



On Point Audio, Inc.

OPA SUB ACTIVE 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 lightening flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated “dangerous voltage” within the products enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

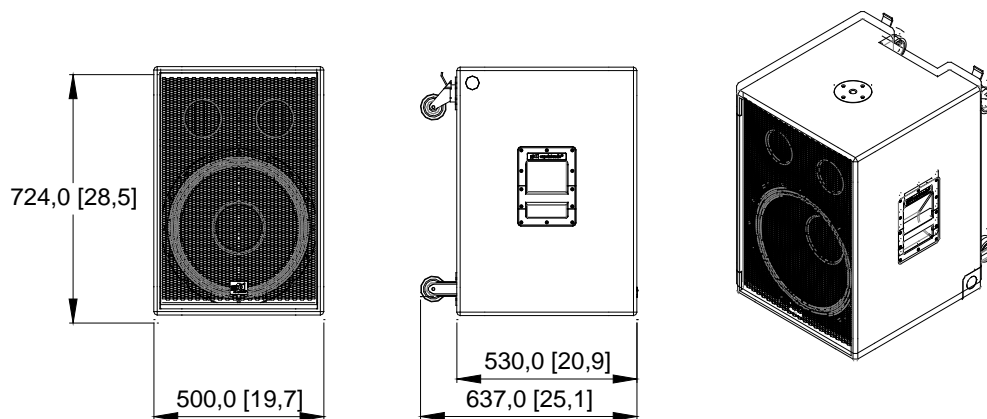


The On Point Audio OPA Sub Active was designed to provide very high performance sound reinforcement and very high-output, low-frequency response. The OPA Sub Active was designed for use in portable and fixed installation indoor environments such as night clubs, churches, meeting halls and general live performance applications. The OPA Sub Active features an 18 inch (457 mm) diameter woofer, Class-D amplifier, digital 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 OPA 15 Active and the OPA 10 Active systems. The OPA Sub Active also features professional-grade locking casters for easy system positioning and movement.

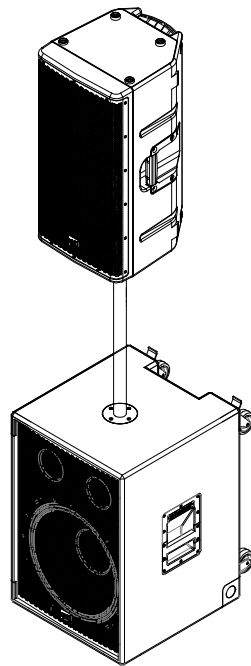
Specifications

Frequency Response:	40 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
AC Mains Power:	115 V AC or 230 V AC (50 Hz – 60 Hz)
Input to achieve rated output:	1.5 V RMS
Max Acoustic Output (Peak):	131 dB*
Supplied Accessories:	AC Mains Cable
Dimensions (H X W X D):	831 X 500 X 530 mm 32.7 X 19.7 X 20.87 inches
Weight:	40 kg / 88.2 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 OPA Sub Active with the OPA 15 Active suspended above it. The OPA 10 Active may also be used in conjunction with the OPA Sub Active.



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 insure optimal product performance.

The OPA Sub Active 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 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 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 One Systems)

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.

INTRODUCTION

Thank you for purchasing the On Point Audio OPA Sub Active and for your faith in us and our products. The OPA Sub Active 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 OPA Sub Active system is shipped one carton. The contents of the carton is as follows:

OPA Sub Active System

One OPA Sub Active that includes a Class-D digital power amplifier system with onboard Digital Signal Processing (DSP) and one each AC Mains cable.

The OPA Sub Active also includes a 1.375 inch (35 mm) diameter pole designed for mounting either the OPA 15 Active or the OPA 10 Active enclosures above the Sub.



DO NOT SUBSTITUTE POLES. USE ONLY THE POLE SUPPLIED AND USE IT ONLY WITH THE OPA SUB ACTIVE AND EITHER THE OPA 15 ACTIVE OR THE OPA 10 ACTIVE!

WHEN USING THE POLE WITH THE OPA SUB ACTIVE, THE OPA SUB ACTIVE'S ENCLOSURE MUST BE PLACED ON A LEVEL SURFACE. DO NOT USE THE POLE IF THE GROUND'S SURFACE IS NOT LEVEL!

FEATURES AND APPLICATIONS

The OPA Sub Active is a professional product and is designed to be used with a high-quality mixing console. The OPA Sub Active 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 OPA Sub Active features an onboard digital signal processor (DSP) that performs analog to digital conversion, equalization, high-order crossover, delay and system dynamics processing. The system's dynamics processing consists of a compressor/limiter function designed to provide both ultra-fast threshold system protection and maximized system dynamics.

SETUP AND USE OF THE OPA Sub ACTIVE

AC MAINS CONNECTION

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

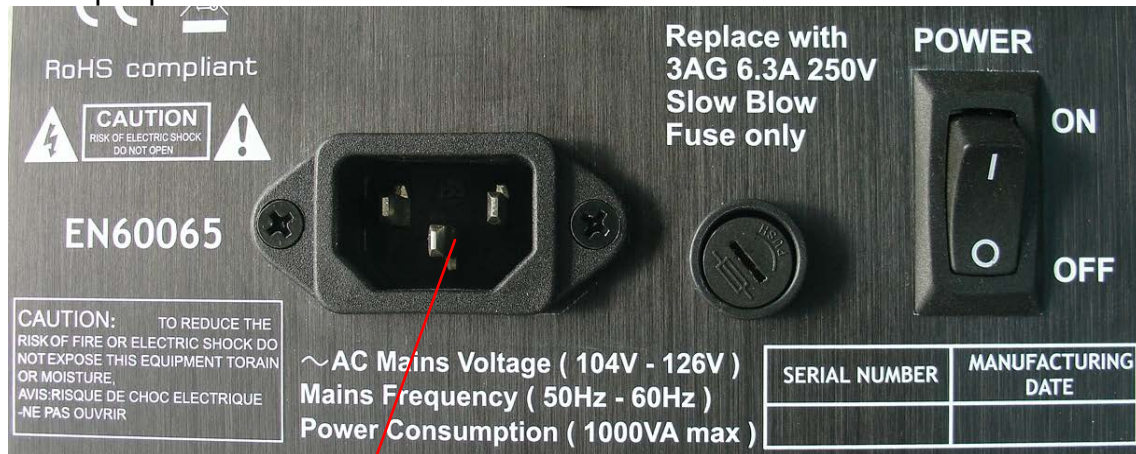


On/Off Switch

The OPA Sub Active will operate on AC mains voltages of 115 volts or 230 volts. The required AC mains frequency is between 50 Hz and 60 Hz.

NOTE: Insure that the model is correct for the local AC Mains voltage!

The OPA Sub Active 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 OPA Sub Active's input panel.



AC Mains panel connector

To disconnect the cable end of the AC mains connector from the OPA Sub Active, simply pull the cable end away from the enclosure. Make certain to support the OPA Sub Active'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 OPA Sub Active's amplifier module!



DO NOT CONNECT THE AC MAINS END OF THE AC MAINS CABLE IN AN AREA THAT 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 OPA Sub Active 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 OPA Sub Active.

NOTE: When power is applied to the OPA Sub Active 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 OPA Sub Active 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.

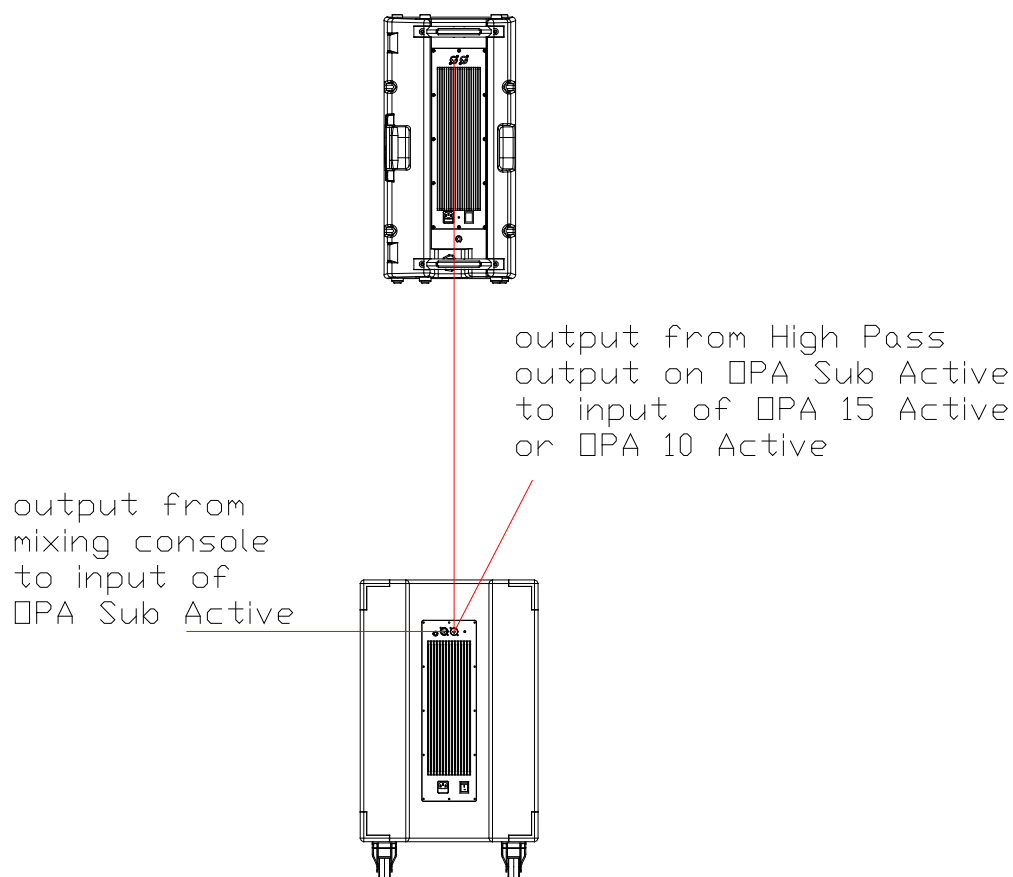


Input

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 OPA 15 Active or the OPA 10 Active systems. 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 OPA 15 Active or the OPA 10 Active. All program material between 40 Hz and 80 Hz is routed to the OPA Sub Active's internal amplifier.

The wiring for the OPA Sub Active to either the OPA 15 Active or the OPA 10 Active is shown graphically in the image below.



Note that the output of the mixing console is routed to the input of the OPA Sub Active. The High-Pass Filtered output of the OPA Sub Active is then routed to the input of either the OPA 15 Active or the OPA 10 Active. Any professional-grade XLR to XLR cable may be used for this wiring. In all cases, pin 2 on the XLR connector is the positive terminal.

The gain on the OPA Sub Active is set as noted below.



Sub Gain

The OPA Sub Active also features a Sub Gain control that allows the output level of the subwoofer to be set to match the acoustic level of the OPA 15 Active or the OPA 10 Active. This feature may be adjusted to suit individual music styles and room acoustics.

An audio level of 1 V RMS will drive the OPA Sub Active's amplifier to full power.



The OPA Sub Active is shipped with a standard 1.375 inch (35 mm) diameter mounting pole designed for use with the OPA 15 Active or the OPA 10 Active. The OPA Sub Active **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 OPA 15 Active or OPA 10 Active systems.

DO NOT ADD OR SUSPEND ANY ITEMS FROM THE OPA Sub Active, OPA 15 Active OR OPA 10 Active.



WARNING

DO NOT PLACE ANY OTHER LOUDSPEAKERS EXCEPT THE OPA 15 ACTIVE OR OPA 10 ACTIVE ON THE OPA SUB ACTIVE'S POLE.

USE ONLY THE POLE SUPPLIED

DO NOT SUBSTITUTE ANY OTHER MOUNTING POLES

ALL ASSOCIATED RIGGING IS THE RESPONSIBILITY OF OTHERS.

USING THE OPA Sub Active (Application and Trouble Shooting Tips)

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

EQUALIZATION

The OPA Sub Active has all the required equalization functions included in the internal Digital Signal Processor (DSP). All equalization and gain functions have been optimized for flat frequency response and maximized system dynamics. The OPA Sub Active does not have user-adjustable external EQ.

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

The mixing console should be capable of providing sufficient output signal levels to supply the necessary voltage levels to drive the OPA Sub Active to full power and still insure adequate headroom in the mixing console.

The OPA Sub Active will produce full power with a 1.5 V RMS input signal.

If additional equalization is required, care should be taken to avoid excessive EQ in any frequency band, but 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 OPA Sub Active exceed 1.5 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 OPA Sub Active.
The OPA Sub Active also includes a “signal present” indicator and 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 OPA Sub Active
3. If AC Mains voltage is present, verify that the OPA Sub Active’s fuse is not blown.



NOTE: IF THE FUSE IS BLOWN, REPLACE ONLY WITH THE SAME TYPE OF FUSE. THIS FUSE TYPE IS NOTED ON THE INPUT PANEL NEAR THE FUSE HOLDER. THE LOCATION OF THE FUSE HOLDER IS SHOWN BELOW. . **NOTE: 115Vrms AC fuse shown below for example only. Fuse rating will differ based on AC mains voltage.**



FUSE HOLDER (located between on/off switch and ac mains)

PRODUCT SERVICE



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

The OPA Sub Active amplifier module MUST be serviced by an company authorized by On Point Audio

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 OPA SUB ACTIVE 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.