



On Point Audio, Inc.

OPALine SUB USER MANUAL



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operation and maintenance instructions.



High voltage

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of un-insulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to people.



The On Point Audio OPALine Sub was designed to provide very high performance sound reinforcement and very high-output, low-frequency response. The OPALine Sub is an active, dual-channel design that routes one channel of the amplifier output to the 18" woofer and the second channel to a high level, high pass output. The OPALine Sub was designed for use in portable and fixed installation indoor environments such as night clubs, churches, meeting halls and general live performance applications. The OPALine Sub features an 18 -inch (457 mm) diameter woofer, Class-D amplifier, high order analog filter processing and enclosure design that provides very high acoustic output with extended low frequency response. The system was designed to work in conjunction with the On Point Audio OPALine system. The OPALine Sub Active also features professional-grade locking casters for easy system positioning and movement.

Specifications

Frequency Response:	35 Hz – 80 Hz
Coverage Pattern:	Essentially omnidirectional
Input/Thru:	3-Pin XLR-type (Pin 2 +)
Power:	
Peak - Total System:	2,000 Watts
Continuous- Total System:	1,000 Watts
Subwoofer Peak Power	1,000 Watts
Subwoofer Continuous Power	500 Watts
High Pass Output (Speaker Level) Peak Power	1,000 Watts
High Pass Output (Speaker Level) Continuous Power	500 Watts
AC Mains Power:	115 V AC or 230 V AC (50 Hz – 60 Hz)
Input to achieve rated output:	0.774 V RMS 0dBu
Max Acoustic Output (Peak):	131 dB*

Supplied Accessories: AC Mains Cable

Dimensions (H X W X D): 545 X 500 X 707.5 mm
21.46 X 19.7 X 28.85 inches

Weight: 35.5 kg / 78.3 lbs

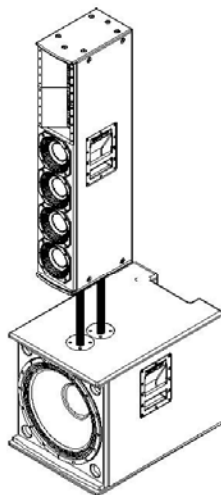
Operating temperature (C/F) 0C-43C / 32F- 110F

* **NOTE:** Max Acoustic Output is based on smoothed system response, not peak driver response.

The image below shows the OPALine Sub with the OPALine top enclosure mounted above using the two 1 3/8" poles supplied with the OPALine Sub.



NOTE: TWO poles MUST be used when mounting the OPALine top enclosure on the OPALine sub. DO NOT MOUNT WITH ONE POLE!



OPALine Sub and OPALine top enclosure showing TWO mounting poles



Read all of the instructions included in this manual

Copies of this manual should be retained by both the system installer AND end user. This manual must be read and understood and ALL warnings must be followed. Follow all instructions to ensure optimal product performance.

The OPALine Sub is a convection-cooled device and it requires at least 7 inches (178 mm) of clearance behind the enclosure to allow the heat sink to adequately cool the internal electronics. **DO NOT INSTALL THE OPALine SUB NEAR ANY HEAT SOURCES!**

Use **ONLY** the supplied AC Mains connector. Protect the AC Mains power cord from being walked on or otherwise damaged, and inspect it for damaged connections and damaged insulation

There are **NO** user serviceable parts inside the enclosure. **DO NOT REMOVE THE AMPLIFIER MODULE!** (See Service section for details OR contact On Point Audio, Inc.)

FCC STATEMENT

The OPA Sub Active has been tested and is compliant with the limits for Class B digital devices, per Part 15 of the FCC rules. Test data is available from On Point Audio, Inc.

INTRODUCTION

Thank you for purchasing the On Point Audio OPALine Sub and for your investment in our products. The OPALine Sub will provide you many years of useful service with proper use and care. Please read this manual completely and become familiar with the design and operation of this advanced active subwoofer system.

CONTENTS

The OPALine Sub system is shipped one carton. The contents are as follows:

OPALine Sub System

One OPALine Sub includes a Class-D digital power amplifier system with onboard high order analog processing and one each AC Mains cable.

The OPALine Sub Act also includes two 1.375 inch (35 mm) diameter poles designed for mounting the OPALine enclosure above the Subwoofer.



DO NOT SUBSTITUTE POLES. USE ONLY THE POLES SUPPLIED AND USE THESE POLES ONLY WITH THE OPALine SUB AND THE OPALine top enclosure.

BOTH POLES MUST BE USED. DO NOT ATTEMPT TO MOUNT THE OPALINE TOP ENCLOSURE WITH A SINGLE POLE. BOTH POLES MUST BE USED. DO NOT SUBSTITUTE POLES!

WHEN USING THE POLES WITH THE OPALine SUB, THE OPALine SUB ENCLOSURE MUST BE PLACED ON A LEVEL SURFACE. DO NOT USE THE POLES OR MOUNT THE TOP ENCLOSURE IF THE SURFACE IS NOT LEVEL!

FEATURES AND APPLICATIONS

The OPALine Sub is a professional product and is designed to be used with a high-quality mixing console. The OPALine Sub does not provide any additional, user-selectable equalization. Any additional equalization functions should be provided by the mixing console or other outboard devices. This design concept enables gain stages to be limited, thus reducing system noise, as well as substantially reducing the possibility of gain stage overloads.

The OPALine Sub features an onboard high-order analog signal processing circuit that performs the required crossover functions.

SETUP AND USE OF THE OPALine Sub

AC MAINS CONNECTION

Prior to connecting the AC mains cable, please insure that the AC mains switch on the OPALine Sub is in the OFF position.



On/Off Switch

The OPALine Sub will operate on AC mains voltages between 115 volts and 230 volts. The required AC mains range is 85Vrms to 265Vrms. The required AC mains frequency is between 50 Hz and 60 Hz.

The OPALine Sub uses a standard IEC-type AC mains connector system. To mate the AC mains cable with the AC mains connector on the amplifier, simply align the plug with the panel's connector and press the AC mains cable into place. Always support the

OPA Sub Active's enclosure with one hand while performing this operation. The AC mains connector is shown below. It is located on the lower portion of the OPALine Sub's input panel.



AC Mains panel connector

To disconnect the cable end of the AC mains connector from the OPALine Sub, simply pull the cable end away from the enclosure. Make certain to support the OPALine Sub's enclosure with one hand while performing this operation. Pull from the molded end of the AC mains cable's plug, not the cable itself.



NOTE: ALWAYS turn off the AC mains power BEFORE disconnecting the AC mains cable from the OPALine Sub's amplifier module!



DO NOT CONNECT EITHER END OF THE AC MAINS CABLE IF THE OPALINE SUB OR AC MAINS END IS WET OR SUBJECT TO CONDENSATION OR DAMP CONDITIONS!

Once the AC mains cable is securely connected to both the amplifier and AC mains supply, the OPALine Sub enclosure may be turned on. It is good practice is to make certain that the audio levels on the mixer's output (or other source output) are reduced or muted prior to applying power to the OPALine Sub.

NOTE: When power is applied to the OPALine Sub and the unit is turned on, there is approximately a 5 to 15 second delay before the pilot light illuminates.



Pilot Light



NOTE: If the pilot light does not illuminate within 30 seconds, the unit may be in a FAULT CONDITION. If this occurs, the unit should be returned to On Point Audio for evaluation. THERE ARE NO USER-SERVICABLE PARTS INSIDE. DO NOT REMOVE THE AMPLIFIER MODULE!

AUDIO CONNECTIONS

The OPALine Sub includes both a male and female XLR-type connectors. Any standard XLR-type cable end connectors may be used.

The image below illustrates the top portion of the OPA Sub Active's input plate. Both the audio input and audio high-pass output connectors are shown.

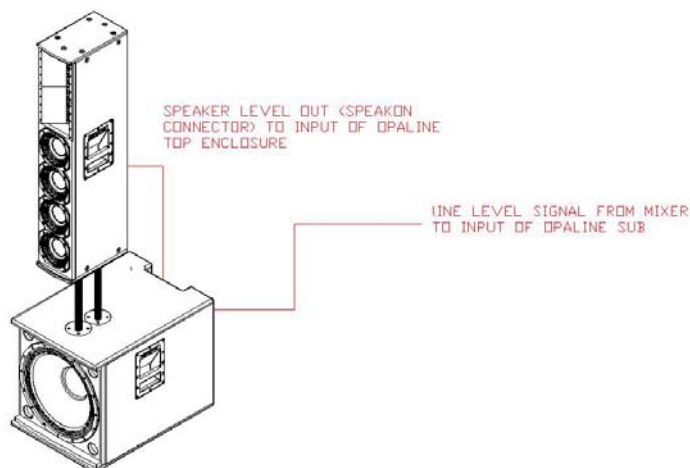


Input

High-Pass Filtered Output

The input connector should be used for the MAIN full-range audio input signal and the High-Pass Filtered Output should be connected to the input on the OPALine top enclosure. The High-Pass Filtered Output has a 4th order, 24 dB-per-octave filter at 80 Hz. This output directs all signal content above 80 Hz to the OPALine top enclosure. This output is SPEAKER LEVEL, and is designed to be connected to a PASSIVE enclosure. (DO NOT CONNECT THIS OUTPUT TO AN ACTIVE ENCLOSURE, CONNECT TO A PASSIVE ENCLOSURE ONLY!) All program material between 30 Hz and 80 Hz is routed to the OPALine Sub internal amplifier that is connected to the 18-inch subwoofer.

The wiring for the OPALine Sub to the OPALine top enclosure is shown graphically in the image below.



Note that the output of the mixing console is routed to the input of the OPALine Sub. There are TWO amplifiers in the OPALine Sub enclosure. The internal high order active filter routes 30Hz to 80Hz to the amplifier connected to the 18-inch sub woofer. Program material from 80Hz and above is routed through the second amplifier in the OPALine sub module and is then sent to the SPEAKER LEVEL High Pass Filtered Output. The SPEAKER LEVEL High-Pass Filtered output of the OPALine Sub is then routed to the input of the passive OPALine top enclosure.

The gain on the OPALine Sub is set as noted below.



The OPALine Sub also features a Sub Gain control that allows the output level of the subwoofer to be set to match the acoustic level of the OPALine top enclosure. This feature may be adjusted to suit individual music styles and room acoustics.

An audio level of 0774 V RMS will drive the OPALine Sub's amplifier to full power.



The OPALine Sub is shipped with two standard 1.375 inch (35 mm) diameter mounting poles designed for use with the OPALine top enclosure ONLY! The OPALine Sub MUST be located on a level surface that is capable of safely supporting the weight of both the OPA Sub Active, as well as the OPALine top enclosure.



WARNING

DO NOT PLACE ANY OTHER LOUDSPEAKERS EXCEPT THE OPALine TOP ENCLOSURE ON THE OPALine SUB's POLES. USE ONLY THE POLES SUPPLIED. BOTH POLES MUST BE USED WHEN MOUNTING THE OPALine TOP ENCLOSURE TO THE OPALine SUB. DO NOT SUBSTITUTE ANY OTHER MOUNTING POLES

ALL ASSOCIATED RIGGING IS THE RESPONSIBILITY OF OTHER PARTIES AND IS NOT THE RESPONSIBILITY OF ON POIN AUDIO, INC.

USING THE OPALine Sub (Application and Trouble Shooting Tips)

The OPALine Sub is a high-quality professional sound reinforcement system designed for use in indoor applications. Some basic precautions will insure long-term reliability.

EQUALIZATION

The OPALine Sub has all the required equalization functions included in the internal analog filtering. All equalization and gain functions have been optimized for flat frequency response and maximized system dynamics. The OPALine Sub does not have user-adjustable external EQ.

The gain function on the OPALine Sub should be set to insure the desired acoustic response and output of the system. Care should be taken when setting the gain of the OPALine Sub and the gain of the mixing console to ensure that the gain of the external mixing console is not turned too high to induce clipping and overload in the OPALine Sub.

The mixing console should be capable of providing sufficient output signal levels to supply the necessary voltage levels to drive the OPALine Sub to full power, but still ensure adequate headroom in the mixing console.

The OPALine Sub will produce full power with a 0.774 V RMS (0dBu) input signal.

If additional equalization is required, care should be taken to avoid excessive EQ in any frequency band, particularly at low frequencies. Excessive equalization can produce “band selective” clipping and distortion. All EQ boost levels should be monitored if system distortion is present.

DISTORTED SOUND

When input levels to the OPALineSub exceed 0.774 V RMS, the internal dynamics processing functions automatically engage to provide system protection. However, it is still possible to “overdrive” the input section of the subwoofer system. If distorted sound is present, the following steps should be taken:

1. Verify that the mixer’s output is not clipping or overloaded. If the output metering of the mixing console is continuously in the “red”, then the output level should be reduced. (occasional “red” indications are usually fine, but are dependent on the mixing console’s output capability)
2. Verify that excessive equalization is not present anywhere in the signal chain.
3. Verify that AC mains levels are within the required range.



Voltage measurements on the AC Mains should be performed by a licensed electrician or individual trained in making high-voltage measurements.

NO SOUND

1. Verify that signal is present on the input of the OPALine Sub. The OPALine Sub includes a “signal present” indicator that is positioned immediately below the Pilot light. This indicator will illuminate when an audio signal is present at the input to the system. The threshold is approximately -25dBV.
2. Verify that there is AC Mains voltage on the AC Mains input to the OPALine Sub
3. If AC Mains voltage is present, verify that the OPALine Sub’s woofer is not shorted. If a shorted woofer condition occurs the OPALine’s internal amplifier will engage a protection circuit that will reset after 5 seconds to 15 seconds. (approximately) The protection circuit will continue to activate as long as the short condition remains.
4. There is no external fuse on the OPALine Sub enclosure. The internal fuse must be replaced by a qualified technician only. ALWAYS replace the fuse with the same size and value fuse.

PRODUCT SERVICE



There are NO user-serviceable parts inside the OPALine Sub amplifier.

The OPALine Sub amplifier module MUST be serviced by authorized On Point Audio service facilities or distribution partners.

Replacement of Components



REPLACEMENT OF COMPONENTS MUST BE PERFORMED BY A QUALIFIED TECHNICIAN, OR ONE KNOWLEDGABLE IN THE REPLACEMENT OF TRANSDUCER COMPONENTS!

DO NOT ATTEMPT ANY REPAIRS UNLESS THE OPALine Sub AMPLIFIER HAS BEEN DISCONNECTED FROM THE AC MAINS SOURCE!

In the event of woofer failure, the woofer may be accessed by removing the front grille and then removing the woofer. This should be done by a qualified technician or contractor. There is no need to remove the amplifier's panel in the event of a woofer failure.

Please note the wiring polarity and observe the same polarity when replacing the woofer.

