

# APSUB-CH21

Advanced Subwoofer Amplifier Interface for  
for Select Chrysler / Dodge / Jeep Vehicles

## Introduction and Features

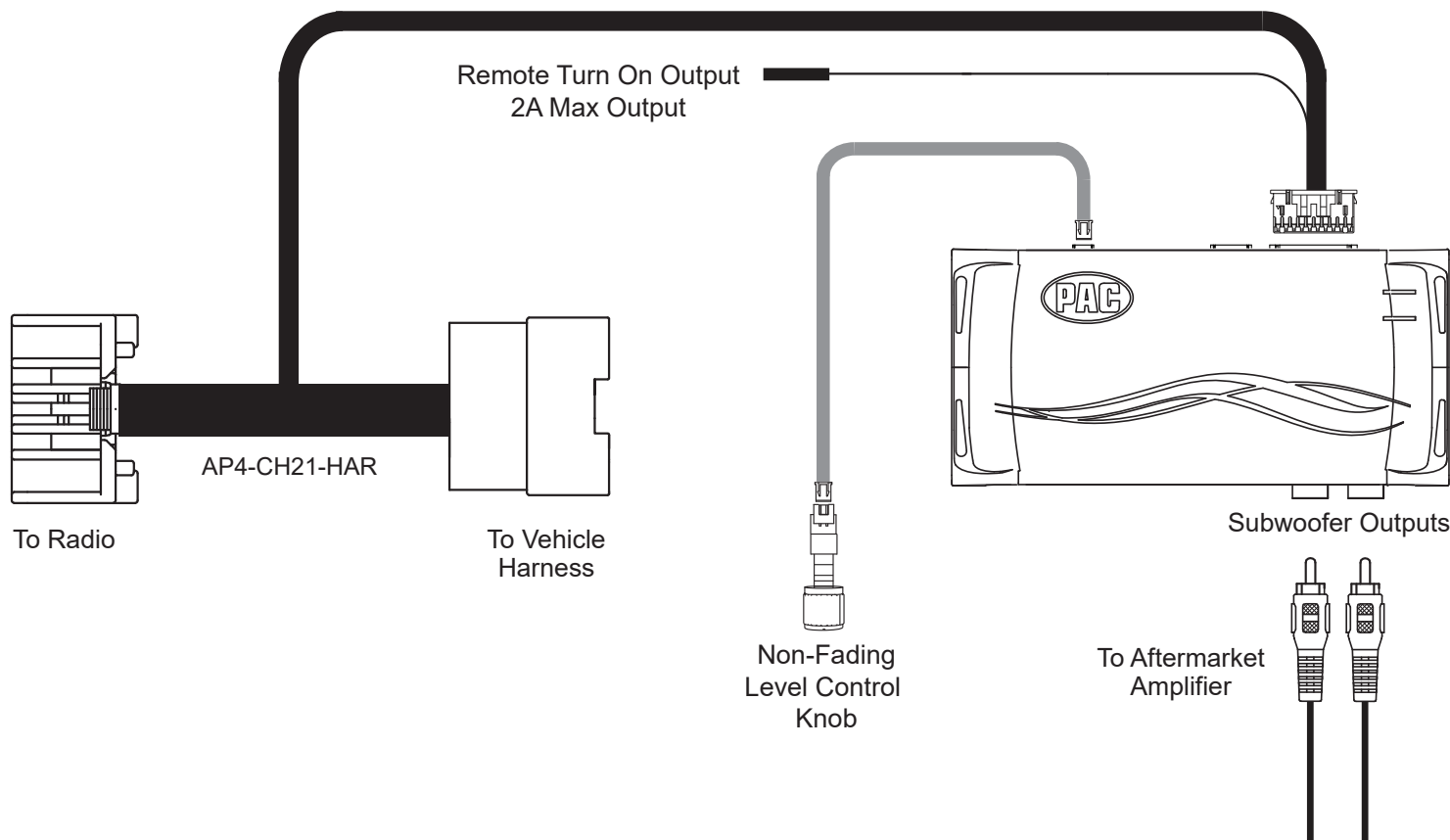
The APSUB-CH21 provides a 2-channel non-fading pre-amp output for use with an aftermarket amplifier and subwoofer. Using the full range, fixed level head unit output, in conjunction with CAN messages, the APSUB-CH21 delivers a low pass variable 5v RMS pre-amp output with bass equalization and level control capabilities. The signal has a 350Hz / 24dB Linkwitz-Riley low pass filter applied. A data controlled remote amplifier turn on wire is also provided by the APSUB-CH21.

## Important Notes

1. This interface is only compatible in vehicles equipped with a data-bus controlled amplified sound system. To verify compatibility, look for an Alpine, Beats, Infinity, or Harmon Kardon badge on the door speakers, center speaker, or factory subwoofer grill. If none of these brands are shown; check for the presence of a center speaker or subwoofer.
2. The factory amplifier must remain connected, and in the vehicle after the APSUB-CH21 has been installed.
3. The remote output is rated at 2A of current. If more current is needed; an external relay must be used.
4. The subwoofer outputs are non-fading. The output level of the subwoofer channel can be controlled using the supplied level control knob. If the level control knob is not connected the output level will default to 100%.
5. The minimum volume level is set to a default. If you are happy with this level in your particular application then additional adjustment is not required. Please refer to the Setup and Configuration section on page 2 for more details.
6. The level control knob must be connected in order to manually adjust the minimum volume setting.
7. No adjustments can be made manually using the programming button or the factory SWC when the module is connected to a PC.

**The aftermarket amplifier must have a very solid ground and the amplifier power/ground connections should be made before connecting the RCA's or Remote Turn On to the APSUB-CH21**

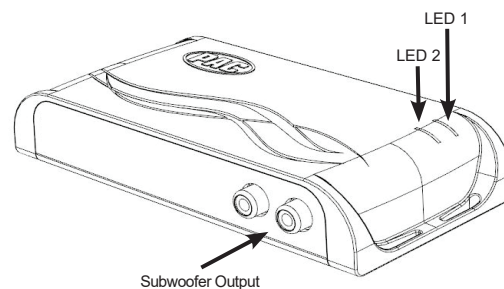
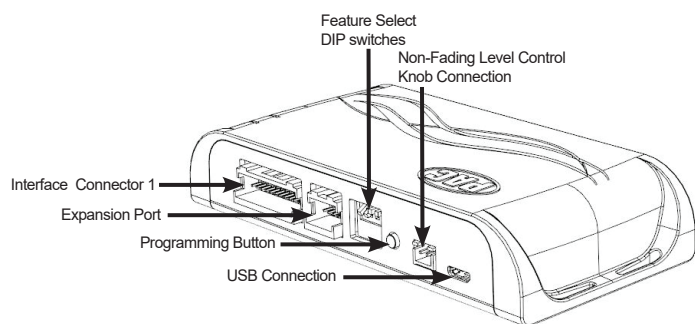
## Wiring Connection Chart



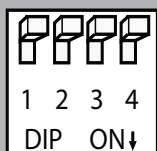
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## Module Layout



## 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.



No Function	5v / 4v Preout	No Function	No Function
1	2	3	4

1. Remove factory radio.
2. Disconnect the gray 22-pin factory harness connector from radio.
3. Connect APSUB harness to vehicle harness.
4. Connect APSUB harness to factory radio.
5. Set any feature DIP switches that apply to your install.
  - 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.
  - DIP switches 1, 3, and 4 are not used.
6. Connect the APSUB harness to the module.
7. Connect the level control knob to the module and install in an accessible location.
8. After the aftermarket amplifier power/ground connections are made, connect the signal cables and remote input from the aftermarket amplifier to the APSUB.
9. Reconnect any additional harnesses removed from the radio and reinstall the radio.

## 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 (p. 360) if you are unfamiliar with this process.
3. Check volume, balance, fade and EQ settings.
4. If you would like to adjust the minimum volume, do so using one of the methods outlined below. If you are happy with the default level, no adjustment is necessary.

### 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 either the programming button on the side of the interface or the factory SWC. 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 module for either of the following methods.**



### Setup and Configuration (cont)

#### 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 once.
5. LED 1 will turn amber.
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.

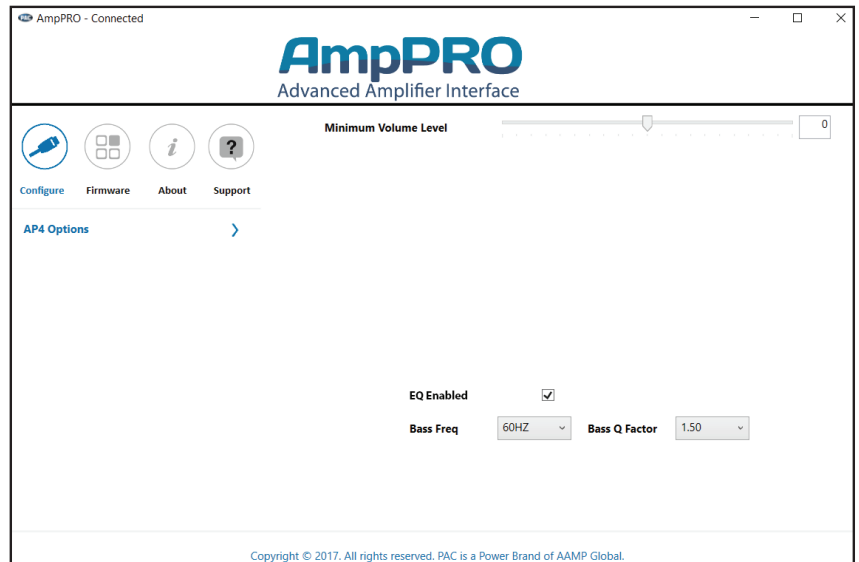
#### Setting the minimum volume using the factory SWC

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 and hold the track up button on the factory SWC (Back left of steering wheel) for approximately ten seconds.  
**PLEASE NOTE:** The radio will respond to the SWC commands during this process, this is normal and has no effect on the APSUB operation.
5. LED 1 will turn amber.
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 PC App

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

- Configure User Interface Options such as:
  - Minimum Volume Level
  - Enable / Disable Factory EQ
  - Set Bass Center Frequencies and Q Factor
- Update Product Firmware
- Read Firmware / Hardware Versions
- You can download the AmpPRO app at :  
<https://pac-audio.com/app-downloads/>



**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).

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

**Bass Freq / Q Factor** - This allows you to set the center frequency that will be adjusted when setting the bass band on the 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. Note: This setting only affects the output of the APSUB and does not change the way that the factory EQ adjusts the factory speakers.



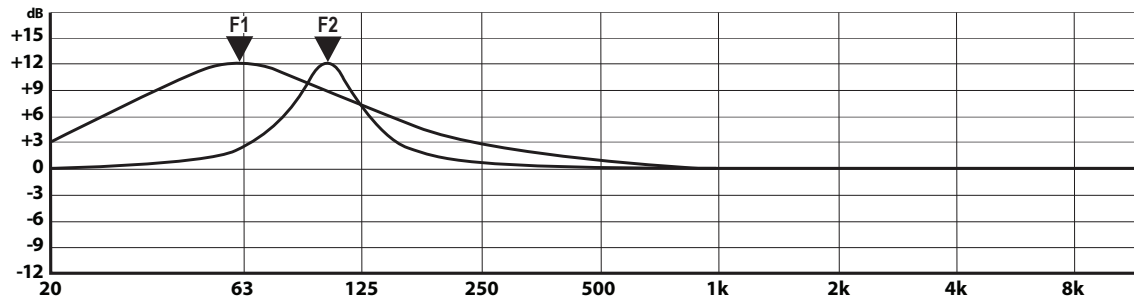
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## AmpPRO PC App (cont)

### AVAILABLE FREQUENCIES AND Q FACTORS

Bass Frequency	60HZ
	80HZ
	100HZ
	120HZ
Bass Q Factor	0.50
	1.00
	1.50
	2.00



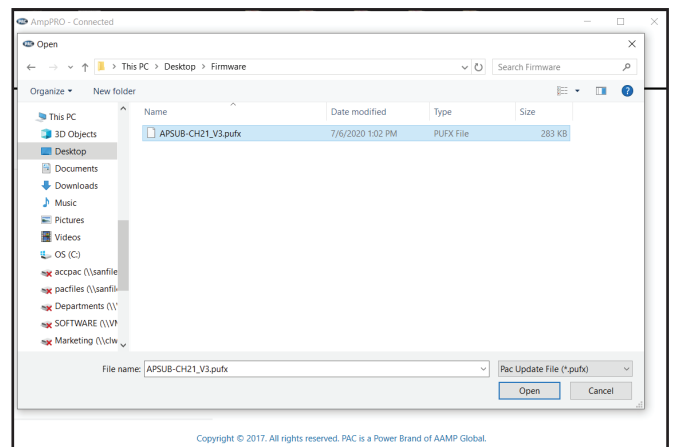
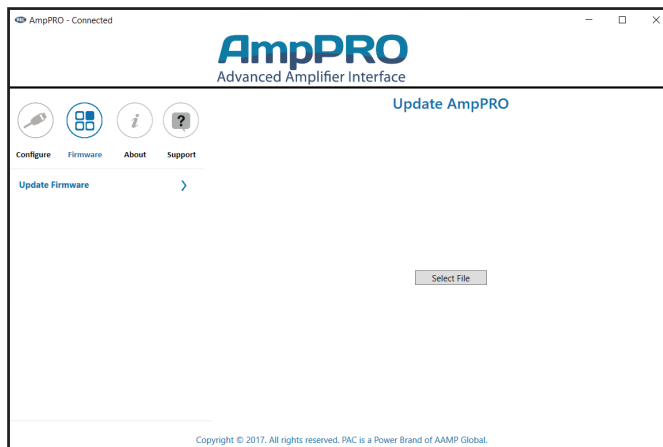
F1: 60Hz Center Frequency | 0.50 Q Factor

F2: 100Hz Center Frequency | 2.00 Q Factor

## 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](http://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 for 10 seconds 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:

- Minimum Volume Level
- Enable / Disable Factory EQ
- Factory EQ Frequency
- Factory EQ Q Factor



### Troubleshooting

1. Low volume setting on radio is too loud - Set minimum volume using process outlined in Setup and Configuration, or using the AmpPRO application.
2. If for any reason the APSUB module becomes unresponsive, or will not power up with the key on, you can always reset the interface by turning the key to the ignition position, then pressing and holding the Volume Down button on the factory SWC for 12 seconds until a tone is heard or by pressing and holding the reset button on the side of the APSUB module for 10 seconds (until the LEDs alternate flashing red).

LED Legend		
	Action/Color	During Normal Operation
LED 1	Solid Red	Module Active
	Solid Amber	Minimum Volume Adjustment Mode
	Rapid Blink Any Color	DSP Activity
LED 2	Blinking Amber	USB Connection Detected
Both LEDs	Alternate Blinking Red	Performing Memory Reset

### Technical Support

**Email:** [support@PAC-audio.com](mailto:support@PAC-audio.com)

**Phone:** 727-592-5991

**Chat:** [PAC-Audio.com](https://www.PAC-Audio.com)

