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Pass Laboratories Inc.

## PRODUCT BROCHURE

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AMPLIFIERS  
PREAMPLIFIERS

**THIRTY YEARS**



# AMPLIFIERS

CLASS A • CLASS AB • INTEGRATED • HEADPHONE AMP

We began thinking about and working on a new amplifier design, initially referred to as the "Concept Amp" about ten years ago. We felt that it was time for us to improve and build on the "X" amplifier design but to extend it to higher sonic performance.

Our first decision was that the amplifier should exist in a two chassis format so that we could make the power supply larger and isolate it physically from the amplifier channel for improved noise. We also decided to build it with as much heat sinking as possible so that we had a wide margin to use high bias on the output stages of the amplifier.

## CLASS A

**MONO** Xs300 • Xs150 • XA200.8 • XA160.8 • XA100.8 • XA60.8

**STEREO** XA30.8 • XA25

## CLASS AB

**MONO** X600.8 • X260.8

**STEREO** X350.8 • X250.8 • X150.8

## INTEGRATED

**STEREO** INT-250 • INT-60 • INT-25

## HEADPHONE AMP

**STEREO** HPA - 1





## Xs300

The Xs series monoblock power amplifiers represent the reference-quality, state-of-art amplifiers from Pass Laboratories. Through years of "spare no effort" endeavor, they represent the true pinnacle of music reproduction. The Xs 300 delivers 300 watts, employs separate power supply and amplifier chassis' for lower noise and utilizes higher-power constant-current source. Single-ended bias current not only lowers distortion, but facilitates better control of its harmonic structure, tweaked and optimized through endless listening tests for your musical pleasure.

### Xs 300 SPECIFICATIONS

Class	A
Type	Mono
Gain (dB)	26
Inputs	XLR/RCA
Power Output /ch (8 ohm)	300
No Output devices (/ch)	112
Power Consumption (Watts)	900
Standby Power Consumption (Watts)	<1
Number of Chassis	2
Unit Dimension (W x D x H) (In.)	19 x 27.5 x 11 x 2
Unit Weight (LBS)	134 / 172

## Xs150

Like the Xs 300, this amplifier was developed through constant and thorough innovation. After years of SIT device experimentation, followed by deployment in Nelson's First Watt designs, circuit modification captured the unique tube-like sonic footprint of SITs from much higher-output MOSFET devices used in the Xs series. The result is unparalleled, fatigue-free listening enjoyment.

### Xs 150 SPECIFICATIONS

Class	A
Type	Mono
Gain (dB)	26
Inputs	XLR/RCA
Power Output /ch (8 ohm)	150
No Output devices (/ch)	112
Power Consumption (Watts)	700
Standby Power Consumption (Watts)	<1
Number of Chassis	2
Unit Dimension (W x D x H) (In.)	19 x 21.5 x 11 x 2
Unit Weight (LBS)	102 / 132



# XA200.8

Are fabulous-sounding 400-watt-plus per channel class-A peaks attainable without loss of the musical detail or audible meltdown? Yes, through repeated listening tests and continual technical innovation that push performance standards, the XA200.8 achieves what most amplifiers can only dream about. Even for the most demanding, complex musical passages in larger rooms at high sound pressure levels, this model offers headroom to spare.

## XA200.8 SPECIFICATIONS

Class	A
Type	Mono
Gain (dB)	26
Inputs	XLR/RCA
Power Output /ch (8 ohm)	200
No Output devices (/ch)	72
Power Consumption (Watts)	760
Standby Power Consumption (Watts)	<1
Number of Chassis	1
Unit Dimension (W x D x H) (In.)	19 x 27.5 x 11
Unit Weight (LBS)	157



# XA160.8

More of just about everything: 72 output power-MOSFETs, higher input impedance, higher capacity power supply and the ability to deliver over 320 peak channel in class A with greater dampening. The 160.8's deliver power and finesse in spades. Voices take on shape and depth, piano notes arrive with full acoustic integrity and the rest of the rhythm section is delivered with both powerful attack and holographic sustain. The effortless conveyance of musicality and realism must be heard to be believed.

## XA160.8 SPECIFICATIONS

Class	A
Type	Mono
Gain (dB)	26
Inputs	XLR/RCA
Power Output /ch (8 ohm)	160
No Output devices (/ch)	72
Power Consumption (Watts)	580
Standby Power Consumption (Watts)	<1
Number of Chassis	1
Unit Dimension (W x D x H) (In.)	19 x 21.5 x 11
Unit Weight (LBS)	123



## XA100.8

The middle sibling of the XA.8 series, the XA100.8's realize a muscular yet highly refined sonic profile. Like all Pass Laboratory's power amplifiers, they features both single-ended and balanced inputs, Furutech five-way binding posts and a convenient ground terminal for safe subwoofer connection. Improved constant-current sourcing, precise voltage references and current-feedback all represent new benchmarks in state-of-art amplifier design. The result is a larger, more realistic soundstage, sharper transient response and the prized ability to reach concert-hall dynamics and realism without strain.

### XA100.8 SPECIFICATIONS

Class	A
Type	Mono
Gain (dB)	26
Inputs	XLR/RCA
Power Output /ch (8 ohm)	(8 ohm) 100
No Output devices (/ch)	56
Power Consumption (Watts)	420
Standby Power Consumption (Watts)	<1
Number of Chassis	1
Unit Dimension (W x D x H) (In.)	19 x 21.25 x 9
Unit Weight (LBS)	99

## XA60.8

Offering all the sonic benefits of the .8 amplifier line, a pair of XA60.8's also grace the listener with mono-block performance: dedicated power supplies for each channel, dedicated circuitry for each channel and dedicated chassis' for each channel offer a cleaner, better defined image and soundstage. Beautiful to the ears and eyes, this model achieves levels of focus and intimacy normally associated with the finest tube amplifiers. The XA60.8's do all of this while providing greater control and power.

### XA60.8 SPECIFICATIONS

Class	A
Type	Mono
Gain (dB)	26
Inputs	XLR/RCA
Power Output /ch (8 ohm)	60
No Output devices (/ch)	40
Power Consumption (Watts)	400
Standby Power Consumption (Watts)	<1
Number of Chassis	1
Unit Dimension (W x D x H) (In.)	19 x 21.25 x 7.5
Unit Weight (LBS)	88



# XA30.8

An exceptional stereo power amplifier on many levels - high-biased MOSFETs providing higher-power class A operation, direct-coupled front-end circuitry for exceptionally high stability and larger, more robust heats sinks similar to those of the larger .8 amplifiers. The list goes on, but listening may tell you the XA30.8 represents a value high-point -- quite possibly your particular optimal balance between performance and cost.

## XA30.8 SPECIFICATIONS

Class	A
Type	Stereo
Gain (dB)	26
Inputs	XLR/RCA
Power Output /ch (8 ohm)	30
No Output devices (/ch)	40
Power Consumption (Watts)	400
Standby Power Consumption (Watts)	<1
Number of Chassis	1
Unit Dimension (W x D x H) (In.)	19 x 21.25 x 7.5
Unit Weight (LBS)	88



# XA25

The new XA25 offers great sound at slightly lower power, without frills, at a lower price. It embodies new components and innovative circuits coupled with the best elements of the previous generation.

Degeneration, "*the other form of feedback*", has been eliminated. The output stage consists of a single pair of 800 watt new generation output transistors operating push-pull Class A.

The result is faster, lower distortion, lower noise, higher damping and larger Class A operating envelope into low impedance loudspeakers, all in a simple 3 stage circuit with total of three pair of push-pull gain transistors.

## XA25 SPECIFICATIONS

Class	A
Type	Stereo
Gain (dB)	20
Inputs	RCA
Power Output /ch (8 ohm)	25
No Output devices (/ch)	4
Power Consumption (Watts)	240
Standby Power Consumption (Watts)	<1
Number of Chassis	1
Unit Dimension (W x D x H) (In.)	17 x 17.25 x 6
Unit Weight (LBS)	48,5



## X600.8

The X600.8 monoblock amplifiers deliver 600 watts into 8 ohms. Even more impressive they effortlessly drive the most demanding loudspeakers to musical nirvana, be the performance full scale orchestra, high-decibel rock band or string quartet. Exhaustive listening tests, not myopic focus on specifications have informed the development of this and the rest of the Pass Labs product offering, and you can hear it.

### X600.8 SPECIFICATIONS

Class	AB
Type	Mono
Gain (dB)	26
Inputs	XLR/RCA
Power Output /ch (8 ohm)	600
No Output devices (/ch)	72
Power Consumption (Watts)	550
Standby Power Consumption (Watts)	<1
Number of Chassis	1
Unit Dimension (W x D x H) (In.)	19 x 21.5 x 11
Unit Weight (LBS)	123

## X260.8

The X260.8 is a refined musical instrument delivering 260 watts into 8 ohms, and combines power and finesse with all the benefits of mono-block performance. Its measured performance - distortion, bandwidth, noise, and resolution is beyond reproach. Like all of the class A/B .8's, this amplifier has some class A bias, rewarding its listeners with a whole new zenith of sound quality.

### X260.8 SPECIFICATIONS

Class	AB
Type	Mono
Gain (dB)	26
Inputs	XLR/RCA
Power Output /ch (8 ohm)	260
No Output devices (/ch)	40
Power Consumption (Watts)	375
Standby Power Consumption (Watts)	<1
Number of Chassis	1
Unit Dimension (W x D x H) (In.)	19 x 21.25 x 7.5
Unit Weight (LBS)	88





## X350.8

At 350 watts per channel class A/B, the X350.8 is the largest and most powerful stereo power amplifier of Pass Labs line-up. Because we care more about how holistic design affects the musical experience and relatively less about how parts affect specifications, you can expect superb and accurate representation of the recording performance and venue, as well as the distinctive layering of instruments captured faithfully.

### X350.8 SPECIFICATIONS

Class	AB
Type	Stereo
Gain (dB)	26
Inputs	XLR/RCA
Power Output /ch (8 ohm)	350
No Output devices (/ch)	72
Power Consumption (Watts)	550
Standby Power Consumption (Watts)	<1
Number of Chassis	1
Unit Dimension (W x D x H) (In.)	19 x 21.5 x 11
Unit Weight (LBS)	127

## X250.8

This stereo class A/B model represents a step up in power and performance from the X150.8 and, like all of our products, has been painstakingly designed, tweaked, redesigned and fine-tuned to deliver maximum musical enjoyment. This hard work and creativity results in a greater "look-back" at the original musical performance, conveying additional insight to the artist's creative intent. Isn't that what it's all about?

### X250.8 SPECIFICATIONS

Class	AB
Type	Stereo
Gain (dB)	26
Inputs	XLR/RCA
Power Output /ch (8 ohm)	250
No Output devices (/ch)	56
Power Consumption (Watts)	450
Standby Power Consumption (Watts)	<1
Number of Chassis	1
Unit Dimension (W x D x H) (In.)	19 x 21.25 x 9
Unit Weight (LBS)	100



# X150.8

As the entry-level class A/B stereo power .8 amplifier, the X150.8 features many of the same technical and sonic attributes of its larger brethren. It features 150 watts per channel, 100K ohm input impedance and operates "higher" into Class A than its predecessors. But knowing the ear is not a microphone and the brain is not a tape recorder, we've designed this model to bridge the gap between measured performance and outstanding subjective musical experience. Simply put, the X150.8 will compel you to listen to your entire music collection again and again.

## X150.8 SPECIFICATIONS

Class	AB
Type	Stereo
Gain (dB)	26
Inputs	XLR/RCA
Power Output /ch (8 ohm)	150
No Output devices (/ch)	40
Power Consumption (Watts)	375
Standby Power Consumption (Watts)	<1
Number of Chassis	1
Unit Dimension (W x D x H) (In.)	19 x 21.25 x 7.5
Unit Weight (LBS)	88



# INT-250

Like the INT-60, the INT-250 utilizes the synergies developed in the .8 series power amplifiers. Unlike the INT-60, however, it brings 250 watts per channel of listening pleasure. The INT-250 drives large, demanding and relatively inefficient loudspeakers at higher volumes without batting an eyelash, singing beautifully. Just incredible music from one component.

## INT-250 SPECIFICATIONS

Class	AB
Type	Stereo
Gain (dB)	30/36
Volume control (1dB steps)	63dB
Remote	Yes
Inputs	4
Outputs	2
Power Output /ch (8 ohm)	250 Watt
Power Consumption (W)	450
Standby Power Consumption (W)	<1
Dimensions (W x H x D)	19 x 21.25 x 9.1
Weight (LBS)	105



## INT-60

This integrated amplifier sets a new benchmark in significantly narrowing any perceived performance gap between separate components and integrated amplifiers. Advanced technologies and real-world testing combine to create the INT-60 which presents 60 glorious watts per channel into 8 ohms, and doesn't leave class A until 30 watts thanks to its high-bias operation. This larger class A operating envelope brings lower distortion and greater loudspeaker control, delivering higher quality musical fidelity for your enjoyment.

### INT-60 SPECIFICATIONS

Class	<b>AB</b>
Type	<b>Stereo</b>
Gain (dB)	<b>29/35</b>
Volume control (1dB steps)	<b>63dB</b>
Remote	<b>Yes</b>
Inputs	<b>4</b>
Outputs	<b>2</b>
Power Output /ch (8 ohm)	<b>60 Watts</b>
Power Consumption (W)	<b>375</b>
Standby Power Consumption (W)	<b>&lt;1</b>
Dimensions (W x H x D)	<b>19 x 21.2 x 7.6</b>
Weight (LBS)	<b>93</b>

## INT-25

The INT-25 embodies all this and less. A smaller stereo Class A amplifier at a lower price, it takes advantage of the lower power requirements to have simpler single-ended circuitry and fewer parts in the signal path. This also allows elimination of degeneration, "that other negative feedback" in all stages.

### INT-25 SPECIFICATIONS

Class	<b>A</b>
Type	<b>Stereo</b>
Gain (dB)	<b>29/35</b>
Volume control (1dB steps)	<b>63dB</b>
Remote	<b>Yes</b>
Inputs	<b>3</b>
Outputs	<b>0</b>
Power Output /ch (8 ohm)	<b>25 Watts</b>
Power Consumption (W)	<b>200</b>
Standby Power Consumption (W)	<b>&lt;1</b>
Dimensions (W x H x D)	<b>17 x 17.375 x 6</b>
Weight (LBS)	<b>49</b>



# HPA-1

The HPA-1 headphone amplifier was designed ground-up to become what we believe is one of the very best sounding headphone amplifiers available today. With low feedback, wide bandwidth and a direct coupled MOSFET output stage, this musical instrument drives even the most difficult headphone loads with ease, power and grace. The HPA-1 also functions as a line-level preamplifier that sonically rivals much higher-priced competition. The measured performance is superb and the sound even better.

## X150.8 SPECIFICATIONS

Gain (dB)	8 db
Frequency Response 10hz - 100k	-1 dB
Output Power into 20 ohms	3500 mW
THD + Noise	< 0.005 at 1V out
Out Power into 300 ohms	200 mW
Input Impedance	50K Ohm
Output Impedance	< 2 ohms
Power Consumption (Watts)	23
Unit Dimension (W x D x H) (In.)	11 x 13.5 x 4
Unit Weight (LBS)	14



Pass Laboratories

## Elevate your Experience.



**PASS**

# PREAMPLIFIERS

LINE PREAMPS • PHONO PREAMPS

There are people who do not know that Wayne Colburn has designed the Pass Labs preamplifier products for the last 20 years. Wayne's modesty has tended to keep him out of the spotlight. When we began development of the Xs power amplifier five years ago, we knew that we would also need a companion piece. Of course, back then we thought we could have this done in a year or so... Wayne was given carte blanche on the design and an unlimited budget, and lots of time to play with many exotic parts and materials.

Naturally the comparison will be made with its predecessor, XP-30 line stage preamp. The most obvious difference is that the Xs comes in only two chassis, where the XP-30 had at least three chassis, one for supply and control, and one chassis per channel for as many channels as you might reasonably want.

The Xs designed solely for two channel operation, and it fits in two (larger) boxes. The volume controls are improved in performance with 0.5 dB steps, expanded dynamic range and lower noise.

## LINE PREAMPS

Xs Preamp • XP-32 • XP-22 • XP-12

## PHONO PREAMPS

Xs Phono • XP-27 • XP-17



# Xs Preamp

This large, dual-chassis preamplifier is built in true dual-mono arrangement. Each channel has its own power supply board with over 100,000uf of capacitance for unfettered transient response. Noise levels have been dropped from the already low-noise XP30. Refined circuit design and layout, new gain-stages with auto-bias and DC compensation all combine for optimal performance. But it all comes down to sound; once you listen to the Xs preamplifier, there is no going back.

## Xs PREAMP SPECIFICATIONS

Overall Gain	9.5 dB Balanced
Remote	Yes
Inputs	6
Outputs	4
Input Impedance	42k balanced
Power Consumption	55 watts
Number of chassis	2
Dimensions, Each Chassis	19"W x 14"D x 6.25"H
Weight (LBS)	80



# XP-32

The XP-32 is a three-piece modular preamplifier consisting of one control/power supply chassis and two additional gain chassis each containing analog signals of a single channel. The XP-32 generates less noise, crosstalk and distortion while delivering greater dynamic range, gain, output voltage and output current. But it is the sound, not the technical excellence, that truly makes this a breakthrough instrument.

## XP-32 SPECIFICATIONS

Overall Gain	9.3dB Balanced
Remote	Yes
Inputs	6
Outputs	4
Input Impedance	42k balanced
Power Consumption	45 watts
Number of chassis	3
Dimensions, Each Chassis	17"W x 12"D x 4"H
Weight (LBS)	57.5



## XP-22

The new design uses double shielded low noise toroidal transformers in external supply connected via aviation grade circular connectors using silver over oxygen free copper. The power supply is dual mono with two transformers with lower radiated and mechanical noise. Noise is the most prominent part of THD+N at low levels, so by lowering noise we get better resolution and dynamics.

The gain circuitry continues to use our favorite transistors from Toshiba but has a larger, higher biased, output stage like the Xs Preamp, and includes auto bias.

### XP-22 SPECIFICATIONS

Overall Gain	<b>9.3dB Balanced</b>
Remote	<b>Yes</b>
Inputs	<b>5</b>
Outputs	<b>2</b>
Input Impedance	<b>22K Ohms</b>
Power Consumption	<b>40 watts</b>
Number of chassis	<b>2</b>
Dimensions, Each Chassis	<b>17"W x 12"D x 4"H</b>
Weight (LBS)	<b>40</b>

## XP-12

The new XP-12 starts with a new power supply. It uses an efficient toroidal design with both an electrostatic and Mu metal shield along with vacuum impregnating and epoxy fill. This gives us a very quiet transformer both electrically and mechanically.

The power supply circuitry itself is also lower noise and has additional filtering, a little more complicated but worth it.

The XP-12 uses the single stage volume control borrowed from the XS line preamp. This gives us one hundred 1 dB steps with lower noise and distortion while removing some signal path parts.

### XP-12 SPECIFICATIONS

Overall Gain	<b>9.3dB Balanced</b>
Remote	<b>Yes</b>
Inputs	<b>5</b>
Outputs	<b>2</b>
Input Impedance	<b>22K Ohms</b>
Power Consumption	<b>30 watts</b>
Number of chassis	<b>1</b>
Dimensions, Each Chassis	<b>17"W x 12"D x 4"H</b>
Weight (LBS)	<b>20</b>



# Xs Phono

The Xs Phono preamplifier represents an all-out assault on the state-of-art in Vinyl and the most intensive and difficult design effort made at Pass Laboratories. The final product of this massive effort extracts the utmost performance from a simple topology and operates with the extremely small and delicate signals coming from today's wide variety of phono cartridges. The result is music that emerges from a quieter background and blooms into a richer, more precise soundstage.

## XS PHONO SPECIFICATIONS

Gain options	56, 66, 76dB
Inputs	3
RIAA response	plus/minus .1 dB 20-20 KHz
Power consumption	55 watts
Number of chassis	2
Dimensions, each chassis	19"W x 14"D x 6.25"H
Weight (Lbs)	80



# XP-27

The twin chassis XP-27 eclipses the already exceptional performance of the well-reviewed and well-received XP-15, XP-25 & XP-17; delivering enhanced RIAA performance at a fraction of the previous distortion. The new design uses double shielded low noise toroidal transformers in external supply connected via aviation grade circular connectors using silver over oxygen free copper. The power supply is dual mono with two transformers with lower radiated and mechanical noise. Noise is the most prominent part of THD+N at low levels, so by lowering noise we get better resolution and dynamics. The XP-27 input and gain circuitry are similar to that found in the Xs Phono. This means switching and loading is done at higher signal levels, minimizing noise and improving low level performance.

## XP-27 SPECIFICATIONS

Gain options	56, 66, 76dB
Inputs	2
RIAA response	plus/minus .1 dB 20-20 KHz
Power consumption	50 watts
Number of chassis	2
Dimensions, each chassis	17"W x 12"D x 4"H
Weight (Lbs)	45



## XP-17

XP17 uses the new-shielded low noise toroid and input filter module, like the XP-12. The power supply has an extra stage of RC filtering. We have lower radiated and mechanical noise.

The XP17 has an all-new input circuit that is symmetrical and lower in noise and distortion with greater drive capability. Noise is the most prominent part of THD+N in the first section of a phono stage. By lowering noise we get better resolution and dynamics.

Designed with a split EQ network like the XP 25 and XS Phono that is more accurate and can handle greater signal levels.

The secondary stage runs a higher bias output stage with auto bias.

The numerous loading options from the XP-15 are all still available and three gain settings to accommodate low output MC to MM cartridges.

### XP-17 SPECIFICATIONS

Gain options	<b>56, 66, 76dB</b>
Inputs	<b>1</b>
RIAA response	<b>plus/minus .1 dB 20-20 KHz</b>
Power consumption	<b>40 watts</b>
Number of chassis	<b>1</b>
Dimensions, each chassis	<b>17"W x 12"D x 4"H</b>
Weight (Lbs)	<b>19</b>

## OUR GOAL

At Pass Labs we have one goal — to create products that invite you to listen. We want you to enjoy the experience so much that you go through your entire music collection — again and again... Each time a joyous discovery of something new. We want music lovers for the long haul.

To reach that goal, we continually strive to design amplifiers that deliver great sound, measure well reliable. This is achieved through ongoing R&D, and lots of listening. Oscilloscopes and distortion analyzers are excellent tools, but they historically make lousy customers.

Our real customers care most about the experience they get when they sit down to listen to their music.

### Nelson Pass