USB Help Notes

Crestron Avia™ DSP-1282 & DSP-1283

Crestron Electronics, Inc.

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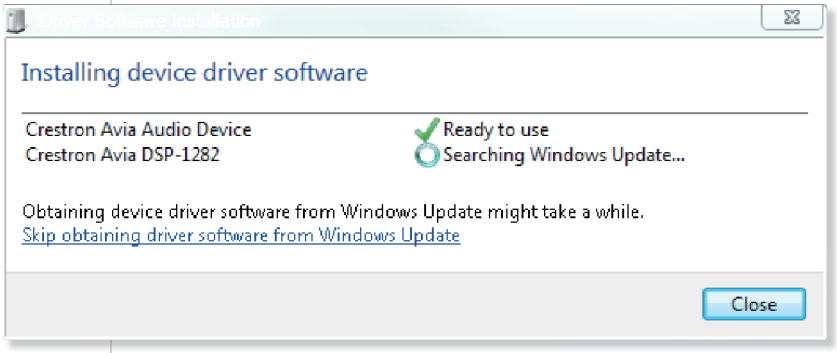
Many professional Digital Audio Workstations (DAWs), conference codecs, and archival recording systems operate on two channel USB audio. The standard PC Windows Media® Audio (WMA) 2-channel driver is used for these operations. Avia DSP products with USB can also be configured for 8-channel full duplex and requires an additional driver to access the expanded channel count.

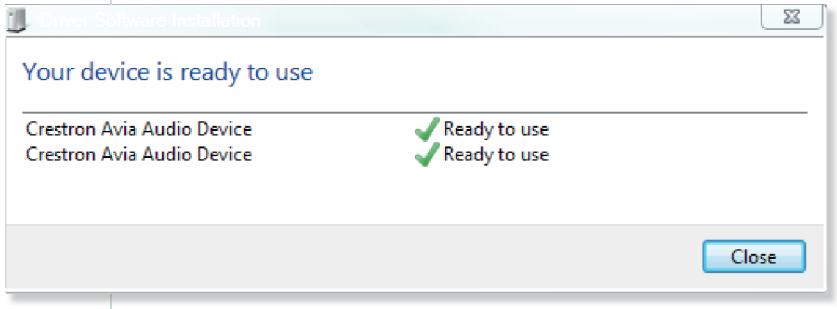
8-Channel Operations

The USB driver for 8-channel operation is available for download on the Crestron website and is for use with Avia DSP-1282 and DSP-1283 models.

The driver provides an ASIO 2.2 compliant software interface and integrates with the Windows® operating system as a standard WDM/DirectX WDM or DirectX® compatible sound device. The driver implements the USB Audio 2.0 and 1.0 device class specification and is managed in the Windows control panel for Sound Playback and Recording.

The install includes a self-extracting .exe package. An information panel is displayed during the installation process along with a confirmation when the installation is complete and the driver is ready to use. Example screen grabs are offered for configuration reference:





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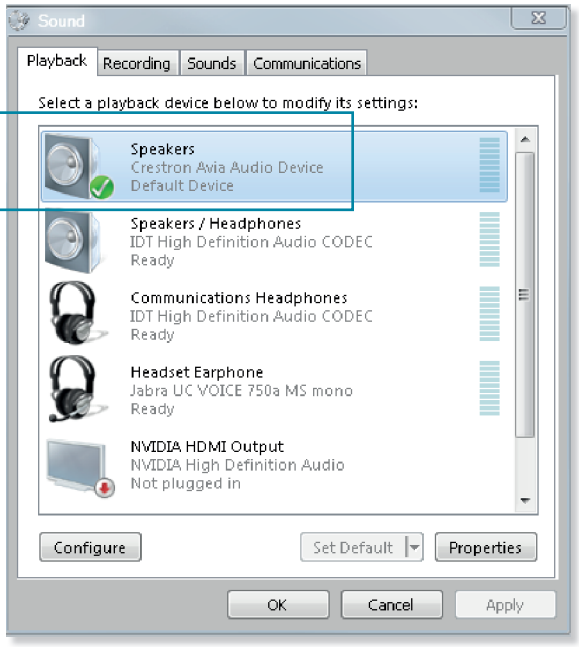
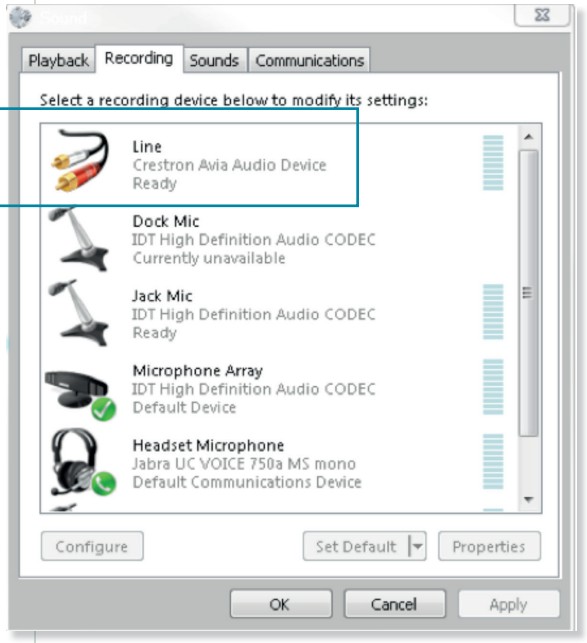
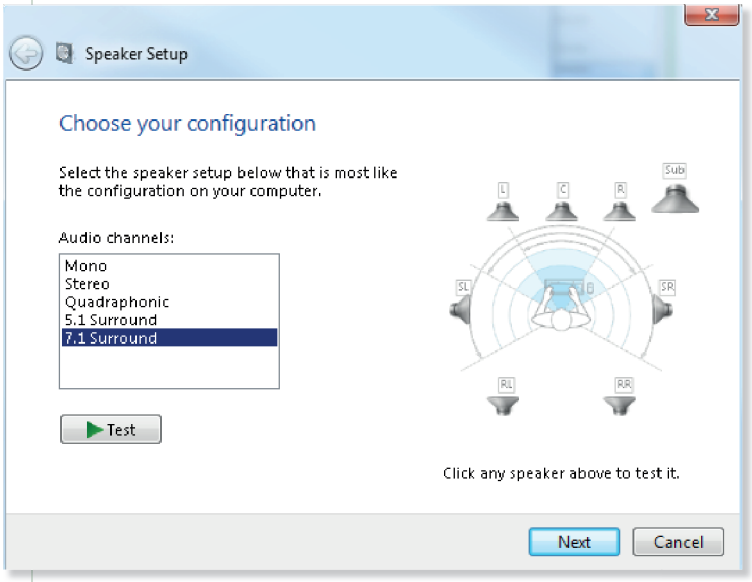
Successful driver installation will result in the Crestron Avia Audio Device being listed in the Windows control panels.





To test the driver, select Speakers and then select Configure to open the Set Up dialog. Select 7.1 Surround and then press the Test button. This generates a sequential test tone in each USB channel 1-8 to verify channel assignments. In the Avia Audio Tool the USB inputs will show input level in the matrix. The default Avia tool configuration is 2 channels; updating to 8 channels requires configuration described in the next section.



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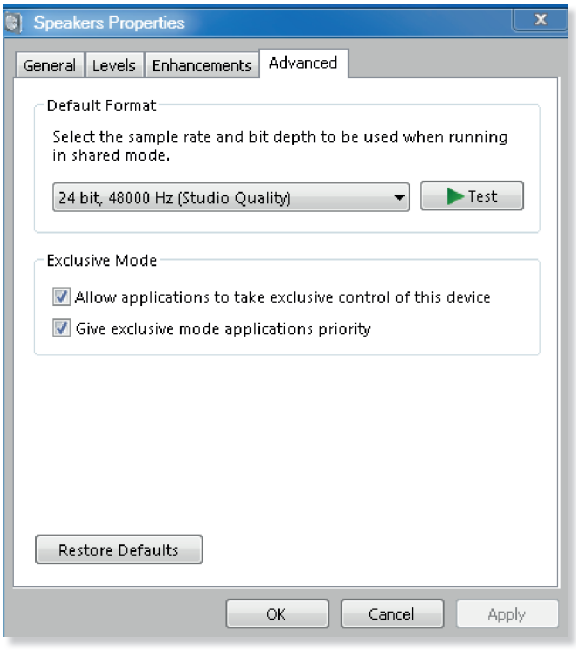
If you have been using the 2-channel USB prior to loading the 8-channel driver, a PC reboot may be required for the 8-channel driver to take effect. If the Windows control panel does not offer the required selection for 48k sample rate with 16 or 24 bit depth after the 8-channel driver is successfully installed, then the PC reboot is required.



Avia Audio Tool Configuration

To configure the Avia Audio Tool for 8 USB channel operation click on the Edit/Preferences/USB tabs to access the selection menu and chose 8 USB Lines. A tool restart is required for this selection to take effect. On restart the matrix will update to include 8x8 USB channels versus the default 2x2. The 8x8 is now the tool default for this DSP.

USB selection for 2/8 channels.

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USB signal levels as received by the DSP Inputs are shown below. Gain in the host PC for any USB third party application may require level adjustments for the signal sent to the DSP. 0dB at the USB In with sufficient level is the target.

Using the Avia Audio Tool, archival recording of a session with up to 8 microphones can be arranged with each mic assigned to an individual channel in the USB Out section of the matrix. Routing discreet mic channels to the recorder is necessary when post production and mastering is required. If individual mics are not recorded and are assigned to a mix-down 2-channel USB output, there is no future opportunity to sweeten any of the individual audio tracks or to edit a specific track for coughs, unwanted noise, or final levels and processing.

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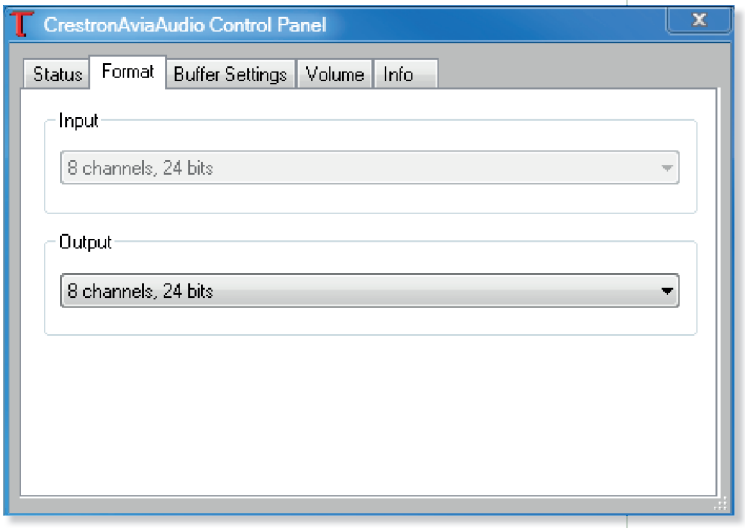
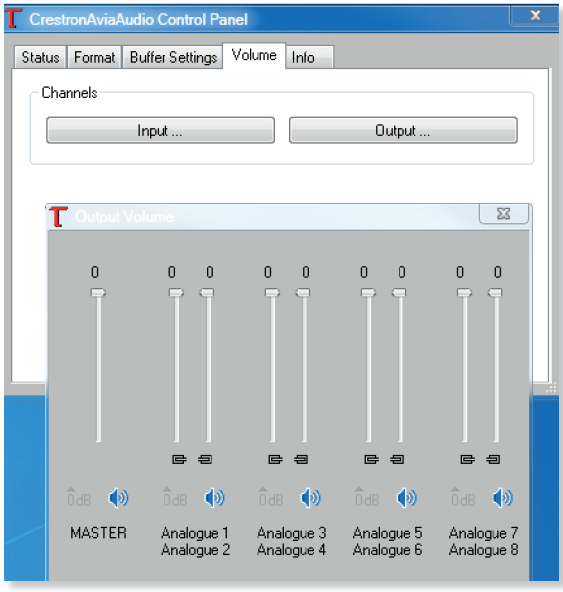


The USB driver includes a control panel for a variety of parameter selections including USB signal levels sending to and returning from the Avia DSP. The default is all channels un-muted with no attenuation.

The Avia USB port accepts 48kHz sample rate with 16 or 24 bit depth. Any third party application connecting to the Avia DSP via USB must use this configuration.

If required, adjust levels in the host PC with the USB driver control panel. Use the Volume tab Input and Output controls for duplex audio control. The default pairing of channels into 4x pairs requires that you un-link them (as shown below) for individual channel operation.



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USB Cables

The USB cable can cause signal distortions and is a potential point of failure in the signal chain. Use a quality cable that is certified for USB 2.0 high-speed communication (480 Mbps). The maximum allowed cable length of 5 meters cannot be exceeded. Cables that include additional functionality such as status LEDs are not reccomended.

USB Extenders

The Crestron USB-EXT-DM extenders can be used to accommodate remote location of the host PC and a single Avia DSP over CAT5e.

USB Hubs

ASIO standards require that all channels are fully synchronized and that all input or output channels are mapped to a single USB isochronous endpoint. If a USB 2.0 hub is used, one connection between the host PC and an Avia DSP is possible.

Crestron RL Systems

Combining an Avia DSP with a Crestron RL system is an option when you need up to 12 microphone inputs and would benefit from the Avia DSP advanced AEC and signal processing features. In these configurations, the DSP can be thought of as the front end audio processor and the RL as the system host and call manager. Using the Windows WDM 2-channel USB driver in the RL system, an Avia DSP can be used for mixed-down 12 mics to 2 USB channels. Once the DSP is connected to RL via USB, the AEC codec in the RL is disabled and the AEC codec in the DSP is used. Standard set up and tuning procedures for the Avia AEC is required including sourcing of the reference channel from the far end room.

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