RP4.2-TY13

Radio Replacement and
Steering Wheel Control Interface
for Select Toyota Vehicles

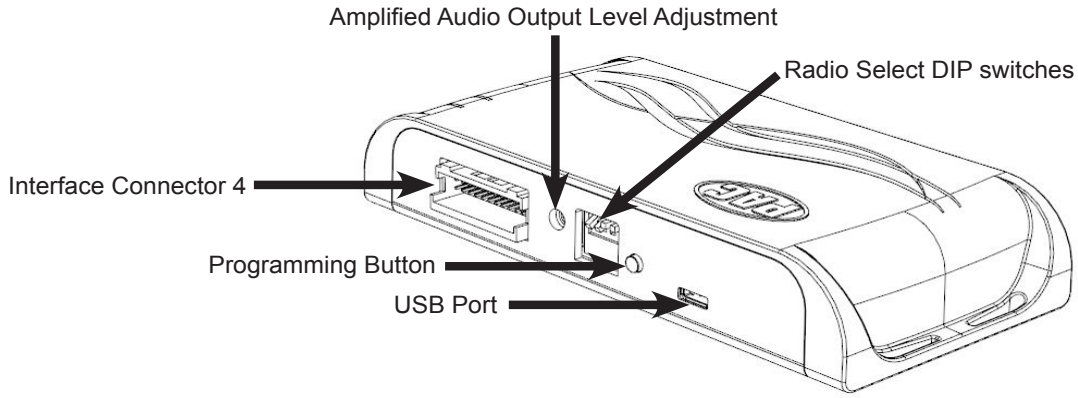
Introduction and Features

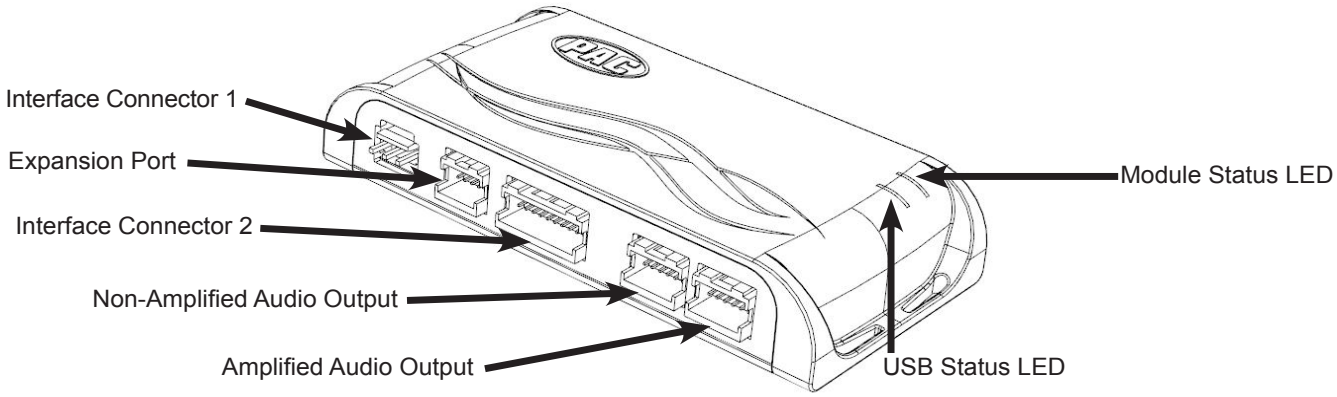
The RP4.2-TY13 interface allows the replacement of a factory radio in select Toyota vehicles and will retain factory features such as steering wheel controls (SWC), rear camera and the factory audio amplifier. This interface also allows you to program two radio functions to each SWC button by using short 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. 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 desired prior to removal of the original radio.
2. The RP4.2-TY13 does not retain Rear Seat Entertainment.
3. Speaker fading on factory amplified systems is only supported with the "amplified output" connection of the RP4.2-TY13.
4. 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.
5. 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-TY13'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.
6. A USB adapter 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.
7. To retain AM/FM Radio and SiriusXM Radio, additional parts and adapters are required and sold separately.

Module Layout





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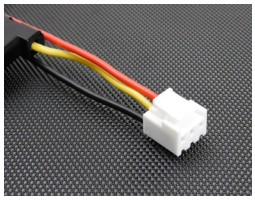
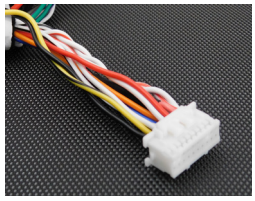
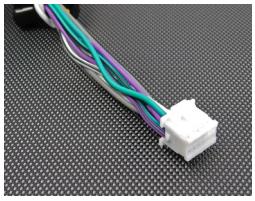
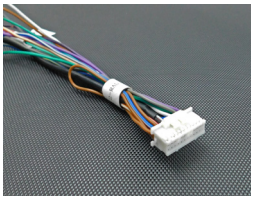
Interface & Harness Connections


Interface Connector 1

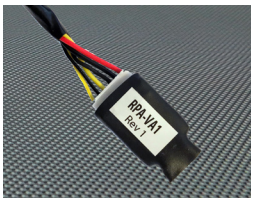

Interface Connector 2


Interface Connector 3


Interface Connector 4

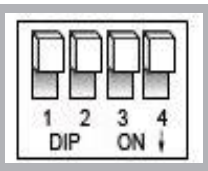
Plug Interface Connectors 1, 2 and 4 into the appropriate ports on the RP4.2-TY13 interface (using the diagram on page 1 or the label on the bottom of the RP4.2-TY13 module). The Connector 3 connection will be dependent upon whether or not the vehicle has a factory amplified system. Plug Connector 3 into the appropriate port on the RP4.2-TY13; Amplified if the vehicle has a factory amplifier, Non-Amplified for base audio.

Connect the RPA-VA1 Video Adapter to the 6-pin plug on the RP4.2-TY13 harness.



RPA-VA1

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 / Stinger	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 to the RP4.2-TY13 Interface 4 harness according to the wiring connections chart on this page.
3. Connect the appropriate SWC Output to the aftermarket radio (if applicable).
4. Connect the OEM Camera RCA to the aftermarket radio (if applicable).
5. Once all connections have been made, connect the white, gray and black Vehicle Connectors to the matching connectors in the vehicle.
6. Turn the ignition on. The LED on the interface will turn on and the +12v accessory wire will turn on. For factory amplified systems, see “Testing and Verification” section on page 5 for details on how to set the gain.
7. 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.
8. 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

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 or utilize short press long press dual command functionality. 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
Track Up	Track Up	Track Up	Track Up	Track Up	Track Up	Track Up	Track Up
Track Down	Track Down	Track Down	Track Down	Track Down	Track Down	Track Down	Track Down
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

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 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.

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.

Re-Calibration Programming Order
Volume Up
Volume Down
Seek Up
Seek Down
Mode
Voice
Phone Answer
Phone Hang Up

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 listed above (Optional SWC Programing Procedure).

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
- 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:
  - Factory amplifier settings (Bass, Mid, Treble, Gain, Fader and Balance)
  - Real Time Fading
- Update Product Firmware
- Read Firmware/Hardware Versions

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.)

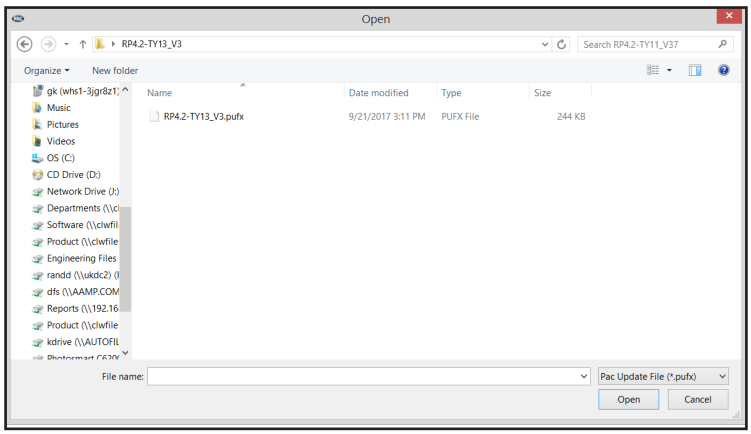
Infotainment/Factory Amplifier Settings

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.



Technical Support

Email: support@PAC-audio.com
Phone: 727-592-5991
Chat: PAC-Audio.com

Warranty

LIMITED WARRANTY
The quality controls used to manufacture PAC products are designed to ensure your complete satisfaction.

This warranty applies only to the original owner of PAC products purchased from an authorized PAC dealer. It covers PAC products that, upon inspection by authorized PAC personnel, are found to have failed in normal use due to defects in material or workmanship. This warranty does not cover installation expenses.

Attempting to service or modify our products, or operate them outside their recommended usage will render this WARRANTY VOID.

Unless prescribed by law, PAC is not liable for any personal injury, property damage and/or incidental or consequential damages (including water damage) resulting from product malfunctions, defects and/or misuse. PAC is also not liable for any products that are altered or improperly installed.

WARRANTY PERIOD AND PROCESS
Within the first 12 months from date of purchase, subject to the conditions above, PAC will repair or replace product at its sole discretion if it is found to be defective in material or workmanship. Product must be returned to an authorized PAC dealer with PROOF OF PURCHASE.

RPA-VA1

Differential to Single Ended
Video Converter / Video Noise Filter

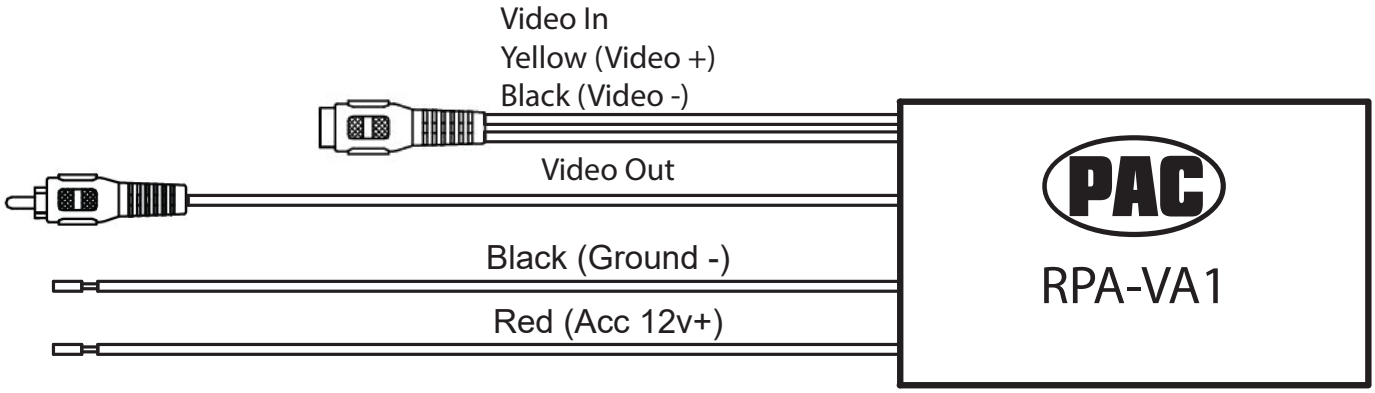
Introduction & Features

The RPA-VA1 is a differential to single ended video converter. It is designed for use when installing an aftermarket radio into a vehicle that uses a differential camera. The RPA-VA1 can also be used as a video noise filter in cases where the camera ground is on a different plane than the aftermarket radio, by eliminating the ground loop and fixing distortion such as horizontal lines in the video.

Important Notes

1. It is very important that you connect the RPA-VA1 ground wire to the aftermarket radio's ground wire. These two components sharing the same ground is critical to the noise filter feature.
2. The video input connector has 2 independent wires for when you are connecting to a factory reverse camera. The RCA end can be cut off and the harness wires connected directly to the vehicle.

Wiring Connection Chart



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