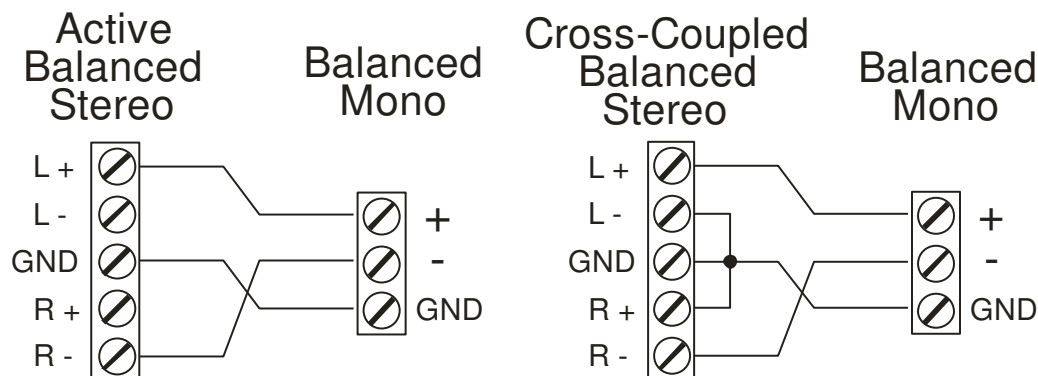


Balanced Stereo to Balanced Mono

Most balanced outputs use an active output design that is not equivalent to a transformer. These outputs typically have a 150 to 200 ohm resistor on the output of an op-amp. If you connect outputs together (L+ R+ and L- R-) or connect an output to ground, you will damage the op-amp over time. Some devices use a cross-coupled output design which simulates a transformer. When using cross-coupled type of outputs, always connect unused outputs to ground. You need to look at the device specifications to determine if they are active or cross-coupled.

Rane has a great article on output connections: <http://www.rane.com/note110.html>

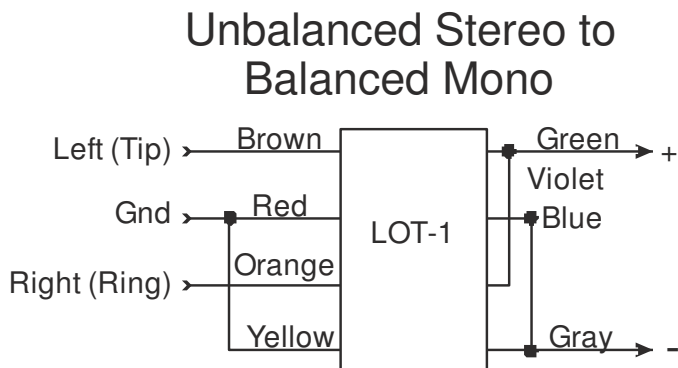
These methods allow you to connect all of your input devices to a matrix switcher in stereo and convert the outputs to balanced mono without using a balanced mixer such as the RDL STD.



Unbalanced Stereo to Balanced Mono

This is a problem that causes all types of audio problems in an installation. You may have a VGA wall plate with a 3.5mm stereo connector while the audio system will only have a balanced mono audio input. It is very common to find that the installer has connected the left (Tip) to the + input and the ring (Ring) to the - input. This often causes the audio to sound strange because you will have mixed the two inputs out of phase, putting it into "karaoke mode". A better solution is to use a special audio transformer to convert the unbalanced stereo to balanced mono. ProCo Sound makes a 300 ohm 1:1 transformer called the LOT-1 which can solve your audio issues.

http://www.tekvox.com/download/LOT-1_specsheet_1006.pdf



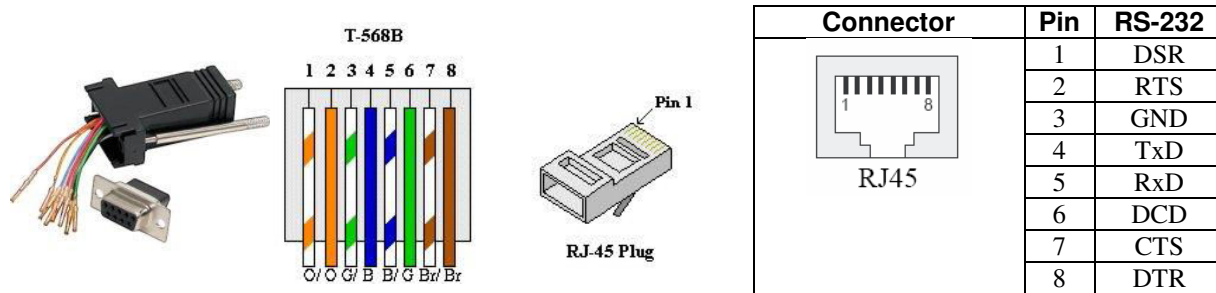
RS232

Correctly wiring the RS232 control cables between the control system and controlled device can often prove to be challenging. Many people try to use store-bought RS232 cables, but control systems such as AMX and Crestron use their DB9 com ports for other applications such as RS422 and RS485.

The best solution to ensuring a proper connection is to find the device transmit wire at the control system. This known as the pin 2 test. Before you connect RS232 devices to the control system, first connect the control cable to the device Pins 2 (Red), 3, (Black) and 5 (Shield). At the control system end of the cable measure the voltage between the Red and Shield wires, followed by the Black and Shield wires. Connect the wire with power (typically 6 volts) to pin 2 of the controller and then connect the other wires to their respective pins. You may find some devices no longer have voltage on their transmit pin and this solution will not work.

Adding Low Cost RS232 Ports to a Control System

Sometimes you won't have enough serial ports and will have to add expansion devices, cards, or step up to the next level of controller. Another issue is having installer solder RS232 connectors. Many installers find it easier to run Cat5 for their RS232 cables and use RJ45 to DB-9 adapters.



With the TEKVOX TekPort <http://www.tekvox.com/downloads/DS-TekPort.pdf>, you can reduce your control system cost and simplify your installation. The TekPort basically adds 8 or 16 serial ports over a single LAN connection. Since the RS232 ports on the TekPort use RJ45 type connectors, the controller end of the serial connection can remain as RJ45 while the device end uses a RJ45 to DB-9 adapter.

Since the connection is already made to the controller, you will need to find the transmit pin on the device. The transmit pin on the device will have about 6 volts on it to ground. Using the connector from <http://www.pccables.com/01910.htm> connect Red to the RX, Green to TX, and Black to Pin 5. All of the other wires should be isolated with tape or cut.

Combining Two RS232 Transmitters Together

You may come across a situation where you have two controllers and you need to control one device. For example; you have two Extron MediaLinks to operate two projectors and you need to control a video switcher. By adding this diode circuit, you will be able to control a single device with two separate RS232 outputs. This method only works for one way serial communications.

