

OWNER'S GUIDE

The ACTIV AUDIO electromagnetic interference (EMI) Filter is the most advanced and effective EMI filter for streaming audio available on the market. Utilizing proprietary Digital Signal Processing (DSP) techniques, the ACTIV AUDIO filter faithfully reproduces streaming audio packets without unwanted or extraneous interference. The filter rejects unwanted signals from 50Hz and below all the way up to 40GHz at better than 100dB – that's a noise reduction of 99.99999999%! Military grade passive filtering technology further ensures that digital music packets traverse the filter in complete and absolute isolation from each other and the outside world. Signal lines are balanced perfectly throughout the multilayered cards to avoid disturbing the fast rise times required by digital square wave signals. The result is a pristine digital output far surpassing the filtering capabilities of any other EMI filters.

Each ACTIV AUDIO Filter is constructed with the highest grade electrical components, starting with a super accurate, ultra stable high speed crystal clock which drives the specially developed DSP circuitry and Ethernet chipset. To protect the sensitive circuitry of the filter, incoming power is also filtered, conditioned and protected against deviations from specified voltage and current levels. The circuit cards are then mounted in a sleek, protective housing machined from solid aluminum stock. The housing not only provides physical protection to the filter components, but is also an integral contributor to the filter's effectiveness. The unique structure of the housing effectively disrupts undesirable emissions from propagating through the filter while simultaneously providing low impedance pathways for interference to be directed out of the filter.

The ACTIV AUDIO EMI Filter

The critical choice when listening to precise, crystal clear audio is paramount.

Installation

1. Before installing the ACTIV AUDIO filter, make sure the filter and the device you are protecting (“Protected Device”) are not powered ON.
2. Place the filter as close as you can to the Protected Device. Use as short of an Ethernet cable (CAT 5e or better) as you can to connect the filter output (identified on the filter label as “OUTPUT”) to the Protected Device.
3. Connect the filter input (identified on the filter label as “INPUT”) to your network.
4. The ACTIV AUDIO filter comes with a Listed power adapter rated for 12V DC and a minimum 2A marked “LPS” or “Class 2”. Connect the power supply to the filter and plug the power supply into the AC outlet. The POWER LED should light and the INPUT and OUTPUT LEDs should also light and start blinking.
5. Turn on the Protected Device.
6. Verify the Protected Device has a network connection. You may now use the Protected Device as you normally would.
7. If the Protected Device fails to function normally, refer to the Troubleshooting Guide at the end of this document.

Frequently Asked Questions

Should I use shielded or unshielded Ethernet Cables? Why or why not?

Shielded cables can sometimes improve a problem or they can sometimes act like antennas and make it worse. We recommend starting with unshielded cables and switching to shielded cables if you are encountering noise or humming issues. The most important factor is to use a short cable between the filter and the Protected Device. That gives noise less opportunity to couple onto the cable. The next most important factor is to separate the cable from noise sources (e.g. power lines, signal lines, control lines, radios, etc.).

Will the ACTIV AUDIO Ethernet Filter work on CAT5e / CAT6 / CATX cables?

CAT5/CAT6/CAT7/etc. are cabling standards (ie wire gauge, twists per foot, insulation material, etc.). What matters is what is being transmitted over the cables. If it is Ethernet, then the ACTIV AUDIO filter will work. But CAT5/CAT6/CAT7/etc. are sometimes used to carry other things like proprietary data, power, thermostat signals, sound, etc. In those circumstances, the ACTIV AUDIO filter will not work and will actually block the signals.

Specifications

Filter Performance	Shielding Effectiveness	Not Applicable
	Insertion Loss	>100dB from 50Hz to 40GHz
	Radiated and Conducted Emissions	Exceeds MIL-STD-461 CE102 Exceeds MIL-STD-461 RE102 Exceeds FCC Part 15 A, B Exceeds EN 55022 Class A, B
Network Performance	Auto MDI/MDI-X	Automatically detects and configures MDI or MDI-X.
	Auto Negotiation	Input and output automatically configure 10Mbps, 100Mbps, 1Gbps, 2.5Gbps, 5Gbps or 10Gbps
	Hot Pluggable	Can be plugged in/out without affecting filter or other links.
	Auto Link Restoration	Automatically re-establishes network link after a link loss.
	Communication Standards	IEEE802.3i 10Base-T (Ethernet) IEEE802.3u 100Base-T (Fast Ethernet) IEEE802.3ab 1000Base-T (Gigabit Ethernet) IEEE802.3an 10GBase-T (10G Ethernet) IEEE802.3bz 2.5GBase-T/5GBase-T (2.5G/5G Ethernet)
Safety and Regulatory	File Number	E362686
	Standards	UL 62368-1 CSA C22.2 No. 62368-1 EN 62368-1 IEC 62368-1:2020+A11:2020 RoHS 2011/65/EU RoHS 2015/863 REACH SVHC CA Prop 65 FCC 47 CFR Part 15.247*AEI ICES-003:2020 Ed. 7 EN 55032:2015+A11 EN 55035:2017+A11 EN 61000-3-2:2014 EN 61000-3-3:2013+A1;A2 EN 6100-4-2,3,4,5,6,8,11
Environmental	Operating Temperature	0°C - 40°C (32°F - 104°F) Continuous
	Humidity	5% - 90% (non-condensing)
Construction	Filter Housing	Aluminum w/Electroless Plated Nickel
	Power Requirements	+12VDC TYP / 2A MIN; Marked "LPS" or "Class 2" only. Center Positive
	Dimensions	5.77" x 3.00" x 0.93"
	Connectors	RJ-45 8P8C Jack (x2) 2.1mm x 5.5mm DC Barrel Jack
	Indicator LEDs	Power – Red When Power is Present Link Status (Input/Output) - 10Mbit - Red - 100Mbit - Green - 1Gbit – Dark Blue - 2.5Gbit - Yellow - 5Gbit - Purple - 10Gbit – Light Blue

TROUBLESHOOTING PROCEDURES

The ACTIV AUDIO Ethernet EMI filters do not require any special treatment. Connect the filter to a computing device and a network (or second computing device) and the filter will autonegotiate the connection between the two and should work seamlessly and invisibly. However, occasionally there is a communication problem or network/software hiccup that interferes with network connectivity. And less frequently, there is a hardware failure.

NOTE: ACTIV AUDIO Ethernet EMI filters pass Ethernet packets ONLY. They will NOT pass other signals such as the tones or pulses used by network cable testers, proprietary digital phone signals, or proprietary signals that use Ethernet cabling but are not based on Ethernet (TCP/IP). The ONLY way to test an ACTIV Ethernet filter is to connect the filter to a computing device and a network (or other computing device) and verify connectivity.

In the event that your ACTIV AUDIO Ethernet EMI filter fails to work or stops working, follow these instructions:

- Step 1. Verify the filter is plugged in and the power supply is functioning. The power supply should be able to provide 12VDC and at least 2 amps to the filter. It must be a Listed power supply marked "LPS" or "Class 2" only. If necessary, use a multimeter to check that the power supply output is 12VDC or slightly higher.
- Step 2. Check the input and output connectors and make sure the pins are not bent and are properly aligned so they will come in contact with the CAT cable connector pins.
- Step 3. Turn off the computing device, the ACTIV AUDIO filter and all network devices on that leg of the network. (The filter can be reset/turned off by unplugging the power supply.) Turn the devices back on, one at a time, starting from the network backbone down to the computing device. Allow ample time for each device to boot up individually and connect to the network.
- Step 4. If there is still no connectivity, try "repairing" the network connection on the computing device or force the computing device to release its IP address and renegotiate with the network for a new IP address.
- Step 5. Finally, verify that your computing device, cables and network are functioning properly by directly connecting the computing device to the network. You MUST use the same computing device, cables and network connection to positively remove these variables as possible causes of the problem. For the cables, you should either use an RJ-45 coupler to connect the cables together, or test each cable separately.
- Step 6. If there is still no connectivity, then the filter may be faulty. It will be necessary for you to contact us and arrange for an RMA number.

All ACTIV Ethernet filters have a two year warranty from date of first sale.