

# IMPORTANT SAFETY INSTRUCTION – READ FIRST



This symbol, whenever it appears, alerts you to the presence of uninsulated dangerous voltage inside the enclosure-voltage that may be sufficient to constitute a risk of shock.



This symbol, wherever it appears, alerts you to important operating and maintenance instructions in the accompanying literature. Read manual.

## **Read instructions:**

Retain these safety and operating instructions for future reference. Heed all warnings printed here and on the equipment. Follow the operating instructions printed in this user guide.

## **Do not open:**

There are no user serviceable parts inside. Refer any service work to qualified technical personnel only.

## **Power sources:**

Connect the unit to mains power only of the type described in this user guide or marked on the rear panel. The power source must provide a good ground connection.

## **Power cord:**

Use the power cord with sealed mains plug appropriate for your local main supply as provided with the equipment. If the provided plug does not fit into your outlet consult your service agent. Route the power cord so that it is not likely to be walked on, stretched or pinched by items placed upon or against.

## **Grounding:**

Do not defeat the grounding and polarization means of the power cord plug. Do not remove or tamper with the ground connection on the power cord.

## **Ventilation:**

Do not obstruct the ventilation slots or position the unit where the air required for ventilation is impeded. If the unit is to be operated in a rack, case or other furniture ensure that it is constructed to allow adequate ventilation.

## **Moisture:**

To reduce the risk of fire or electrical shock do not expose the unit to rain, moisture or use in damp or wet conditions. Do not place container of liquid on it, which may spill into any openings.

## **Heat:**

Do not locate the unit in a place close to excessive heat or direct sunlight, as this could be a fire hazard. Locate the unit away from any equipment, which produces heat such as: power supplies, power amplifiers and heaters.

## **Environment:**

Protect from excessive dirt, dust, heat, and vibration when operating and storing. Avoid tobacco ash, drink spillage and smoke, especially that associated with smoke machines.

## **Handling:**

To prevent damage to the controls and cosmetics avoid rough handling and excessive vibration. Protect the controls from damage during transit. Use adequate padding if you need to ship the unit. To avoid injury to yourself or damage to the equipment take care when lifting, moving or carrying the unit.

## **Servicing:**

Switch off the equipment and unplug the power cord immediately if it is exposed to moisture, spilled liquid, objects fallen into opening, the power cord or plug becomes damaged during a lightning storm or if smoke odor or noise is noted. Refer servicing to qualified technical personnel only.

## **Installation:**

Install the unit in accordance with the instruction printed in the user guide.

# The ART DPS II™ DI/O Preamp System II

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# INTRODUCTION

Thank you for purchasing an ART DPS II™ (DI/O Preamp System II™) - and congratulations: You now own one of the most versatile preamplifiers available. Offering a superb level of sound quality, the DPS II™ hybrid tube and solid state circuit design, combined with a straightforward user interface, quickly and easily gives you access to all of its features - and moves you forward into the digital recording domain.

The ART DPS II™ is a tube microphone preamplification system designed with recording musicians in mind. It has been carefully designed, engineered and manufactured to provide you with years of great sound and reliable service.

The DPS II™ extends the range of applications by adding V3™ (Variable Valve Voicing™) which will help you to quickly and easily record a variety of instruments – including drums, keyboards, acoustic and electric guitars, and more. We also feature our OPL™ (Output Protection Limiter) to make V3™ even more powerful. The DPS II™ also functions as a direct box, with impedance matching and preamplification for instrument or line-level sources.

A versatile insert loop on each channel provides access for additional signal processing or direct access to our high quality A/D converter. Separate gain controls on analog and digital outputs allow you to optimize the unit for simultaneous applications.

Digital outputs include S/PDIF, TOSLINK or ADAT (front panel selectable). The A/D is front panel adjustable from 44.1KHz-96KHz or syncs to ADAT or external word clock (32KHz-100KHz). You can patch into any ADAT stream and select which pair (or ALL) of channels the DPS II™ transmits.

The DPS II™ also features ART Analog to Digital conversion system and ART Tube Technology similar to that of the ART D/IO. This ensures that when you are going from the analog preamplification to digital, your signal will be as warm and musical as you decide it to be.

## **DPS II FEATURES:**

- Dual Analog VU metering
- Dual LED input metering
- V3™ (Variable Valve Voicing) with OPL™ (switch selectable)
- Over 75 dB of gain
- Adjustable input impedance
- Hand selected 12AX7A dual triode tube
- Balanced XLR inputs and outputs
- \_” High impedance Instrument input and \_” line level output
- Automatic instrument input switching
- +48V Phantom Power (switch selectable)
- Phase Reverse Switch
- Gain (+20dB) Switch
- Input Gain Control
- Output Level Control
- ART A/D Conversion
- Lower Noise At Low Gains
- ADAT, S/PDIF, TOSLINK Digital Interfaces
- 24-bit/96 KHz Operation
- Fully shielded all-steel chassis
- Designed and developed in the USA

# INSTALLATION

The DPS II™ may be used in a wide variety of applications and environments. In a rack-mountable, all-steel enclosure, the unit is designed for continuous professional use. Mounting location is not critical. However, for greater reliability we recommend that you not place the units on top of power amps or other sources of heat. The tube circuitry needs about a minute to “warm up” from a cold power up.

## AC Power Hookup

The DPS II™ has an internal power supply designed to operate at 115 VAC @ 50 to 60 Hz. Units manufactured for use outside the United States of America have been modified to comply with the required electrical specifications.

## Analog Audio Connections

Audio connections to and from the DPS II™ are balanced XLR (Pin 2 = Hot (+), Pin 3 = Cold (-), Pin 1 = Ground) and unbalanced 1/4" (Tip = Hot (+), Sleeve = Ground). We recommend that you switch off the +48V Phantom Power whenever changing connections to the XLR input. The front mounted jacks can act as both a balanced XLR connection, and an unbalanced 1/4" connection.

# CONTROLS & INDICATORS

## Input Control

The Input Control sets the amount of input gain of the DPS II™. Turn the control clockwise to increase gain and counterclockwise to decrease gain. You may control two ranges of gain with this control, +20 to +68dB and +0 to +48dB. Selection of the gain range is made with the +20dB gain switch.

**NOTE:** This control, along with the **+20 dB Switch**, is responsible for any saturation of the tube. To change the tube character, utilize these 2 controls.

## +20db Gain Switch

Use the +20dB Gain Switch to set the gain range of the input control. When the switch is out, the unit operates in Normal mode. Depressing the switch adds 20dB of gain. For microphone applications, where more gain is needed, push the switch in. For hot line level inputs, set the switch in the out position.

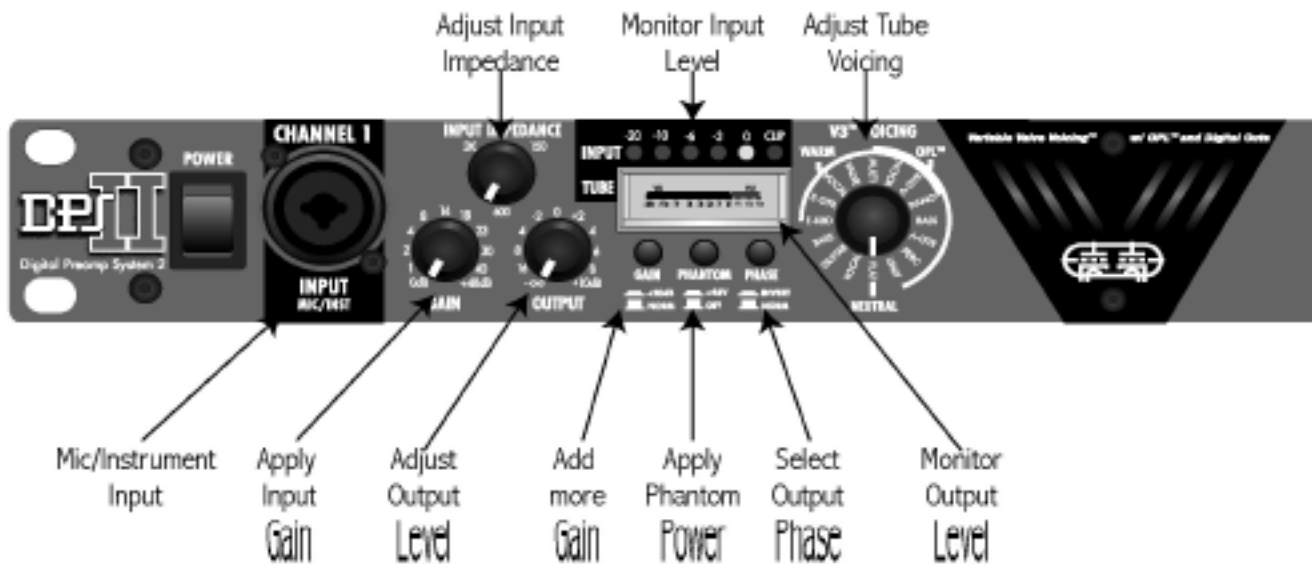
This switch also affects the tube circuit. When selecting +20dB of gain, the tube is driven harder and becomes the dominant source of gain and overload character.

## Input Impedance Control

The same microphone can sound different on various pre-amps. One reason is that every pre-amp presents a different load to on its' input, some even change as gain is changed! Our third generation discrete front end was designed to be absolutely transparent. Every nuance of the microphone is maintained providing detail masked by inferior pre-amps. The Input Impedance control is one key element in providing new versatility in voicing microphones.

*NOTE: the Input impedance control only affects mic/line inputs. The \_” instrument input on the front panel is NOT affected by this control in any way. The instrument input impedance is ALWAYS  $\geq 1M$  Ohm.*

Dynamic microphones are affected as much as phantom powered units.



*DPS II™ Front Panel Features – pictured above*

## Phantom Power +48v Switch

The DPS II™ can power any microphone needing +48 volts DC Phantom power. Phantom power is supplied to pins 2 and 3 of the XLR Input jack when this switch is depressed. The DPS II™ circuitry slowly applies and removes the +48volts, to prevent damage to microphones.

Be sure to turn down or mute the output of the DPS II™ when engaging or disengaging Phantom power. Additionally, when disengaging, allow 30 to 45 seconds for the power to completely discharge. Most microphones will make a sound like air leaking from a tire when Phantom power is disconnected, but some can make some very nasty low rumbles and whines as well.

Dynamic microphones should not be affected or damaged if they are plugged into a line where Phantom power is present. However, if the mic doesn't need it, do not use it. Some things are best left untested!

## Phase Reverse Switch

The Phase Reverse Switch is provided to reverse the phase of the signal. This switch works on Pins 2 and 3 of the XLR output jack and also reverses the polarity of the \_" output jack. In the Normal position, the signal is in-phase. In the Reverse (or "in") position, Pins 2 and 3 are reversed and the signal is changed to 180 degrees out of phase. Be sure to turn down or mute the output of the DPS II™ when engaging or disengaging the Phase Reverse Switch.

In multiple microphone applications, mic placement can affect the phase of the signals. If two microphones pick up the same signal from different locations, the result can be a hollow or frequency “shifted” sound. In some cases it may sound as if an instrument disappears if it happens to be 180 degrees out of phase. Depressing the Phase Switch can remedy this. In general, if your sound is “thin” or “out of position”, try reversing the phase to correct the problem.

## **V3™ – Variable Valve Voicing Control**

The DPS II™ features ART’s proprietary V3™ technology. V3™ (which stands for Variable Valve Voicing), provides optimized reference points to begin the recording process for guitars, bass guitars, synths, acoustic instruments, percussion and more.

ART engineers ran our preamplification circuit through a battery of tests and real life studio conditions. Our goal was to create a processor that would allow a user to have presets that were optimized for specific recording applications. We set out to create a preamp that would be nimble enough to handle both violins and kick drums, and everything in between.

We wanted to take the guessing out of the equation – and that is how we developed V3™. It’s simple, easy and it works really well.

For example, if you are recording an acoustic guitar, V3™ has a preset that has been optimized for that instrument. V3™ even features a multi setting, which is useful for a wide variety of applications – like overhead micing, broadcast and field recording.

This means that it is now quicker and easier than ever to make great recordings! Musicians want to play, not waste time adjusting knobs. No other microphone preamp is as user-friendly as the DPS II™.

## **LED Input Meter**

The Input Meter displays the output level of the discrete mic pre-amp, before the tube gain circuit. This peak-weighted meter allows you to get the best noise performance out of the unit and prevent input clipping.

The signal level should average –6 to 0 dB on the meter, occasionally hitting the clip light on the highest peaks. When the meter is in this range, you are getting the lowest noise and distortion out of the pre-amp stage.



Adjust the Input control to keep the meter in this range. The +20dB switch does not affect the meter, as it is part of the tube gain stage.

## **VU Meter**

The VU Meter gives an analog representation of the DPS II™ output signal level. Besides showing the average analog level, it is sensitive to attack transients. When not using OPL™, the VU Meter is a great indicator of how hard you are running the tube. It also helps in setting a consistent level as you change mics and instrument sources.

The VU Meter also reflects the impact of the OPL™ circuitry on the signal. For example, if the signal is “in the red” on the meter, the meter will reflect the attenuation of the signal when the OPL™ is activated, and the signal is brought out of the “red”.

## **Output Control**

The Output Control sets the output level of the DPS II™. When the control is fully counterclockwise, there is no output. Turning the control clockwise increases the level of the output signal.

When setting the Output level control, refer to the VU Meter for an accurate level leaving the preamp. The marking on the output control determines the meter calibration to output level. If the Output control is set to -10, then the output of the unit is -10dBu when the meter reads 0 VU. For +4 (pro) systems, set the Output control to +4 and the meter will be calibrated to your system levels.

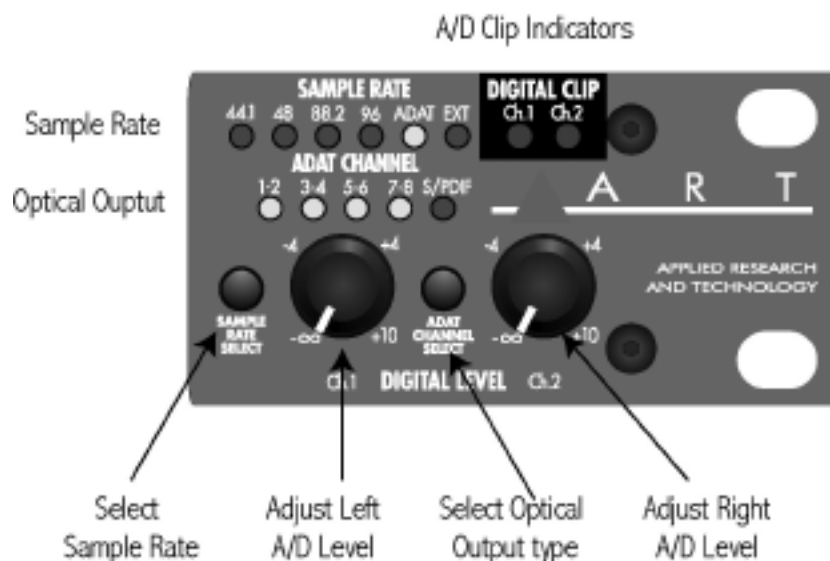
# **DIGITAL CONTROLS**

## **Digital Level Knobs**

The digital level knobs control the input gain to the digital converters of the DPS II™. The purpose of the digital level control is to get the loudest possible signal into the converters before clipping starts to occur. The front mounted clip lights easily notify the user before digital clipping occurs. For the optimal input signal, raise the gain until the digital clip lights just start to flicker, then back off on the digital level by a hair until the clip lights go out. One should most likely test this using the hottest signal they will be using (or use the OPL™ feature on the V3™ setting to get your levels just right.)

There are several paths in which audio can reach the digital signal converters. One is the using the analog inputs of the DPS II™. When used in said manner, the analog signals of both channels in the DPS II™ automatically go into the digital converters.

On the back of the DPS II™ there are insert jacks. One can either send out the signals to an effects processor, such as an ART Dual Levelar for additional compression, and return it to the DPS II™ using the rear TRS jacks on the back. One could also patch directly into the returns off the insert, and patch something directly to the A/D converters.



## Sample Rate Control

This button controls the current sampling rate the DPS II™ is working at. By cycling through the various settings, displayed by the upper LED row, one can use a variety of sampling rates. When the ADAT setting is used, the DPS II™ syncs to incoming ADAT clock on the ADAT input. If the ADAT LED is blinking, the DPS™ has failed to find a valid ADAT clock. When the LED is solidly lit, it has found an acceptable ADAT clock signal. When EXT is selected, the DPS II™ looks to the Word Clock input and synchronizes itself to that. If no word clock signal is present, the LED will blink informing you of that no valid word clock signal is present.

Typically, the higher the sample rate, the more accurate the digital conversion is - but frequently, one is limited by the digital recording system being used. Make sure that, when selecting your sampling rate, the digital recording system you are working with is capable of operating at the same rate.

## **ADAT Channel Control**

This button controls the current ADAT channel the DPS II™ is transmitting over. The DPS™ only transmits over ADAT when the sample rate is set to 44.1KHz, 48KHz (ADAT master clock mode), ADAT (ADAT Slave Clock mode), or EXT (Word Clock Sync mode). By toggling through, one can select to transmit over channels 1-2, 3-4, 5-6, 7-8, or all 8 of them at once. When no lights are on, this means all incoming ADAT channels are bypassed. This is frequently used when the DPS II™ is in an ADAT chain, but not currently being used.

## **CONNECTIONS**

It is easy to interface the unit with a wide variety of equipment. The front panel houses 2 dual-purpose \_" / XLR input jacks, and the rear houses balanced XLR and \_" inputs as well as balanced XLR and unbalanced \_" outputs. Standard \_" and XLR inputs and outputs make patching simple.

### **ANALOG CONNECTIONS:**

#### **Dual Purpose Input Jacks (Front)**

The front mounted, dual-purpose jacks act as both balanced XLR jacks, and unbalanced \_" jacks.

The XLR Input jacks are primarily intended for microphone input, and as such, can furnish Phantom Power when needed. They can handle up to +19 dBu signals, which is the hottest signal you would get out of any microphone. For even hotter input signals, you should use the \_" input jack. The XLR Input jack's variable input impedance is extremely flat over a wide frequency range, which allows it to be voiced to virtually any microphone (one of the lesser known secrets – it's why the unit will always sound good!).

The \_" Input jacks are for instrument and line level inputs. They have high input impedance to minimize any loading effects on instrument pickups. They can also handle up to +22 dBu signals for line level signals.

When a device is plugged into the \_" input jack, the mic pre-amp is bypassed. This allows you to keep the rear cannon input connected and override the mic input when you plug into the front panel instrument input. The Instrument input is NOT affected by the input Impedance control, it is always a high-Z input.

## Rear Input Jacks

The rear XLR and 1/4" input jacks are directly wired together. The 1/4" jack being wired TRS balanced (Tip = HOT, Ring = COLD, Sleeve = GROUND). The rear panel 1/4" jack is intended for low level line inputs. The input impedance of these jacks varies with the Input Impedance control from 150 to 3000 Ohms.

Use the front panel 1/4" input for instruments and unbalanced line level signals.

If the front 1/4" input is in use, the DPS II™ will use the instrument input and ignore the rear panel inputs.

## XLR Output Jacks (Rear)

The XLR Output jacks of the DPS II™ are active balanced. You may use them in an unbalanced configuration without harm to the output circuitry. The XLR outputs can provide a hefty signal level (+28dBu) at a low impedance, so make sure that you do not overdrive equipment with sensitive inputs. When using the DPS II™ on the front end of a mixer, go into the mixer's line in or insert inputs and not necessarily into the mixer's microphone input, unless the mixer can pad that input's level.

## 1/4" Output Jacks (Rear)

The 1/4" Output jacks are unbalanced and should be used for sending signals to amps, processors, or other unbalanced configurations.

Both balanced and unbalanced output connections may be used simultaneously. This is particularly useful when using the DPS II™ as a direct box for instruments or line level signals. Make sure that both pieces of equipment connected to the preamp's outputs are connected to the same earth ground, beforehand, to avoid electrical shock.

If you experience a grounding hum when using both output connectors (one to a console, one to an instrument amp) simultaneously, a ground loop may be the problem. To remedy this problem, disconnect the ground wire (pin 1) from the XLR cable plugged into the preamp's output. This interrupts the ground path, and therefore breaks the loop.

# **DIGITAL CONNECTIONS**

## **S/PDIF COAX Out (Rear)**

The digital coax output jack on the DPS II™ is an RCA type that outputs S/PDIF stereo signals over a coaxial shielded cable. The data format is S/PDIF stereo 24 bit data at up to 100KHz sampling rate.

Due to the wide bandwidth, A R T recommends the use of high quality, low loss, fully shielded cabling for the S/PDIF Coax connection.

## **OPTICAL ADAT Input (Rear)**

The optical input of the DPS II™ allows the user to use the DPS II™ within an ADAT chain. The DPS II™, when set to ADAT mode, synchronizes its sample rate with that of incoming ADAT clock signals. When in ADAT mode or EXT mode, the DPS II™ can transmit on channels 1-2, 3-4, 5-6, 7-8, all channels, or merely act as an ADAT through. When the DPS II™ is acting on 44.1 or 48 KHz sampling rate, it acts as an ADAT master, and it can only pass through ADAT channels if the source ADAT is in sync with the DPS II™.

## **OPTICAL ADAT Output/TOSLINK (Rear)**

The optical output is used for both TOSLINK and ADAT transmission. To transmit ADAT digital audio, the unit must be in 44.1KHz, 48 KHz, ADAT, or EXT mode. When in 44.1 or 48 KHz mode, the DPS™ acts as an ADAT master clock, when in ADAT mode the DPS™ syncs to incoming ADAT clock, and when in EXT, the DPS™ syncs to incoming Word Clock. In all 3 of these modes, one may set the ADAT transmission channels. When the output is set to S/PDIF, the DPS™ uses TOSLINK instead of ADAT transmission over the optical connection.

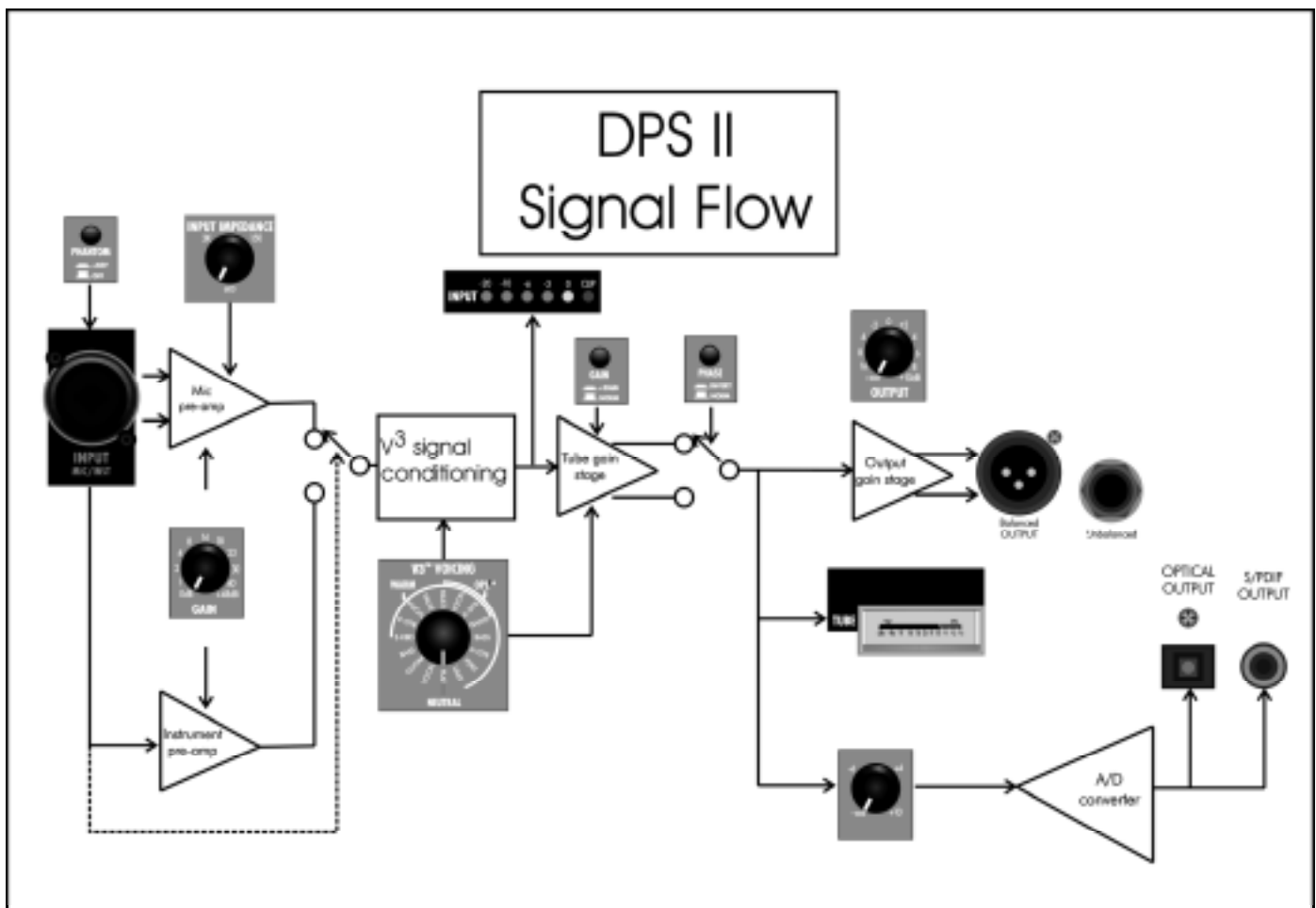
## **WORD CLOCK Input (Rear)**

The BNC connection on the back of the DPS II™ is used to synchronize the unit with an incoming Word Clock signal. To allow the DPS™ to sync up with the Word Clock input, set the Sample Rate to EXT. If no valid Word Clock signal is present, the EXT light will blink, notifying the user that it was unable to synchronize.

## ” Inserts (Rear)

The DPS II™ has 2 channel inserts that are routed just before the digital converters. The 2 female TRS jacks can be used to send the DPS II analog signal to an external processing device, and then return the effected signal to the digital converters. The RING of the TRS is used to send the signal out, and the TIP is routed to the digital converters. One could also simply plug the output of a device directly into the insert jacks to directly go into the converters.

## DPS II™ SIGNAL FLOW DIAGRAM



The above diagram outlines the signal flow of the DPS II™. It provides for a handy optical reference for what is occurring to the signal, and the various features of the DPS II™, and their location and interaction with the signal.

# OPERATION

The DPS II™ is one of the most versatile preamplification systems available. Through use of the V3™ technology, the DPS II™ can process numerous instruments. Simply mic the instrument (if acoustic), amp, speaker, or plug the instrument directly in to take full advantage of V3™ technology.

## **V3™ Settings and their applications when processing:**

When observing the V3™ dial from a clockwise perspective, the following settings are:

### **Neutral Settings:**

These are useful for uncolored, natural reproduction of sound.

- 6:00 - Neutral Flat
- 6:45 – Neutral Vocal (Microphone)
- 7:30 – Neutral Guitar Amplifier
- 8:15 – Neutral Bass Guitar

### **Warm Settings:**

These are useful when warming a signal is desired.

- 9:00 – Warm Electronic Keyboard
- 9:45 – Warm Electric Guitar
- 10:30 – Warm Vocal Microphone
- 11:15 – Warm Valve

### **Warm Settings with OPL:**

These are useful with high sound pressure levels, close proximity mic'ing, and spiky transients, as well as warming the signal.

- 12:00 – Warm OPL Multiple Applications
- 12:45 – Warm OPL Vocal
- 1:30 – Warm OPL Acoustic Guitar
- 2:15 – Warm OPL Piano

### **Neutral Settings with OPL:**

These are useful with high spl's, close mic'ing and spiky transients, as well as maintaining clarity.

- 3:00 – Neutral OPL Bass Guitar
- 3:45 – Neutral OPL Acoustic Guitar
- 4:30 – Neutral OPL Percussion
- 5:15 – Neutral OPL Limit

## Using V3™

The V3™ presets have been voiced with the intent of being a starting point for the recording process.

The key to good recordings is to consider all the variables you will encounter during the process.

For example...which microphone are you using? Are you recording a particularly bright guitar into a very trebly guitar amplifier? Are the strings on your acoustic made of metal or nylon? Is the room live or flat?

We mention this because V3™ is intended as a reference, not a hard-and-fast absolute. For your particular applications, your bass guitar may sound better through a non-bass preset.

If you need to, give it a twist...you'll find the setting for the tone you are searching for!

The DPS II™ is ideal for use as a DI box. Plug the instrument into either input and use the XLR or \_" (or both) outputs to connect to your recorder, board or PA system.

Because of its low noise, excellent tonal qualities, and high quality digital converters, the DPS II™ is ideal for running mixes through before recording to DAT, ADAT, DAW, or even into your computer. Used as a mastering device, the preamps are capable of adding warmth and gentle tube compression to the signal. Variable Input and Output level controls make the preamps in the DPS II™ ideal for level matching material in post production situations...an extremely valuable use!



# WARRANTY INFORMATION

## Limited Warranty

Applied Research and Technology will provide warranty and service for this unit in accordance with the following warrants:

Applied Research and Technology, (A R T) warrants to the original purchaser that this product and the components thereof will be free from defects in workmanship and materials for a period of three years from the date of purchase. Applied Research and Technology will, without charge, repair or replace, at its option, defective product or component parts upon prepaid delivery to the factory service department or authorized service center, accompanied by proof of purchase date in the form of a valid sales receipt.

### Exclusions:

This warranty does not apply in the event of misuse or abuse of the product or as a result of unauthorized alterations or repairs. This warranty is void if the serial number is altered, defaced, or removed.

A R T reserves the right to make changes in design or make additions to or improvements upon this product without any obligation to install the same on products previously manufactured.

A R T shall not be liable for any consequential damages, including without limitation damages resulting from loss of use. Some states do not allow limitations of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific rights and you may have other rights, which vary, from state to state.

For units purchased outside the United States, an authorized distributor of Applied Research and Technology will provide service.

# SERVICE

The following information is provided in the unlikely event that your unit requires service.

1) Be sure that the unit is the cause of the problem. Check to make sure the unit has the proper power supplied, all cables are connected correctly, and the cables themselves are in working condition.

2) If you find the unit to be at fault, write down a complete description of the problem, including how and when the problem occurs. Please write down a description of your complete setup before calling Customer Service.

3) Contact our Customer Service Department at (585) 436-2720 for your Return Authorization number or questions regarding technical assistance or repairs. Customer Service hours are 9:00 AM to 5:00 PM Eastern Time, Monday through Friday.

4) Pack the unit in its original carton or a reasonable substitute. The packing box is not recommended as a shipping carton. Put the packaged unit in another box for shipping. Print the RA number clearly on the outside of the shipping box. Print your return shipping address on the outside of the box.

5) Include with your unit: a return shipping address (we cannot ship to a P.O. Box), a copy of your purchase receipt, a daytime phone number, and a description of the problem.

6) Ship your unit (keep your manual!) to:

**APPLIED RESEARCH AND TECHNOLOGY**

215 TREMONT STREET  
ROCHESTER, NEW YORK 14608

RA# \_\_\_\_\_

Fill in the following information for your reference:

Date of purchase \_\_\_\_\_

Purchased from \_\_\_\_\_

**Serial number** \_\_\_\_\_

# DPS II™ SPECIFICATIONS

Dimensions	1.75"H x 19"W x 6.5"D
Weight	5.5 lbs.
Analog Input Connections	Front: XLR (balanced)/ _" (unbalanced) Rear: Switchable XLR (bal.)/ _" TS,
Analog Output Connections	XLR (balanced), _"TS,
Digital Input Connections	ADAT Optical, Word Clock BNC
Digital Output Connections	ADAT Optical/TOSLINK, S/PDIF RCA
Analog Input Impedance	XLR –150 to 3K Ohms, _" -1M ohm
Analog Output Impedance	XLR-300 ohms, _" -150ohms
Word Clock Specifications	BNC jack, 5V max., Ext. sync mode source
Digital Level	-∞ to +10dB
Digital Output Specifications	S/PDIF RCA 75 ohms, 0.5 Volt
Maximum Input Level	+19dBu
Maximum Output Level, XLR	+28dBu
Maximum Output Level, _"	+22dBu
CMRR	>75dB (typical @ 1KHz)
Frequency Response	5Hz to 50KHz, ±0.5dB
Dynamic Range	>100dB
Total Harmonic Distortion	<0.01% (clean), <0.1%(warm)
Maximum Gain	
XLR to XLR	80dB
Inst. to _"	68dB
XLR to _"	74dB
Inst. to XLR	74dB
Equivalent Input Noise (EIN)	
XLR to XLR	-129dBu (A weighted)
Inst. to _"	-105dBu (A weighted)
Tube Type	12AX7A, Dual Triode, Hand Selected
Power Requirements	USA – 110-125V AC / 50-60hz/ 16W export units configured for country of destination.

ART maintains a policy of constant product improvement. ART reserves the right to make changes in design or make additions to or improvements upon this product without any obligation to install same on products previously manufactured. Therefore, specifications are subject to change without notice.