GM1A-RT

Radio Replacement Interface with
Telematics Retention
for select General Motors Vehicles
with Class II Data-Bus

Introduction and Features

The GM1A-RT 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 OnStar, warning chimes and the factory Bose amplifier when the original radio is removed. The GM1A-RT provides Data-Bus driven outputs such as retained accessory power (RAP), vehicle speed signal (VSS), illumination, reverse trigger and parking brake. The GM1A-RT also provides an SWI Direct output for adding an optional PAC Steering Wheel Control (SWC) retention interface (SWI-RC or SWI-CP2). Rear Seat Controls (RSC) if equipped will also be retained with the SWI interface. 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-RT.

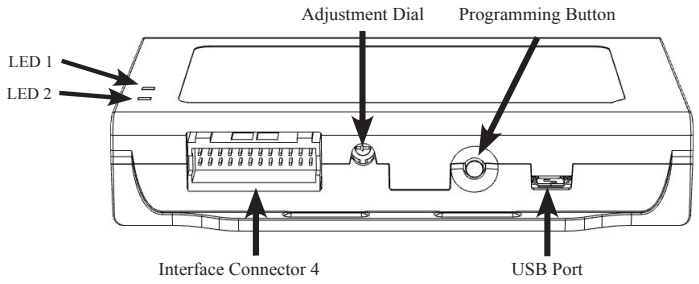
Important Notes

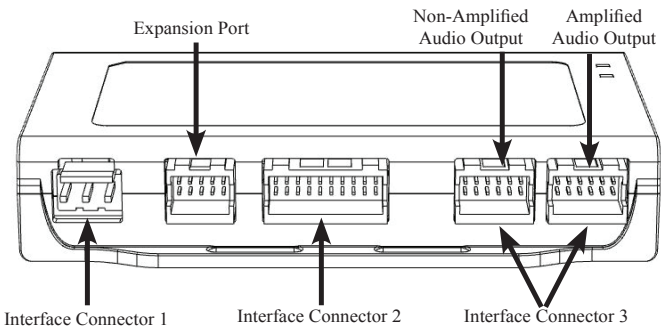
1. The included chime speaker should only be used when you are connecting an aftermarket amplifier to the cabin speakers.
2. The Programming Button and Adjustment Dial on the side of the interface have multiple functions. Please see Page 3 for more details.
3. Compatible with Premium (Y91 / UQ7) Bose, 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. Real time speaker fading from radio on Premium factory amplified systems (Y91 / UQ7) is only supported with the “amplified output” connection of the GM1A-RT.
5. When using real time speaker fading (Premium Bose only), 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.
6. Aftermarket radio features such as High Pass Filters (crossovers), DSP or “Network Mode” will interfere with proper fader function (Premium Bose Only). In order for the GM1A-RT’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.
7. When used in conjunction with the add on camera controller (VS41) the GM1A-RT will only provide Data-Bus controlled automatic activation for the front camera. Please refer to the vehicle specific VS41 instructions for more detail.
8. 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 3 for more details. **The level adjust does not operate with standard Bose Systems (UQA) or non amplified systems.**

*** The Premium Bose RPO code is UQA (instead of Y91) in the following vehicles:**

- **2004 Buick Rainier**
- **2003 - 2006 Chevrolet SSR**
- **2002 - 2004 Chevrolet Trailblazer**
- **2002 - 2004 GMC Envoy**
- **2002 - 2004 Oldsmobile Bravada**

Module Layout





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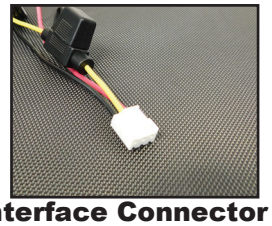
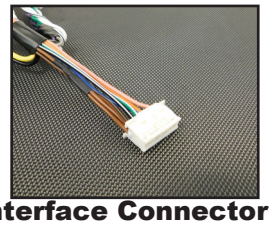
Installation Steps

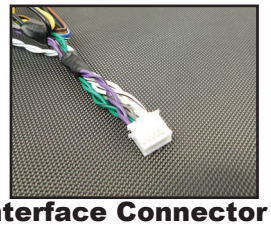
1. Wire your aftermarket radio to the GM1A-RT's harness according to the wiring connections chart below.
2. Plug Interface Connectors 1 and 2 into the appropriate port on the GM1A-RT interface (using the illustration on page 1 or the label on the bottom of the interface).
3. The Brown mute loop in Interface Connector 4 (if not cut) will turn the GM1A's accessory output off when any OnStar function is active. If the aftermarket radio has a mute input, cut this loop and connect the Brown wire in pin 23 to it.
4. The Connector 3 connection will be dependent upon whether or not the vehicle has a factory amplified system. Plug this connector into the appropriate port on the GM1A-RT (using the illustration on page 1 or the label on the bottom of the interface).
5. If the aftermarket radio is equipped with an auxiliary input and you wish to retain the factory RSE audio, plug the RCA connectors from the secondary harness into the radios auxiliary input.
6. If you are also installing an optional SWC interface with the GM1A-RT, connect the SWI Direct Connector to the SWC interface.
7. Remove the factory radio and plug in the GM1A-RT's Vehicle Connector 1 and Vehicle Connector 2 into the factory vehicle harness.
8. If necessary, program the SWC interface.
9. If you are connecting an aftermarket amplifier to the cabin speakers, plug Connector 3 into the "Amplified Audio Output" connector (see illustration on bottom of page 1), connect the chime speaker to the chime plug coming out of Interface Connector 4 and install the chime speaker in a place free of obstructions, where it can be easily heard (usually low in the dash facing downward).



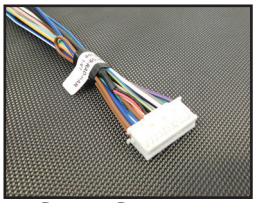
Interface Connector 1 (3-pin)



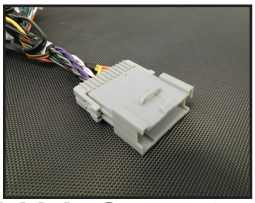
Interface Connector 2 (20-pin)



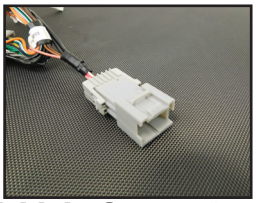
Interface Connector 3 (12-pin)



Interface Connector 4 (24-pin)



Vehicle Connector 1 (24-pin)



Vehicle Connector 2 (12-pin)

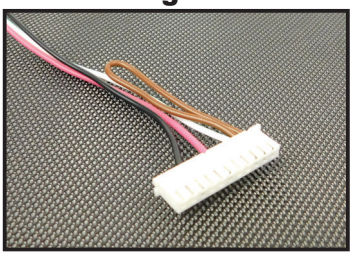
Wiring Connections

Yellow	12v+
Red	Accessory Output (10 amp)
Black	Ground
Brown Loop	Mute Output
Blue	Not Used
Blue / White	Remote On Input
Orange	Not Used
Orange / White	Illumination Output
Purple / White	Reverse 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

Steering Wheel Control Output Connector

1. The GM1A-RT provides a SWC output connector labeled "Connect to PAC Steering Wheel Control Interface" (Fig. A). For ease of installation, all necessary connections have been made for you.
2. You can use either a PAC SWI-RC or an SWI-CP2 (sold separately).
   a. When using an SWI-RC, the loop on the output connector should remain intact. Set the SWI-RC to version two and program the buttons according to the SWI-RC instructions.
   b. When using an SWI-CP2, use the DIP switch settings provided for the GM1A-RT in the Control PRO application. The steering wheel controls will be preconfigured for the vehicle and radio but can be customized using the ControlPRO PC application. The loop on the output connector should remain intact.

Fig. A



VS41 Wiring

The VS41 can be connected to the GM1A-RT 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"** which can be found on www.pac-audio.com under the GM1A-RT, and VS41 product pages.

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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)	YES	NO	YES
Factory amplifier settings: Bass, Mid, Treble, Gain, and Fade (Premium Bose)	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

Related Downloads

- **RadioPRO PC App: http://aampglobal.com/radioproapp**
- **Latest instruction manuals: Search part number on pac-audio.com, and then look under the "Downloads" tab**

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, and you are also installing an amplifier on the cabin speakers, make sure that the chime speaker is connected and chimes are enabled through the RadioPRO app before proceeding. Please see the RadioPRO app section on Page 4 for more details.**

A. **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.

B. **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 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.

C. **4 Chimes and LED 2 flash red: Master reset.** This does a master reset of the interface and restores the following settings to factory defaults:
   - SWC Calibration
   - Camera Settings
   - Infotainment Settings
   - Interface User Options

Testing and Verification

1. Turn the ignition on. LED 2 will illuminate red and the +12v accessory output will turn on.
2. Turn on the radio and check chimes, volume, balance, and fader.
3. **In vehicles equipped with Premium Bose:** 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-RT clockwise until some distortion is heard, then counter-clockwise a little.
4. If an SWI interface was also installed, verify that all SWC buttons are functioning properly. If you are installing the GM1A-RT into a Corvette, and are experiencing erratic SWC behavior, you may need to follow the SWC re-calibration procedure in the next section.
5. Pressing the OnStar button on the rearview mirror will turn off the rear speakers and allow the OnStar audio to be heard in the two front speakers. Pressing the VR / OnStar button on the steering wheel will also activate OnStar.
6. Turn off vehicle and remove key. RAP will keep the radio on for 10 minutes or until any door is opened.
7. LED 2 will turn off when RAP turns off.

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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. If you wish to pass audio from the RSE to the aftermarket radio you must connect the RCAs from the 12-pin connector to the aftermarket radio's auxiliary input. Select the aftermarket radio's auxiliary input to hear RSE audio.

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

RadioPRO PC App

Download the RadioPRO PC App at: https://aampglobal.com/radioproapp

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

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

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

- **Factory Amplifier Settings**
- **Chime Volume**
- **Telematics Volume**

The interface does not need to be connected to the vehicle when using the following features of the RadioPRO PC 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 (Premium Bose systems only). 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.

Telematics Volume

You can adjust the OnStar volume through the RadioPRO app. Press the blue button on the mirror or the VR SWC to launch OnStar then adjust the volume using the slider.

Chime Volume

You can adjust the chime volume through the RadioPRO PC app. Not available in Premium Bose systems.

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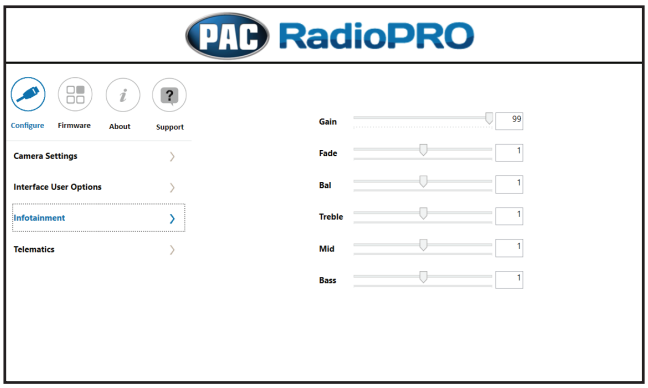
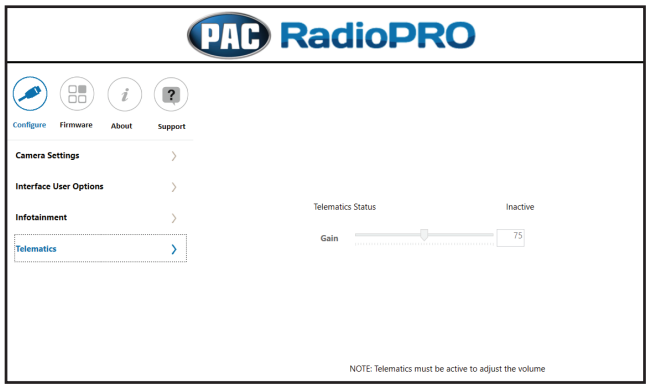
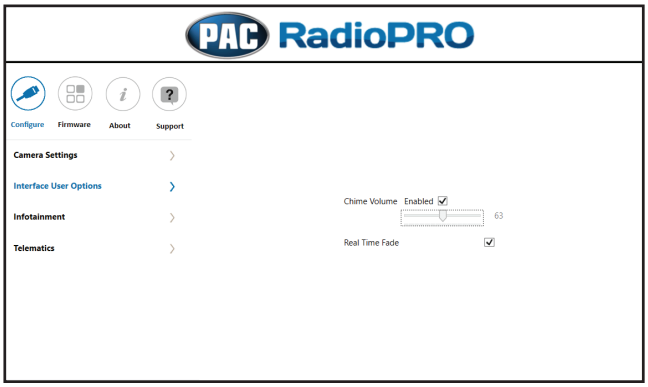
RadioPRO PC App (cont.)





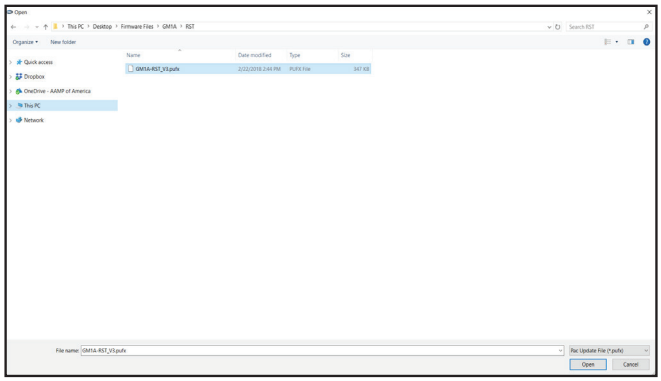


Product Updates (Firmware)

Firmware Updates

The RadioPRO PC app will also allow you to update the interface with new firmware as it becomes available. The GM1A-RT can be updated with new firmware as it becomes available. Please visit www.PAC-audio.com/firmware for available updates.

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.



Technical Support

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