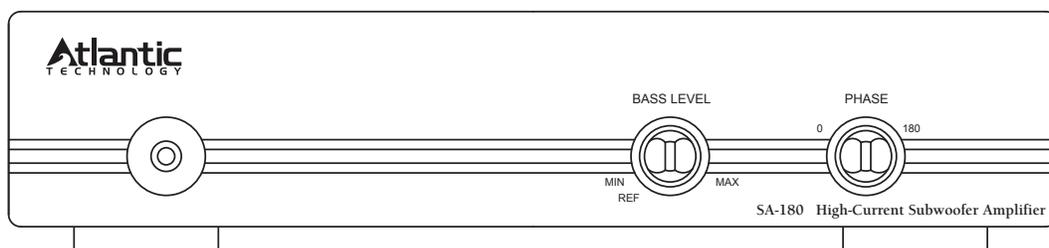


# SA-180 Mono Subwoofer Amplifier

# Instruction Manual



This manual covers installation and operation of SA-180 Mono Subwoofer Amplifier. Installation of the IWTS-28 SUB Woofer Module is covered separately by an instruction sheet included with the woofer.

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TECHNOLOGY

## Safety Precautions



**CAUTION:** To reduce the risk of electric shock, do not remove the cover (or back). No user serviceable parts inside. Refer to qualified personnel.

**WARNING:** To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture. This device generates a fair amount of heat. Make sure nothing blocks the ventilation openings on the top and bottom of the unit.



The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electrical shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating maintenance (servicing) instructions in the literature accompanying the appliance.

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## For Future Reference

Record your serial numbers and date of purchase here:

Model Number \_\_\_\_\_

Serial Number \_\_\_\_\_

Date of Purchase \_\_\_\_\_

The amplifier serial number is found on the amplifier's back panel.

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## Features

- **Linear high current discrete Class AB power amplifier conservatively rated at 180 watts RMS with short term peak output ability in excess of 300 watts**

The design utilizes audiophile grade component parts including a high-current custom-wound, low-hum toroidal transformer.

- **A useful in room working frequency range of 30 Hz to 150Hz with IWTS-28 SUB woofer module.**

- **Two position Phase Invert switch**

Allows precise acoustic matching with satellite speaker systems whose output may be phase reversed. May also help to compensate for unusual room acoustics that can occur, causing a lack of or too much bass at the listening position.

- **A convenient front panel mounted Level Control with a click-stop REF input sensitivity setting**

- **Automatic standby operation with LED indicator**

Features signal sensing turn-on with 7-10 minute turn-off delay; can also be controlled by an external 12 Volt trigger.

- **Heavy-Duty detachable AC power cord and input socket**

- **Meets all current UL/CSA and European safety requirements**

## Unpacking

The carton and packing materials used in shipping your new amplifier were specially designed to cushion it from the shocks and vibration of shipping. We strongly suggest that you save the carton and packing materials to use if you move, or if the unit ever needs to be shipped back to us for any reason. To minimize the size of the carton in storage, you may wish to flatten it by carefully opening the top and bottom flaps and folding the carton flat. Other cardboard inserts may be stored in the same manner. Packing materials that cannot be collapsed should be saved along with the carton in a plastic bag.

# InWall Subwoofer Systems

Congratulations on your purchase of an Atlantic Technology InWall Subwoofer System. This unique “invisible subwoofer” will enhance your listening pleasure dramatically, by providing the bass foundation upon which most music and special effects are built.

The InWall Subwoofer System is capable of delivering very high output levels and wide dynamic range. When properly set up and adjusted it will provide smooth in-room bass response down to approximately 30 Hz, with a peak SPL capability in excess of 102 dB (using two dual woofer modules and two SA-180 amplifiers, in a 3000 cubic foot space).

Your Atlantic Technology powered subwoofer system is designed to smoothly integrate with virtually all other brands of loudspeakers on the market. And from its premium gold plated connectors to its superb high-quality electrical components, this is one of the most unique high performance subwoofers ever produced.

Figure 1

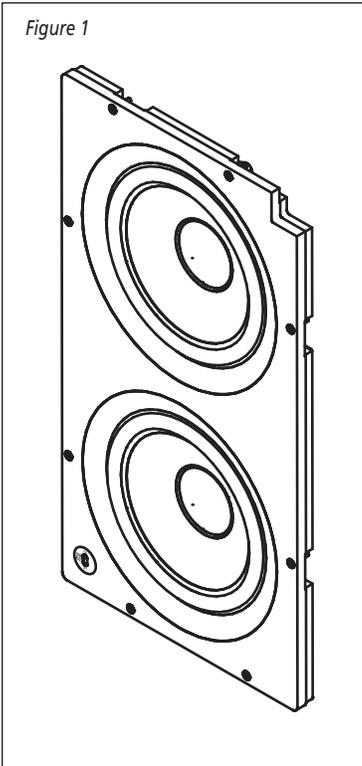
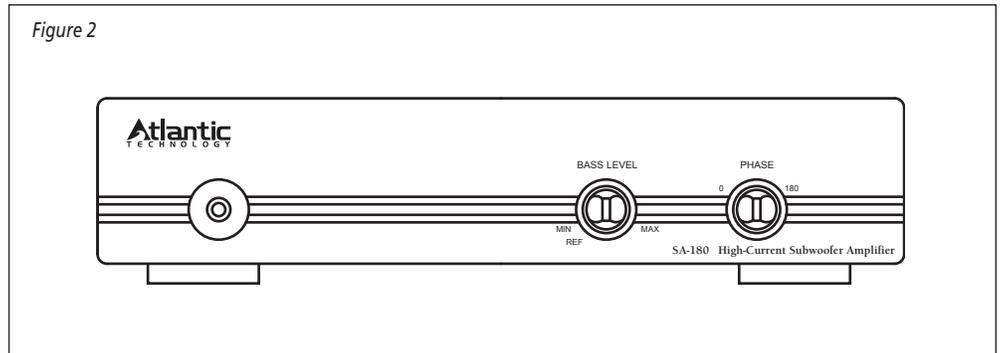
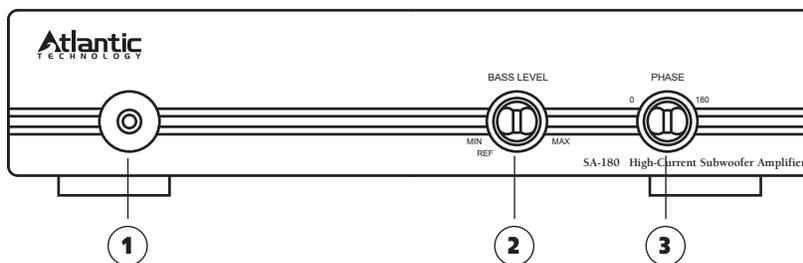


Figure 2



## Amplifier Front Panel

Figure 3



### 1 3-Color LED Status Indicator

The front panel LED indicator has three modes:

**Amber:** Indicates the SA-180 is connected to an AC power source and the rear-panel Main Power switch is turned on. When the indicator is amber, the unit is in the Standby mode and is ready to turn on when a control signal is received at the trigger jack or from the music sense circuitry.

**Green:** Indicates the SA-180 is on and operational.

**Red:** Indicates the SA-180 is in Protect mode. Turn the unit off and check for the source of the condition that caused the overload. This may be a shorted speaker lead or other similar condition. In the event of repeated appearance of the red LED you may have a chronic system failure with either the SA-180 or another component in your system. In this case disconnect the SA-180 from AC power and the rest of your system and consult Atlantic Technologies Customer Service Department for assistance.

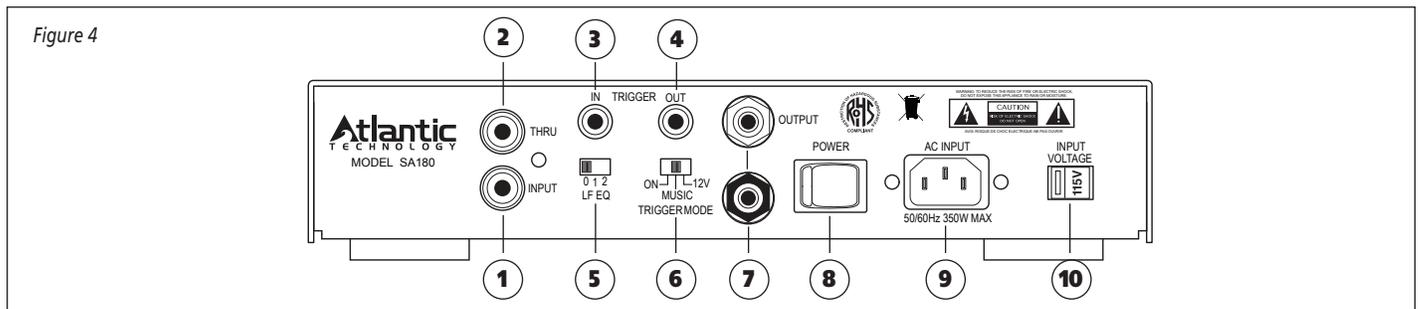
### 2 BASS LEVEL control

Sets the volume level of the connected subwoofer. A detent setting is provided for reference level operation.

### 3 PHASE control

Sets correct subwoofer phase ( $0^\circ$  or  $180^\circ$ ) to best match your satellite speakers and room.

## Amplifier Back Panel



### 1 Input jack

Connect this jack to the output of the source used to feed the SA-180, usually the sub out or LFE jack.

### 2 Thru Jack

An input thru jack is provided to allow daisy-chaining to another amplifier. The signal at this jack is identical to the input signal.

### 3 Trigger Input Jack

Connect this jack to the trigger output jack of a compatible product such as an audio processor or receiver that is capable of providing a 6-volt to 35-volt control signal at turn-on. When the Trigger Mode switch is set to the 12 Volt position, the Model SA-180 will turn on when the control signal is present. Tip of plug is positive. See page 9 for more details.

### 4 Trigger Output Jack

When more than one Model SA-180 is used in an system, this jack may be used to pass the low voltage control signal through to the Trigger Input Jack of an additional SA-180. (See pg 9 for more details)

**NOTE:** Connecting more than two SA-180 to a single source controller may overload the system and is not recommended. If you wish to automatically turn on more than two Model SA-180 units, we recommend the use of either the music sense circuitry or an externally powered relay controller. Contact Atlantic Technology Customer Service for more information on using the Model SA-180 in multiple unit systems to avoid damage to your processor, receiver or controller.

### 5 LF EQ Position Selector

This three-position switch select between three levels of bass equalization.

**0:** No Equalization. The SA-180 functions as a full-range monoblock amplifier

**1:** 3 dB of boost @ 50Hz

**2:** 7 dB of boost @ 50 Hz

### 6 Trigger Mode Switch

This three-position switch determines the method by which the SA-180 will be placed in the active, or ON, position:

- When the switch is in the far left position, above the word “ON,” the unit will be turned on whenever the Main Power Switch is turned on.

- When the switch is in the middle position, above the word “MUSIC,” the unit will automatically turn on when an audio signal is present at the Input Jacks. The unit will automatically turn off when the signal is no longer present for 5-10 minutes.

- When the switch is in the far right position, above the “12V” indication, the unit will automatically turn on when a 6-volt to 35-volt signal is applied to the Trigger Input Jack. The unit will turn off shortly after that signal is removed.

### 7 Speaker Output Jacks

These jacks provide the amplified signal for connection to your subwoofer module.

### 8 AC Power Switch

Turn this switch to the ON position to operate the SA-180.

### 9 AC Power Cord Receptacle

Connect the AC power cord supplied with the unit to this receptacle, and connect the power cord plug to an AC outlet.

**IMPORTANT NOTE:** A replacement power cord's rating must be equal to or better than the cord supplied with the unit.

### 10 Input Voltage Switch

This switch selects the power AC input voltage for the SA-180, depending on the AC power system used in your area.

**IMPORTANT NOTE:** Do not make any change to this switch setting unless the ac power cord is removed from the unit so that the amplifier is totally disconnected from any AC power source.

### Fuses (Internal Now Shown)

The fuses (2) are used to protect the power supply only and are NOT part of the speaker protection circuitry. If you suspect that a fuse has blown, first disconnect the SA-180 from the AC power source by removing the power cord, and then correct the condition that led to the blown fuse.

**IMPORTANT NOTE:** The replacement fuse should have the proper rating for the voltage setting in use and must be of the correct type. Consult the data printed next to the fuseholder for fuse information.

If the fuse blows repeatedly, discontinue use of the product and contact Atlantic Technology Customer Service for further assistance.

## Installation and Configuration

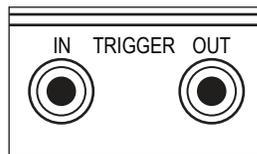
**SAFETY NOTE:** When making connections between any source components such as A/V Receivers, surround processors or multi-room controllers and the Model SA-180, or when making any connections to speakers, be certain that both the source device and the Model SA-180 are turned off. To ensure that there will be no unwanted signal transients that can damage equipment or speakers, it is always best to unplug all equipment before making any connections. Modern electronic products often have a "standby" mode that may be unintentionally activated even though they product may appear to be turned off.

### Power Control Connections

Depending on your specific application, the unit may be turned on manually using the Rear Panel AC Power Switch, or automatically via sensing of either an input source or a low voltage trigger signal. For manual operation, no special installation is required.

For automatic turn-on, follow the instructions below for the chosen method.

### Remote Turn-On From An External Device Using The Low Voltage Trigger



To configure the Model SA-180 so that it turns on automatically in response to a low voltage trigger signal, follow these steps:

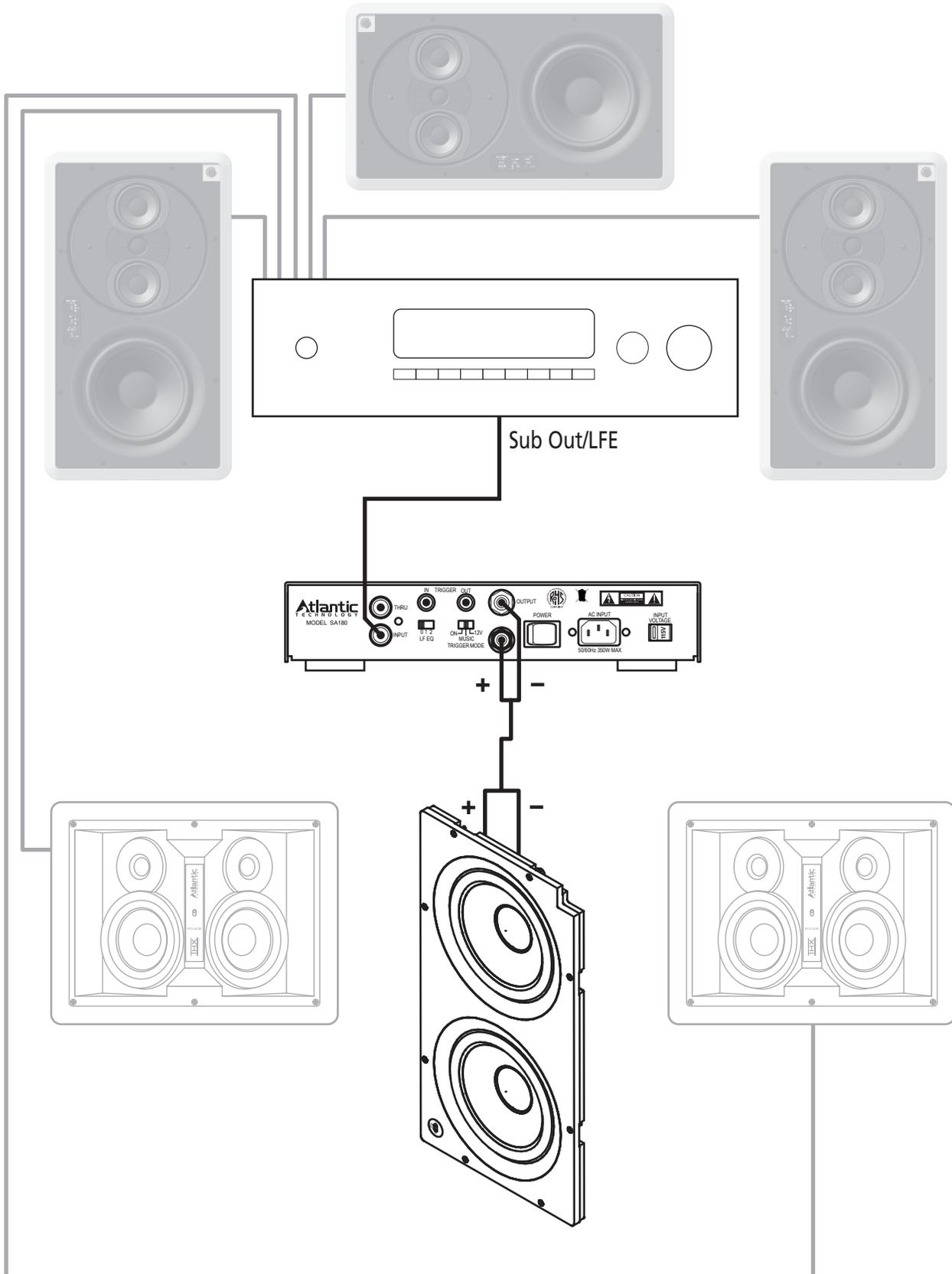
1. Place the Trigger Mode Switch in the far right position, so that the switch is under the words "12V".
2. To trigger the amplifier from a device such as a surround processor, A/V Receiver or multi-room controller with a built-in trigger jack, connect one end of a cable with a 3.5mm mono mini-plug to the Trigger Input Jack on the Model SA-180. Connect the other end to a matching jack on the device that will provide a 6 to 25 volt signal when the unit is to be turned on.
4. Set the Power Switch to the on position.

When the source control unit providing the power is turned on, the Model SA-180 will automatically turn on. When the source unit is turned off, the Model SA-180 will return to the standby mode.

**NOTE:** If the source controller does not have a trigger jack, you may use the music sense option to automatically turn on the Model SA-180, however, you may also use the trigger mode if the source controller has a switched AC Accessory outlet. If that is the configuration you wish to use, purchase a small AC to DC power converter, as typically used to replace the batteries in portable electronics devices. Select a model that is capable of delivering between 6 and 25 volts DC, and make certain that one of the "tips" provided with the unit is a 3.5mm mini-plug. Plug the transformer end of the converter into the switched AC output on the source product, and connect the 3.5mm mini-plug to the Trigger Input Jack. The tip of the plug is positive.

# SA-180 Typical Installation Connections

Figure 8



## Remote Turn-On Using Music Sense



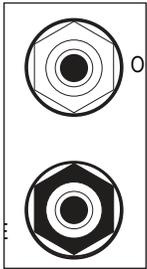
To configure the Model SA-180 so that it will automatically turn on when the amplifier is receiving an audio signal, follow these steps:

- Connect the audio input as normal to the Input Jack .
- Turn the Trigger Mode Switch so that it is in the center position under the word “Music.”
- Make sure the AC Power Switch is turned on. The front panel LED will turn amber, indicating that the unit is in the Standby mode, awaiting a signal that will activate the operational mode.

In this configuration, the Model SA-180 will automatically turn on whenever it is receiving an audio input signal. The unit will return to the standby mode a few minutes after the audio signal stops.

## Speaker Wire Connections

It is always best to connect the amplifier to your speakers using high quality cable. The Model SA-180 is equipped with five-way binding post terminals that accept bare wire, spade lugs or banana type plugs (when permitted by local safety agencies). To assure that the high quality signals produced by your Model SA-180 are carried to your speakers without loss of clarity or resolution, we recommend that you use high quality speaker cable. Many brands of cables are available, your choice may be influenced by a number of factors; i.e.: the distance between your speakers and the amplifier; the type of speakers you use; personal preferences; and other factors.



Regardless of the brand or type of cable selected, we recommend using a cable constructed of fine, multi-strand copper with a gauge of 14 or larger. Remember, that in specifying cable, the lower the number, the thicker the cable. Cables with a gauge of 16 may be used for short runs of less than ten feet. We do not recommend that you use any cables with an AWG equivalent of 18 or higher due to the power loss and degradation in performance that will occur.

Cables that are run inside walls should have the appropriate markings to indicate listing with, and approval by, UL, CSA or other testing agency. Questions about cables inside walls should be referred to a qualified installer or a licensed electrical contractor who is familiar with the NEC and/or the applicable local building codes in your area.

As a general rule, always avoid running input signal or speaker wire connections in parallel with each other, or with AC power cords. This can result in undesired hum or other interference that will greatly degrade signal performance.

The terminals of the SA-180 are designed to allow the use of heavy speaker wire or connectors. Be sure to tighten them securely, but don't over-tighten them.

**WARNING:** To prevent risk of electrical shock or damage to your equipment, always switch off the amplifiers when making any system connections.

You can connect your subwoofer to the SA-180 by using a variety of audio connectors such as banana plugs (single or double), pin connectors, spade lugs, etc; or you may simply use the bared wire itself:

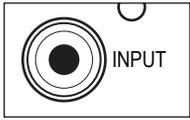
1. Remove ½" of insulation from each wire end.
2. Twist the strands of each of the wires together, keeping the two wires separate.
3. Place the appropriate wire through the hole in the appropriate connector. This hole is revealed when you loosen the connector's knob.
4. Screw down the knob firmly to clamp the wire, but be careful not to over tighten it.
5. Check the tightness of these knobs 24 hours after hookup and occasionally after that, as they can loosen over time.

When using any wire connector, follow the manufacturer's assembly and usage instructions. We recommend that you check your local electrical codes to make sure that you are not using improper connectors (for example, "banana" plugs are not allowed in some areas).

It's important to observe polarity while making speaker connections: red (+) terminal on the amplifier to red (+) on the speaker, black (–) on the amplifier to black (–) on the speaker. Look carefully at the wire you are using and note that one of the conductors of the pair will typically be identified by color, printing on the outer jacket, ridges on the outer jacket, or a thread intertwined with the wire strands. By convention, the marked wire is connected to the red (+) terminal.

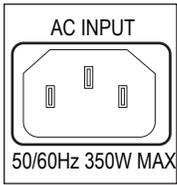
## Audio Signal Connections

### Connections with RCA type plugs:



When making connections with the “RCA” type plugs on interconnect cables, make certain to gently, but firmly insert them into the jack marked Input on the back of the Model SA-180. Loose connections can cause intermittent sound and may damage your speakers. The barrel assembly of some high quality RCA plugs may be very tight, and it is important to ensure a proper connection between the interconnect cable and the input jack.

### AC Power Connection



The final step in the installation of the Model SA-180 is to connect the power cord. First, connect the female end of the cord into the AC Power Receptacle on the rear panel. Once the cord has been firmly connected to the SA-180, insert the plug end into an AC power outlet.

### Safety Notes

- Due to the current draw of the Model SA-180, DO NOT connect the power cord to the accessory outlet of an audio/video component.
- Should the power cord become lost or damaged, be certain to replace it with a cord that meets or exceeds the original specifications. Use of power cords with insufficient capacity, such as those used with computers or office equipment, may create a safety hazard.

## Operation

Operation of the Model SA-180 is simple. In normal use there are no controls other than LEVEL and PHASE to adjust once the installation is complete. After all connections have been made to the amplifier's inputs and speaker terminals, and the AC power cord has been connected, the way in which the unit turns on is determined by the setting of the Trigger Mode Switch. Depending on the setting, as described on page 6, the amplifier will turn on in one of these three ways:

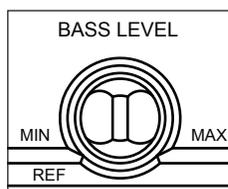
- When the Trigger Mode Switch is set to the left, in the “On” position, the Model SA-180 will turn on when the AC Power Switch is turned on. Use the AC Power Switch to turn the Model SA-180 off when you're finished listening.
- When the Trigger Mode Switch is set in the center, in the “Music” position, the AC Power Switch should be turned ON to place the Model SA-180 in the Standby Mode. The unit will automatically turn on whenever an audio signal is present. The unit will return to the Standby mode a few minutes after the audio signal is removed.
- When the Trigger Mode Switch is set to the right, in the “12V” position, the AC Power Switch should be turned ON to place the Model SA-180 in the Standby Mode. The unit will automatically turn on when a low voltage trigger signal is present at the Trigger Jack and return to the Standby Mode when the trigger signal is removed.

As a general rule, it is always a good idea to turn on your amplifier LAST. This avoids the possibility of any turn on-pops or transients from other equipment being amplified and sent to your speakers where they may cause damage.

Always start with a low volume level on your receiver, controller or pre-amp to avoid damage to your speakers.

**SAFETY NOTE:** To prevent unintended operation, remember to turn the unit completely off when it will not be used for an extended period of time. This is done by turning the AC Power Switch OFF and noting that the front panel LED indicator goes off. This will prevent the automatic turn-on circuits from accidentally turning the amplifier on during your absence.

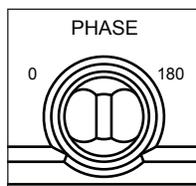
### Bass Level Control



side the available range of the receiver's control.

In most installations, this is set to the “REF” position, and the subwoofer's level is controlled via the preamp/processor's subwoofer level function. This front-panel control is used when the preamp/processor has no such capability, or when the desired setting is outside the available range of the receiver's control.

### Phase



The correct setting of this control is that which provides the smoothest transition between the subwoofer and the rest of the system. Try both positions, and use the one which sounds best; in most systems, 0° is preferred.

## Caring For Your Amplifier

**IMPORTANT:** Save Your Boxes! If you can do so, save the carton, packing pieces and plastic bags that came with your subwoofer. They will be useful in case you move or have to ship your subwoofer for any reason. In any case, save all packing materials until you are certain that the system has suffered no damage in shipment. If you find such damage, either visible or internal, contact your dealer immediately for the proper return procedure.

## Subwoofer Troubleshooting Guide

Once your system is set up, you should have many years of maintenance free enjoyment from your system. However, if you should encounter a problem, refer to the following guide to help find the solution. If the problem persists, please contact your local authorized Atlantic Technology dealer.

Problem	Possible Cause	Possible Solution
No bass output	AC power cord unplugged or plugged into a non-working outlet. Input cables not securely connected or defective.	Plug into a working outlet. Check all connections, then try another input cable.
Audible buzz or hum	Input cable not securely connected or defective. Ground loop through antenna or cable TV system input.	Check all connections, then try another input cable. Test by disconnecting antenna and/or cable system input leads. If hum goes away, install isolation balun(s) at that point.
Weak bass: vague stereo image; especially when using dual sub/amp setup	Acoustic phase of subwoofer(s) doesn't match rest of system.	Check speaker wire connections and/or phase switch settings.

## Specifications

### SA-180

<b>RMS Power</b> (before limiting)	180 W @ 4 Ohms, <.025%THD
<b>Signal to Noise Ratio</b> (-90dB hum)	-97dB @ full power
<b>Frequency Response</b> (typical, in room)	30-150 Hz $\pm$ 3 dB
<b>Input Sensitivity</b>	250mv @ full output, 100Hz
<b>Input Impedance</b>	15K $\Omega$
<b>Power Supply Storage</b>	9.4K microfarads
<b>Toroidal Transformer</b>	400VA
<b>Peak Output Stage Current</b>	30amps rated
<b>Dimensions</b> W x H x D	8½" x 2" x 12½" (215 x 50 x 320mm)
<b>Weight</b> (lbs)	14lbs. (6.4kg)



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