GM1A-RST

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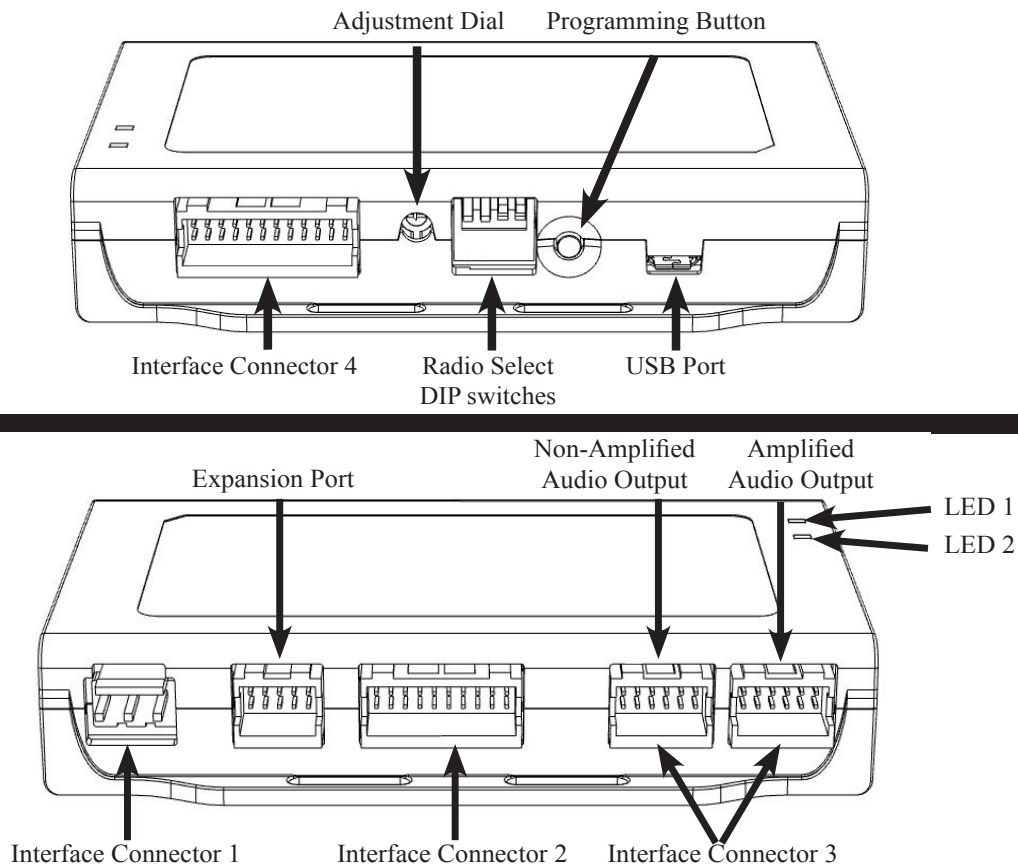with Class II Data-Bus

Introduction and Features

The GM1A-RST 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 Warning Chimes, Bose Amplifier, Steering Wheel Controls (SWC), Rear Seat Entertainment (RSE), and Rear Seat Controls (RSC) when the original radio is removed. The GM1A-RST provides data bus driven outputs such as retained accessory power (RAP), vehicle speed signal (VSS), illumination, reverse trigger and parking brake. 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-RST.
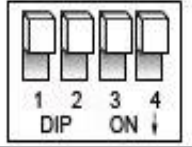
Important Notes

1. The included chime speaker should only be used if you are connecting an aftermarket amplifier to the cabin speakers.
2. Aftermarket radio must have an auxiliary input in order to retain RSE audio.
3. In vehicles with Premium Bose (Y91 / UQA) the chime volume can only be adjusted on the module via the adjustment dial. Please refer to page 3 under adjustable settings for further details.
4. Aftermarket radios with a 2-wire resistive based SWC circuit (Key 1 / Key 2 wires) will not have default button assignments programmed. Please refer to the owners manual of the radio you are installing to find out the proper SWC programming procedure.
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-RST'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-RST will only provide Data-Bus controlled automatic activation for the front camera. Please refer to the vehicle specific VS41 instructions for more detail.
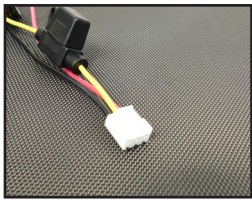
Module Layout

Adjustment Dial   Programming Button

Interface Connector 4   Radio Select DIP switches   USB Port

Expansion Port   Non-Amplified Audio Output   Amplified Audio Output   LED 1   LED 2

Interface Connector 1   Interface Connector 2   Interface Connector 3

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Installation Steps

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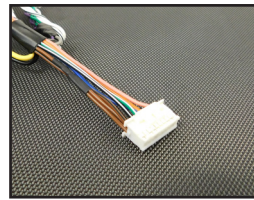**Set all other DIP switches to the OFF position.**

🔴 **DIPSWITCH** ON = DOWN

	Alpine	JVC	Kenwood / Lightning Audio	Stinger	Clarion / Nakamichi	All Other Brands	Pioneer	Sony	Fusion
	1	2	1 & 2	3	3	1, 2, & 3	1, 2, & 3	4	1 & 4

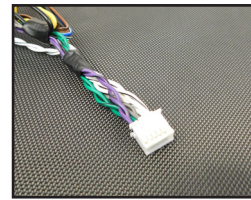**If your brand is not listed above, please use "ALL OTHER BRANDS."**

1. Set the Radio Select DIP switches according to the radio you are installing.
2. Wire your aftermarket radio to the GM1A-RST's harness according to the wiring connections chart below.
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. This pin is located in the top row next to the solid blue wire. (The top of the connector has the locking tab on it).
4. Plug Interface Connectors 1 and 2 into the appropriate ports on the GM1A-RST interface (using the diagram on page 1 or the label on the bottom of the interface).
5. The Connector 3 connection port will be dependent upon whether or not the vehicle has a factory amplified system. Plug this connector into the appropriate port on the GM1A-RST (using the diagram on page 1 or the label on the bottom of the interface).
6. 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.
7. Remove the factory radio and plug in the GM1A-RST's Vehicle Connector 1 and Vehicle Connector 2 into the factory vehicle harness.
8. If you wish to reassign functions to the SWC, follow the programming instructions on Page 4.
9. If you are connecting an aftermarket amplifier to the cabin speakers, 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).
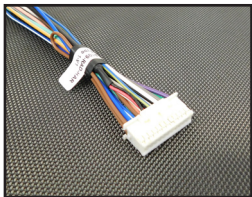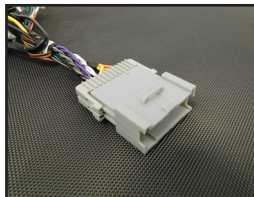
Interface Connector 1
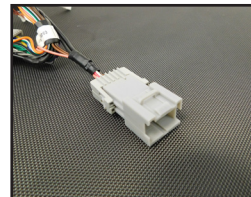**(3-pin)**

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 (VSS) Output
Blue / Yellow	SWC Output / Key 1
Brown	SWC Output / Key 2
3.5 mm Jack	SWC Output
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

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VS41 Wiring

The VS41 can be connected to the GM1A-RST 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 VS41 product page.

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 Y91/UQA)	YES	NO	YES
Factory amplifier settings: Bass, Mid, Treble, Gain, and Fade (Premium Bose Y91/UQA only)	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: https://pac-audio.com/app-downloads/**
- **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. **1 Chime and LED 1 flash green: SWC re-assignment**. This allows you to re-assign the SWC functions to the buttons of your choice. Please see the Optional Steering Wheel Control Programming instructions on Page 4 for more details.

B. **2 Chimes and LED1 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.

C. **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. Vehicles with Premium Bose (Y91 / UQA) will one have two chime level selections (Low / High).

D. **4 Chimes and LED 1 flash red: Master reset.** This does a master reset of the interface and restores the following settings to factory defaults:
   - SWC Mapping
   - SWC Calibration
   - Camera Settings
   - Infotainment Settings
   - Interface User Options

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Default Steering Wheel Control Programming

Default SWC Button Assignments

	Alpine	JVC	Kenwood	Stinger	Clarion	Pioneer	Sony
Volume +	Volume +	Volume +	Volume +	Volume +	Volume +	Volume +	Volume +
Volume -	Volume -	Volume -	Volume -	Volume -	Volume -	Volume -	Volume -
Source Up	Source	Source	Disc/FM+	Source	Source	Source	Source
Source Down	Band	Preset +	Disc/AM	N/P	N/P	Band	Band
Seek Up	Track +	Track +	Track +	Search +	Search +	Track +	Track +
Seek Down	Track -	Track -	Track -	Search -	Search -	Track -	Track -
Voice	OnStar	OnStar	OnStar	OnStar	OnStar	OnStar	OnStar
Prog	Preset Up	Preset -	Source	Band	Band	Preset +	Preset +
Voice default is OnStar. If Onstar retention is not necessary, unplug the OnStar module to default to voice.							

Default SWC Button Assignments (Corvette)

	Alpine	JVC	Kenwood	Stinger	Clarion	Pioneer	Sony
Volume +	Volume +	Volume +	Volume +	Volume +	Volume +	Volume +	Volume +
Volume -	Volume -	Volume -	Volume -	Volume -	Volume -	Volume -	Volume -
Seek Up	Track +	Track +	Track +	Search +	Search +	Track +	Track +
Seek Down	Track -	Track -	Track -	Search -	Search -	Track -	Track -
Voice	OnStar	OnStar	OnStar	OnStar	OnStar	OnStar	OnStar
End	Source	Source	Source	Source	Source	Source	Source
Voice default is OnStar. If Onstar retention is not necessary, unplug the OnStar module to default to voice.							

Optional Steering Wheel Control Programming

Programming

1. Turn the key to the ignition position.
2. Press and release programming button on the side of the interface.
3. Within 7 seconds, press the button that is to be learned on the steering wheel. LED 1 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. LED 1 will turn back to green.
   - **B. For long press functionality:** Hold the button until LED 1 starts blinking. Release the button and the LED will go back to green.
4. 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. LED 1 will flash three times indicating end of programming.
7. Test the interface for proper functionality. Whenever a SWC is pressed LED 1 will illuminate green.
8. If any function does not work, repeat the programming steps.

Optional Programming Order

	Alpine	JVC	Kenwood / Lightning Audio	Stinger	Clarion / Nakamichi	All other Brands	Pioneer	Sony
1	Volume +	Volume +	Volume +	Volume +	Volume +		Volume +	Volume +
2	Volume -	Volume -	Volume -	Volume -	Volume -		Volume -	Volume -
3	Mute	Mute	Mute	Mute	Mute		Mute	Mute
4	Preset +	Source	Source	Source	Source		Preset +	Preset +
5	Preset -	Track +	Play	Search +	Search +	No specific programming order. Please refer to the owner's manual of your radio for SWC programming instructions.	Preset -	Preset -
6	Source	Track -	Track +	Search -	Search -		Source	Source / End Call
7	Track +	Band / Disc +	Track -	Band	Band		Track +	Track +
8	Track -	Preset / Disc -	Disc / FM +	Send / End	Send / End		Track -	Track -
9	Power	Select	Disc / AM -	Send	Send		Band	Band
10	Enter / Play	Attenuation	Answer	End	End		Phone Menu	Power / End Call
11	Band / Program	Phone Receive	Voice	Voice	Voice		Answer Call	Voice / Answer / End Call
12	Receive	Phone Reject	On Hook				End Call	Voice (Android Auto & Car Play) Answer / End Call***
13	End	Voice	Off Hook				Voice	
14	Voice	Power	Mute					
15			Preset +					
If your brand is not listed above, please use "ALL OTHER BRANDS."								
Please Note: On any entry with multiple commands, the commands shown are source dependent.								

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Testing and Verification

1. Turn the ignition on. LED 1 will illuminate red and the +12v accessory wire will turn on.
2. Turn on the radio and check chimes, volume, balance, and fader.
3. **In vehicles equipped with Premium Bose (Y91 / UQA):** 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-RST clockwise until some distortion is heard, then counter-clockwise a little.
4. Verify that all SWC buttons are functioning properly for both the aftermarket radio and OnStar. To adjust OnStar volume, press the OnStar button on the mirror then use the volume buttons on the SWC to adjust the level. When you hear a chime during this process it means you have reached the farthest minimum / maximum level.
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. The OnStar active LED will also turn on. When OnStar disconnects, the radio will un-mute or turn back on and the OnStar LED will turn off. Pressing the VR / OnStar button on the steering wheel will also activate OnStar.
6. Turn off vehicle and remove key. RAP will be active and keep the radio on for 10 minutes or until any door is opened.
7. The LED and radio will turn off when RAP turns off or until any door is opened.

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.

Button Programming Order
Volume Up
Volume Down
Seek Up
Seek Down
Preset
Answer / Voice
Hang Up
Preset Up

1. Turn the key to the ignition position.
2. Press and hold the programming button until LED 1 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 1 on the interface should blink green. If any function does not work, repeat the programming steps.

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 radios auxiliary input. Select the aftermarket radios auxiliary input to hear RSE audio.

RadioPRO PC App

Download the RadioPRO PC App at: https://pac-audio.com/app-downloads/

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**

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RadioPRO PC App (cont)
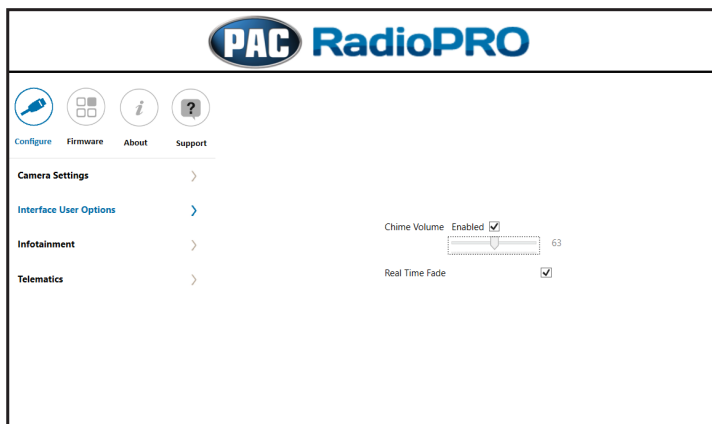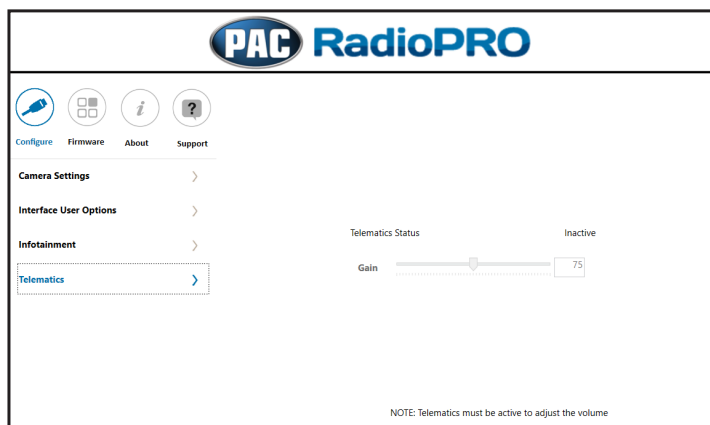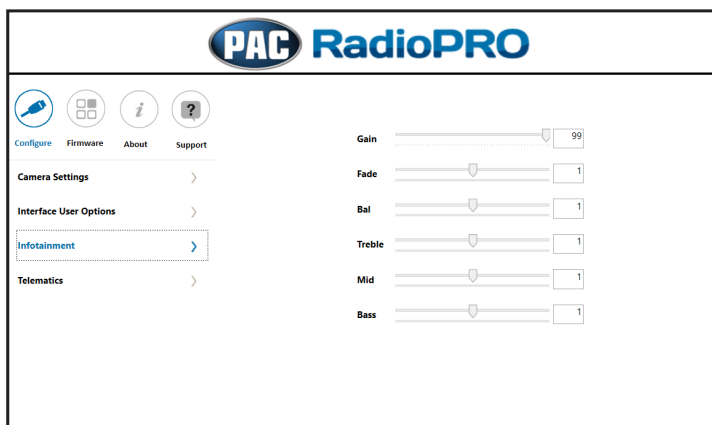
Infotainment/Factory Amplifier Adjustments

The RadioPRO PC app will allow you to adjust the settings of the factory amplifier (Y91 / UQA Premium 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 PC 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 (Y91 / UQA) systems.

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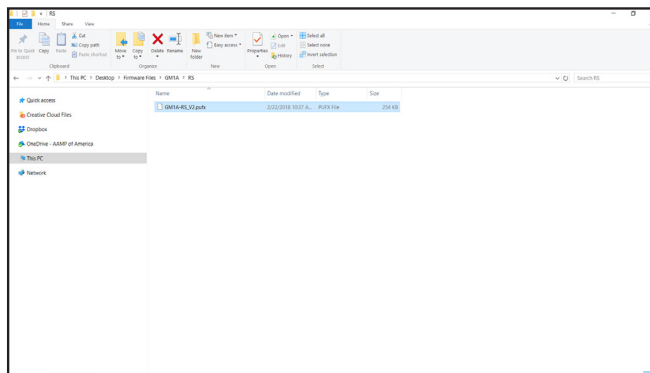for select General Motors Vehicles
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RadioPRO PC App (cont)

Firmware Updates

The RadioPRO PC app will allow you to update the interface 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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