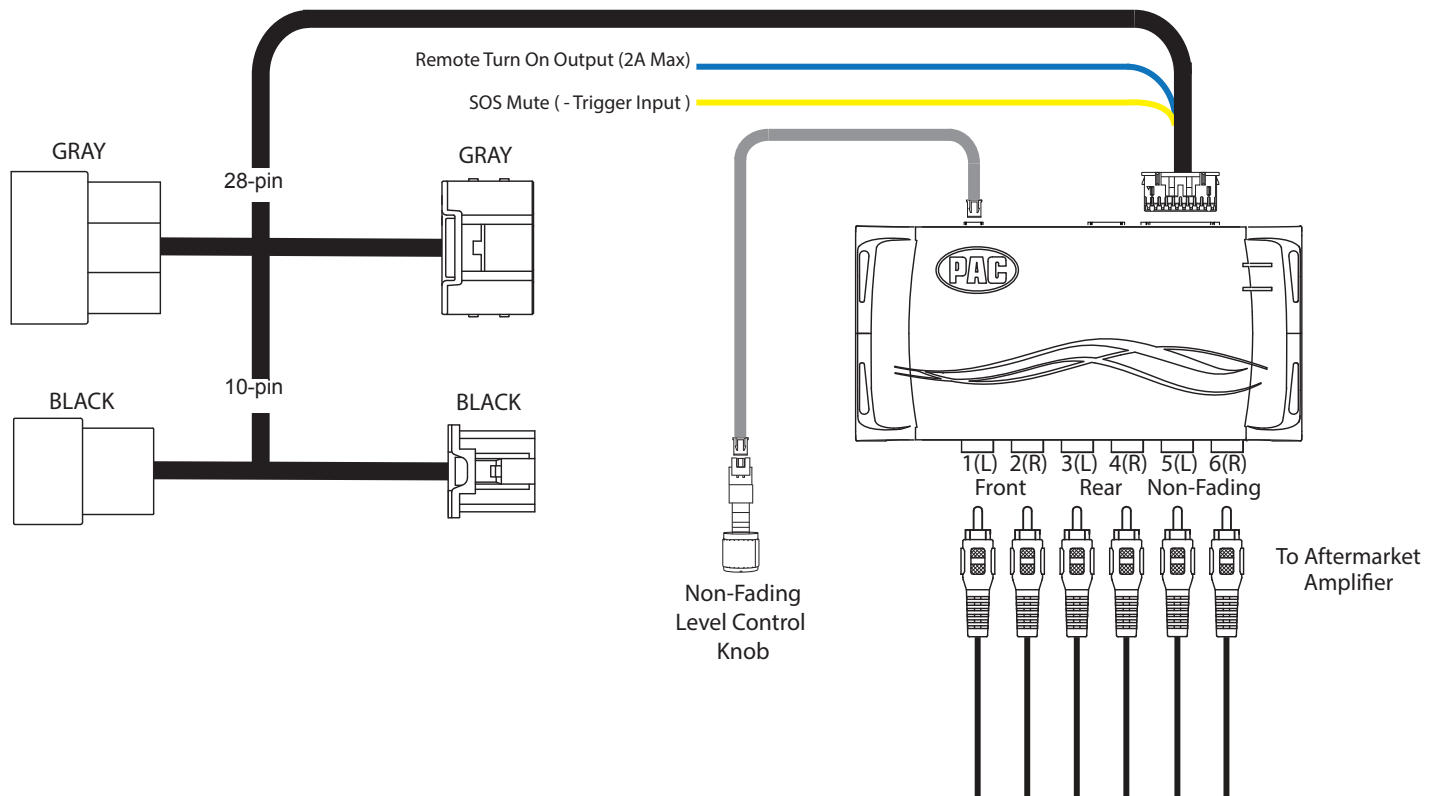# AP4-TY13 R.2

Introduction and Features

The AP4-TY13 R.2 provides a 6-channel pre-amp output for use with aftermarket audio equipment. Using the full range, fixed level head unit output, in conjunction with data bus messages, the AP4-TY13 R.2 delivers a variable 5v RMS pre-amp output with fading, balance, equalization, and level control capabilities. The module also retains audio from other vehicle features such as factory navigation prompts, Bluetooth and Voice Activation. An accessory controlled remote amplifier turn on wire is also provided by the AP4-TY13 R.2. When used in conjunction with the APA-TOS1 (sold separately), the module can provide a variable 2-channel fiber optic digital audio output (TOSLINK).

Important Notes

1. Toyota Safety Connect (SOS) can easily be retained. See the page 3 for detailed instructions.
2. The factory radio's speed controlled volume, DSP, and surround sound mode are not supported by the AP4 outputs.
3. The factory amplifier must remain connected, and in the vehicle after the AmpPRO has been installed.
4. Prior to testing, cycle the ignition off and back on again to properly initialize the AP4-TY13.
5. The radio's beep setting must be enabled on the factory radio in order to hear the audible tones when making selections through the radio.
6. Initially, if the beep through the AP4-TY13 does not match the on / off selection through the radio, cycle the beep to the opposite setting and back, then test again.
7. The radio's beep volume and minimum volume levels are set to 0 dB by default. If you are happy with this level in your particular application, additional adjustment is not required. Please refer to the Setup and Configuration section on page 4 for more details.
8. The Radio's Nav / VR Voice, incoming E-mail tone, Ringtone, In-Call, Incoming SMS / MMS tone and Incoming SMS Voice volumes can be adjusted through the radio's settings menu as they were prior to installation of the AP4-TY13.
9. The remote output is rated at 2A of current. If more current is needed, an external relay must be used.
10. Channels 5 and 6 are non-fading outputs. The output level of channels 5 and 6 can be controlled using the supplied level control knob.
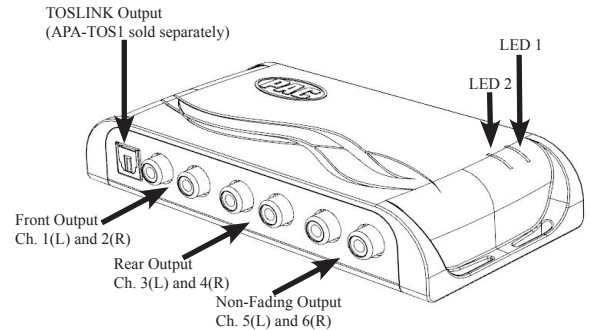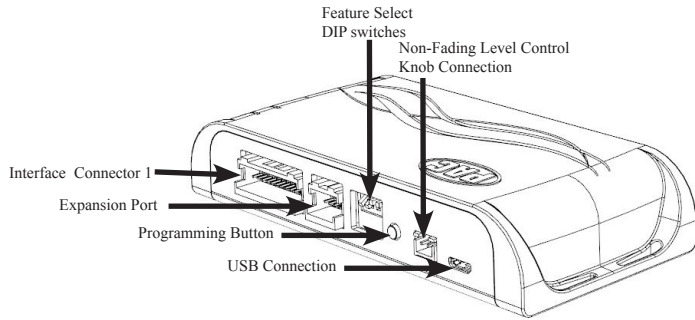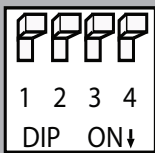
Wiring Connection Chart

GRAY

28-pin

GRAY

BLACK

10-pin

BLACK

Remote Turn On Output (2A Max)

SOS Mute (- Trigger Input)

Non-Fading Level Control Knob

1(L) 2(R) 3(L) 4(R) 5(L) 6(R)
Front — Rear — Non-Fading

To Aftermarket Amplifier

AP4-TY13 R.2

Module Layout

Feature Select
DIP switches

Non-Fading Level Control
Knob Connection

Interface Connector 1

Expansion Port

Programming Button

USB Connection

TOSLINK Output
(APA-TOS1 sold separately)

LED 1

LED 2

Front Output
Ch. 1(L) and 2(R)

Rear Output
Ch. 3(L) and 4(R)

Non-Fading Output
Ch. 5(L) and 6(R)

Installation

Set DIP switches to the ON position to activate the corresponding features.
Set DIP switches to the OFF position for any features that are not desired.

DIPSWITCH
ON = DOWN

Two Channel Mode	5v / 4v Preout	Input Gain Setting*	Not Used
1	2	3	4

1 2 3 4
DIP   ON↓

1. Remove the factory radio.
2. Disconnect the 28-pin harness and the 10-pin connectors from the radio.
3. Ensure that you only remove the 28-pin connector that is closest to the 10-pin connector, the correct 28-pin connector will be either gray or white depending on the vehicle. There is another 28-pin connector on the radio that will not be used. See Figure 1.
4. Connect the AmpPRO harnesses to the vehicle harnesses.
5. Connect the AmpPRO harnesses to the factory radio.
6. Set any feature DIP switches that apply to your install.
   a. DIP switch 1 is used for two channel mode. In this mode, both the TOSLINK and front RCA outputs (1 and 2) become non-fading outputs and makes all chimes play through only the TOSLINK and front RCA outputs (1 and 2).
   b. Set DIP switch 2 on (down) to lower the RCA output voltage to 4v. Leave DIP switch 2 off (up) to keep the RCA output voltage at 5v. See troubleshooting section on Page 6 for more details.
   c. * Set DIP switch 3 on (down) to increase the input gain of the AP4. Leave DIP switch 3 off (up) to keep the input gain of the AP4 at its default value. See Page 3 for more details.
   d. DIP switch 4 is not used and should remain off (up).
6. If you are using the APA-TOS1 (sold separately) refer to the instructions included with that product for its installation.
7. Connect the AmpPRO harness to the module.
8. Connect the level control knob to the module and install in an accessible location.
9. Connect the signal cables and remote input from the aftermarket amplifier.
10. The Yellow / Black "SOS Mute" wire will be used in conjunction with the Safety Connect / Lexus Enform (SOS) Retention. See Page 3 for more details.

Fig.1

10-pin   28-pin   NOT USED
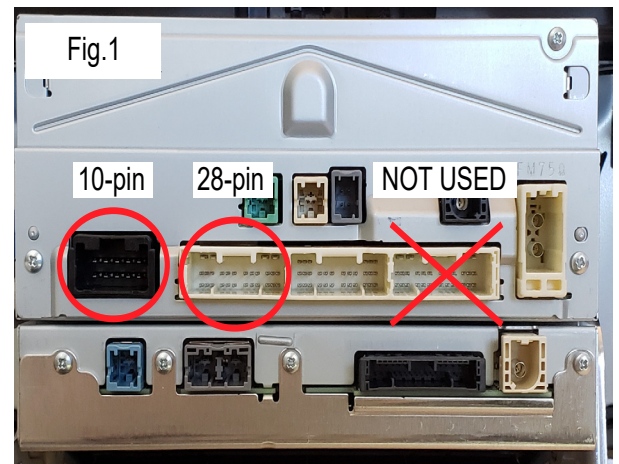
DIP Switch 3 Configuration

For the vehicle models listed below, DIP switch 3 should be set to on (down). These vehicle models have been found to have a lower audio voltage output from the radio than that of other model vehicles. Setting DIP Switch 3 to ON (down) will increase the input gain of the AP4 to accommodate this lower audio voltage from the radio and enable the AP4 to produce the proper 5v of audio output when installed into these model vehicles. Do not set DIP switch 3 ON (down) if your vehicle model is not listed below. Doing so will cause the AP4's audio output to clip at all volume levels.

| MAKE:	MODEL:
Toyota	4Runner
Toyota	Camry
Toyota	Tundra
Toyota	Sequoia

Safety Connect / Lexus Enform (SOS) Retention

In order to retain the factory feature of muting the radio's audio while an SOS call is taking place, the Yellow / Black "SOS Mute" must be connected to the Telematics Mute Trigger wire in the vehicle. The Telematics Mute trigger wire is in the white 24pin connector at the factory amplifier (reference connector image and pin location below). A military splice connection to this wire will be adequate.

WIRE SIDE

12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13
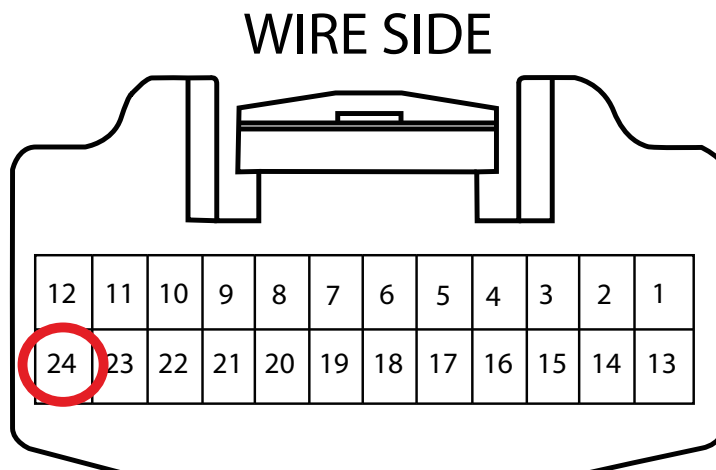
Setup and Configuration

1. Turn the ignition on. LED 1 on the interface will turn on and the +12v remote output will turn on.
2. Set the amp gain(s) to the desired level. We recommend using an oscilloscope and test tones to set the amp gain(s). Please refer to the MECP Advanced study guide if you are unfamiliar with this process.
3. Check volume, balance, fade and EQ settings.
4. If you would like to adjust the radio's beep volume or minimum volume, do so using one of the methods outlined below. If you are happy with the default levels, no adjustments are necessary.

Manually Setting the Radio's Beep Volume
You can manually set the level of the factory radio beeps using the programming button on the side of the interface. If you would like to set the beep volume using the PC app please proceed to the PC App section.

Setting the radio's beep volume using the programming button
1. Start with the level control knob turned all the way down (counter-clockwise).
2. Press the programming button on the side of the interface.
3. LED 1 will turn green and beeps will begin continuously sounding.
4. Turn the level control knob clockwise until the desired beep volume level is reached.
5. You can now either press the programming button twice or wait ten seconds to exit the settings.

Manually Setting the Minimum Volume
If the minimum volume of the radio (factory radio volume level 1) is too loud, you can manually set the level of the minimum volume using the programming button. If you would like to set the minimum volume using the AmpPRO app, please proceed to the AmpPRO App section.
PLEASE NOTE: Level control knob must be connected to the module in order to set the Minimum Volume.
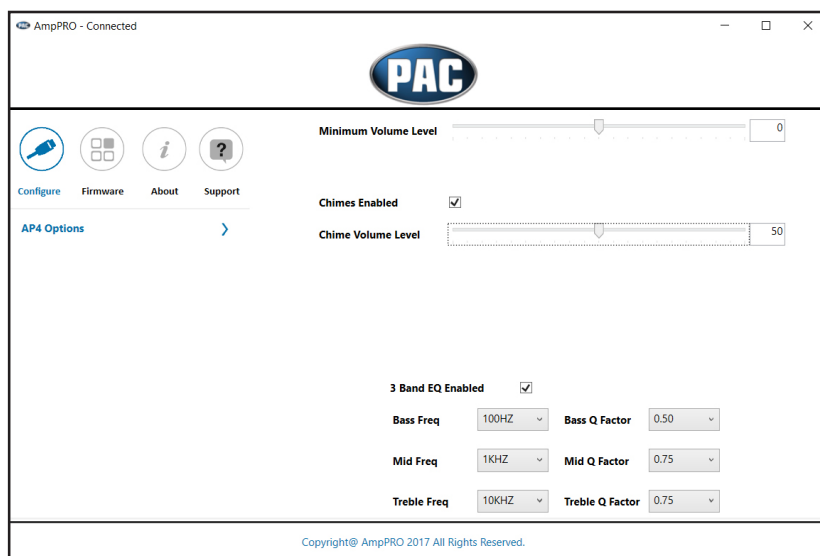
Setting the minimum volume using the programming button
1. Start with the level control knob turned all the way down (counter-clockwise).
2. Set the amp gains to the desired level.
3. Set the volume on the factory radio to 1.
4. Press the programming button on the side of the interface twice.
5. LED 1 will turn amber and the chimes will begin sounding every five seconds.
6. Turn the level control knob clockwise until the desired minimum volume level is reached.
7. You can now either press the programming button once or wait ten seconds to exit the settings.

AmpPRO App

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

- Configure User Interface Options such as:
  - Minimum Volume Level
  - Chime (Radio Beeps) Volume Level
  - Enable / Disable AP4 Chimes (Radio Beeps)
  - Enable / Disable factory EQ
  - Bass / Mid / Treble boost frequencies and Q factor
- Update Product Firmware
- Read Firmware / Hardware Versions
- You can download the AmpPRO app at : **http://aampglobal.com/appdownloads**

AmpPRO App (cont.)

PLEASE NOTE: These settings can be adjusted with the module installed in the vehicle, or on the bench. However, it is recommended to make the adjustments with the module installed, and the factory radio on, so that the changes can be heard.

Minimum Volume Level - This allows you to set the minimum volume level of the factory radio (factory radio volume level 1).

Chime Volume Level - This allows you to set the volume of the radio beeps that are heard through the AP4.

Chimes Enabled - This allows you to enable / disable AP4 radio beeps (ie: tone that is heard when pressing radio buttons). This is used when mixing factory and aftermarket speakers. It is also possible to turn the beeps off altogether using the radio's factory settings menu.

**3 Band EQ Enabled -** This allows you to enable / disable the 3 band factory EQ.

Bass / Mid / Treble Freq / Q Factor - This allows you to set the center frequency that will be adjusted when setting the 3 band factory EQ, as well as the Q Factor for each frequency. The Q Factor determines how many of the adjacent frequencies will be affected when adjusting the selected frequency. The lower the Q Factor, the more frequencies will be affected.

Available Frequencies and Q Factors					
Bass Frequency	60HZ	Mid Frequency	500HZ	Treble Frequency	7.5KHZ
	80HZ		1KHZ		10KHZ
	100HZ		1.5KHZ		12.5KHZ
	120HZ		2.5KHZ		15KHZ
Bass Q Factor	0.50	Mid Q Factor	0.75	Treble Q Factor	0.75
	1.00		1.00		
	1.50		1.25		
	2.00		1.50		1.25

Firmware Updates

The AmpPRO 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.

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 resume normal operation.
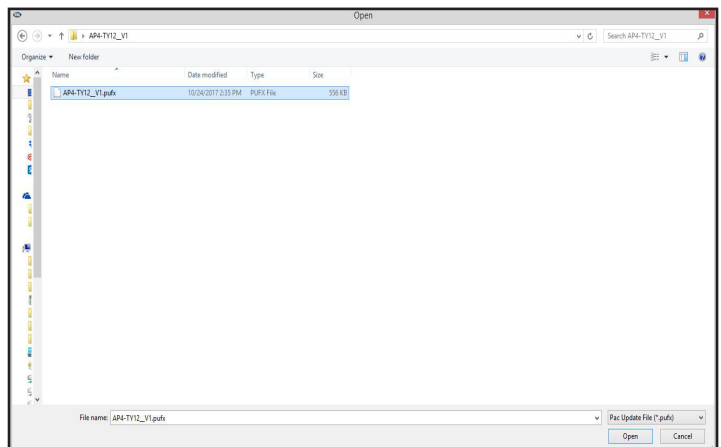
Restoring Factory Settings

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 LEDs start blinking red. Once the LEDs start blinking red, release the button.

This reset will restore the following settings to their factory defaults:
- Radio Beeps volume level
- Enable / Disable Factory Beeps
- Minimum volume level
- Enable / Disable factory EQ
- Factory EQ frequency
- Factory EQ Q factor

Troubleshooting

1. No audio - Check to see if LED 1 is illuminated. If not, cycle the ignition off and back on.
2. Hiss at high amp gain - Set feature DIP switch 2 to the on (down) position to lower the output voltage of the AP4 to 4v. If you still hear the hiss, lower your amp gains until the hiss is gone.
3. Cannot hear beeps when pressing buttons on the radio - Go to the Beep On / Off setting in the radio's settings menu and make sure it is set to ON. If it is, set it to OFF and back to ON and test for beeps again. Next, set the beep volume using process outlined in Setup and Configuration, or using the AmpPRO application. If you still do not hear beeps, be sure that you are using the remote output from the AP4 to turn on your aftermarket amplifier.
4. Low volume setting on radio is too loud - Set minimum volume using process outlined in Setup and Configuration, or using the AmpPRO application.
5. Drastic volume difference between radio sources - The radio stores the volume of the radio source from the last time that source was used. Readjust the volume of the individual sources to the same output level.

LED Legend		
	Action / Color	**During Normal Operation**
LED 1	Solid Red	Module Active
	Solid Green	Chime Volume Adjustment Mode
	Solid Amber	Minimum Volume Adjustment Mode
	Rapid Blink Any Color	DSP Activity
LED2	Blink Amber	USB Connection Detected
Both LEDs	Alternate Blinking Red	Performing Memory Reset