

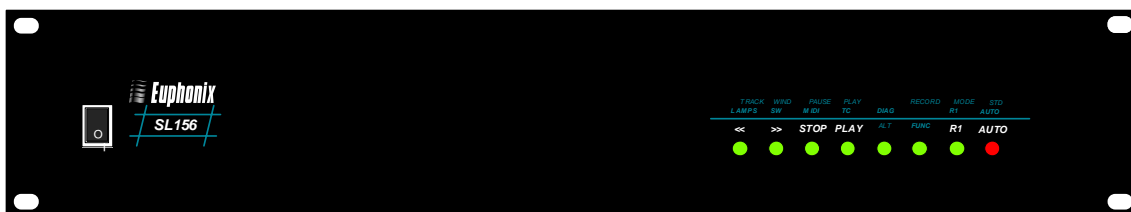


SL156 STUDIO LINK

R1 - LARGE FORMAT CONSOLE INTERFACE

PRELIMINARY MANUAL

Revision 9 Compatible with v0.9a Software - Friday, 18 January 2002



CONTENTS

CONTENTS	1
SECTION 1 FEATURE LIST	2
TRANSPORT CONTROL FROM SSL OR NEVE TRANSPORTS	2
48 TRACK RECORD READY ARMING AND TALLIES FROM SSL	2
DIRECT CUE CONTROL FROM SSL AUTOMATION SYSTEM - INSTANT LOCATES	2
DIRECT CUE CONTROL FROM NEVE FLYING FADERS - INSTANT LOCATES	2
SELECT R1 OR STANDARD MACHINE WITH NO PATHCHING	2
SECTION 2 FRONT & REAR PANELS	3
SL156 FRONT PANEL	3
SL156 REAR PANEL	3
SECTION 3 TRANSPORT REMOTE FUNCTIONS	4
<i>Normal Key functions:</i>	4
<i>Additional Key functions:</i>	4
<i>Additional Lamp functions:</i>	4
SECTION 4 FRONT PANEL OPTIONS	5
NORMAL OPERATION MODE	5
FUNCTION MODE	6
ALTERNATIVE MODE	7
SECTION 5 SSL™ G SERIES COMPUTER SETUP	8
SSL PROGRAM DISK SETUP	8
SSL HARDWARE SETUP	10
<i>Console Remote S29 - 25 way D Type Male.</i>	10
<i>D1 DL41 TRACKS 1-24, D2 DL42 TRACKS 25-48 - 50 way D Type Female.</i>	10
<i>P LINK s88 - 25 way D Type Male.</i>	10
<i>CONSOLE TC - XLR Male, R1 TC - XLR Female.</i>	10
<i>R1 LINK - 9 way D Type Female.</i>	10
SECTION 6 NEVE™ FLYING FADERS COMPUTER SETUP	11
NEVE PROGRAM DISK SETUP	11
SSL HARDWARE SETUP	11
<i>Console Remote S29 - 25 way D Type Male.</i>	11
<i>N LINK - 9 way D Type Male.</i>	11
N LINK Cable	11
<i>CONSOLE TC - XLR Male, R1 TC - XLR Female.</i>	11
<i>R1 LINK - 9 way D Type Female.</i>	11
SECTION 9 CONNECTOR PINOUTS	12
EXT REMOTE S29 - 25 WAY D TYPE FEMALE.	12
CONSOLE REMOTE S29 - 25 WAY D TYPE MALE.	12
P LINK s88 - 25 WAY D TYPE FEMALE.	12
D1 & D2 - 50 WAY D TYPE FEMALE.	12
CONSOLE TC - XLR MALE.	13
EXT TC - XLR FEMALE.	13
R1 TC - XLR FEMALE.	13
R1 LINK - 9 WAY D TYPE FEMALE.	13
N LINK - 9 WAY D TYPE FEMALE.	13
MIDI IN – 5 WAY DIN FEMALE.	13
MIDI THRU – 5 WAY DIN FEMALE.	13
MIDI OUT – 5 WAY DIN FEMALE.	13
SECTION 10 SPEC SHEET	14
INS & OUTS:	14
MECHANICAL:	14
POWER:	14
APPENDIX A R1 TO CONSOLE CHART	15
THIS CHART IS TO HELP PICK THE CORRECT CONFIGURATION FOR AN R1 + SL156	15

SECTION 1 FEATURE LIST

TRANSPORT CONTROL FROM SSL OR NEVE TRANSPORTS

A 25 way connector takes transport keys and lamp tallies to and from the **R1**, for the console user. This connector is the SSL standard that also provides "TACH" & "DIRECTION" for the SSL G SERIES COMPUTER.

The lamp tally drivers are 24V. (SSL desks are fitted with 36V bulbs, for "longer life")

48 TRACK RECORD READY ARMING AND TALLIES FROM SSL

Two 96 way DL connectors match to the SSL DL patch under the 4000, 6000, 8000 & G series desks, connecting the Record Ready signals. These two connectors take 24 READY Key and Lamp tallies each to and from the **R1**.

The Lamp tally drivers are 24V. (SSL desks use opto-isolators to read the tally signals)

DIRECT CUE CONTROL FROM SSL AUTOMATION SYSTEM - INSTANT LOCATES

A 25 way connector links to the SSL parallel card, that (in the past) provided synchroniser support for the long defunct SSL Z8 machine control package.

With this port enabled the SSL G SERIES COMPUTER is able to issue Locate / Cue commands and set offsets, as well as receiving position and lock information. Unfortunately the SSL still requires "TACH" & "DIRECTION"

The connection is via an 8 bit bi-directional parallel port (with handshaking) running at 5V. This limits dramatically the safe cable length of this connection.

The Timeline and Motionworks companies have used this connection to provide LYNX and other synchroniser support for the SSL G SERIES COMPUTER.

DIRECT CUE CONTROL FROM NEVE FLYING FADERS - INSTANT LOCATES

A 9 way RS232 port links to the NEVE FLYING FADERS COMPUTER which "simulates" an Adams-Smith 2600 synchroniser Serial Interface module.

This port allows the NEVE FLYING FADERS COMPUTER to be able to issue Locate / Cue, Cycle and some direct transport commands.

The Motionworks company has used this connection to provide LYNX and other synchroniser support for the NEVE FLYING FADERS COMPUTER.

SELECT R1 OR STANDARD MACHINE WITH NO PATHCHING

A 25 way connector also provides for a standard machine (already interfaced to the console) to be swapped in place of the **R1**.

This allows for going back to a "2 inch" session with no rewiring. This feature provides instant swapping between the **R1** and any parallel controlled tape machine.

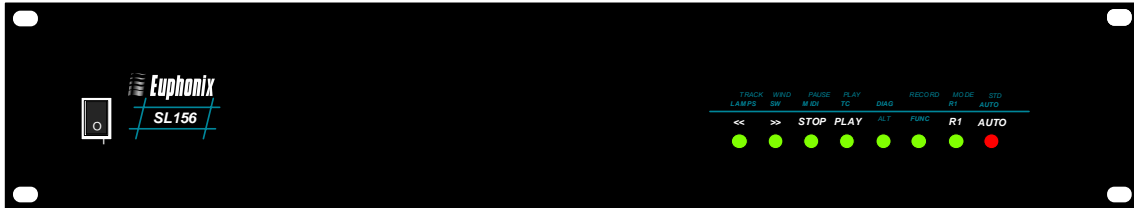
The connector is "hard" switched to the Transport Control connector via relays.

The choice between machines can be controlled directly from the SSL G SERIES COMPUTER.

SECTION 2 FRONT & REAR PANELS

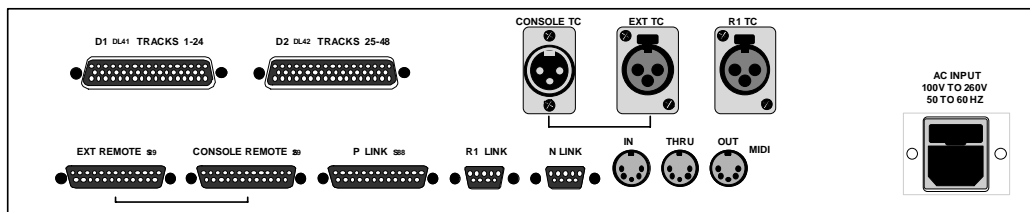
SL156 FRONT PANEL

This is a very simple panel that allows for "activity" indicators and simple transport control (mainly for test purposes).



SL156 REAR PANEL

Providing access to all connectors.






SECTION 3 TRANSPORT REMOTE FUNCTIONS















NORMAL KEY FUNCTIONS:

The transport key and LAMPS      perform their normal functions.







ADDITIONAL KEY FUNCTIONS:

The SL156 provides an exact copy of mechanical transport actions i.e. all keys react to on and off actions e.g. with the  key held down the  key will put the R1 into play, as soon as the  key is released the R1 will go back to stop.

There are some additional combinations from the remote keys that provide some additional functions, without any compromise to normal use and reliability.





- ❑ Pressing  and then holding  down puts the R1 into half speed shuttle forward. If  is then released first, the R1 will stay in this mode.
- ❑ Pressing  and then holding  down puts the R1 into half speed shuttle reverse. If  is then released first, the R1 will stay in this mode.
- ❑ Pressing  and  puts the R1 into reverse play.
- ❑ The  and  keys provides two ways of fast forward, these two modes are set from via the front panel. (see **Alternative Mode**)
 1. In normal (default) mode pressing  or  puts the R1 into fast forward / rewind.
 2. In the alternative mode pressing  or  the first time puts the R1 into 8 x play speed forward wind. The second time 16 x play speed.

ADDITIONAL LAMP FUNCTIONS:









- ❑ The  LAMP flashes if the R1 is in play but no timecode is being read – this function can be changed via the front panel (see below).
- ❑ The  LAMP flashes with  or  to indicate slow wind, shuttle or jog.
- ❑ The  LAMP flashes with a solid  to indicate reverse play.

SECTION 4 FRONT PANEL OPTIONS

NORMAL OPERATION MODE

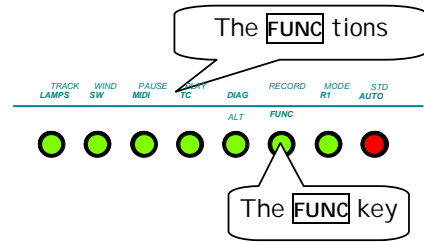
The transport key and LEDs     perform their normal functions.



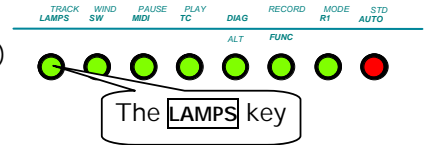
- ❑ The  LED flashes if the R1 is in play but no timecode is being.
- ❑ The  LED flashes with  or  to indicate slow wind, shuttle or jog.
- ❑ The  key selects the **FUNCTION MODE** (*see below*).
- ❑ The  key selects the **ALTERNATIVE MODE** (*see below*).
- ❑ The  key selects between the R1 and EXTERNAL machine. If the R1 is selected the LED flashes to indicate no communication.
- ❑ The  LED flashes to indicate no communication with the automation system.

FUNCTION MODE

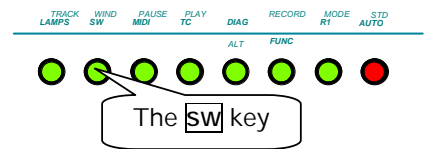
By pressing the **FUNC** key the row of bold blue functions are enabled.



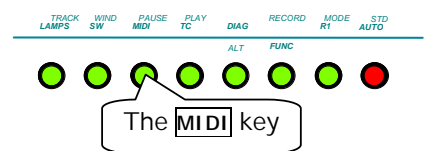
- ❑ **LAMPS** this key puts the unit into lamp test mode – the unit cycles through all 24V lamps (Record Ready and Transport) on and off. This is a good way of ratifying that cables to the console are functioning.



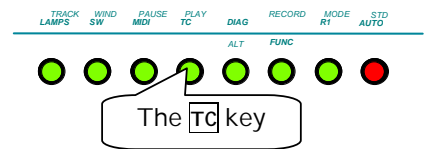
- ❑ **SW** this key puts the unit into switch test mode – the unit waits for a switch closure and toggles the corresponding lamp. This test is only useful after the lamp test has been conducted successfully. *(not available)*



- ❑ **MIDI** this key puts the unit into MIDI test mode - the unit transmits a MIDI message stream and lights the **SL156** front panel **STOP** LED if the MIDI message is received. **MIDI** mode allows the unit's MIDI IN/OUT to be tested.



- ❑ **TC** this key puts the unit into timecode mode - the unit reads timecode and lights the **SL156** front panel **PLAY** LED if code is found on the R1 TC XLR. The unit sends out play speed timecode from 00:00:00.00 on the **CONSOLE TC** XLR as soon as this mode is enabled. **TC** mode allows the unit's timecode functions to be tested independently.



- ❑ **DIAG** this key enables the **LAMPS** function to cycle all 24V **LAMPS** together - this is rather an aggressive way of testing.

- ❑ **R1** key function... *(not available)*

- ❑ **AUTO** this key puts the unit into P-LINK S88 PORT test mode - the unit continually swaps the direction of the data and handshaking lines to test that each bit can read and write. **This test requires a special 25 way D cable and should not be used when the P-LINK is in use with an SSL computer.**

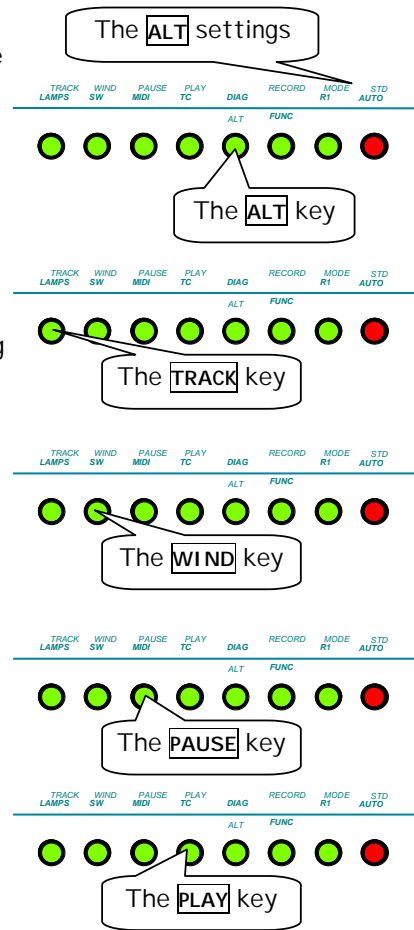
Cable details - 25 way D Male, cross-connected as follows:

1	-----	5
14	-----	7
2	-----	8
15	-----	13

ALTERNATIVE MODE

By pressing (and holding down) the **ALT** key the top row of blue settings are displayed. These settings may be altered only, while the **ALT** key is held down.

- ❑ **TRACK** setting - when the LED is ON, the SL156 controls track arming using the "3324" method (as used by the R1). When the LED is OFF, the SL156 controls track arming using the "Radar" method.
- ❑ **WIND** setting- when the LED is ON, the SL156 uses the R1 ballistics with **<<** and **>>**. When the LED is OFF, the SL156 uses three set wind speeds. (see SECTION 4 TRANSPORT REMOTE FUNCTIONS)
- ❑ **PAUSE** setting - when the LED is ON a **PAUSE(P2)** command is issued in stop, when the LED is OFF a **STOP(P2)** command is issued in stop.
- ❑ **PLAY** setting - when the LED is ON, the **PLAY** lamp will flash when there's no timecode present in play, when the LED is OFF the **PLAY** lamp stays solid always in play. Note: the SL156 front panel **PLAY** LED always flashes when there's no timecode present in play.
- ❑ **RECORD** setting... (no function defined yet)
- ❑ **MODE** setting - follows the **TRACK** state at present.
- ❑ **STD** setting - when the LED is ON, the SSL G SERIES COMPUTER protocol and **P LINK** are enabled, when the LED is OFF the NEVE FLYING FADERS COMPUTER protocol and **N LINK** are enabled.



SECTION 5 SSL™ G SERIES COMPUTER SETUP

SSL PROGRAM DISK SETUP

To run the Studio Link 156 with an SSL G SERIES COMPUTER, certain parameters need to be set up on the G computer.

It is essential to make a copy of the current (in use) program disk, so that all previous options are backed up.

On the G series keyboard:

- Boot program (BEGIN)

- Setup Program Disk options

Password = SSL [EXECUTE] 4100
 [SETUP] [EXECUTE]
 # = System Menu -----

Synchroniser Controller		1
Master Transport Selector		Yes

[END] [END] [END]

- Reboot program

BEGIN [EXECUTE]

- Setup SYNC

[SETUP] [EXECUTE]
 M = Maintenance Menu
 [SYNC]
 I = Synchroniser Interface -----

Z8 Interface no		2
-----------------	--	---

[END]

[SETUP] = Machine set-up. -----

A		R1		16
B		External		1?
C				
D				
E				

[END]

[SYNC] = Synchroniser set-up. -----

Maximum number of masters		2
Offsets can be read from synchronizer		Yes
Single machine mode		No
Timecode generation		No

[END]

S = Misc. sync options -----

Time to wait for synchroniser		5.00
Play to park		No
Play to park roll time		0.00
Film machine drop-out option		No

[END] [END] [END]

❑ Setup TAPE MACHINE

[SETUP] [EXECUTE]
 M = Maintenance Menu
 T = Tape Machines Details
 select a machine "spare" 16 ?? [EXECUTE] ----

Autolocate type	3
Autolocate decision interval	0.02
Forward direction sense (L/H)	LOW
Multi play speeds (Y/N/S)?	NO
Pulses/second at std. speed	FRAME
Target window	0.00
Drop-out command type	1
Drop-in command type	1
Time for machine to startup	1.00
Time before sure tape stopped	0.05
Pessimism factor (fwd)	10
Pessimism factor (bkwd)	10
Short locate time (secs)	1
Max stopping distance	2
Frames to stop from play	0.10
Frame jog card fitted	NO

[END] [END] [END]

❑ Setup Timecode

[SETUP] [EXECUTE] More?
 Y = Yes
 S = This Session -----

Timecode frames per second	--
Using dropframe	--
Using VITC?	YES
Display time(T) or feet(F)	--
Display frames	--
Runup (preroll) time	--
...	

[END]

[SYNC] = Sync options -----

Synchroniser in use	YES
Resolve master machine	NO
Slow lock mode	NO
Group locates	NO

[END] [END] [END]

Some of these parameters will be different, depending on the particular installation. Some others maybe different because of engineer preference, these are indicated with "--" in the appropriate menus.

Not all of the tape machine parameters are fully understood (by SSL or us) and may require additional modification to get the best performance from the system.

- ❑ **AM** - to select the **R1** from the SSL type **AM** this selects the "A" machine as the master, enabling the **R1**. Then type **[SYNC] ON** to allow the SSL G SERIES COMPUTER to use the Z8 port.
- ❑ **BM** - to select **EXT** from the SSL type **BM** this selects the "B" machine as the master, enabling the **EXT** machine. Then type **[SYNC] OFF** to allow the SSL G SERIES COMPUTER to be able to locate the **EXT** machine normally.

SSL HARDWARE SETUP

CONSOLE REMOTE S29 – 25 WAY D TYPE MALE.

A 25 way D connector takes Transport Key and Lamp tallies to and from the **R1** for the console user, this connects to the Console Remote connector on the SSL patch under the 4000, 6000, G series desks. This connector is the SSL standard that also provides "TACH" & "DIRECTION" for the SSL G SERIES COMPUTER. The Lamp tally drivers are 24V.

D1 DL41 TRACKS 1-24, D2 DL42 TRACKS 25-48 – 50 WAY D TYPE FEMALE.

The two (2) 50 way D connectors provide the 48 Record Ready signals these connect to two 96 way DL connectors (DL41 & DL42) on the SSL DL patch under the 4000, 6000, 8000 & G series desks. Connecting to the Record Ready signals.

These two connectors take 24 READY Key and Lamp tallies each to and from the **R1**.

The Lamp tally drivers are 24V.

P LINK s88 – 25 WAY D TYPE MALE.

This is connected to the S88 connector, a 26 way ribbon on an optional card (**Z8 COMMUNICATIONS CARD**) in the SSL G SERIES COMPUTER.

With this port enabled, the SSL G SERIES COMPUTER is able to issue Locate / Cue commands, as well as receiving position and lock information. This is an 8 bit bi-directional parallel port (with handshaking) running at 5V.

If this connection is made and the software is set-up the **AUTO LED** on the **SL156** will go solid. Flashing indicates no (or intermittent) connection. Note that during some operations the SSL stops "talking" on this port so the odd flash maybe seen.

CONSOLE TC – XLR MALE, R1 TC – XLR FEMALE.

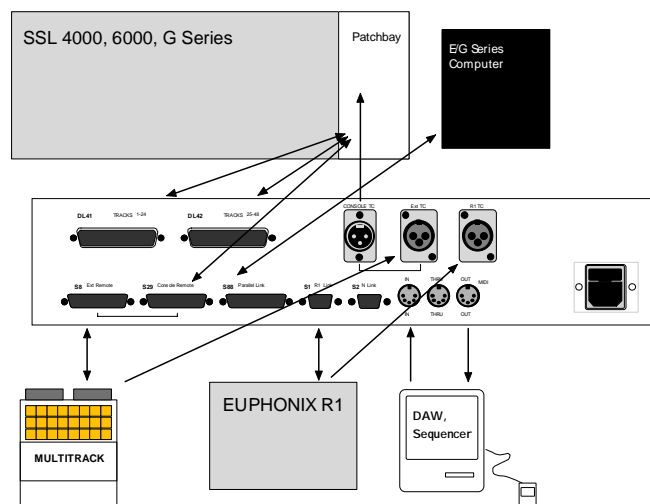
The timecode out of the **R1** is connected to the **R1 TC** female XLR. The male XLR (**CONSOLE TC**) goes to the SSL SMPTE READER via the patch.

If the **R1** is in play, the **PLAY LED** on the **SL156** will go solid. Flashing indicates no timecode.

R1 LINK – 9 WAY D TYPE FEMALE.

This is connected to the **R1 Studio Hub** (CONTROL 9 WAY D TYPE FEMALE). This controls the **R1**.

If the **R1** is connected and communicating the **R1 PLAY LED** on the **SL156** will go solid. Flashing indicates no communication.



SECTION 6 NEVE™ FLYING FADERS COMPUTER SETUP

NEVE PROGRAM DISK SETUP

To run the Studio Link 156 with a NEVE FLYING FADERS COMPUTER, the transport control needs to be enabled and the **SL156** connected to the NEVE FLYING FADERS COMPUTER.

That's about all you have to do.

SSL HARDWARE SETUP

CONSOLE REMOTE S29 - 25 WAY D TYPE MALE.

A 25 way D connector takes Transport Key and Lamp tallies to and from the **R1** for the console user, this connects to the Console Remote connector on the NEVE FLYING FADERS COMPUTER.

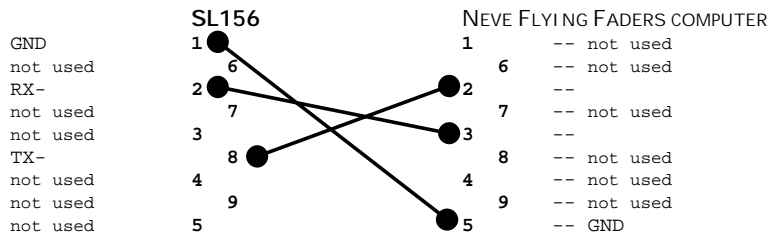
N LINK - 9 WAY D TYPE MALE.

This is connected to the NEVE FLYING FADERS COMPUTER.

This port enables the NEVE FLYING FADERS COMPUTER to be able to issue Locate / Cue commands, as well as receiving position and lock information. This is an RS232 serial port running at 9600 BAUD.

If this connection is made and the software is set-up the AUTO LED on the **SL156** should go solid. Flashing indicates no (or intermittent) connection. The odd flash is not unusual.

N LINK Cable



SL156 N Link to NEVE FLYING FADERS COMPUTER cable is: pin 1 to 5, pin 2 to 3, pin 8 to 2.

CONSOLE TC - XLR MALE, R1 TC - XLR FEMALE.

The timecode out of the **R1** is connected to the **R1** TC female XLR. The male XLR (CONSOLE TC) goes to the NEVE FLYING FADERS COMPUTER.

If the **R1** is in play, the PLAY LED on the **SL156** will go solid. Flashing indicates no timecode.

R1 LINK - 9 WAY D TYPE FEMALE.

This is connected to the **R1 Studio Hub** (CONTROL 9 WAY D TYPE FEMALE). This controls the **R1**.

If the **R1** is connected and communicating the **R1** PLAY LED on the **SL156** will go solid. Flashing indicates no communication.

SECTION 9 CONNECTOR PINOUTS

EXT REMOTE S29 - 25 WAY D TYPE FEMALE.

1	-- not connected
14	-- not connected
2	-- LAMP COMMON
15	-- SWITCH COMMON
3	-- SWITCH RWD
16	-- LAMP RWD
4	-- SWITCH FWD
17	-- LAMP FWD
5	-- SWITCH STOP
18	-- LAMP STOP
6	-- SWITCH PLAY
19	-- LAMP PLAY
7	-- not connected
20	-- not connected
8	-- SWITCH RECORD
21	-- LAMP RECORD
9	-- TACH 1
22	-- TACH 2
10	-- DIR 1
23	-- DIR 2
11	-- not connected
24	-- not connected
12	-- not connected
25	-- not connected
13	-- not connected

CONSOLE REMOTE S29 - 25 WAY D TYPE MALE.

1	-- not connected
14	-- not connected
2	-- LAMP COMMON
15	-- SWITCH COMMON
3	-- SWITCH RWD
16	-- LAMP RWD
4	-- SWITCH FWD
17	-- LAMP FWD
5	-- SWITCH STOP
18	-- LAMP STOP
6	-- SWITCH PLAY
19	-- LAMP PLAY
7	-- not connected
20	-- not connected
8	-- SWITCH RECORD
21	-- LAMP RECORD
9	-- TACH 1
22	-- TACH 2
10	-- DIR 1
23	-- DIR 2
11	-- not connected
24	-- not connected
12	-- not connected
25	-- not connected
13	-- not connected

P LINK s88 - 25 WAY D TYPE FEMALE.

1	-- DATA 0
14	-- DATA 1
2	-- DATA 2
15	-- DATA 3
3	-- DATA 4
16	-- DATA 5
4	-- DATA 6
17	-- DATA 7
5	-- SSL OUT
18	-- not connected
6	-- not connected
19	-- not connected
7	-- SSL IN
20	-- not connected
8	-- SSL INT
21	-- not connected
9	-- not connected
22	-- not connected
10	-- not connected
23	-- not connected
11	-- 0V
24	-- 0V
12	-- not connected
25	-- not connected
13	-- SSL RST

D1 & D2 - 50 WAY D TYPE FEMALE.

1	34	--
18	--	--
2	35	--
19	--	--
3	36	--
20	--	--
4	37	--
21	--	--
5	38	--
22	--	--
6	39	--
23	--	--
7	40	--
24	--	--
8	41	--
25	--	--
9	42	--
26	--	--
10	43	--
27	--	--
11	44	--
28	--	--
12	45	--
29	--	--
13	46	--
30	--	--
14	47	--
31	--	--
15	48	--
32	--	--
16	49	--
33	--	--
17	50	--

CONSOLE TC - XLR MALE.

1 -- GND
2 -- TC+
3 -- TC-

EXT TC - XLR FEMALE.

1 -- GND
2 -- TC+
3 -- TC-

R1 TC - XLR FEMALE.

1 -- GND
2 -- TC+
3 -- TC-

R1 LINK - 9 WAY D TYPE FEMALE.

1 -- GND
6 -- GND
2 -- RX-
7 -- RX+
3 -- TX+
8 -- TX-
4 -- GND
9 -- GND
5 -- not connected

N LINK - 9 WAY D TYPE FEMALE.

1 -- GND
6 -- GND
2 -- RX-
7 -- RX+
3 -- TX+
8 -- TX-
4 -- GND
9 -- GND
5 -- not connected

MIDI IN - 5 WAY DIN FEMALE.

1 -- not connected
2 -- not connected
3 -- not connected
4 -- RX+
5 -- RX-

MIDI THRU - 5 WAY DIN FEMALE.

1 -- not connected
2 -- GND
3 -- not connected
4 -- TX+
5 -- TX-

MIDI OUT - 5 WAY DIN FEMALE.

1 -- not connected
2 -- GND
3 -- not connected
4 -- TX+
5 -- TX-

SECTION 10 SPEC SHEET

INS & OUTS:

- 2 independent serial RS422 ports
- 1 independent MIDI IN OUT and THRU port
- 48 track (Record Ready) control and tally lines
- Timecode IN (XLR) from R1
- Timecode IN (XLR) from External Tape Machine
- Timecode OUT (XLR) variable gain
- Parallel Tape Remote - to Console
- Parallel Tape Remote - External Tape Machine
- 8 bit parallel control port

MECHANICAL:

- 19" 2U rack

POWER:

- Auto ranging AC voltage input: 100-260v
- Approx. 30watts

APPENDIX A R1 TO CONSOLE CHART

THIS CHART IS TO HELP PICK THE CORRECT CONFIGURATION FOR AN R1 + SL156
 This list is based on preliminary data so far...

Make	Model	Transports	Record Ready	Comms	TC	SL156?
SSL	4000	Yes 25D	Yes (48+)	Parallel	XLR	Yes
	5000	?	?	?		
	6000	Yes 25D	Yes (48+)	Parallel	XLR	Yes
	G	Yes 25D	Yes (48+)	Parallel	XLR	Yes
	9000/J		Yes (48)	P2		Yes
Neve	V	Yes 25D	No	?	XLR	
	inc Flying Faders	Yes 25D	No	AS	XLR	Yes
	Capricorn	Yes 25D	Yes (48)	AS	XLR	Yes
Sony	Oxford R3	No uses RS232	Yes (48)	Yes	XLR	Yes
GML	Automation	?	?	?	XLR	



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