

***XL*** *logic*

**Stereo Compressor  
Owner's Manual**



# Solid State Logic



Super-Analogue™ Outboard

Owner's Manual

## Solid State Logic

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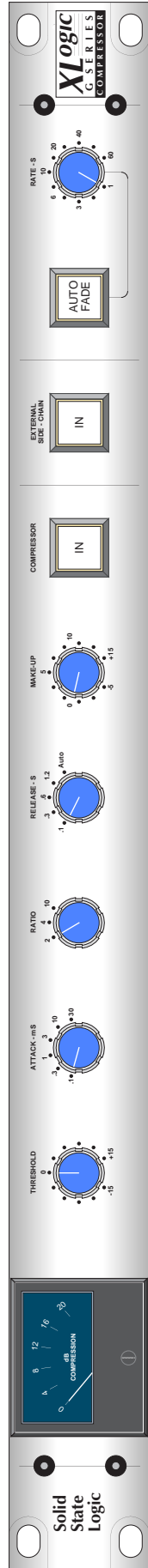
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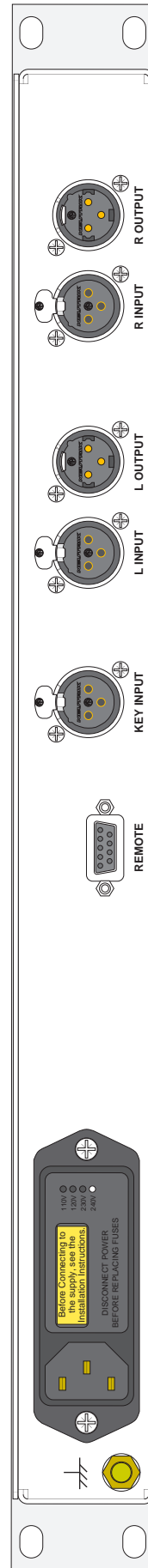
## Contents

1.0	Introduction	3
2.0	Safety Considerations	4
	Safety Warnings	4
3.0	Installation	6
	Setting the mains voltage selector	6
	Mounting	6
	Connections	6
4.0	Operation	7
	Compressor Controls	7
	External Side Chain	7
	Auto Fade	7
Appendices:		
A	Internal Links and Fuses	9
B	Connector Details	9
C	Electronic Specification	10
D	Calibration Instructions	11
E	Physical Specification	13
F	Environmental Specification	13

XLogic Stereo Compressor (front)



XLogic Stereo Compressor (rear)



## **1.0 Introduction**

The XLogic Stereo Compressor is a 1U rack-mounting stereo compressor. It utilises classic Solid State Logic Centre Section compressor design elements to provide the same, universally acclaimed, centre section compressor as found in the SSL G, J and K Series consoles but in a compact rack-mount package.

The object of this manual is to provide purchasers of the XLogic Stereo Compressor unit with information in the following areas:

- Operation of the unit
- Safety considerations
- Installation requirement
- Electrical connections and cabling
- Connector pin-outs
- Specifications and physical dimensions

### **Warranty**

The warranty period for this unit is 12 months from date of purchase.

### **In Warranty Repairs**

In the event of a fault during the warranty period the unit must be returned to your local distributor who will arrange for it to be shipped to Solid State Logic for repair. All units should be shipped to Solid State Logic in their original packaging. Solid State Logic can not be held responsible for any damage caused by shipping units in other packaging. In such cases Solid State Logic will return the unit in a suitable box, which you will be charged for. Please do not send manuals, power leads or any other cables – Solid State Logic can not guarantee to return them to you. Please also note that warranty returns will only be accepted as such if accompanied by a copy of the receipt or other proof of purchase.

### **Out of Warranty Repairs**

In the event of a fault after the warranty period has expired, return the unit in its original packaging to your local distributor for shipment to Solid State Logic. You will be charged for the time spent on the repair (at Solid State Logic's current repair rate) plus the cost of parts and shipping.

## 2.0 Safety considerations

This section contains definitions and warnings, and practical information to ensure a safe working environment. Please take time to read this section before undertaking any installation work.

### 2.1 Definitions

#### *'Maintenance'*

All maintenance must be carried out by fully trained personnel. *Note: it is advisable to observe suitable ESD precautions when maintenance to any part is undertaken.*

#### *'Non-User Adjustments'*

Adjustments or alterations to the equipment may affect the performance such that safety and/or international compliance standards may no longer be met. Any such adjustments must therefore only be carried out by fully trained personnel.

#### *'Users'*

This equipment is designed for use solely by engineers and competent operators skilled in the use of professional audio equipment.

#### *'Environment'*

This product is a Class A product intended to form an integrated component part of a professional audio recording, mixing, dubbing, film, TV, radio broadcast or similar studio wherein it will perform to specification providing that it is installed according to professional practice.

### 2.2 Electrical Safety Warning

When installing or servicing any item of Solid State Logic equipment with power applied, when cover panels are removed, HAZARDOUS CONDITIONS CAN EXIST.

These hazards include:

- High voltages
- High energy stored in capacitors
- High currents available from DC power busses
- Hot component surfaces

Any metal jewellery (watches, bracelets, neck-chains and rings) that could inadvertently come into contact with uninsulated parts should always be removed before reaching inside powered equipment.

### 2.3 Installation

#### Voltage Selection and Fusing

All XLogic units have selectable voltage inlets. Always confirm that the input mains voltage range is set correctly before applying power. Always isolate the mains supply before changing the input range setting.

If it is ever necessary to replace a blown mains fuse, then always use the correct rating and type of replacement. If a correctly rated fuse continues to blow, then a fault exists and the cause should be investigated or the unit returned to Solid State Logic for repair/replacement as appropriate.

Details of mains settings and correct fuse ratings can be found in Section 3.1 and Appendix A of this manual.

#### Safety Earth Connection

Any mains powered item of Solid State Logic equipment that is supplied with a 3-core mains lead (whether connectorised or not) should always have the earth wire connected to the mains supply ground. This is the safety earth and grounds the exposed metal parts of the racks and cases and should not be removed for any reason.



### **Mains Supply and Phases**

Solid State Logic equipment is designed for connection to single phase supplies with the Neutral conductor at earth potential – category TN – and is fitted with a protective fuse in the Live conductor only. It is not designed for use with Phase (Live) and Neutral connections reversed or where the Neutral conductor is not at earth potential (TT or IT supplies).

Mains cables will be coded with the following colour scheme:

LIVE:	Brown
NEUTRAL:	Blue
EARTH:	Yellow/Green

### **Mains Isolation and Over-Current Protection**

An external disconnect device is required for this equipment which must be installed according to current wiring regulations. A detachable power cord, as fitted to this equipment, is a suitable disconnect device.

An external over-current protection device is required to protect the wiring to this equipment which must be installed according to the current wiring regulations. The fusing or breaking-current are defined in the product specification. In certain countries this function is supplied by use of a fused plug.

### **CE Certification**

Note that the majority of cables supplied with Solid State Logic equipment are fitted with ferrite rings at each end. This is to comply with current European CE regulations and these ferrites should not be removed.

If any of the unit metalwork is modified in any way this may adversely affect the CE certification status of the product.

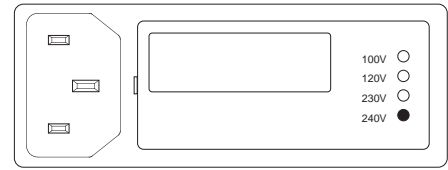
### **FCC Certification**

The XLogic unit has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### 3.0 Installation

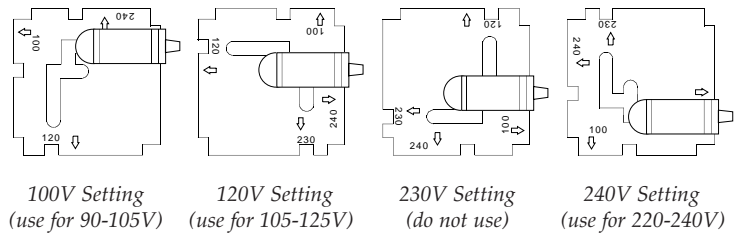
#### 3.1 Voltage Selection

Before connecting the mains supply ensure that the voltage range selector next to the IEC socket on the rear of the unit is correctly set. The input setting must be confirmed before applying power. The input module can be configured to be one of 4 voltage settings. The setting is indicated by a plastic pin protruding through the appropriate hole in the fuse panel – the example shown here is set for 240V operation.



The setting is altered by a small vertical PCB which can be fitted in 4 positions. To change the setting:

- Switch off and remove the IEC lead.
- Using a small flat-bladed screwdriver, lever open the fuse panel to the right of the connector.
- At the right hand side is a vertical PCB with a plastic key which indicates the setting. Using pliers, pull out the PCB.
- The PCB has to be rotated until the desired voltage is shown along the edge which plugs into the module. The plastic key (and this bit is quite fiddly) must also be rotated so that it points out of the module so that the round pin aligns with the appropriate hole in the cover panel (refer to the adjacent illustrations).



*Note. Where the mains voltage is a nominal 230V, the '240V Setting' should be used – not the '230V Setting'!*

- Re-insert the PCB and replace the fuse panel. The plastic pin should protrude through the appropriate hole.

#### 3.2 Mounting

The XLogic unit is designed to be rack mounted. It is 1 RU (44.5mm/1.75 inches) high. Its depth is:

- 350 mm/13.8 inches
- 425 mm/16.75 inches including connectors

The unit does not require rack shelves, nor does it require additional space above or below for ventilation (unless any adjacent unit runs hot).

#### 3.3 Connection

The unit has two input XLRs (female) and two output XLRs (male) as well as a key input XLR (female) and a 9-pin 'D' type remote connector (female). Connect the inputs to the main output insert sends of your console or to your workstation outputs. Connect the outputs to the corresponding insert returns or to your workstation inputs.

When the unit is switched off the input XLRs are linked to the output XLRs by relays, so the unit will pass signal even when switched off. There is a brief delay after switching on before the bypass relays are energised to allow the power rails to settle, thus avoiding unpleasant thumps and pops on your monitoring.

Once the unit is connected switch it on, then route signal to each channel in turn and check that the signal is returned to the correct input on your console or workstation.

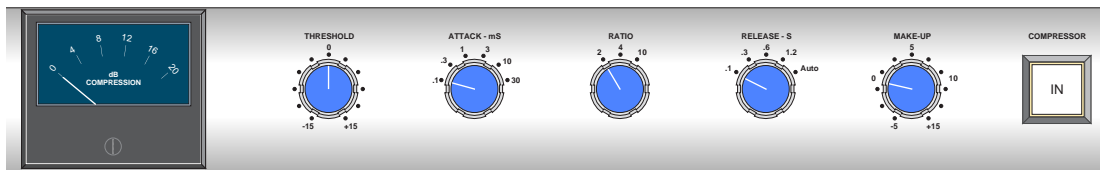
## 4.0 Operation

The XLogic Stereo Compressor unit is a 1U rack-mounting stereo compressor designed to provide flexible control over a stereo mix. The compressor design is based around that found in the XL 9000 console Centre Section.

### 4.1 Compressor Controls

The compressor sidechain controls are straight forward and hopefully require little explanation. The **ATTACK**, **RATIO** and **RELEASE** controls are multi-position switches; the **THRESHOLD** and **MAKE-UP** controls are continuously variable potentiometers.

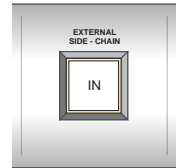
It should be noted that the knee point of the compressor, set with the **THRESHOLD** control, purposely changes depending on the setting of the **RATIO** control. Decreasing the **RATIO** setting lowers the effective threshold, hence maintaining the perceived 'loudness' of the compressed signal.



The illuminated compression meter to the left of the unit displays gain reduction for the compressor. If required, a secondary (non-illuminated) meter can be connected via the REMOTE connector on the rear of the unit – see Appendix B for connector details.

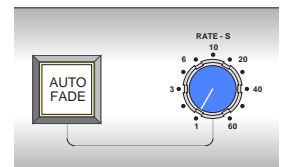
### 4.2 External Side Chain

The compressor side chain can be driven either by the main stereo channel signal(s) whereby the loudest signal wins and provides the side chain signal, or by an external (mono) signal applied to the KEY INPUT on the rear of the unit. This feature is enabled by the EXTERNAL SIDE-CHAIN switch on the front panel and opens up the possibility to use the unit as a 'ducker' (for audio-follow applications) or, with external EQ, as a 'de-esser'.



### 4.3 Autofade

The final part of the compressor is the **AUTOFADE** switch and associated rotary control which provides a timed fade down or up with a fade time of 1 to 60 seconds. Pressing the switch will fade out the audio in the time set on the associated control and releasing the switch will fade the audio back up in the same time – the fade time can be adjusted at any time. The **AUTOFADE** switch will be illuminated whilst the signal is fading down and will remain illuminated until the signal has returned to normal gain.



This function can also be actioned remotely via a switch and associated 24V tally lamp connected via the REMOTE socket on the rear of the unit – see Appendix B for connector details.

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## Appendix A – Internal links and fuses

### Fuses (Mains Inlet)

The mains inlet contains a single 1 amp 1.25" time delay fuse (SSL Part No. 35FJJ310). To change it disconnect the mains inlet, then using a small screwdriver prise open the mains selector cover. This contains the fuse. Test and replace with the same type and value if necessary.

### Internal Fuses

There are no internal power rail fuses.

### Links

- TP5 Wire link. 0V test point.
- LK1 Wire link. Connects -18V rail from the PSU to the compressor. Do not remove.
- LK2 Wire link. Connects +18V rail from the PSU to the compressor. Do not remove.
- LK3 VCA Track. Selects which channel to trim when balancing the VCA control voltages.
- LK4, LK5 Normally audio passes through the VCAs at all times. Fitting these links in the 'Hard' position will switch in the bypass relays when the Compressor IN switch is off. Normally both links are fitted in the 'Soft' position.

## Appendix B – Connector Details

Audio Input	
Location:	Rear Panel
Conn' Type:	XLR Female
<i>Pin</i>	<i>Description</i>
1	Chassis
2	Audio +ve
3	Audio -ve

Audio Output	
Location:	Rear Panel
Conn' Type:	XLR Male
<i>Pin</i>	<i>Description</i>
1	Chassis
2	Audio +ve
3	Audio -ve

Key Input	
Location:	Rear Panel
Conn' Type:	XLR Female
<i>Pin</i>	<i>Description</i>
1	Chassis
2	Audio +ve
3	Audio -ve

Remote	
Location:	Rear Panel
Conn' Type:	9-pin 'D' Type Female
<i>Pin</i>	<i>Description</i>
1	Meter +ve
2	Autofade Switch
3	Autofade Lamp +ve
4	n/c
5	n/c
6	Meter -ve
7	Autofade Switch
8	Autofade Lamp -ve
9	n/c

## Appendix C – Performance Specification

### Conditions

Source impedance 50Ω unless otherwise stated.

All measurements are RMS and are made using a 22Hz to 22kHz filter unless otherwise stated.

### Noise

Input terminated with 50Ω. Compressor switched in and Makeup set for 0dB gain.

Noise < -90dBu

### Headroom

Headroom is defined at the output level at which THD exceeds 1%.

Headroom > +28dBu output level, 20Hz to 20kHz at 0dB gain

Dynamic Range > 118dB

### Frequency Response

Measured reference level at 1kHz. Any gain setting. Source impedance 50Ω.

20Hz to 20kHz ±0.2dB (-3dB @ 100kHz)

### Common Mode Rejection Ratio (CMRR)

Input level +20dBu, ground referenced.

20Hz to 10kHz > 50dB

### THD + Noise

Gain +0dB, input level +4dBu. Compressor switched out.

20Hz to 20kHz (80kHz filter) < 0.008%, typically 0.005%

Gain +0dB, input level +20dBu. Compressor switched out.

20Hz to 20kHz (80kHz filter) < 0.01%, typically <0.006%

THD with the compressor switched in is dependent on attack and release times and signal content.

### Crosstalk

Apply +20dBu test tone to either channel input with the other input terminated with 50Ω. Crosstalk is the ratio of level at the output of the test channel and the output of the channel to which the signal is applied.

Crosstalk @ 50Hz < -110dB

Crosstalk @ 1kHz < -100dB

### Impedance

Input Impedance > 10kΩ

Output Impedance < 50Ω

## Appendix D - Calibration Information

The XLogic Stereo Compressor is factory calibrated and should only need calibration if a potentiometer or other component has been replaced or if it is suspected that there is a problem with calibration.

In each of the following instructions it is assumed that the lid has been removed and that power has been applied. It is also assumed that unless otherwise specified, all switches are released and all front panel potentiometers are at unity or minimum position as appropriate. The required accuracy for each adjustment will be specified along with the target value. All level and distortion measurements should be made with audio-band 20Hz to 20kHz filters unless otherwise specified.

*Note. The unit should be allowed to warm up with power applied for at least 15 minutes prior to any adjustments being made.*

### DC Calibration

#### Master Gain Trim

Equipment Required: Digital Volt Meter

Unit Setup: 1. Ensure that all front panel switches are off and all controls are set fully anti-clockwise.

Adjustment: 1. Measuring IC 'KF' pin 6 on the main card, adjust VR6 (Master Gain Trim) for 0V  $\pm$ 0.5mV (reference the DVM to 0VA at TP5 on the main card).

#### VCA Tracking

Equipment Required: Calibrated audio oscillator and an audio level meter

Test Signal: 1kHz sinewave at +24dBu

Input and Output: Oscillator to the Input of the channel being tested, Output to the level meter

Unit Setup: 1. Ensure that all front panel switches are off and all controls are set fully anti-clockwise.

2. Remove the VCA Tracking jumper and place it to one side.

Adjustment: 1. Switch Compressor IN.  
2. Connect the test equipment to each channel in turn and measure the output level of each channel.  
3. Compare the readings obtained from each channel. Refit the VCA Tracking jumper in the position corresponding to the channel which measured the *highest*.  
4. Connect the test equipment to the appropriate channel and adjust preset VR3 to obtain a level reading matching that obtained for the other channel.

### Audio Calibration

#### Gain Trim

Equipment Required: Calibrated audio oscillator, audio level meter and an oscilloscope

Test Signal: 1kHz sinewave at +24dBu

Input and Output: Oscillator to the Input of the channel being tested, Output to the level meter. Use the oscilloscope to monitor the measured signal.

Unit Setup: 1. Ensure that all front panel switches are off and all controls are set fully anti-clockwise.

Adjustment: 1. Connect the test equipment to the each channel in turn and adjust the following presets for unity gain (+24dBu  $\pm$ 0.1dB):

Input	Output	Adjust
Left	Left	VR5
Right	Right	VR4

**Distortion Null**

- Equipment Required: Calibrated audio oscillator, audio distortion analyser and an oscilloscope
- Test Signal: 1kHz sinewave at +24dBu
- Input and Output: Oscillator to the Input of the channel being tested, Output to the distortion analyser. Use the oscilloscope to monitor the measured signal.
- Unit Setup: 1. Ensure that all front panel switches are off and all controls are set fully anti-clockwise.
- Adjustment: 1. Connect the test equipment to the each channel in turn and adjust the following presets for minimum THD (< 0.006%):

Input	Output	Adjust
Left	Left	VR2
Right	Right	VR1

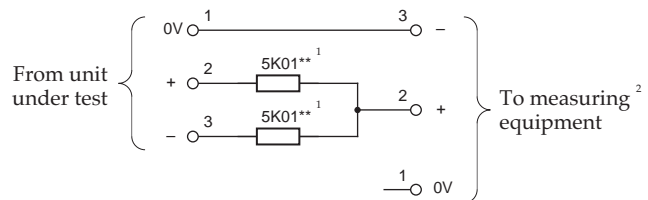
**Output Balance**

- Equipment Required: Calibrated audio oscillator, audio level meter and a 'balance' adaptor (see below)
- Test Signal: 1kHz sinewave at +24dBu
- Input and Output: Oscillator to the Input of the channel being tested, Output to the level meter via the 'balance' adaptor
- Unit Setup: 1. Ensure that all front panel switches are off and all controls are set fully anti-clockwise.
- Adjustment: 1. Connect the test equipment to the each channel in turn and adjust the following presets for minimum level (< 55dBr):

Input	Output	Adjust
Left	Left	VR8
Right	Right	VR7

**'Balance' Adaptor**

For the output balance adjustment, a 'balance' adaptor such as that illustrated here will be required. This adaptor consists of a pair of close tolerance resistors in an in-line cable and is used to sum together a balanced output in order to correctly adjust the level balance of the measured output; perfect balance should result in complete signal cancellation.



- Note 1. Resistor tolerance should ideally be 0.01%  
 2. Absolute level measured will depend upon the input impedance of the measuring equipment.



## Appendix E – Physical specification \*

Depth:	350mm / 13.8 inches 425mm / 16.75 inches including connectors
Height:	44.5mm / 1.75 inches (1 RU)
Width:	480mm / 19 inches
Weight:	3.3kg / 7.5 pounds
Power:	23 Watts / 29VA
Boxed size:	520mm x 520mm x 182mm (20.5" x 20.5" x 7.2")
Boxed weight:	5.6kg / 12.5 pounds

\* All weights and dimensions are approximate

## Appendix F – Environmental Specification

Temperature	Operating:	5 to 30 Deg. C
	Non-operating:	-20 to 50 Deg. C
	Max. gradient:	15 Deg. C/Hour
Relative Humidity	Operating:	20 to 80 %
	Non-operating:	5 to 90 %
	Max. wet bulb:	29 Deg. C (non-condensing)
Vibration	Operating:	< 0.2 G (3 - 100Hz)
	Non-operating, power off:	< 0.4 G (3 - 100Hz)
Shock	Operating:	< 2 G (10mSec. Max.)
	Non-operating:	< 10 G (10mSec. Max.)
Altitude	Operating:	0 to 3000m (above sea level)
	Non-operating:	0 to 12000m

## Notes