



# INT-60 Owner's Manual

## WARNING

**Water and moisture:** This device should not be used near water ( as per example, near a bath-tub, washbasin, kitchen sink, laundry tub, wet basement or swimming pool ). Care should be taken such that objects do not have the opportunity to fall, and that liquid is never spilled onto or into the device enclosure through openings.

**Power Sources:** This device must be connected to a mains power source in strict accordance with the supplied product owners manual. Please verify that the AC mains voltage specified in the product manual matches those requirements indicated on the unit and the AC voltage provided to your location by the power company. The product **MUST** be connected to a MAINS socket outlet with a protective earthing connection.

**Power Cords:** Pass Labs provides a power supply cord that meets all legislated requirements for the market in which the product was originally sold. If you choose to substitute an after-market product we urge you to choose one that is fully safety rated by the necessary local authority.

Power supply cords should be routed so that they are not likely to be walked on, abraded, or pinched by items placed on or against them, paying particular attention to cords where they enter plugs or exit from a device. Never under any circumstance insert a cut or damaged power cord into a mains power socket. Cables should never be connected / disconnected with equipment powered up. Failure to heed this warning may damage or destroy equipment.

**Ventilation:** Power-amplifiers run warm, but you should be able to place your hands on them without discomfort. You must allow for this heat in installation, by providing for free air circulation around the product. Leave a minimum of 6" of space around the amplifier. The ventilation should not be impeded by covering the ventilation openings with items, such as newspapers, table-cloths, curtains, etc.

### Other Warnings:

No naked flame sources, such as lighted candles, should be placed on the apparatus; This amplifier is suitable for tropical climates under 2000m and ambient temperatures of 40 degrees C or less.

**Servicing:** To reduce the risk of fire, electrical shock or other injuries, the user should not attempt to service the device beyond that which is described in the operating instructions. All other servicing must be referred to qualified service personnel.

**For Units With Externally Accessible Fuse Receptacle:** Unplug the device from all sources of power before changing or inspecting any fuse. Replace fuse with one of same physical size, type and rating as that specified by the manufacturer for that product.

### Country Specific Warnings:

China: For use at altitude 2000m or lower.

Norway: Apparatet må tilkoples jordet stikkontakt.

Sweden: Apparaten skall anslutas till jordat uttag.

Finland: Laitte on liitettävä suojakoskettimilla varustettuun pistorasiaan.

Denmark: Apparatets stikprop skal tilsluttes en stikkontakt med jord, som giver forbindelse til stikproppens jord.

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## **Introduction:**

At Pass Labs we don't change our products unless we feel that the changes are significant improvements over previous versions. Because of this we see typical product life spans of seven to eight years.

We are constantly working on and listening to new things and increasing our knowledge of circuits and components on sound. Eventually we find some things worth putting into production because they are significant enough. That time has come with a new series of integrateds.

The new INT-60 builds on the point 8 series power supply and output stages. It uses the same efficient toroidal design in the power supply 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 INT-60 uses a simplified preamp and volume control circuit that gives us sixty three 1 dB steps with lower noise and distortion while removing some signal path parts.

Overall this makes for a integrated capable of driving larger less efficient loudspeakers, and being a very good "one-box" solution for a lot of audiophiles.

Thank you for purchasing this INT-60. It is my sincere hope that you will enjoy its sound as much as we do.

*Pass Labs*

## Quick Setup:

### Unpacking your INT-60

The INT-60 is heavy - please make sure you have help to remove the INT-60 from the packing and to place the amp where you want it.

Included in the box are a remote control and a power cord. You will need these so don't throw them away with the empty box. In fact you should keep the empty box as well.

Place the amplifier close to where you intend to use it. Just leave enough access so you can connect the inputs and speaker cables.

Plug in the amp into the AC. Turn on the AC power switch. At this point you should have the blue LED in the center of the meter on. Push the "power" button on the faceplate a few times. The amp should cycle on and off (display and meter lights will come on and go off).

Turn the amp "off" from the faceplate. Now you should be ready to connect your sources and speakers.



## Quick Connections:

Connect your sources to the inputs. There are four inputs, two with XLR and RCA and two with RCA only. The XLR and RCA inputs on INPUT 1 (and INPUT 2) are connected so use XLR or RCA but not both. When using INPUT 1 & 2 with RCAs you should have the XLR shorting jumpers in place.

The Preamp Outputs can be used to drive a second system, a sub-woofer or other amplifiers for bi-amping. These output are live when the amp is live and MUTED when the amp is MUTED.

## Output Connection

You can hook this amplifier up to any normal loudspeaker without danger of damage. Note, however that both the (+) Red output connection and the (-) Black output connection are live. There is no ground reference at the speaker terminals. The black (-) speaker terminal must never be treated as ground.

**This can be important when you are hooking up active sub-woofers to the output of the amp – if you need a signal ground connection then use the white ground terminal provided on the rear panel.**

The white signal ground connection is not a safety ground. Safety ground is provided only by the detachable power cord. Never defeat the safety purpose of the power cord.

### Operation:

In use the INT-60's front panel controls and alphanumeric display are quite straight forward, and intuitive. We encourage you to become familiar with their operation prior to establishing any input connections with this unit.

After the all the inputs and outputs are connected and double checked, you can now turn on the preamp by means of the power switch located next to the AC inlet.

The left most button on the front panel is Standby. Pressing this button toggles between Standby and On.

The four Input Select switches select the active input, 1 through 4 directly.

The right most button on the front panel is Mute. Pressing this button toggles between mute on and mute off. Mute on removes signal from the output of the preamp.

The electronic volume control allows 63 dB range and is driven by a micro-controller that reads the optical encoder serving as a front panel volume control. In this manner tracking of the volume of the two balanced channels is possible with accuracy unavailable on any ordinary volume control, assuring precise level steps and high common mode rejection in balanced circuits.

**Note: The way the volume control is designed, you may need to be at step 20 or 30 before you can hear anything.**

Don't be afraid to turn the volume up to 40 or 50 etc. The volume control is an attenuator so the higher up you use it the more of the original signal is used.

Wayne Colburn's exceptional volume control in conjunction with the fluorescent display gives the user ability to replicate volume levels with absolute accuracy in steps of 1 dB.

We recommend the use of the balanced output mode where possible. Balanced input to power-amplifiers will typically retain the character of the input mode, but offers less distortion, less noise, more gain, and more voltage swing, without compromising the sound.

The use of a micro-controller allows all of the preamplifier functions to be repeatable and accurately controlled. The micro processor only controls the functions of the preamplifier. At no time does any of the input or output signal come into contact with the digital control signals. The digital circuits are powered by a power supply that is isolated from the analog supply. Should it ever be necessary to update the software that controls the functioning of the preamp only the socketed micro processor need be changed.



This remote is designed to operate several pieces of Pass Labs electronics, not all of the functions available on this remote will be applicable to your Pass Laboratories INT-60.

**Power:** Power button toggle the INT-60 between “on” and “stand-by”.

**Mute:** pressing mute once will quiet the pre-amplifier outputs; pressing mute a second time will return you to the previous volume control setting

**Input Selection:** Pressing. 1,2,3,4 will immediately move the input selection to that input selection; volume and balance settings will not be disturbed. **Input 5 is not available on the INT-60**

**Volume:** Pressing the increase (^) button or the decrease (v) button will shift the volume setting 1dB, holding a button down will increase or decrease the level until such time as you either release pressure on the button or reach the limits of the volume control.

**Balance:** is not used with the INT-60. This is used on other Pass products and has no effect on this product.

**Tape:** is not used with the INT-60. This is used on other Pass products and has no effect on this product.

**Pass Thru:** is not used with the INT-60. This is used on other Pass products and has no effect on this product.

**Display:** is not used with the INT-60. This is used on other Pass products and has no effect on this product.

**Ext amp on:** is not used with the INT-60. This is used on other Pass products and has no effect on this product.



## Maintenance:

**Leave it on or turn it off:** The product is designed to be left on all the time. The exception to this might be a case where the preamp will not be used for an extended time - in that case it can be turned off.

**Cleaning:** The finish can be damaged by harsh cleaners and abrasive cloths. We find a damp soft cloth works best. You can also use a mild solution of Windex or white vinegar but be careful to avoid the acrylic window. The acrylic window should only be cleaned using "plastic cleaner & polish".

**Remote batteries:** The two AAA batteries should be replaced every six months at least. The batteries are located under the remote back. This is held in place with four 4-40 Phillips flat head screws. Please note the polarity of the batteries, putting them in wrong could cause damage.

**Replacing the fuse:** The fuse should only be replaced with the same type and size as indicated on the rear. Audio Specialty FUSE: NOTE: The "Overload" and "Time Delay characteristics" will differ slightly (due to the different metallurgy of the fuse elements) between commercial grade and audio grade fuses. We can't guarantee that your audiophile grade fuse, won't blow at a different in-rush current threshold, than your stock commercial fuse. Use of other than approved fuses, may invalidate your product warranty and result in product damage.

How to replace the fuse:



### INT-60 Specs:

Inputs:	Four(4) 2 XLR/RCA + 2 RCA
Gain	30/36dB
Output power	60 Watts rms @ 8 ohms 120 Watts rms @ 4 ohms
Distortion:	1% @ 60 Watts, 8 ohms, 1 KHz
Frequency response:	-6 dB @ 80 KHz
Residual Noise	< 250 uV output, unweighted 20 to 20 KHz
Damping Factor:	150
Input Impedance:	45 Kohm
Idle Power draw:	~3 Amps @ 120 VAC
Dimensions:	19"w x 21.25"d x 7.6"h
Weight:	93 lbs



## Warranty Information

We go through great effort to make a soundly engineered, and superbly performing product of lasting durability. But we also understand that things infrequently go wrong, if you have any questions or problems please contact either your dealer or the factory, we are here to support the product and you, the user.

All Pass Laboratories products purchased new from an authorized Pass Laboratories dealer in North America are covered by a transferable, limited 3-year warranty. This warranty includes all parts and labor charges incurred at the factory or factory specified repair facility, exclusive of any subsequent or consequential damages. Damage due to physical abuse is specifically excluded under this warranty.

For this warranty to apply the customer is responsible for returning the product unmodified to the factory within the specified warranty period. The customer assumes all responsibility for shipping and insurance to and from the factory or a factory specified repair facility. The conditions and stipulations of this Pass Laboratories warranty only applies to units originally sold new through an authorized dealer. Warranty on factory repair is 60 days and covers only the scope of the original repair.

Non-North America customers should consult with their original Pass Labs dealer or distributor for warranty repair instruction prior to contacting the factory or shipping product to the factory for repair.

Non-North American product must be returned to the country of origin for warranty service. Foreign distributors are only required to offer warranty service on Pass Laboratories product that they have imported, verifiable by serial number.

Please note: Conditions of warranty service and customer rights for product purchased outside the United States may vary depending upon the distributor and local laws. Please check with your local distributor for specific rights and details.

Any modifications to Pass Laboratories products that have not received written factory approval nullify all claims and void all provisions of the warranty and liability by the maker or authorized distributor. Should a modified product be returned to the factory for repair the owner will be required to pay all necessary charges for the repair in addition to those charges required to return the product to it's original configuration.

In the case of safety issues, no product shall be returned to the customer without those safety issues being corrected to the most recent accepted standards.

Removal or alteration of original Pass Labs serial numbers voids the factory warranty. Product with altered or missing serial numbers will be suspect as counterfeit or stolen product.

Pass Laboratories will not repair or in any way indemnify any counterfeit or cloned product. Pass Laboratories does not offer products in voltages intended for international markets either to authorized Pass Labs dealers or to third parties located in the United States or Canada.



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