

LS 99

Owner's Manual



Manufactured by ModWright Instruments, Inc.

www.modwright.com

USA

Introduction:

Thank you for purchasing a ModWright Instruments product. This unit is designed to offer high performance and exceptional reliability.

The LS 99 preamp offers high bandwidth, low distortion, and exceptional musicality. We have designed this unit to allow the reproduction of recordings that are accurate, transparent, and musical. Please note, absolute phase is variable and may be set via front panel toggle switch.

NOTE: *When the unit first powers up, it DOES NOT invert absolute phase. Absolute phase may be toggled IN or OUT via front panel phase switch. When the PHASE led is illuminated, then the absolute phase is inverted.*

CAUTION: *DO NOT use any other signal tubes other than 6DJ8, 6922, 7308 or you WILL DAMAGE this unit. The rectifier tubes may be exchanged for other equivalent type rectifier tubes such as 5AR4/GZ34, 5R4GY, 5U4G, 5U4GB, 5V4G, 5V4GB, 274B and equivalents.*

CAUTION: *Any source input connected to HT/BP inputs, will feed RCA and XLR Main outputs with NO VOLUME ATTENUATION. It is important to ONLY use this input for signal from the front channels of a Home Theater Pre/Processor or other source WITH built in volume control. When the LS 99 is powered down, the HT/BP input defaults to HT/BP mode. When unit is powered up, any source connected to HT/BP input may be operated in HT/BP mode. Importantly however, when the LS 99 is powered down, the HT/BP input will default to bypass mode. IF A SOURCE WITH NO VOLUME CONTROL IS CONNECTED TO HT/BP INPUTS AND THE LS 99 IS TURNED OFF, FRONT CHANNEL AMPS WILL RECEIVE A FULL OUTPUT SIGNAL LEVEL FROM SAID SOURCE WITH NO ATTENUATION. THIS COULD LEAD TO SYSTEM DAMAGE.*

Caution: *Do not operate or power up unit without tubes installed in tube sockets. Failure to do so will result in damage to the power supply.*

Setup:

It is always recommended to remove all tubes before shipping the unit. Be sure that the LS 99 is NOT connected to AC power and that power plug is disconnected from the external supply and wall outlet. Install (2) 6922 signal tubes in 9-pin ceramic sockets and (1) rectifier tube in ceramic octal socket in preamp prior to use. All tubes may only be inserted one way.

After tubes are installed, ***connect power umbilical to the 'male' 8-pin barrel socket on the back of the preamp marked 'PWR'***. The umbilical must be lined up with the pins on both cable and socket, then the outer barrel securely tightened until connection is secure. Connect the other end of the umbilical to the 'female' 8-pin barrel socket on the external power supply. The umbilical ends will only fit one way, via 'male' and 'female' pin connections at umbilical and chassis/jack connectors. Only after this, should the power cord be connected to the external power supply.

The LS 99 has two sets of fully balanced inputs, located on the back of the unit, labeled 'BAL IN 1' and 'BAL IN 2'. The next two inputs are single ended RCA connections, labeled 'III' and 'IV'. The fifth set of RCA inputs is the Home Theater Bypass, labelled 'HTBP'. Inputs are manually selected only, via the left-hand rotary selector switch. There are five positions, starting with BAL IN 1, BAL IN 2, III, IV and HTBP. HTBP (Home Theater Bypass) operation may be selected at any time by depressing the HTBP toggle switch. All source inputs are received the same by the unit, except for HT/BP input. HT/BP input should **ONLY** be used as input from a Home Theater Preamp/Processor or other source with built-in volume control. This input only, may be configured to bypass all gain and volume control stages, directly feeding RCA Main outputs. When HT/BP toggle switch is up and LED illuminated, any input connected to HT/BP RCA jacks will be routed straight to RCA main outs only, bypassing all gain stages and volume control. **CAUTION: WHEN LS 99 IS POWERED DOWN, HT/BP INPUT AUTOMATICALLY DEFAULTS TO HOME THEATER BYPASS MODE.**

The LS 99 has two sets of fully balanced main outputs, labelled 'BAL OUT 1' and 'BAL OUT 2'. There are also two single ended RCA main outs, labeled 'MAIN 1' and 'MAIN 2'.

NOTE: There is a ground toggle switch on the rear of the unit labeled 'GND (1)' and 'GND (0)'. When this toggle is in the GND (0) position, then RCA and XLR outs may be used at the same time, with XLR outs acting as SE outputs, by grounding pin 3 of the XLR jacks. When operating in fully balanced XLR output mode, you must flip the toggle to the GND (1) position. This then allows fully balanced output operation **ONLY**. Use of RCA outs with ground switch in GND (1) position will cause a system hum.

You may **ONLY** operate both XLR and RCA outputs at the same time with the Ground toggle in the GND (0) position. You may only operate the XLR outputs

in fully balanced mode with the ground toggle in the GND (1) position. In this setting, the preamp will operate with fully balanced XLR outs ONLY, but not RCA and XLR outs at the same time.

The external power supply is fitted with an IEC input, for use with detachable power cords. Unless otherwise specified, the unit is designed for use with 120V-60Hz AC power. Main fuse is internal, in a receptacle on the power supply printed circuit board. (ONLY REMOVE FUSE WHEN THE UNIT IS POWERED OFF AND DISCONNECTED FROM ALL SOURCES OF AC MAINS POWER). Only replace fuse with 3A (120VAC mains) or 1.5A (240VAC mains) Slo-Blo type, 5mmx20mm.

You should **ALWAYS** use a grounded AC cord with this product. The chassis is always connected to the earth ground if unit is fitted with a proper grounded AC power cord.

Operation:

The face of the preamp features two rotary knobs and four illuminated indicators. The indicators are, left to right: Power, Mute, Phase, and HT/BP (Home Theater Bypass). The left rotary knob is input select and the right rotary knob is volume control. The power toggle switch is located to the right of the input selector knob. The Power LED will illuminate when the unit is powered on. The aesthetics of the LS 99 are intentionally spare and elegant.

When first powered on, the Mute and Power LEDs and MWI logo will be illuminated. The unit will remain in mute for approximately 45-seconds, allowing for tubes to stabilize. The volume control will automatically return to the '0' position at this time. When the unit is operational, the Mute LED will no longer be lit, unless mute is selected via remote or by engaging the Mute toggle switch on the front panel. If the unit is muted via remote, it will remain in mute and mute indicator will remain illuminated until the unit is 'unmuted' via remote, volume is changed via the remote or the Mute toggle switch is engaged. When the unit powers up, the phase indicator will not be illuminated, indicating that signal is phase correct, or non-inverted. If the phase toggle switch on the front panel is selected, the phase indicator will be illuminated, and absolute phase of both channels will be inverted.

When powering any system up, it is recommended as standard practice to always turn on the preamplifier first and the amplifier last. When shutting any system down, it is recommended to turn off the amplifier first and the preamplifier last.

The LS 99 includes remote volume, mute and remote trigger output (12V DC), via the included custom MWI remote control unit. Volume is controlled by depressing the "VOL+" and 'VOL-' buttons. Mute is controlled by the 'MUTE' button and trigger is controlled by the 'OPT.' button. The remote may be used to mute/unmute, adjust volume up or down and power on/off other equipment connected via 12V trigger outputs. While the remote includes other buttons such as PWR, STANDBY, INPUT, MON., BAL. and PHASE, these functions are not used for this product.

Home Theater Bypass (HT/BP) Operation:

The purpose of the HT/BP mode is to allow integration of 2CH audio into existing Home Theater systems utilizing preamp/processors with integral volume controls. When using the LS 99 in HT/BP mode, signal level is controlled by the preamp/processor before entering the HT/BP input of the LS 99 and routed straight to the main outs, connected to the front L/R channel amplifier(s). In Home Theater Bypass (HT/BP) mode, the preamp is essentially out of the circuit, acting only as a 'straight wire' to the signal. When HT/BP mode is activated, then the source connected to the HT/BP RCA inputs will be routed directly to the outputs, bypassing any volume control and de-activating any other input selected via the input selector.

The HTBP may also be used as a standard input with volume control. When HTBP is selected via input selector, it will be treated as a standard input with volume control and pass through the preamp circuit.

To use strictly in HTBP mode, you must have the input selector in a position other than 'HTBP'. If this is done, when the HTBP toggle switch is in the up position and HTBP mode enabled, the input connected to the HTBP RCA inputs will pass straight through to the main outs. Otherwise, if the input selector knob has HTBP input selected, it will act as a standard input.

In order to operate the LS 99 in HT/BP mode, three steps are required:

- 1. Make sure that input select is NOT in HTBP position.**
- 2. The HT/BP toggle switch should be in the up position.**
- 3. Switch the GND toggle to the GND (0) position (down) on the rear of the preamp.**

This serves to connect the HT/BP inputs directly to the main RCA and XLR outs and disconnect the output transformer that is part of the active preamp circuitry. Note: The XLR outs in this mode are operating in SE mode, with pin 3 grounded.

CAUTION: In this mode, any HT/BP input signal will feed all Main outputs with NO VOLUME ATTENUATION. This may DAMAGE downstream equipment if used incorrectly.

Vacuum Tubes:

The LS 99 uses two 6922 (6dj8 or 7308) signal tubes and one (5AR4 or equivalent) rectifier tube in the preamp.

The tubes operate at moderately high temperatures. Care should be taken when replacing or removing tubes after being in recent use and after being disconnected from AC power. The preamp will reach optimum sonic condition within 30-45 minutes following startup, due to warm up of the power rectifier tube.

The signal tubes used are installed in nine pin ceramic tube sockets and may only be installed one way. Rotate tube until pins align with socket and gently but firmly press the tubes down into socket until seated. The rectifier tube is installed in an eight-pin (octal) ceramic tube socket that is spline-keyed to be installed only one way. Gently but firmly press the rectifier tube into the socket until fully seated. **DO NOT POWER UNIT ON UNTIL ALL TUBES ARE FULLY SEATED.**

Technical Specifications:

Gain: 11dB.

Frequency Response: 20Hz – 150Khz flat.

Input Impedance: 50K.

Output Impedance: 110 ohm.

Noise Floor: -110dB (unweighted).

Dimensions: Preamp = 10.5”W x 4.5”H x 12”D. (Depth includes 1.25” knobs and .75” RCA’s. Height does not include exposed tubes. Overall height varies by tube mfr).

Dimensions: External Supply = 7”W x 9”D x 3”H

Weight: Preamp = 17 lbs. External Supply = 11 lbs.

Combined Shipping Weight: 33 lbs.

Umbilical: (1) 4 ft. umbilical with 8-pin Switchcraft connectors.

Tube Complement: (2) 6922/6dj8/7308 signal tubes, (1) 5AR4/GZ34 (or equivalent) rectifier tube.

Basic Specifications:

(2) XLR Fully Balanced Inputs. (3) RCA Inputs.

(1) RCA HT/BP (Home Theater Bypass Input).

(2) XLR Fully Balanced Outputs. (2) RCA Outputs.

Dual Remote 12V Trigger Outputs.

Remote Control: Volume, mute and trigger outputs.

Tube Output: 6922/6DJ8/7308/E88CC

Tube Rectified: 5AR4/GZ34 and Equivalents.

Pure Class A.

External Power Supply.

Design Information:

Power Supply: Tube rectified, input current regulated, regulated DC heaters and discrete FET regulated B+ voltages.

Gain Stage: Lundahl transformer coupled input and output, fully balanced, Class A, zero negative feedback.

Power Sequence: Mute-on delay turn-on sequence with soft-start B+ supply.

Volume Control: Remote Control Alps motorized volume potentiometer.

Balanced XLR and RCA Single Ended inputs and outputs.

Absolute Phase control.

Typical operation does NOT invert absolute phase.

Design Philosophy:

The LS 99 was designed to offer World-Class Performance. It uses the best components and proprietary circuitry to offer a full, fast and accurate recreation of the entire frequency range. The bass is deep, tight and authoritative and at high frequencies sparkle. The tonal balance is designed to be accurate and detailed without edge or glare. The liquidity and holographic imaging of tubes is present, without the 'soft' or 'syrupy' sound often attributed to tube designs. Use of the very linear 6922 drive, tube rectification and pure Class A, dual mono circuitry allow for low distortion and exceptionally low noise.

Every step in the design was taken with the goal of creating a product that simply allows ultimate enjoyment of the musical experience.

Warranty:

ModWright agrees to warranty products for a period of 5 years from date of purchase from a factory authorized ModWright Instruments Dealer.

Warranty covers parts and labor for repairs due to equipment failure not related to customer abuse and/or neglect. The customer is responsible for shipping costs to and from ModWright Instruments or authorized service center.

There are no user-serviceable parts inside the amplifier and evidence that someone other than a ModWright Instruments Factory Authorized service professional has opened the product enclosure or in any way tampered with the internal workings of the unit, including replacement of stock fuses, will void factory warranty.

Warranty is non-transferable to second party.

Contact Information:

If you have any questions about ModWright Instruments products or ModWright modifications or products, please do not hesitate to contact us via phone, e-mail or conventional mail.

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Thank you for purchasing a ModWright Instruments product.

Dan Wright,
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