

LS 300

Owner's Manual

Manufactured by ModWright Instruments, Inc.
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USA

Introduction:

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

The LS 300 preamp offers high bandwidth, low distortion, and exceptional musicality. We have designed this unit to allow the reproduction of recordings that is accurate, transparent and musical. Please note, absolute phase is variable and may be set via the remote

NOTE: *When the unit first powers up, it is DOES NOT invert absolute phase. Absolute phase may be toggled IN or OUT via the remote control phase button. When the PHASE led is illuminated, then absolute phase is inverted. Pushing the phase button on the remote again will revert to absolute phase being non-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, 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 300 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 300 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 300 IS TURNED OFF, FRONT CHANNEL AMPS WILL RECEIVE 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 power supply.*

Setup:

It is always recommended to remove all tubes before shipping the unit. Be sure that the LS 300 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 (2) rectifier tube in ceramic octal sockets in preamp prior to use. All tubes may only be inserted one way.

After tubes are installed, ***connect both Left (L) and Right (R) umbilicals to the 'male' 8-pin barrel sockets on the back of the preamp, labeled PWR(L) and PWR(R).*** The umbilicals must be lined up with pins and then outer barrel securely tightened until connection is secure. Connect the other end of the two umbilicals to the two 'female' 8-pin barrel sockets on the external power supply labeled (L) and (R) and secure in the same manner. ***Both umbilicals are identical, but they must be connected to the corresponding (L) or (R) connector at both power supply and preamp end. If they are not connected properly, the unit will not operate as intended.*** They 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 300 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 inputs, 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 button. 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 button is depressed 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 300 IS POWERED DOWN, HT/BP INPUT AUTOMATICALLY DEFAULTS TO HOME THEATER BYPASS MODE.**

The LS 300 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, unit is designed for use with 120V-60Hz AC power. Main fuse is accessible from the back of the supply, in a twist lock module. (**ONLY REMOVE FUSE WHEN 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.

There is a toggle switch located on the rear of the unit, adjacent to the power entry (IEC) input. In the 'DOWN' position, signal and power supply grounds are connected to chassis and earth ground. When toggle is in 'UP' position, chassis and earth grounds are disconnected from signal and power grounds. It is ideal to leave this switch in the 'DOWN' position unless system experiences ground loop hum or buzz issues due to system grounding configuration. You should **ALWAYS** use a grounded AC cord with this product. The chassis is always connected to earth ground if unit is fitted with 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 button 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 300 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 depressing the Mute button on the front panel. If 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 button is depressed. When the unit powers up, the phase indicator will not be illuminated, indicating that signal is phase correct, or non-inverted. If the phase button on the remote 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 preamplifier first and amplifier last. When shutting any system down, it is recommended to turn off amplifier first and preamplifier last.

The LS 300 includes remote volume, mute and absolute phase control, via the included custom MWI remote control unit. Volume is controlled by depressing the Volume '+' and '-' buttons. Mute is indicated by the 'mute' symbol and Phase is indicated by the 'ϕ' symbol. These buttons are labeled on the remote. Remote may be used to mute/unmute, toggle phase and adjust volume up or down. While the remote includes other buttons such as, PWR, STANDBY, INPUT, MON., BAL. and TRIG., 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 300 in HT/BP mode, signal level is controlled by the preamp/processor before entering the HT/BP input of the LS 300 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 another position. If this is done, then when the HTBP button is depressed and HTBP mode enabled, the input connected to the HTBP RCA inputs will pass straight through to the main outs.

In order to operate the LS 300 in HT/BP mode, three steps are required:

- 1. Make sure that input select is NOT in HTBP position.**
- 2. Depress the HT/BP button.**
- 3. Switch the GND toggle to the GND(0) position (down).**

This serves to connect the HT/BP inputs directly to the main RCA and XLR outs and also 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 300 uses two 6922 (6dj8 or 7308) signal tubes and two (5AR4 or equivalent) rectifier tubes 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 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 tubes are installed in eight-pin (octal) ceramic tube sockets that are spline-keyed to be installed only one way. Gently but firmly press the rectifier tube into socket until fully seated. **DO NOT POWER UNIT ON UNTIL TUBES ARE FULLY SEATED.**

Technical Specifications:

Tube Complement: (2) 6922/6dj8/7308 signal tubes, (2) 5AR4/GZ34 (or equivalent) rectifier tube.
Gain: ~10dB.
Input Impedance: 30Kohm.
Output Impedance: ~110ohm.
Frequency Response: 10Hz – 150Khz (-1dB)
Noise Level: -110dB.
Weight: 29 lbs. (34 lb. packed)
Dimensions: 17-1/2"W x 12-1/2"D x 4-3/4"H.

Basic Specifications:

(2) Pair XLR inputs, (2) pair RCA Inputs.
(2) Pair RCA Main outs, (2) pair Balanced XLR Main outs.
(1) Pair RCA HT/BP inputs.
Power, Input Select, Mute, Phase, Home Theater Bypass (HT/BP) and volume.

Design Information:

Power Supply: Fully dual mono, tube rectified, choke 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 300 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. Bass is deep, tight and authoritative and high frequencies sparkle. The tonal balanced 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:

All ModWright Instruments products are warranted for a full five years from date of purchase. Any problems with unit not attributed to abuse, neglect or mistreatment shall be covered at no cost to owner. Customer will be responsible for all shipping costs. Tubes are warranted for a period of three months following date of purchase. Warranty is non-transferable. Only units sold by factory-authorized dealers shall have valid warranty.

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.

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