

## **The Official CleanSweep® CL441dsp FAQ**

### **Q: Who needs a CleanSweep® CL441dsp?**

If your factory head unit is difficult, impractical or impossible to replace and employs non-defeatable factory equalization and you wish to obtain good results from upgrading to aftermarket amplifiers and speaker systems in your car, the CleanSweep® will act as a gateway between the factory source unit (or amplifier) and your aftermarket audio equipment. The CleanSweep® CL441dsp will correct the factory system's frequency response, give you a linear master volume control, control the turn-on of your aftermarket electronics and allow you to add a secondary source unit of your choice to the system.

### **Q: Can I use a CleanSweep® CL441dsp if all I want to add is a subwoofer amplifier and subwoofer while keeping my stock front/rear speakers powered by the stock system?**

Yes, in some cases. As long as you have full-range signals from either your front or rear factory speaker channels, a CL441dsp can be t-connected and used to add an aftermarket subwoofer amplifier and subwoofer system. In this application, the CL441dsp will only correct the frequency response feeding the subwoofer amplifier and its master volume control will behave as a subwoofer level control. When using this method, you cannot use the Auxiliary Input and must use the factory volume knob as your master system volume control (accepting any non-linearities the factory system applies at varying volumes).

### **Q: How does the CleanSweep® CL441dsp differ from other line-output interfaces?**

The CL441dsp does much more than just convert the level of OEM signals to be compatible with aftermarket amplifier inputs. It corrects equalization using 120 bands of fully digital equalization (30 bands in each of its four channels). It also provides a linear master volume control and an additional input so that you can add a source of your choice. Unlike conventional, passive line output converters, the CL441dsp does not degrade frequency response or signal-to-noise performance.

### **Q: Will the CleanSweep® CL441dsp work in vehicles with digital audio bus systems?**

Yes. At some point, the audio in all systems has to become analog in order to drive speakers and this is where the CL441dsp will connect. There is no such thing as an all-digital system from head unit to speakers.

### **Q: Can I use a CleanSweep® CL441dsp and still drive my speakers from the factory amplifier?**

No. The CleanSweep® CL441dsp outputs are specifically designed to drive aftermarket amplifiers and may not be compatible with OEM amplifiers. It is intended to be an interface between the OEM audio system and aftermarket amplifiers and speakers.

### **Q: Can I use a CleanSweep® CL441dsp and still keep my factory speaker system?**

Yes, you could, but it does not make much sense. The factory speakers generally benefit from the OEM equalization curve and would likely sound worse with a corrected signal. The CL441dsp is intended to be an interface between the OEM audio system and aftermarket amplifiers and speakers.

### **Q: Will the CleanSweep® CL441dsp interfere with audio from vehicle telematics systems (OnStar®, Navigation, Bluetooth® links, etc.)?**

No. If properly interfaced into the OEM system, any function that "talks" through the factory audio system will still "talk" through the CL441dsp-enabled aftermarket system. However, if you are listening to a source connected to the auxiliary input of the CL441dsp, these functions will not be audible. If full-time access to these functions is important to you, do not use the auxiliary inputs.

### **Q: Are all factory audio signals equalized and do I need a CleanSweep® CL441dsp if they are not?**

Not all factory audio signals are equalized. In some cases, the factory head unit outputs will be flat in frequency response and are directly usable with many aftermarket amplifiers. In these systems, the use of a CL441dsp to correct frequency response is unnecessary but it can still be used as an auxiliary input and high quality pre-amplifier, if so desired.

### **Q: How can I tell if my factory audio system's signals are equalized?**

The best way to tell is to connect a real time spectrum analyzer (RTA) to the audio outputs and play a pink noise CD (or the calibration track on the CleanSweep® Calibration CD). This will provide a visual representation of the frequency response of the signal.

### **Q: Why is it necessary to neutralize the OEM equalization? Won't it make my aftermarket system sound better?**

The OEM equalization is designed to correct the frequency response of the factory speaker system to create a sonic signature that the OEM system designers consider acceptable. In many cases, it is designed to conceal flaws in the OEM speakers and to protect them from overload at low frequencies. Good quality aftermarket speaker systems are designed to perform with a flat signal and in almost all cases will not benefit at all from the OEM equalization.

**Q: Will the CleanSweep® CL441dsp void my factory warranty?**

Since the CL441dsp connects to the factory audio system as if it were a speaker, it is extremely unlikely that it could cause a failure in the OEM audio components when properly installed. That being said, installing the product requires careful analysis of the OEM audio system wiring to avoid tapping into wires that could potentially cause damage. We strongly recommend that you have your CL441dsp installed by an authorized JL Audio dealer who has the tools and access to vehicle wiring information necessary to a reliable installation. From a legal perspective, automakers are prohibited by U.S. law (see Moss-Magnuson act: US Code - Title 15, Chapter 50, Sections 2301-2312) from voiding a vehicle's warranty unless there is conclusive proof that an aftermarket device directly caused a failure in the car. In these cases, the warranty for unrelated systems remains intact. For example, if an aftermarket audio installation caused a failure in the dash lights of the car, the auto manufacturer can refuse warranty coverage for repairing the dash lights, but they cannot void the warranty on the rest of the car.

**Q: I've been told that I need to use a "summing device" in order to use a CleanSweep® CL441dsp in my car. Why?**

This will be the case in vehicles that do not have a usable full-range analog audio signal. The CleanSweep® CL441dsp requires a full-range input covering the general range from 20 Hz - 20,000 Hz with no greater than a 24 dB variation within that bandwidth. This is necessary for the CleanSweep® to accurately set its levels and provide a full-range output that is flat for your aftermarket equipment. If your vehicle does not have usable full-range analog audio outputs it is necessary to sum filtered signals in order to create full-range input signals for the CL441dsp. In most cases, this involves summing the factory subwoofer channels to the front and rear speaker channels and will require additional interface products like the CleanSweep® CL-SSI. Your JL Audio dealer can provide details on what will be required in your vehicle.

**Q: Is it necessary to install the CleanSweep® CL441dsp's master volume control knob?**

If you are using the CL441dsp's auxiliary input, you will need to install the master volume control in order to control the volume of the auxiliary source unit. If you are not using the auxiliary input, it is possible to operate the system with the OEM volume control and without installing the CleanSweep's master volume control knob. Please see the CL441dsp's owner's manual for full details.

**Q: Is the CleanSweep® CL441dsp compatible with 5.1 channel OEM systems?**

The CL441dsp can be used in many cars equipped with 5.1 audio systems, but you will lose the system's 5.1 capabilities.

**Q: Why do the outputs of my CL441dsp measure less than 8 volts at full volume with a sine-wave track?**

While the CleanSweep® CL441dsp is capable of 8 volts RMS of unclipped output, its nominal output voltage at full volume is closer to 2.5 volts per channel (which is plenty). The reason for this is to allow the operator of the system to boost bass and/or treble (or overshoot the calibration volume level) without inducing clipping in the CL441dsp's inputs or outputs. Any JL Audio amplifiers connected to the CL441dsp should have their "Input Voltage" range switches set to the "Low" position.

# JL AUDIO®

*Ahead of the Curve™*

## Common Misconceptions about the CleanSweep® CL441dsp

### **“When you install a CleanSweep® CL441dsp, your OEM volume control can no longer be used.”**

FALSE. You can still use your OEM volume control when listening to the factory source. Simply set the CL441dsp's master volume control at a high level and go for it. The master volume control has the advantage in terms of ultimate sound quality and linearity, but you can still get excellent sound using the OEM volume control. The master volume control must be used for the Aux Source, if connected. If the auxiliary input of the CL441dsp is not being used, the master volume can even be left unconnected, if desired.

### **“The CleanSweep® CL441dsp can only accept high-level signals at its inputs.” (OR) “it can only accept low-level signals at its inputs.”**

FALSE. The CL441dsp can accept signals as low as 100 mV (really low-level) all the way up to 30V (over 200 W into 4 ohms), so it can use signals from the weakest factory head units to the most powerful factory amplifiers. It can also directly accept differential-balanced signals as used on many OEM systems.

### **“The CleanSweep® CL441dsp is just a really expensive line-output converter (LOC).”**

FALSE. First of all, the CL441dsp can both raise or lower the level of OEM signals which passive LOC's cannot do. Secondly, it has 120 bands of equalization (30 bands per channel) to correct OEM frequency response. Thirdly, it has a line-level aux-input. Finally, the CL441dsp is a master preamp with 8 volts of unclipped output capability. To approximate the performance of a CL441dsp, you would need the following equipment:

- Two stereo line output converters
- Four channels of 30 band equalization
- An Aux-input switch
- An 8 volt four-channel line-driver with a master volume control
- The space to install all that stuff and the time to set it up

### **“The CleanSweep® CL441dsp is only needed on fancy European cars.”**

FALSE. Most newer cars need a CL441dsp for optimum OEM integration, from basic economy models to fancy luxury models, Domestic, Japanese or European. Even inexpensive cars now employ non-defeatable EQ in their factory head units.

### **“The CleanSweep® CL441dsp will not work on cars with fiber-optic databus audio systems.”**

FALSE. No matter how complex the system, at some point the audio has to become analog to drive speakers. This is where the CL441dsp can be connected in even the most complex automotive systems. You may need to sum crossed-over signals which requires some extra work and extra equipment, but it can be done with great success.

### **“The CleanSweep® CL441dsp is overkill and unnecessary. You can get equivalent performance with LOC's or other interface products.”**

DEPENDS. If the OEM audio is equalized, the CL441dsp will do a far better job than an interface without EQ capabilities. If the OEM audio is unequalized, a CL441dsp may not be necessary unless it is being used to add Aux-input capabilities.

### **“An AudioControl LC-6 / LC-8 does the same thing for a lot less money.”**

FALSE. The LC-6 and LC-8 are very good pieces of gear but are not very comparable to a CL441dsp in terms of functionality. They are multi-channel active level-matching preamplifiers with individual level controls over each of their channel pairs. They do nothing to correct frequency response, do not provide a linear master volume control and do not provide an auxiliary input circuit. These products can be used as channel summing devices in conjunction with a CL441dsp and do a good job in that role. They can also be useful when working with factory signals that are not equalized.

### **“The factory equalization is there for a reason and should not be messed with.”**

FALSE. The factory equalization is set up for the factory speaker system and will almost never improve the performance of an aftermarket system. The purpose of a CleanSweep® CL441dsp is to get you back to the same starting point you would have with a high quality aftermarket head unit — a flat frequency response.

### **“The CleanSweep® CL441dsp is hard to install.”**

Although some applications can be complex and may require two hours of labor, the majority of applications can be completed in about one hour by a professional installer.