



Connectors and Cables

All audio connections are made via Cannon 96-way 'DL' connectors with up to 32 balanced circuits per connector. Transport remotes are made to 25-way D-type connectors and connections to the computer use 50-way ribbon connectors (prefix 'S'). There are special connectors for power, video (prefix 'B') and timecode (9-way D-type) feeds. The diagram opposite shows details of rack to console connections.

All connectors required to connect the console to external devices and circuits are shipped together with wiring lists, DL tools, computer and power supply cables, approximately one month prior to delivery of the console to enable installation planning and prewiring to be carried out by the project leaders.

For consoles with an integral patchbay, cables are terminated on a connector panel positioned directly under the patchbay. If the patchbay is fitted in a wing, connections are normally made to a panel fitted in the wing directly below the patch.

G Series Computer and Power Cables for SL 4000 Systems

The following cables are typically required:

- One 50-way ribbon cable for each group of eight modules, carrying fader automation and Total Recall information
- One 50-way ribbon cable carrying keyboard and multitrack remote and Total Recall information
- One 50-way ribbon cable for the main fader and the eight VCA faders, carrying automation information
- One 50-way ribbon cable for the Patchable VCA section carrying fader automation information
- One cable carrying SMPTE to and from the console jackfield
- Two cables which carry power for the console (+18V, -18V, +11V and +48V) together with power for the bargraph displays if these are fitted)
- One cable carrying composite video and power for the in-built 5" monochrome video monitor
- Ultimation Audio Power Supply cable to console
- Ultimation Motor Power Supply cables to console (1 per 8 channels + 2 for console centre section)

Cables for additional options are detailed in the appropriate sections of this manual.

Cable Lengths

Maximum cables length restrictions are as follows:

- Power Supply to Console cable length: 10 metres / 15 metres (Max 15m)
- Computer to Console cable length: 10 metres / 15 metres (Max 15m)
- Floppy Disk Drive cable length: 2 metres / 6 metres (Max 6m)

Console to Rack Connections - Introduction

All of the required connections between the console and the rack are detailed on the following pages. The console connector panel and the computer rear panel are shown opposite (upper and lower pictures respectively). Note that both of these panels may vary in some degree from those shown opposite, but that connector designations are generally the same throughout. Also, depending upon the configuration of a particular console, some connectors on these panels may not be fitted.

Automation Data Connections

Automation data is transferred between the console and computer via 50-way ribbon cables (designated S14E). The following console controls are affected by these connections:

- Channel Faders
- VCA Group Faders
- Patchable VCAs
- Master Faders
- Joysticks
- Programmable EQs

Single and Dual I/O Systems

Depending upon the size of the console, a Single or Dual I/O System will be used. As these names imply, in a Single I/O System the computer is fitted with one Analogue Input Card and one Analogue Output Card; in a Dual I/O System the computer is fitted with two Analogue Input Cards and two Analogue Output Cards. Generally, consoles of up to 56 channels use Single I/O, consoles of more than 56 channels, or smaller consoles with Programmable Equalisers, use Dual I/O.

Standard and Custom Connection Modes

Two connection modes – **Standard Mode** and **Custom Mode** – are available; the mode used is determined by the size and type of console. **Standard Mode** originated in the E-Series console range, and is used only in consoles without ‘advanced functions’, such as Ultimation or Joysticks. **Custom Mode** is used specifically in consoles incorporating these ‘advanced functions’. The tables below show typical examples of the two modes:

G-Series/Ultimation Single I/O Connection Method

Connector No.	Function	Connector No.	Function
1	Faders 1-8	5	Faders 33-40
2	Faders 9-16	6	VCA Groups + Master Fader
3	Faders 17-24	7	Faders 41-48
4	Faders 25-32	8	Faders 49-56

Standard Dual I/O Connection Method

Connector No.	Function	Connector No.	Function
1	Faders 1-8	9	Faders 49-56, J2/1 †
2	Faders 9-16	10	Faders 57-64, J3/1 †
3	Faders 17-24	11	Faders 65-72, J1/2 †
4	Faders 25-32	12	Faders 73-80, J2/2 †
5	Faders 33-40	13	Faders 81-88, J3/2 †
6	VCA Groups + Master Fader	14	Faders 41-48, J1/1 †
7	<i>Never Used in Standard Mode</i>	15	<i>Never Used in Standard Mode</i>
8	<i>Never Used in Standard Mode</i>	16	<i>Never Used in Standard Mode</i>

Connection rules and recommendations are outlined overleaf.

†: These refer to the connection of Programmable EQs in ‘non-Ultimation’ consoles.

Connection Details

At the computer, connections are made via the sixteen 50-way **FADERS** connectors. One 50-way ribbon cable is required for each group of 8 channel or group faders, 8 VCAs, or pair of joysticks. Each computer has a 'Fader Map' diagram, located inside the computer rear panel, showing the connections for that particular system. An example (for a console wired in **Custom Mode**) is shown opposite.

9	FADERS 33-40	1	FADERS 1-8
10	FADERS 41-48	2	FADERS 9-16
11	FADERS 49-56	3	FADERS 17-24
12	FADERS 57-64	4	VCA GROUPS 1-8
13		5	FADERS 25-32
14		6	
15		7	
16		8	

Analogue Input cards in Dual I/O systems are scanned in parallel, so channels 1 and 66, 2 and 67 etc. are read at the same time. Scanning of each card continues until the highest assigned channel for that card has been read. A card with no active channels will not be read at all. The Analogue Output cards are written to in the same way.

- For the most efficient scanning with two cards (Dual I/O), there should be no gaps between used channels, and both cards should be filled as evenly as possible from the top. Gaps will not prevent the system from working, but will mean that time is wasted scanning unused channels.

Standard Mode

The maximum number of channels for a Standard Mode Dual I/O system is 88.

- Most G Series systems without Ultimation using Dual I/O are connected as in 'Standard Dual I/O' shown above. For smaller consoles, note that Single I/O Standard and Custom configurations are identical.
- E Series consoles with G Series computer upgrades always use Standard Mode.

Custom Mode

- Single objects can generally occupy any physical channel. Objects requiring multiple channels may necessitate a different layout from Standard Mode (see below). The maximum number of channels for a Dual I/O system running in Custom Mode is 128.
- Dual I/O Ultimation systems are connected so as to balance the number of faders etc. as evenly as possible between the two sets of I/O cards. In this case, all sixteen connectors may be used, and a 'Custom Console Configuration' (see below) must then be carried out. VCA Groups may be connected in positions 2, 4 or 6 and any Programmable Equaliser must use three consecutive connectors.
- Patchable VCA faders are always connected in the next available slot after the last of the channel faders.
- J1/1, J2/1 etc. indicate connectors for up to two Programmable Equalisers.

Adding Additional Channels, Changing the Console Configuration

- Where additional channels are being fitted to a currently empty console bay, or where additional options (see below) are being installed, minor hardware changes and alterations to the computer setup may be required. For further details, consult the G-Series Computer Maintenance Manual; if in any doubt, contact SSL Service Department.

Additional Options

- **Programmable Equalisers** For 'non-Ultimation' consoles, connection is made to three 50-way **FADER** connectors per set, as shown in the table on Page 25. Three adjacent channels (consecutive connectors) must be used, and these three channels must all be on the same card. For Ultimation consoles, connection is instead made to three 622366E1 Ultimation Interface Cards (see Page 31). For 'non-Ultimation' consoles, connections are made as shown in the table on Page 25.
- **Joysticks** For 'non-Ultimation' consoles, connection is made to one 50-way **FADER** connector per pair. For Ultimation consoles, connection is instead made to a 622366E1 Ultimation Interface Card (see Page 31).