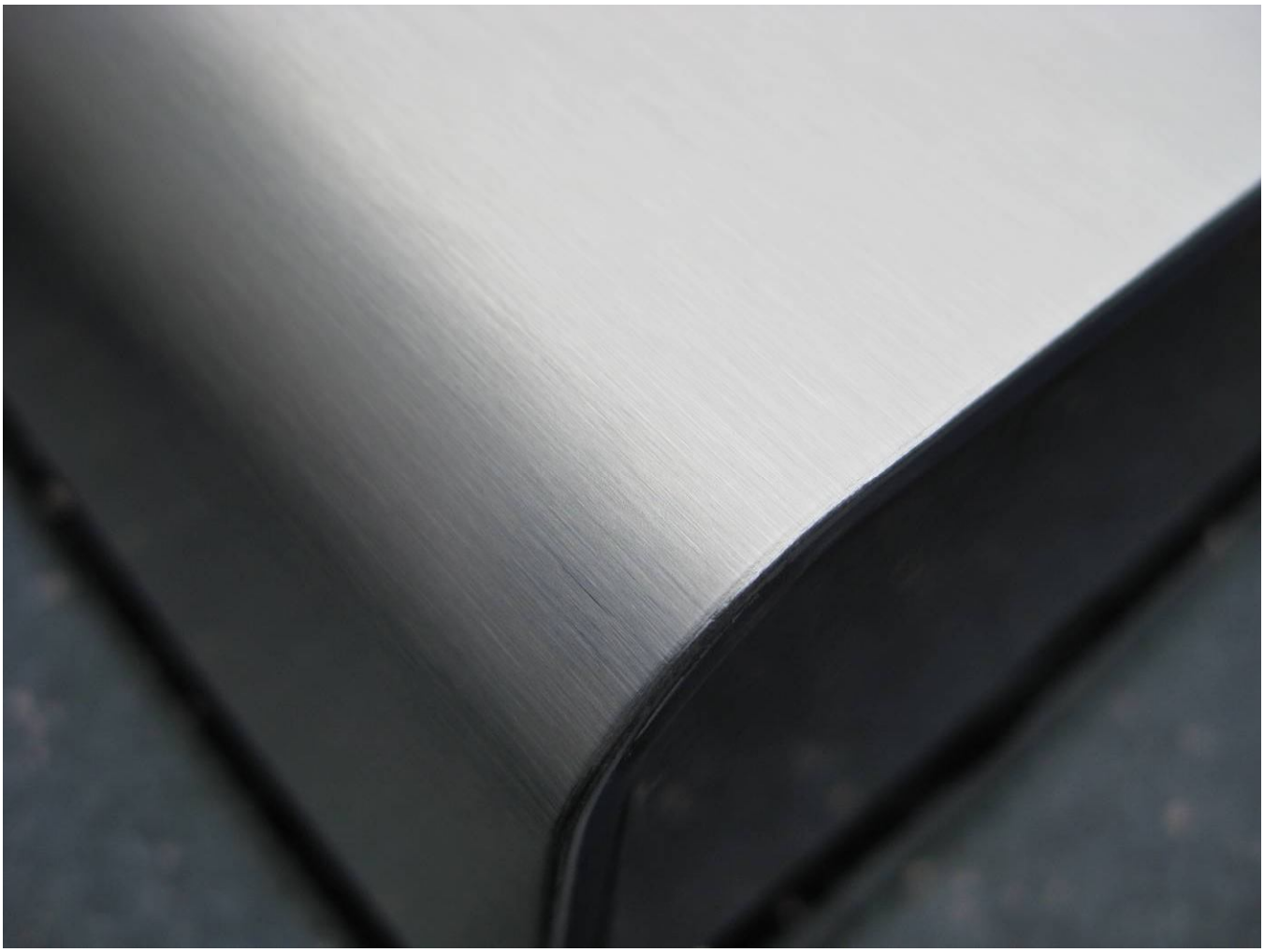
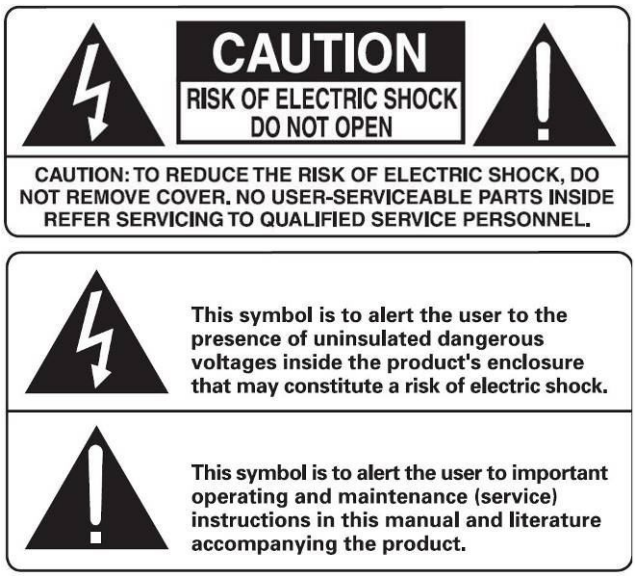
Smooth ice is paradise for those who dance with expertise.

Friedrich Nietzsche



Safety, Legal Disclaimer



RISK OF ELECTRIC SHOCK

- **DO NOT OPEN.**
- **DO NOT SHORT ANY OUTPUT TO GROUND.**
- **DO NOT REMOVE COVER.**
- **NO USER-SERVICABLE PARTS INSIDE.**
- **USE YOUR INCREDIBLE WARRANTY AND OUR ENDEARING CUSTOMER SERVICE FOR ANY AND ALL SERVICE.**

The Ice Block modules have been safety approved by CSA and comply with the following standards:

Europe: IEC60065 6th ed. (1998)
US: UL6500 2nd ed.
CA: E60065 6th ed.
The following chapters apply to the modules: 7, 10, 11, 13, 14, 15 and 20

Safety Class: 1 (with earth ground)

EMI: EN55103-1, EN55103-2, FCC part 15b Class A

All Ice Block assembly parts are ROHS compliant, lead-free, UL and CSA recognized or certified, but the assembly has not been UL or CSA certified. Purchasing the Ice Block amplifier only allows the purchaser to be eligible for product warranty in form of correct and satisfactory functionality. No other responsibilities are to be honored by Seymour AV.

Introduction

Thank you for your purchase of a Seymour AV Ice Block™ power amplifier (or seven). Intelligent, compact, and efficient is where Bang & Olufsen's patented ICEpower® amplification technology focuses, bringing triode intimacy with solid-state dynamics. We set out to offer the slickest ICEpower package for the money you'll find anywhere, pulling together reasonable upgrades that other companies charge unreasonable amounts for. It's the collection of the upgraded components at the most aggressive pricing that we think will offer superior value. This was the combination that finally killed our reference tube monoblocks that have been heating up our tunes since 1993. The Ice Blocks are smoother, faster, richer, and devastatingly powerful, at 1/4 the price.

Class A amplifiers average around 20 percent efficiency, meaning 80 percent of their power input is lost to heat. Class AB amplifiers average around 50 percent. Bang & Olufsen's ICEpower technology gets the efficiency of a Class D, but with a low distortion modulation and improved MOSFET output stage. With this technology you get world class sonic performance with an efficiency of operation that enables you to enjoy the dynamic benefits of much higher output power capabilities.

Traditional solid state amplifiers are limited by the quality of their power supply, having to rectify from a 50-60 Hz source frequency. Even with great cost and weight, residual ripple plagues common solid state amplifiers within the audio frequency range, coloring the critical midrange performance and smearing detail. Ice Block amplifiers use a pulse amplitude (PAM) switching power supply, which operates at 100 kHz. The audio output section switches at frequencies between 60k and 500 kHz. These frequencies are high enough to allow for simple inductive filtering far out of the audio band, while still avoiding the noise generation from 1GHz+ power supplies in common Class-D amplifiers.

Having the advanced switching power supply operate above the audio band offers the tremendous advantage of allowing the magnetic materials to be used where they are naturally more efficient. While the Ice Block transformers are only a few cubic inches in volume, they perform better than 50-60 Hz transformers that can be nearly 1000 cubic inches and weigh 50 pounds. The copper winding resistance in those beasts limits them to supply less power and their regulation to less than five percent. The regulation in the Ice Block amps is 10 to 50 times better while being hundreds of times smaller. What you get as a result is a remarkable midrange clarity and accuracy. These amps offer the connection into the music that our reference triode amps had, but with lower distortion, coloration, compression and noise.

Installation, usage

Power

If your Ice Block amp was originally configured for 120v, then the original purchase price either included a 3' detachable AR Pro II Ferrite Noise Trap (FNT) IEC power cord, or perhaps you upgraded to a longer power cord. Before powering up your amp, confirm that your amp is configured for the proper voltage by checking out which dots are filled in under the IEC jack. There are three power configurations in two voltages, so in addition to the serial tag on the bottom of the amp (which displays the model number), the following chart will indicate which model you have:

	115 Vac, 60 Hz	230 Vac, 50 Hz
2.5 A	-	IB2001x2x
3.15 A	IB2001x1x	IB5001x2x
6.3 A	IB5001x1x	IB10001x2x
10 A	IB10001x1x	-

You must use the earth ground for your Ice Block amp, because the ground pin off the power jack is a key member of our star grounding design which eliminates noise. Also, the ICEpower boards were designed and tested to conform to UL6500 with the mains connection of class 1 (with earth ground).

Like any power amplifier, make sure you power everything down before disconnecting signal or output cables. It won't affect the amp, but transients could harm your speakers and your nerves.

The feet

We like the Vibrapod® feet on the Ice Block amps, which grip well and provide vertical and horizontal vibration absorption, resulting in one tight little package. They can leave marks on the surface it's sitting on, so be sure to test them somewhere if you're unsure if that can be a problem. Glass, polyurethane, or other typical finishes will be fine, but if you use unstained wood, for example, you may get rings left on the surface from the feet. Some folks put something under the feet, such as bar coasters or playing cards, or if you really need you can easily unscrew the feet and replace them with something else. The screws are 10-32 if you need to replace them with longer ones.

Stacking

Vibrapod feet are available in several weight ratings. From the factory, we use all model-2 feet (4-8 lb each) on the 10001, and model-1 feet (2-4 lb each) in the front with a model-2 in the back for the lighter-weight 5001 and 2001 amps. If you want to stack the amps, we recommend you first tell us this and we will make sure to use all model-2 feet when we build the amps for no additional charge. If you didn't do this and find yourself wanting to stack them afterwards, we can sell you stiffer feet or feel free to substitute them with other types.

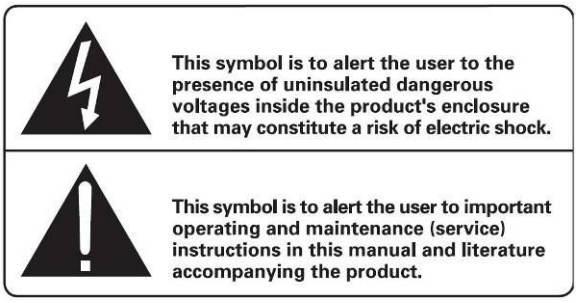
Inputs

Your Ice Block amp is configured for both balanced XLR and unbalanced RCA input types. Please make sure you set the switch to which input you are planning on using to ensure that you get proper gain and a noise-free operation. Don't try using both inputs at the same time, Cletus.

If you need to access signal ground points from the star ground, they include:

- The shell of the RCA input connector, but not the knurled nut
- Pin 1, the shell, screws, and push tab on the XLR connector
- Pin 2 of the XLR connector when the input selector switch is set towards unbalanced, like in the nearby photo
- The ground pin of the IEC power jack.

Outputs



Most importantly, these inputs are balanced and both are voltage hot with respect to ground. In other words, in addition to the positive output presenting a positive voltage compared to ground the negative will present a negative voltage. Also, there is a common mode DC voltage on the outputs. Your speakers will not see the voltage since it's not differential and the amp features dedicated differential DC protection as well. In short, don't short either terminal to ground. This will not harm the amplifier since it is fully protected from over-current situations.

If you use the outputs to drive the inputs of a separate subwoofer, make sure its high-level input can take a balanced signal and don't mind common-mode DC. Subwoofers such as REL consider the negative input as ground. Don't connect the Ice Block outputs to loudspeaker switching devices, such as those used in retail

demonstrations. Lastly, balanced probes specifically designed for switching amplifiers (they have low pass filtration) need to be used for monitoring and measurements.

Ice Block amps feature high frequency protection circuits to protect the integrated Zobel network. For playing of music, the Zobel network improves performance by flattening the load impedance and the protection circuits are not a concern. You should be able to play your music with the clipping indicator flashing 24/7 without hitting the HF protection circuit. However, if you are going to be playing test signals instead of music you need to limit the amount of time the amplifier is asked to play HF content. The Zobel network was sized for music, not test signals. Contact us if you want to run HF test signals and we'll advise what your limits would be.

The insulated, five-way binding posts on the Ice Block outputs can accommodate nearly any speaker cable termination made. Generally, we recommend banana plugs because they provide the most convenient and if the locking banana type, the most secure. But if you're using spades or raw wire, they would exit from the side of the binding posts opposite from the power cord.

Soft clip circuitry

Ice Block amplifiers are equipped with a soft clipping circuit that applies light compression at maximum output, limiting the maximum signal level. This eliminates the clipping that traditional amplifiers experience when their signal exceeds the capabilities of the output devices. This feature ensures that you have optimum sound in high-level situations and protect both the amplifier and your speakers from dangerous tweeter-frying distortion. Unlike most other ICEpower applications, Ice Blocks feature a separate indicator light to let you know when the amp is shaping the input signal. You not only benefit from knowing the soft clip circuit is protecting your system, but will also learn under which conditions the amp is compressing your signal and whether or not you've properly sized your amplification power to your system and listening habits.

The indicator is an ultra-high brightness red LED that fires indirectly from inside the case, preserving the styling of the amp. The red light is easily visible with a reflective or light colored surface under the amplifiers. Dark non-reflective surfaces, or situations where the front of the amp is hanging off the shelf may not give the LED anything to bounce off of.

Care, maintenance

Cleaning

If you've ever had other stainless steel finishes around, you know they are a pain to keep looking new. You can safely clean them with a window or multi-surface cleaner, but you never get a streak-free finish and the next fingerprint shows up too easily. Cleaners with vinegar will brighten the surface and people typically attack fingerprints using a coating of light oil.

Whether from baby oil or a specific stainless steel cleaner, these oil-based surface treatments cover up the oils from fingerprints by placing a thin oil film over the metal. They can look great, but don't last very long and as soon as the surface is touched it looks imperfect and is needs to be recoated. Of all the cleaners we've tried, the Scotch Brite kit had the most consistent results and is what we would otherwise recommend to clean your stainless steel.

However, you don't need this stuff. After finishing the Ice Block amps, we use a new surface treatment we discovered. 386 Nanotech has developed some remarkable surface cleaners and finishes and while we were skeptical at the price (and anything that has "nano" in the name), we ordered a kit and it was impressive. The cleaner and pad (which is similar to those Magic Eraser white cleaning pads) restored the stainless to perfect and the sealer put a protective finish on the stainless that makes it easy to keep clean. No doubt you've seen product that claims to "clean with only a damp cloth" and ignored every one, using an actual chemical cleaner instead. 386 Nanotech is a finish that you can actually clean with a damp cloth.

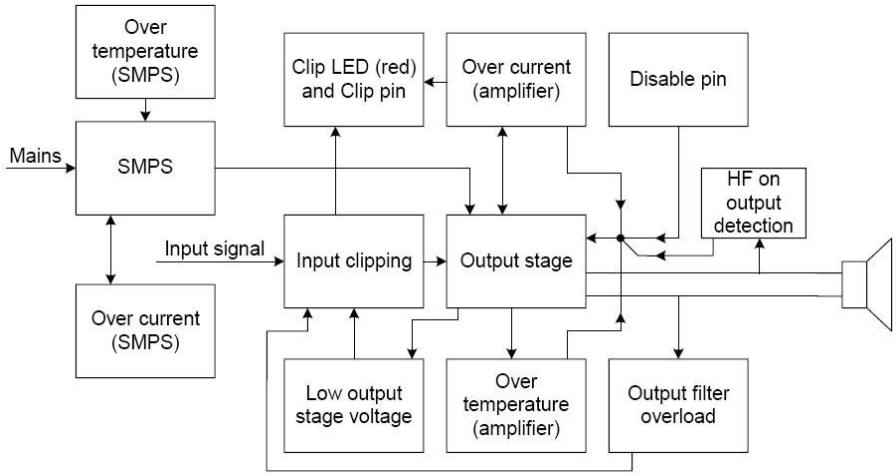
The next step more aggressive is to use water and one of those Magic Eraser or 3M sponges. Or, if you want the original cleaner and sealer kit we use, we have it available for you. It's expensive, but if you have other stainless steel product around to keep clean, this stuff is the best. They won't let us discount it online, but we'll ship for free without any handling charges which makes us the least expensive source. We might even have partial kits that we can discount accordingly. The 386 Nanotech surface will last 3 years with eraser cleaning, less if you use chemicals, longer if you use something softer like just a damp cloth.

Power surge protection

The Ice Block modules have been designed and tested to withstand surges up to 8kV (tested with a surge generator meeting IEC1000-4-5 at 8kV). Still, surges can cause cumulative damage to internal components, so we recommend you consider power surge protection like you would other fine electronics in your home. Although the Ice Block's switch mode power supply is much less sensitive to the quality of the power coming into the amp than traditional amplifiers, power protection devices that are not current-limiting can provide sonic benefits too, depending on how rough your lines are.

Troubleshooting

Ice Block amps feature multiple levels of protection and monitoring to survive difficult environments. All of the protection circuits are self-resetting with the exception of the "HF on output" circuit that only activates in case of a failure or large capacitive load (>470nF).



Amp plays music, light is dead

- Something is wrong with just the indicator light or its separate power supply. Send it in and we'll fix it.

Amp is completely dead

- Disconnect all inputs and outputs and see if it powers up.
    - If so, then it's protecting itself from something in those connections. Check for shorts.
    - If not, then either the interior fuse is blown or something else internal is wrong. Send it in for repair.
- Disconnect power and see if it powers up. If it does, it's haunted. Send it in for an exorcism.

Sound is low in gain or noisy

- Check that the input selector switch is in the proper position. Getting this wrong will cut your signal strength and cause ground noise.

Amp shuts off due to heat

- The amp is protected by multiple temperature sensors and will shut off at 122°F (50°C). If you are hitting this limit too quickly and too often, you need to provide a more cooling environment for your amps. Un-stack them, get them out of a rack, away from other equipment, more air space, possibly blow a fan on them, or turning them off between uses are possible fixes. Due to their high efficiency, high radiative cooling from the bottom chassis, and generally low average power levels that music actually plays at, overheating ICEpower amps is quite hard to do.

Red clip LED is on too often

- You are either overloading the inputs (+/- 12.8V max) or the output stage. Either reduce the output from your preamp (a volume knob comes in handy for this) or invest in more power to increase your dynamic headroom.

Specifications

	Ice Block 2001	Ice Block 5001	Ice Block 10001
Rated Power, Channels	200w x 1	500w x 1	1000w x 1
Max Output Power 0.1% THD+N, 1kHz (AES17 filter)	300w (2.7Ω) 210w (4.0Ω) 120w (8.0Ω)	550w (4.0Ω) 300w (8.0Ω)	1100w (4.0Ω) 600w (8.0Ω)
Max Current Output	25A	35A	40A
Dynamic Range	112dBA	116dBA	119dBA
THD+N f=1kHz, Po=1w	0.005% (4Ω)	0.006% (4Ω)	0.007% (4Ω)
Frequency Response	5.3Hz-80kHz (8Ω) 5.3Hz-60kHz (4Ω)	5.3Hz-80kHz (8Ω) 5.3Hz-60kHz (4Ω)	5.3Hz-38kHz (8Ω) 5.3Hz-31kHz (4Ω)
Output Idle Noise	80µV	80µV	80µV
Output Impedance f=1kHz	5mΩ	5mΩ	5mΩ
Nominal Voltage Gain	27.0dB	27.1dB	27.2dB
Damping Factor f=100Hz, R=8Ω	2000	2000	2000
Minimum Load Impedance	2.0Ω	2.0Ω	2.0Ω
Intermodulation (CCIF) f=14kHz, 15kHz, Po=10w	0.0009%	0.0005%	0.002%
Transient Intermodulation (TIM) f1=3.15kHz square, f2=15kHz, Po=10w	0.003%	0.003%	0.003%
Signal Polarity Inversion	No	No	No
Total Efficiency	83% @ 100w, 8Ω	83% @ 250w, 8Ω	83% @ 500w, 8Ω
Voltage Range	90-132.5 Vac (115V, 55-65Hz) 190-265 Vac (230V, 45-55Hz)	90-132.5 Vac (115V, 55-65Hz) 190-265 Vac (230V, 45-55Hz)	90-132.5 Vac (115V, 55-65Hz) 190-265 Vac (230V, 45-55Hz)
Idle Power	7.5w	9w	15.8w
Fuse Rating	3.15A (115V) 2.5A (230V)	6.3A (115V) 3.15A (230V)	10A (115V) 6.3A (230V)
ICEpower Module	250ASP	500ASP	1000ASP
Approvals: EMI, Safety	EN55103-1, EN55103-2, FCC part 15, UL6500, ROHS compliant	EN55103-1, EN55103-2, FCC part 15, UL6500, ROHS compliant	EN55103-1, EN55103-2, FCC part 15, UL6500, ROHS compliant
Full Protection	Thermal, Over current, HF, Zobel network	Thermal, Over current, HF, Zobel network	Thermal, Over current, HF, Zobel network
Dimensions (in) **(H x W x D)**	(3.2 x 8.5 x 15.1)	(3.2 x 8.5 x 15.1)	(3.2 x 8.5 x 15.1)
Weight (lb, w/o cord)	10.5	11.2	12.2