

# LS 36.5 / LS/PS 36.5 'DM'

## Owner's Manual



Manufactured by ModWright Instruments, Inc.  
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USA

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## **Notes and Cautions:**

**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 unit first powers up, or when the unit is engaged to IN PHASE via the remote, the phase toggle switch on the front of the unit will remain inoperable until the unit is toggled again OUT of PHASE via the remote. This is only true when unit is first powered on and when phase is set to 'IN PHASE' via the remote. This will be indicated by a blue glow from inside the unit.*

**Note:** *What appears to be an LED above the Phase switch is actually the IR 'eye' or receiver for the remote control. This will not light up.*

**Note:** Rectangular plate installed above the power input (IEC) connector covers a hole that allows for future outboard PS 36.5 power supply upgrade.

**CAUTION:** *DO NOT use any other signal tubes other than the 6H30 or you WILL DAMAGE this unit. The 5AR4/GZ34 rectifier tube may be exchanged for other equivalent type rectifier tubes of the 5AR4/GZ34 family. PS 36.5 (included with LS 36.5 'DM') may use 5U4GB, 5U4G, 5V4G, 5V4GB, 5AR4/GZ34 and equivalents.*

**CAUTION:** *Any source input connected to HT/BP inputs, will feed RCA 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 36.5 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 standard or HT/BP mode. Importantly however, when LS 36.5 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 LS 36.5 IS TURNED ON, 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.*

**CAUTION:** **WHEN LS 36.5 IS POWERED DOWN, HT/BP INPUT AUTOMATICALLY DEFAULTS TO BYPASS MODE. ANY INPUT CONNECTED TO HT/BP INPUT WILL FEED MAIN OUTS WITH NO VOLUME ATTENUATION.**

**WARNING:** **DO NOT POWER UNIT ON UNTIL LID IS ENTIRELY FASTENED. VERY HIGH VOLTAGES ARE PRESENT INSIDE UNIT DURING OPERATION AND IT IS CRITICAL THAT THE PREAMP ENCLOSURE NOT BE OPEN WHEN UNIT IS**

**POWERED ON. FAILURE TO DO SO MAY RESULT IN SERIOUS INJURY OR DEATH.**

## **Introduction:**

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

The LS 36.5 linestage 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 and front panel control.

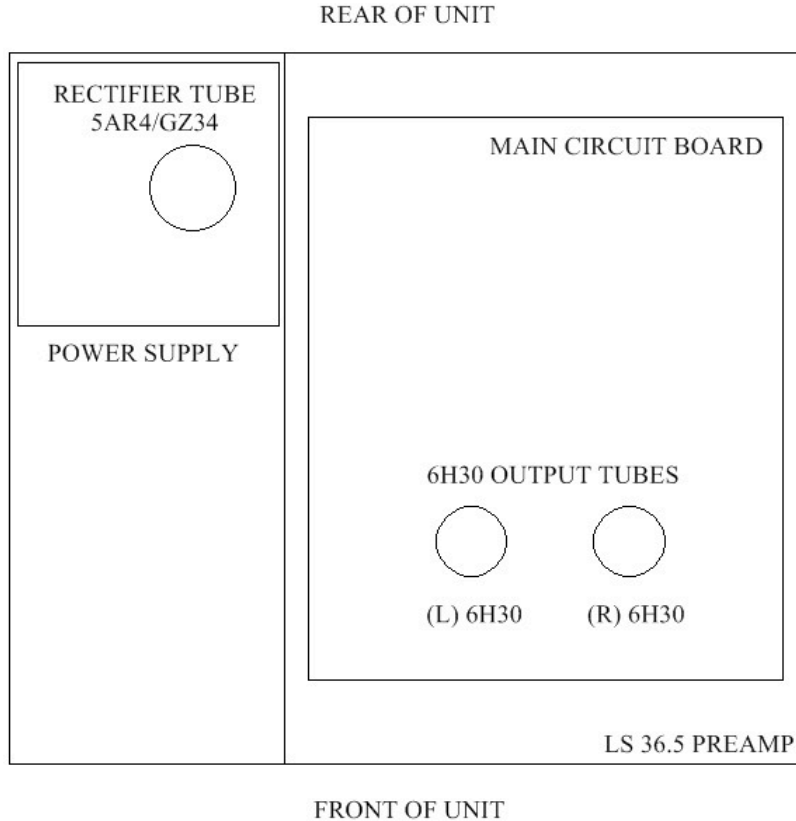
## **Design Philosophy:**

The LS 36.5 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 6H30 tube, tube rectification and pure Class A circuitry allow for low distortion and exceptionally low noise.

Top quality parts are used throughout, including proprietary custom designed MWI metalized, oil-impregnated polypropylene and pure Teflon film and copper foil capacitors in signal path applications insure exceptional performance. Every step in the design was taken with the goal of creating a product that simply allows ultimate enjoyment of the musical experience.

## Setup:

Be sure that LS 36.5 is NOT connected to AC power and that power plug is disconnected from unit and wall outlet. Use supplied 5/64" hex driver to remove lid screws and install (2) 6H30 signal tubes in 9-pin sockets and (1) 5AR4/GZ34 rectifier tube in octal socket on power supply circuit board prior to use. After tubes are installed, replace lid and secure with screws. Only after this, should the power cord be connected. All tubes may only be inserted one way.



**DO NOT POWER UNIT ON UNTIL LID IS ENTIRELY FASTENED. VERY HIGH VOLTAGES PRESENT INSIDE UNIT DURING OPERATION. IT IS CRITICAL THAT PREAMP ENCLOSURE NOT BE OPEN WHEN UNIT IS POWERED ON. FAILURE TO DO SO MAY RESULT IN SERIOUS INJURY OR DEATH.**

## Powering Up:

When first powered on, blue LEDs above both power and mute switches will be lit. The unit will remain in mute for approximately 45-seconds, allowing for tubes to stabilize and gently reach operating voltage. The volume control will automatically return to the '0' position at this time. When unit is operational, mute LED will no longer be lit.



## **Operation:**

The face of the preamp features four buttons and two rotary knobs. The buttons are labeled from left to right: power, mute, phase, and HT/BP (Home Theater Bypass). The left rotary knob is input select, right rotary knob is volume control.

When first powered on, blue LEDs above both power and mute switches will be lit. There will also be a faint blue glow inside the enclosure. The unit will remain in mute for approximately 45-seconds, allowing for tubes to stabilize and gently reach operating voltage. The volume control will automatically return to the '0' position at this time. When the unit is operational, mute LED will no longer be lit.

At startup, a blue glow from inside unit will indicate that unit is 'IN PHASE', i.e. does not invert absolute phase (polarity). The unit will remain this way until you toggle absolute phase via remote control phase button. After you do this, phase may be toggled via the front panel control.

## **Inputs:**

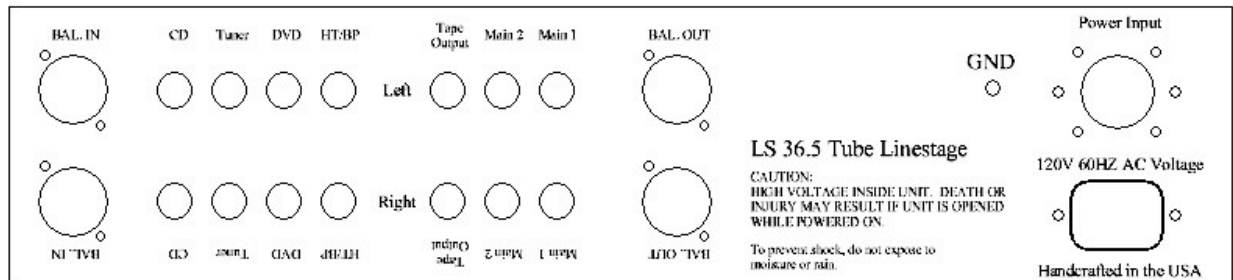
The LS 36.5 has five inputs, located on the back panel:

BAL. IN (XLR), CD (RCA), Tuner (RCA), DVD (RCA), and HT/BP (RCA).

Three main outs include BAL. OUT (XLR/Balanced), Main 1, Main 2 and Tape Output (All RCA).

Tape Out will output whichever input is selected, with no gain or attenuation.

HT/BP (Home Theater Input) is only for preamp processor or other input with integral volume control. When activated, HT/BP input bypasses all active circuitry and volume control, directly connecting to main outputs.







## **Input Select:**

The front panel of the LS 36.5 has five dots above the selector switch. The left most dot is BAL. IN. The right-most dot is 'HT/BP'. 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 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 unit is powered on and HT/BP 'Bypass' function is not engaged (LED above HT/BP button not illuminated) HT/BP input acts as a standard input, via RCA and XLR outputs. When HT/BP function is engaged (LED above HT/BP button illuminated), any input connected to HT/BP RCA jacks will be routed straight to RCA and XLR main outs, bypassing all gain stages and volume control. Note: HT/BP input first has to be selected via selector switch and only then may operate as standard input or in HT/BP mode.

**CAUTION: WHEN LS 36.5 IS POWERED DOWN, HT/BP INPUT AUTOMATICALLY DEFAULTS TO BYPASS MODE. ANY INPUT CONNECTED TO HT/BP INPUT WILL FEED MAIN OUTS WITH NO VOLUME ATTENUATION.**

## **Phase:**

Absolute phase (polarity) of main outs may be inverted via remote control and phase control on face of preamp. Unit powers up 'in-phase' and in this state, internal blue LEDs are lit. When internal LEDs are not lit, absolute phase (polarity) is reversed.

## **Power:**

This product 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 located inside unit, accessible by removing top cover. Only replace fuse with 1.6A Slo-Blo type.

**(ONLY DO SO WHEN UNIT IS POWERED OFF AND DISCONNECTED FROM ALL SOURCES OF POWER).**

## **Ground:**

The Ground toggle switch is located on the rear of the unit, near the power entry (IEC) input, labeled 'Gnd'. In the 'UP' position, signal and power supply grounds are (disconnected) from chassis and earth ground. When toggle is in 'DOWN' position, chassis and earth grounds are connected to signal and power grounds. It is typically best to leave this switch in '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.



## **HT/BP (Home Theater Bypass):**

The purpose of the HT/BP loop is to allow integration of 2CH audio into existing Home Theater systems utilizing preamp/processors with integral volume controls. When using preamp in HT/BP mode, signal level is controlled by preamp/processor before entering HT/BP input of preamp and is routed straight to main outs, presumably 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. If HT/BP switch is not engaged, any source connected to this input will be treated as a typical input source, with volume control and gain prior to signal output via Main Outputs.

## **Remote Control:**

The LS 36.5 includes remote volume, mute and absolute phase control, via the included custom MWI remote control unit. Other functions on the remote are not used for the LS 36.5.

## **Vacuum Tubes:**

The LS 36.5 uses two 6H30 signal tubes and one 5AR4/GZ34 rectifier tube in the power supply.

***CAUTION: DO NOT use any other signal tubes other than the 6H30 or you WILL DAMAGE this unit. The 5AR4/GZ34 rectifier tube may be exchanged for other equivalent type rectifier tubes of the 5AR4/GZ34 family. The PS 36.5 may also use 5U4G, 5U4GB, 5V4G, 5V4GB, 5AR4/GZ34 and their equivalents. The LS 36.5 without PS 36.5 may only use the 5AR4/GZ34 tubes due to physical height limitations inside the enclosure. The LS 36.5 should NOT be operated without the cover securely screwed in place.***

The tubes operate at moderately high current and high temperature. 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.

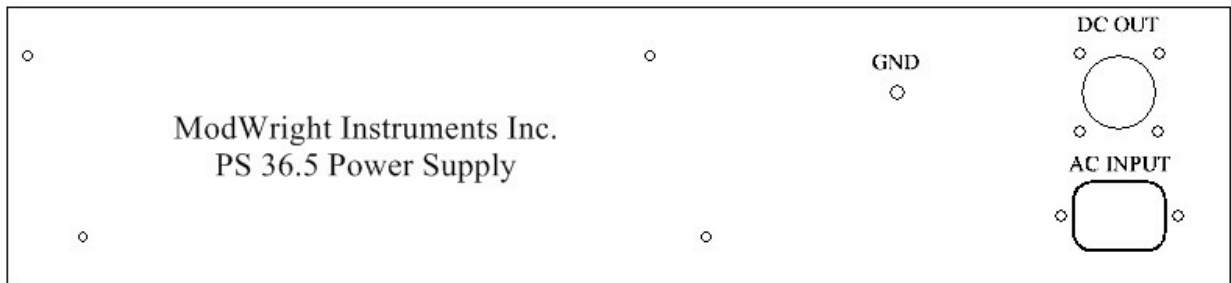
The tubes installed in the unit should work well for a very long time, but they may be replaced simply, provided certain precautions are taken. In order to access the tubes, you must first **POWER UNIT OFF AND DISCONNECT FROM ALL POWER SOURCES. FAILURE TO DO SO MAY RESULT IN SERIOUS INJURY OR DEATH.** You may then remove the top cover of the unit and access the tubes. If the unit has been recently in use, check tube temperature as they may still be very hot to the touch. The tubes operate at very high temperatures and will burn the skin if touched before they are allowed to adequately cool.



## **PS 36.5 (LS 36.5 ‘DM’):**

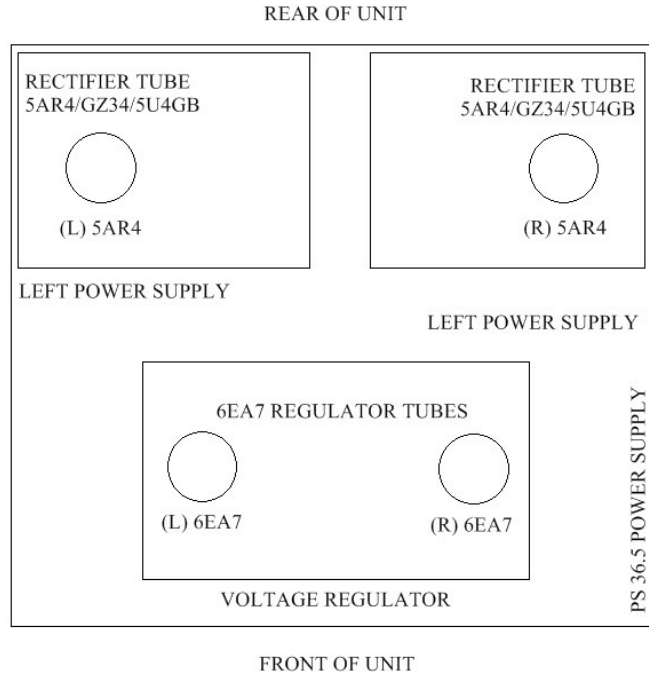
Please note that the PS 36.5 power supply connects to the preamp via a 10-pin umbilical. The umbilical has male/female ends that mate with corresponding connections on preamp and power supply. The male umbilical end goes to the PS 36.5 and the female end goes to the LS 36.5.

Cable connectors must be aligned with chassis receptacle and outer collar must be fully threaded onto receptacle. If unit fails to power up, verify that the cable is aligned properly and that male cable end is threaded onto female chassis receptacle.



## **PS 36.5 Tube Installation:**

The PS 36.5 is shipped with two 5AR4 (or 5U4GB) rectifier tubes and a pair of 6EA7/6EM7 voltage regulator tubes. The regulator tubes will be installed when shipped. The rectifier tubes are taller and are to be installed in the positions that allow them to extend through the top plate of the PS 36.5. Please refer to diagram below.



### **LS 36.5 'DM' Power Up:**

Once umbilical is connected between LS 36.5 and PS 36.5 and tubes are installed in LS 36.5 and PS 36.5, plug AC power cord into PS 36.5. There is only a single AC power cord for the LS 36.5 'DM', at the PS 36.5 power supply. All controls, including power switching operate from the LS 36.5.

LS 36.5 'DM' has the same functions as the LS 36.5 without external power supply.

## **Technical Specifications:**

- Tube Complement: (2) 6H30 signal tubes, (1) 5AR4/GZ34 rectifier tube.
- [(2) 6EA7/6EM7 and (2) 5AR4/GZ34 or 5U4GB rectifier tubes for PS 36.5 only.]
- Gain: ~12dB.
- Input Impedance: 50Kohm.
- Output Impedance: ~110ohm.
- Frequency Response: 20Hz – 100Khz (-1dB)
- Noise Level: -120dB.
- Shipping Weight: 30 lbs. (LS 36.5 with internal supply).
- Shipping Weight: 21 lb. (LS 36.5 for use with external PS 36.5).
- Shipping Weight: 38 lb. (PS 36.5 external power supply).
- Dimensions: 17-1/2”W x 12-1/2”D x 4-3/4”H. (Both LS 36.5 and PS 36.5).

## **Basic Specifications:**

- pair XLR inputs, (4) pair RCA Inputs.
- pair RCA Main outs, (1) set Balanced XLR Main outs.
- set RCA Tape Outs.
- Power, Input Select, Mute, Phase, Home Theater Bypass loop (HT/BP) and volume.

## **Design Information:**

- Power Supply: Choke input current regulated, regulated DC heaters, MWI custom B+ decoupling caps.
- Gain Stage: Proprietary ‘Mu’\* variation gain/buffer stage.
- Power Sequence: Mute-on delay turn-on sequence with soft-start B+ supply.
- Volume Control: Remote Control Alps motorized volume potentiometer.
- XLR inputs and Balanced XLR outputs.
- Absolute Phase control.
- Typical operation does NOT invert absolute phase.

*\*Alan Kimmel was consulted in the design process of this proprietary ‘Mu’ circuit.*



## **Warranty:**

ModWright agrees to warranty product for a period of 5 years from the 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. Customer is responsible for shipping costs to and from ModWright Instruments or authorized service center.

*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,  
President, Owner  
ModWright Instruments, Inc.

