

# 5501 Series Audio Console

**FOR TECHNICAL SUPPORT CALL 1-877-236-0245**

***For more complete system information see the document  
“5000 Series Audio/Video System Installation & Service Manual”***

Console operating instructions can be found on the sticker on the bottom of the console. For best performance maintain a distance of 3” to 6” from the console microphone. Getting too close to the microphone with too loud of a voice will cause artifacts and/or echo to be heard in the console speaker. The following sections describe some of the console features.

**Membrane Keypad:** The 5501 console incorporates a membrane keypad for improved reliability. While this keypad will have a long life under normal use, to avoid damage to the membrane DO NOT use ink pens, fingernails or other sharp objects to operate the keys. Lane colors show through clear windows in the keypad. Colors can easily be changed by sliding out the lane indicator stick from the edge of the console and changing the colored stickers as required.

**Wireless Headset Support:** The 5501 console has built-in support for wireless headsets (e.g. Plantronics CS50 / CS55). The wireless base unit plugs directly into the phone cable jack on the console located next to the matrix cable jack. This eliminates the need for the 5014 Wireless Interface Adapter. Pressing the WIRELESS key while no lane is selected toggles the unit between console and wireless mode. The console is in wireless mode when the yellow LED next to the wireless key is lit.

**Echo Canceller & Background Noise Cancellation:** When an audio matrix is powered up, or when a teller console is plugged in with power already applied to the matrix, the complete audio system goes through an initialization process indicated by all console lights flashing red several times, turning solid green, and then turning off. During this process each console reads the status of dip switches 7 & 8 from the matrix and their audio processors are set accordingly. The following items describe these switch combinations when used with the 5501 console. Be sure to cycle power to the matrix when changing these switch settings to verify the changes have been made.

Matrix Switch 7 UP.....DYNAMIC Echo Canceller Learning (Factory Setting - Highly Recommended)  
Matrix Switch 7 DOWN.....FIXED Echo Canceller Learning

Echo cancellation works by comparing outgoing and incoming audio using a set of parameters. The echo canceller can have either dynamic or fixed learning. Dynamic learning adjusts for the best possible cancellation setting each time a teller selects a lane. Note that the console has to sample the echo before it can attempt to remove it. For this reason the teller may hear their own voice for the first couple of words or so while “learning” takes place. The learning time is increased as the amount of echo changes such as when speaking to a customer in a small vehicle (not much echo) and then a customer in a panel van (lot’s of echo). Deal drawers are also the most problematic for echo because sound bounces back and forth between the vehicle and the building/window. Another point to consider is that the audio processor will have a much more difficult time canceling echo if it is overdriven. This happens when volume settings are too high or when speaking too close to the microphone. This will also cause undesirable artifacts in the audio that may not clear up until the lane is canceled and then re-selected. Fixed echo canceller learning is not recommended with 5501 series consoles.

**IMPORTANT:** For the audio processor / echo canceller to work properly it is necessary that the lane microphone wire pair be shielded from the matrix to the lane. Connect the drain wire only at the matrix end. If multiple shielded pairs are used, only connect the drain wire from the microphone pair. Also never use cable with just an overall shield. See the audio matrix documentation for more information.

Matrix Switch 8 DOWN.....Background Noise Cancellation ON (Factory Setting)  
Matrix Switch 8 UP.....Background Noise Cancellation OFF

Background noise comes from a variety of sources but the most common are vehicle noise at the customer lane and general traffic noise from a nearby street. The background noise filtering in the 5501 consoles works well to reduce

constant and consistent sounds (i.e. idling vehicles) but has more trouble when the noise is constantly changing, such as traffic noise. This type of noise will generally cause a side effect in the audio processor that most people describe as an under water or gurgling sound. Vehicles sitting in front of a deal drawer have also been known to cause this symptom at some locations due to the sound bouncing between the building and vehicle and this may not occur with all vehicles. The symptom gets worse as the gains on the matrix pots are increased, the volume adjustment on the console is increased, or the level of the background noise increases due to conditions such as heavier traffic or the presence of large trucks. Note that even when this “watery” symptom is present the customer’s voice at the lane is not affected.

Even though background noise cancellation works fine for most installations there are cases it may be preferable to turn it off. If the system is near a busy street for example, the watery sound may be excessive. This could be especially annoying to the tellers if they are leaving a lane selected at all times to hear a customer drive up. Keep in mind that while turning background noise cancellation off will get rid of the “water” sound it will also allow all background noise to be heard, including a noisy vehicle at the lane.

Regardless of the dip switch 8 setting, background noise cancellation can be toggled on or off “on the fly”. On all but the 12 lane version, pressing the Noise Cancel button toggles this feature on (green LED) or off (red LED). With the 12 lane version press the volume up key while no lane is selected to toggle the feature which is indicated by the LED’s for lanes 1 & 3 (green = on & red = off). Changes of this feature made from a console only apply to that particular console and will always revert back to the current setting of dip switch 8 from the matrix whenever the system goes through another initialization process, such as following a momentary power outage. For this reason the technician should select the dip switch setting that corresponds to the most common setting used by the tellers.

**Auto-Greeter Board Support:** The **optional** auto-greeter board allows up to 4 messages to be easily recorded (or re-recorded). Any one of the 4 messages can be set as the “active” message. After a customer presses the call button, selecting that lane from the teller console automatically plays the current active message. This is called the “auto-greeter” feature and is available on all versions of the console. The auto-greeter board also has a “message-player” feature that is available on all consoles except the 12 lane version. The message-player allows any of the first 3 recorded messages to be played at a selected lane at any time by use of function keys labeled F1, F2 & F3 on the console keypad. Complete instructions for installing, programming and using this optional board are packaged with the board (part # 5098KIT) and are also included in the “5000 Series Audio/Video System Installation & Service Manual”.

**IMPORTANT: The main circuit board used in 5501 series consoles has changed to accommodate newer components beginning with version 2.0. The version number is shown with 2 bold numbers below the bar code on the serial number label on the bottom of the console. The EPROM's used in version 2.# consoles are not compatible with earlier versions of consoles and vice versa - do not try to swap these EPROM's. Version 2.# consoles use revision 2.# firmware and version 1.# consoles use revision 1.# firmware. The firmware revision is shown on the serial number label. Note that engineering numbers are shown on the EPROM itself. These numbers differ from the console firmware revision but do begin with the same number, 1 or 2.**

The following changes apply to all 5501 series consoles that have revision 1.1, or 2.# firmware. Those revisions function the same - the only difference is the actual board design as mentioned in bold above.

- \* An acknowledgement beep will occur each time any key is pressed on the keypad.
- \* There will be a significant increase in outgoing volume to the customer lane. This can result in not needing to be quite as close to the console microphone with the same matrix settings.
- \* This firmware supports the latest version of the 5098 Auto-Greeter Board with an ISD1790 chip.

Since consoles with 1.1 or 2.# firmware have much higher outgoing volume than consoles with 1.0 firmware, it is preferable to not mix them on the same system if possible. If mixing consoles is necessary, use the following procedure to adjust the system. Note that the pot mentioned below is initially set at mid range at the factory.

1. Increase the mic sensitivity pot on the revision 1.0 consoles to maximum. This pot is accessible by puncturing the black dot on the label on the bottom of the console. Turn the pot fully counter-clockwise.
2. While using a revision 1.0 console, check the outgoing volume level at each customer lane and re-adjust the speaker gain pots on the matrix as necessary.
3. Reduce the mic sensitivity on the revision 1.1 or 2.# consoles by turning the pot clockwise a little at a time and compare the outgoing volume with the revision 1.0 consoles. The goal is to match the volume from both versions.