door - This selection will provide a 12v+ output on the red/white wire whenever the signal is available and any door on the vehicle is opened.

Footbrake - This selection will provide a 12v+ output on the red/white wire whenever the signal is available and the foot brake is pressed.

Latched - This selection will provide a latched 12v+ output that can be tied to any of the vehicles SWC. This means that when you press the assigned SWC, the red/white wire will turn on and remain on until the assigned SWC is pressed again or the ignition is turned off.

Pulsed - This selection will provide a user programmable timed 12v+ output that can be tied to any of the vehicles SWC. This means that when you press the assigned SWC, the red/white wire will pulse for the pre-programmed user time. The range for pulse time is 100 milliseconds - 25.5 seconds (.1-25.5).

RadioPRO App (cont.)
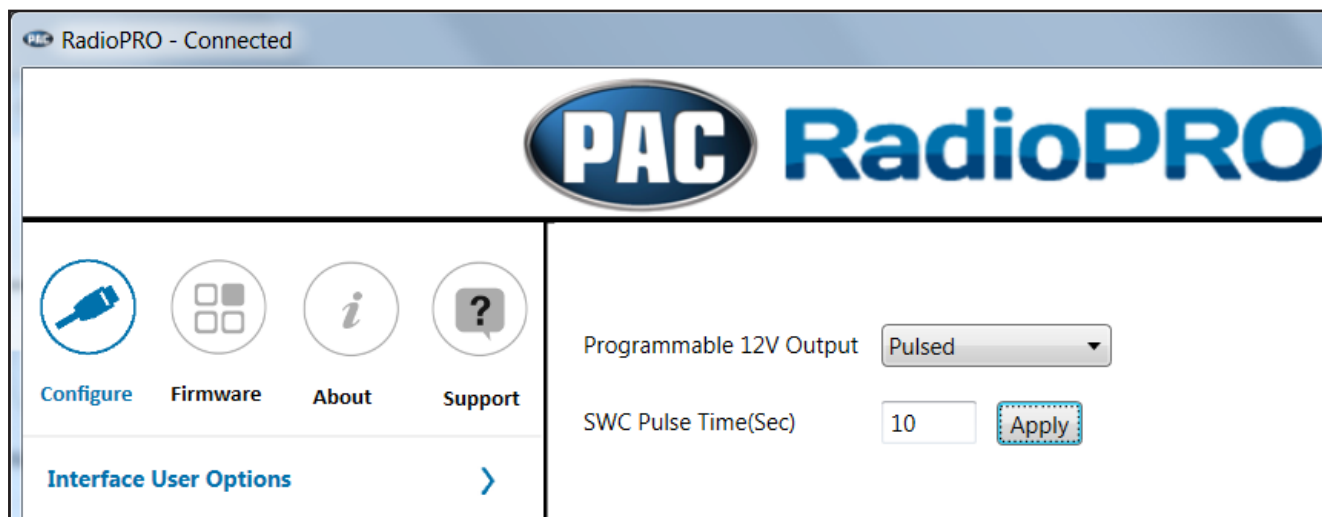
Pioneer Parking Brake - Turning this feature on will make the parking brake output produce the necessary sequencing for settings menu access. This sequencing is based on the actual parking brake, meaning to produce this sequence you have to engage the parking brake in the vehicle. If you would like to manuallly do the necessary parking brake sequencing for Pioneer, simply leave this feature off. Restoring factory settings on the module will default this setting back to off.
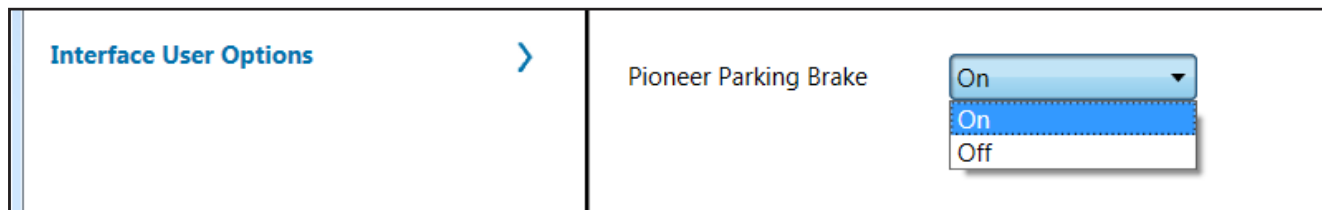
Infotainment/Factory Amplifier Settings

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

RadioPRO App (cont.)

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 it must be removed from the car and all dipswitches 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 selct it. This will begin the updating process. Once finished, disconnect the interface from the PC and set the dipswitches back according to the radio you have installed.
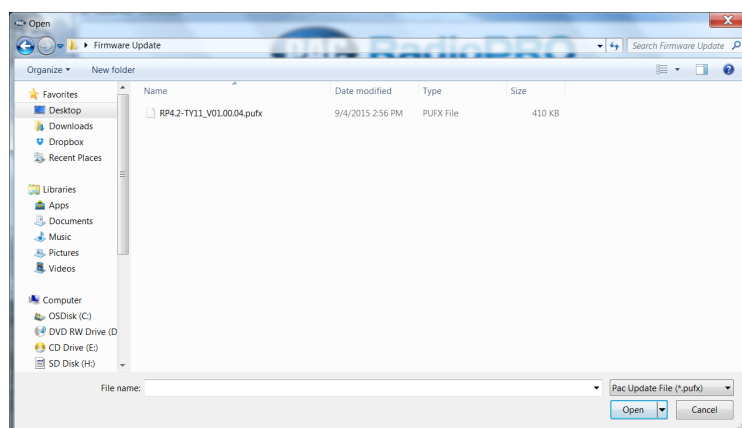

Appendix A

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.
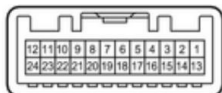
You can obtain the necessary 6v+ for the factory camera from pin 12 in the RP4.2 Interface Connector 2 (Fig.3).

Fig. 1
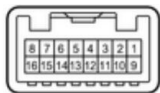
Function	Pin	Wire Color
Camera Power 6V +	7	Black
Video +	8	White
Camera Ground	15	Shield
Video -	16	Red

Fig. 2

Function	Pin	Wire Color
Camera Power 6V+	11	Red
Video +	12	White
Camera Ground	23	Shield
Video -	24	Black

Fig. 3