

Bus Comp Classic

User Guide



Solid State Logic

O X F O R D • E N G L A N D

Visit SSL at:
www.solidstatelogic.com

© Solid State Logic

All rights reserved under International and Pan-American Copyright Conventions.

SSL® and Solid State Logic® are registered trademarks of Solid State Logic.

Bus Comp Classic™ and SuperAnalogue™ are trademarks of Solid State Logic.

All other product names and trademarks are the property of their respective owners and are hereby acknowledged.

No part of this publication may be reproduced in any form or by any means, whether mechanical or electronic, without the written permission of Solid State Logic, Begbroke, OX5 1RU, England.

As research and development is a continual process, Solid State Logic reserves the right to change the features and specifications described herein without notice or obligation.

Solid State Logic cannot be held responsible for any loss or damage arising directly or indirectly from any error or omission in this manual.

PLEASE READ ALL INSTRUCTIONS, PAY SPECIAL HEED TO SAFETY WARNINGS.

E&OE

Revision 1.0 - October 2026
Initial Release

Table of Contents

Overview	4
Different Eras of SSL. One Classic Bus Compressor.	4
Features	4
Installation	5
Unpacking	5
Rack Mounting, Heat and Ventilation	5
Safety Notices	5
Hardware Overview	6
Front Panel	6
Rear Panel	6
Tutorial	7
Power	7
Gain Reduction Meter	7
Controls	7
Specifications	9
Connector Details	9
Physical	9
Power	9
Stereo Line Input	9
Stereo External Input	9
Stereo Line Output	9
Audio Performance	10
Safety Notices	11
Important Safety Information	11
General Safety	11
Power safety	11

Overview

Different Eras of SSL. One Classic Bus Compressor.

Very few pieces of studio equipment achieve truly iconic status. Fewer still become so closely associated with the sound of a finished record. The Solid State Logic Bus Compressor is one of them. For more than five decades, its unmistakable sound has made it one of the most trusted and influential stereo bus dynamics processors in professional audio. Reconnecting with the essentials of the legendary design, Bus Comp Classic returns the SSL Bus Compressor to the 1U format, remaining faithful to the original circuit topology, while extending its flexibility through Variable VCA Drive, a side-chain high-pass filter and a stereo external side-chain input. At the heart of Bus Comp Classic are high-performance THAT 2181 VCAs and the archetypal side-chain that incorporates an additional VCA in its feedback loop. Together, they create the distinctive response that has made the SSL Bus Compressor a studio staple, combining punch, movement and cohesion with exceptional musicality.

The Variable VCA Drive extends Bus Comp Classic far beyond a single sonic signature, placing decades of SSL console character under one continuously variable control. With VCA Drive disabled, the VCAs operate in a balanced configuration optimised for the low-distortion associated with SSL's SuperAnalogue generation, from the 9000 Series to today's Oracle and Odyssey consoles. As soon as the VCA Drive control is enabled, the VCAs are switched to an unbalanced configuration, introducing harmonics and character of classic SSL designs such as the FX384 and 4000 Series consoles. Increasing the control further progressively introduces additional colour and saturation, moving from subtle console-style richness through to the denser, more aggressive character associated with early 4K designs. From polished mixes, to heavily driven drums and parallel compression approaching 10% THD, VCA Drive lets you decide how clean, coloured or confrontational the compressor becomes.

Features

- The authentic SSL Bus Compressor circuit utilising high-performance 2181 THAT VCAs
- 100% analogue circuit with huge +27.5 dBu headroom
- Variable VCA Drive - single VCA operation with variable harmonic distortion
- 6-position stepped controls for Ratio, Attack and Release - including the timeless 'Auto' Release setting
- 5-position stepped control for the side-chain HPF
- Stereo external side-chain input
- Moving-coil gain reduction meter

From the centre section of every SSL console to the centre of your own studio - decades of SSL sound, character and engineering heritage, brought together in one compressor. This is Bus Comp Classic.



Installation

Unpacking

The unit has been carefully packed and inside the box you will find the following items.

- Bus Comp Classic
- IEC power cord for your country
- Safety Sheet

It is always a good idea to save the original box and packaging, just in case you ever need to send the unit in for service.

Rack Mounting, Heat and Ventilation

Bus Comp Classic is a 1U, 19" rackmount piece of equipment designed to sit in the racking of a producer's desk or similar. The sides of the unit's chassis have cut-outs that should under no circumstances be blocked or covered. Always allow the unit to cool down before handling.

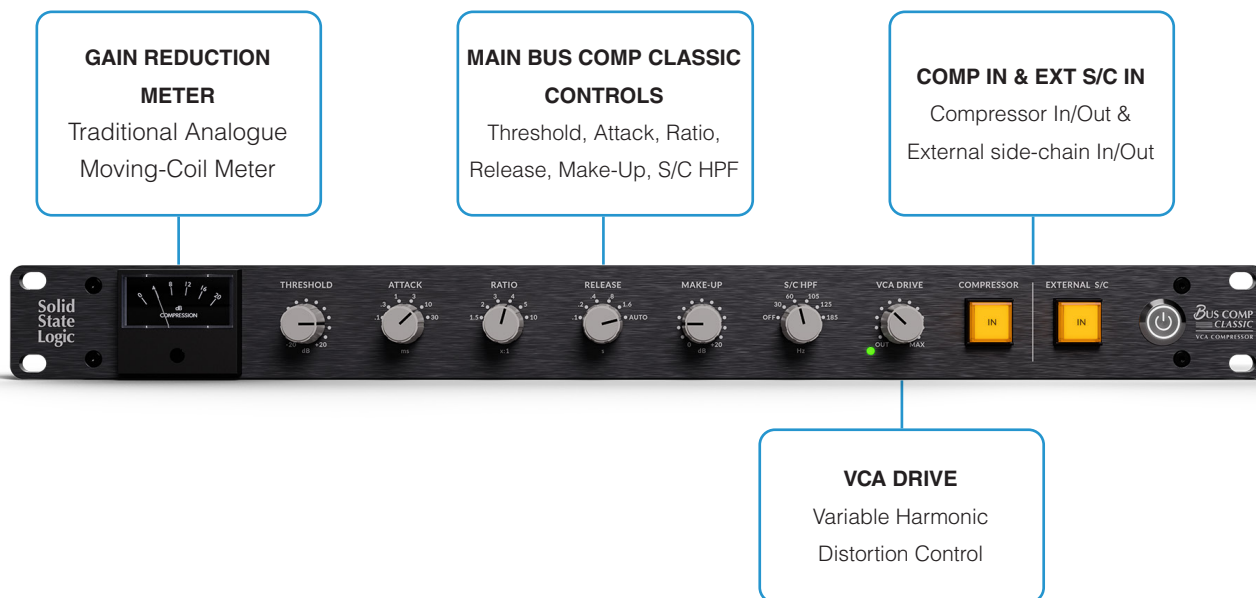
Safety Notices

Please read the safety notice information included on the Safety Sheet inside the box before using Bus Comp Classic. This information is also available in Appendices section of this User Guide.

Hardware Overview

This page provides an overview of the Bus Comp Classic hardware. The tutorial section covers each control in more detail.

Front Panel



Rear Panel



1 - STEREO LINE INPUT

Female XLRs

Balanced left and right line level inputs.

2 - STEREO LINE OUTPUT

Male XLRs

Balanced left and right line level outputs.

3 - STEREO EXTERNAL INPUT

Female XLRs

Balanced left and right line level inputs for connecting an external stereo side-chain source to trigger Bus Comp Classic.

Tutorial

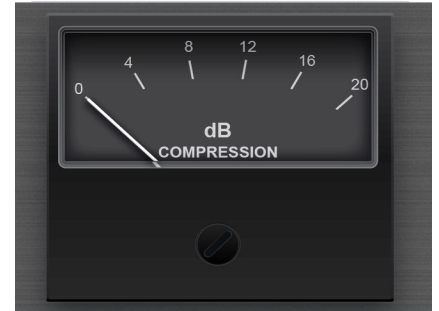
Power

Power on the unit by pressing the silver power button on the right-hand side.



Gain Reduction Meter

The meter is used to display the gain reduction in dB of the compressor and is illuminated when the compressor circuit is engaged.



Controls

The compressor controls are straightforward and require little explanation. But since you're here, we'll explain them anyway...



THRESHOLD - Determines the level at which compression occurs. This is a continuous pot ranging from -20 to +20 dB.

ATTACK - Sets the attack time of the compressor, in milliseconds. This is a 6-position stepped pot ranging from .1 to 30 ms.

RATIO - Sets the ratio of the compressor. This is a 6-position stepped pot ranging from 1.5:1 to 10:1.

RELEASE - Sets the release time of the compressor, in seconds. This is a 6-position stepped pot ranging from .1 to 1.6 seconds, plus an automatic release setting - AUTO. AUTO is well-suited to complex material, as the release circuitry has two stages to it - 100 ms short, 12 seconds long. This means that louder elements of the signal are released quickly and quieter elements more slowly.

MAKE-UP - A gain make-up control allows for any changes to level introduced by compression to be offset. This is a continuous pot ranging from 0 to +20 dB.

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 when applying small to moderate amounts of gain reduction.



S/C HPF (SIDE-CHAIN HIGH-PASS FILTER) - Introduces a 12 dB/oct (2nd order) high-pass filter into the compressor's side-chain. 6-position stepped pot ranging from OFF to 185 Hz.

VCA DRIVE - Introduces harmonics distortion via manipulation of the VCA. This is a continuous control ranging from OFF to MAX. MAX can produce THD as high as 10%.

When VCA DRIVE is disabled (green light out), the main audio path VCAs run fully-balanced, optimised for low distortion – think of the modern, clean SSL SuperAnalogue™ sound – 9000-series, Duality, Odyssey and Oracle Consoles. As soon as the control is enabled (green light illuminates), the VCAs are re-configured to run in an unbalanced configuration (which is how they were run on a 4000-series console or the classic FX384 outboard unit) and from this point you can dial in a controllable amount of harmonic distortion grit to taste. These two factors combine to allow for a more coloured sound. Adjusting the distortion amount, you'll find there's a certain 'sweet spot' (depending on your mix level) in which your material will become more cohesive, thanks to the added thickness.

Since distortion is not achieved by means of overloading (amplification), there is no inherent noise penalty from using VCA DRIVE, even at the highest distortion settings.

COMPRESSOR IN - Engages/bypasses the compressor.

EXTERNAL S/C IN - Allows you to use a stereo external side-chain source (EXT IN) as the trigger for compression, instead of the internal side-chain. EXTERNAL S/C IN selects the external side-chain.

Both internal and external side-chain sources retain the authentic SSL 'loudest wins' topology. The left and right side-chain signals are detected independently, with whichever channel produces the greater control signal determining the amount of gain reduction applied to both sides of the compressor.

While external side-chain inputs are commonly used for ducking, that isn't all they're good for. The 'loudest wins' architecture also makes the external input useful when producing mix stems against the full printed final mix bounce, allowing the compressor to follow the dynamics of the final mix (fed into the EXT IN), whilst processing the individual stems being soloed out (Kick, Snare, Vocals etc).

Specifications

Connector Details

Stereo Line Input

Location: Rear Panel	
Connector Type: XLR Female x 2	
Pin	Description
1	Chassis
2	Audio +ve
3	Audio -ve

Stereo Line Output

Location: Rear Panel	
Connector Type: XLR Male x 2	
Pin	Description
1	Chassis
2	Audio +ve
3	Audio -ve

Stereo External Input

Location: Rear Panel	
Connector Type: XLR Female x 2	
Pin	Description
1	Chassis
2	Audio +ve
3	Audio -ve

Physical

Width	482.6 mm / 19 inches
Height	43.18 mm / 1.7 inches (1 RU)
Depth	276.86 mm / 10.9 inches
Weight	3.48 kg / 7.67 lbs
Boxed Dimensions	609.6 mm x 83.82 mm x 335.28 mm (24" x 3.3" x 13.2")
Boxed Weight	5.42 kg / 11.95 lbs

Power

Power Supply	Auto-Ranging 100-240 VAC
Operating Power	12 Watts

Audio Performance

Default test conditions (unless otherwise stated):

Source impedance of test set: 50Ω

Input impedance of test set: 100 kΩ

Reference frequency: 1 kHz

Reference level: 0 dBu

All unweighted measurements are specified as 20 Hz to 20 kHz bandwidth limited, expressed in dBu.

Onset of clipping (for headroom measurements) should be taken as 1% THD.

All levels are intended balanced, unless explicitly defined otherwise.

All figures have a tolerance of ±0.5dB or 5%.

Measurement	Value	Conditions
Input Impedance	10 k Ω	-
Output Impedance	70 Ω	-
Maximum Input & Output Level	+27.5 dBu	-
Frequency Response	±0.07 dB	Bypassed, 20 Hz to 20 kHz
	< 1 Hz	Bypassed, -3 dB low roll-off
	> 200 kHz	Bypassed, -3 dB high roll-off
	±0.015 dB	Compressor In, 20 Hz to 20 kHz
	< 2 Hz	Compressor In, -3 dB low roll-off
	> 200 kHz	Compressor In, -3 dB high roll-off
THD+N Ratio	-99 dB / 0.00115% typical	Bypassed, 1 kHz @ 0 dBu
	-112 dB / 0.00025% typical	Bypassed, 1 kHz @ +20 dBu
	-91 dB / 0.00282% typical	Compressor In, 1 kHz @ 0 dBu
Noise floor (Unweighted)	-99 dBu	Bypassed
	-94 dBu	Compressor In
Dynamic Range	126 dB	Bypassed
	122 dB	Compressor In
Crosstalk	< -132.5 dB	Bypassed, 1 kHz @ +24 dBu
	< -114 dB	Bypassed, 10 kHz @ +24 dBu
Stereo Matching	< 0.05 dB	Bypassed
	< 0.05 dB	Compressor In
	< 0.1 dB	Any Setting with < 8dB gain reduction

Safety Notices

Important Safety Information

General Safety

Please read and keep this document and adhere to all warnings and instructions.

This electrical equipment should not be exposed to dust, water, or other liquids.

Clean only with dry cloth or products compatible with electrical devices and never when the unit is powered.

Do not operate near any heat sources, in direct sunlight or near naked flames.

Do not place heavy objects on the unit.

Only use attachments/accessories recommended by the manufacturer.

Unplug this apparatus during lightning storms or when unused for long periods of time.

Do NOT modify this unit, alterations may affect performance, safety and/or international compliance standards.

The unit can only be serviced by qualified personnel – seek immediate service if it has been exposed to water or if it ceases to operate normally.

SSL does not accept liability for damage caused by maintenance, repair or modification by unauthorised personnel.

When using this apparatus either fix it into a standard 19" rack or place it on a secure level surface.

If the unit is rack mounted, fit all rack screws. Rack shelves are recommended and ensure that loading of the rack does not create a hazard.

Always allow free flow of air around the unit for cooling. A 1U gap above and below the unit is recommended when rack mounted.

Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

Ensure that the maximum operating temperature is not exceeded when mounted in a rack.

Ensure that no strain is placed on any cables connected to this apparatus. Ensure that all such cables are not placed where they can be stepped on, pulled or tripped over.

Power safety

This equipment is supplied with mains lead however if you wish to use a mains cables of your choice refer to the following information:

Refer to the rating label on rear of the unit and always use a suitable mains cord.

The unit should ALWAYS be earthed.

Please use-compliant 60320 C13 TYPE SOCKET. When connecting to supply outlets ensure that appropriate sized conductors and plugs are used to suit local electrical requirements.

Maximum cord length should be 4.5m(15').

The cord should bear the approval mark of the country in which it is to be used.

Additionally:

The appliance coupler is used as the disconnect device, ensure that it is connected to an unobstructed wall outlet.

Connect only to an AC power source that contains a protective earthing (PE) conductor.

Only connect units to single phase supplies with the neutral conductor at earth potential.

When mounted in a rack ensure that the earthing is reliable and the electrical supply is not overloaded.



ATTENTION! This product must always be earthed.

CAUTION! No user-serviceable parts inside. In the event of damage to the unit contact Solid State Logic. Service or repair must be done by qualified service personnel only.



This product complies with the following United Kingdom Legislation:

UK Electrical Equipment (Safety) Regulations 2016 (SI 2016/1101)

UK Electromagnetic Compatibility Regulations 2016 (SI 2016/1091).

The Eco-design requirements for Energy related products (ErP) 2009/125/EC.

The Restriction of the use of certain Hazardous Substances in Electrical and Electronic Equipment Directive (RoHS2) 2011/65/EU.



This product complies with the following European Union Harmonisation Legislation:

EU Low Voltage directive (LVD) 2014/35/EU,

EU Electromagnetic Compatibility directive (EMC) 2014/30/EU.

The Eco-design requirements for Energy related products (ErP) 2009/125/EC.

The Restriction of the use of certain Hazardous Substances in Electrical and Electronic Equipment Directive (RoHS2) 2011/65/EU.

Electromagnetic Compatibility

BS EN 55032:2015, Class A. BS EN 55035:2017.

WARNING: The audio input/output ports are screened cable ports and any connections to them should be made using braid-screened cable and metal connector shells to provide a low impedance connection between the cable screen and the device.

Electrical Safety

IEC 62368-1:2023, BS EN IEC 62368-1:2024+A11:2024, CSA CAN/CSA-C22.2 No. 62368-1:25., UL 62368-1:2025, SASO-IEC 62368-1:2020, J62368-1 (2023), GB 4943.1-2022.

FCC Certification

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For the user

Do not modify this unit! This product, when installed as indicated in the instructions contained in the installation manual, meets FCC requirements.

Important: This product satisfies FCC regulations when high quality shielded cables are used to connect with other equipment. Failure to use high quality shielded cables or to follow the installation instructions may cause electromagnetic interference with appliances such as radios and televisions and will void your FCC authorisation to use this product in the USA.

This equipment 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.

Industry Canada Compliance

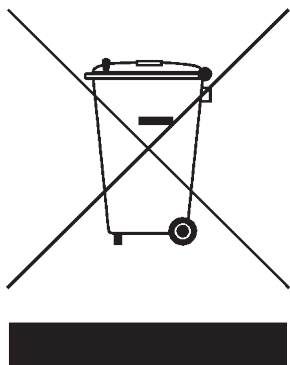
This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.



WARNING: Cancer and Reproductive Harm -
www.P65Warnings.ca.gov

Temperature: Operating: +1 to 30°C. Storage: -20 to 50°C.
For additional information visit www.solidstatellogic.com.



WEEE Notice

The symbol shown here, which is on the product or on its packaging, indicates that this product must not be disposed of with other waste. Instead, it is the user's responsibility to dispose of their waste equipment by handing it over to a designated collection point for recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or where you purchased the product.

