

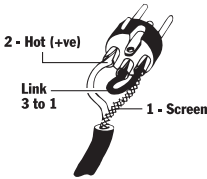


# WIRING & CONNECTORS

Faulty connectors and cabling are some of the most frequent sources of noise and poor sounding systems. The following section should help you connect your system correctly. It's also worth spending a little time referring to all of your user manuals, as wiring conventions can vary between manufacturers - see diagrams.

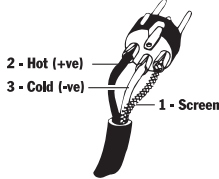
## BALANCED AND UNBALANCED MIC INPUTS

FIG. 7.1



UNBALANCED INPUT

FIG. 7.2



BALANCED INPUT

Spirit uses XLR sockets for its balanced mic inputs. The wiring convention for XLRs is: Pin 1 - Shield, Pin 2 - Hot (+ve) and Pin 3 - Cold (-ve).

Balancing is a method of audio connection which cancels any interference in a signal, to give low noise operation. This is achieved by using a 2-conductor mic cable, usually surrounded by a shield, in which the 'hot' and 'cold' signals are opposite polarity. Any interference picked up will be of the same polarity on both hot and cold wires and will be rejected by the mic input's Difference Amplifier. You may use unbalanced sources when wired as shown. However, do not use unbalanced sources with Phantom Power switched on. The voltage on Pins 2 & 3 of the XLR connector may cause serious damage.

## BALANCED AND UNBALANCED LINE INPUTS

Line inputs accept 'A' Gauge, 3-pole (Tip, Ring, Sleeve) 1/4 inch jack wired as shown in Fig. 7.3.

FIG. 7.3

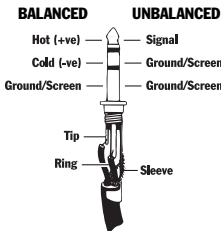
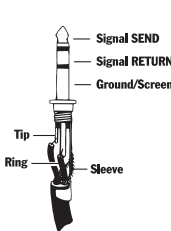


FIG. 7.4



Note that for unbalanced operation the screen of the cable is wired to both the Ring and the Sleeve of the jack.



## INSERTS

A Mixer insert point is a single, 'A' Gauge, 3-pole (stereo), switched jack socket (not unlike the headphone socket on a hi-fi amplifier). When a 3-pole jack is inserted the signal path is interrupted. The signal is taken out of the mixer via the plug tip, through an external piece of equipment and then back to the mixer on the ring of the plug. A special Y-cord is required which has the stereo jack at one end and two mono jacks, for the processor's input and output, at the other. See Fig. 7.4.

## GROUND COMPENSATED OUTPUTS

Ground compensated outputs may, to all intents and purposes, be treated as balanced outputs. Ground compensation helps avoid hum loops when the console is feeding into an unbalanced piece of equipment. Essentially, the Ground Compensated output has three connections, much like a conventional balanced output, except that the pin normally designated 'cold' acts as a 'ground sense' line enabling it to sense and cancel any ground hum present at the output.

The convention for XLRs is: Pin 1 - Shield, Pin 2 - Hot, Pin 3 -

BALANCED CONNECTION

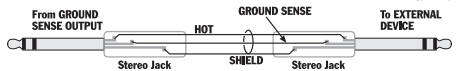


FIG. 7.5

UNBALANCED CONNECTION

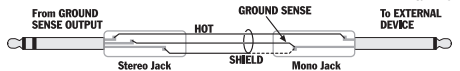


FIG. 7.6

Ground Sense. For jacks, the wiring convention is: Tip - Hot, Ring - Ground Sense, Sleeve - Shield.

For use with balanced destinations, the Ground Sense output may be treated as 'cold' allowing the connection to be made normally. Where the destination has an unbalanced jack input, a two-core (balanced-type) lead should be made up as shown. Unbalanced jacks may also be plugged directly into Ground Compensated Output jack sockets, but the benefit of hum rejection will be lost.

## IMPEDANCE BALANCED OUTPUTS

Impedance Balanced Outputs are configured as normal balanced outputs: Pin 1 - Shield, Pin 2 - Hot (+ve) and Pin 3 - Cold (-ve). See Fig. 7.2.

Impedance Balanced Outputs work on the principle that hot and cold terminals have the same resistance. When impedance balanced outputs are used with a balanced input, good rejection is achieved for both common-mode ground voltages and electrostatic interference.

Note: The cold terminal can be either shorted to ground locally or left open-circuit for balanced and unbalanced operation.