

BVHD-10TM

New Generation HDMI Signal Extender Happiness Maximization Manual

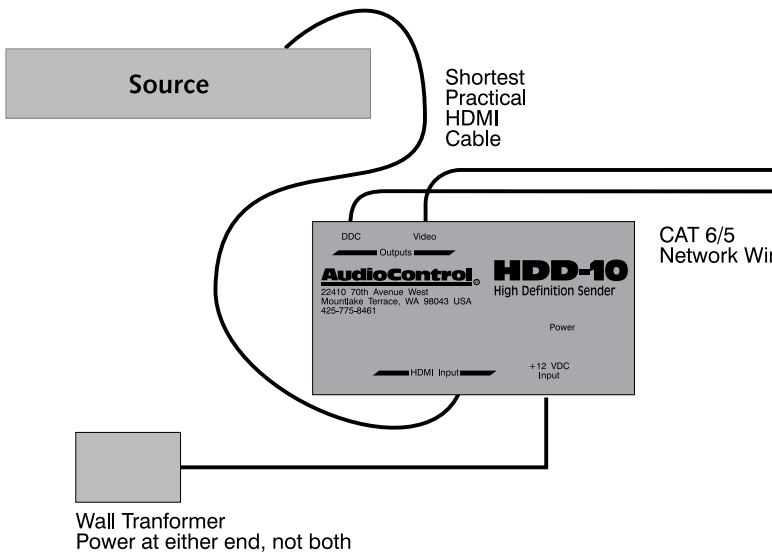
Key Features:

- newest generation HDMI signal processing
- active and automatic signal restoration and cable compensation
- improved driver performance with back termination
- long cable length; up to 150 feet for 1080p and 200 feet for 1080i with Cat 6/5 wiring
- 340 MHz bandwidth to accommodate all HDMI/HDCP 1.3 signals
- locking HDMI connector type
- externally powered for best performance
- special static protection on all inputs and outputs
- LED confirmation of valid connections and data transfer
- crafted in AudioControl's Northwest rainforest factories for greatest performance and reliability
- five year warranty when dealer installed

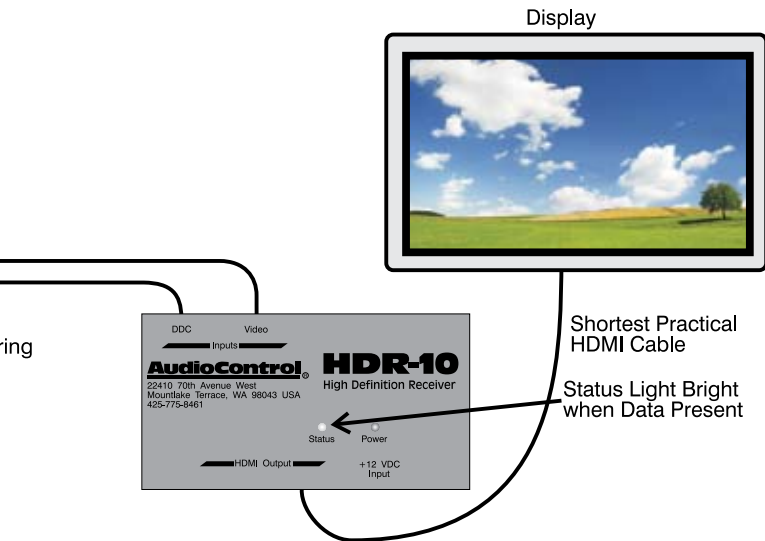
AudioControl[®]

How to Hook Up the BVHD-10

The hookup is simple; the Driver (HDD-10) goes at the source and the Receiver (HDR-10) goes at the display end (the sink in HDMI parlance). Use Category 6/5 network cable to connect the Driver and Receiver. However, there are



a number of important considerations discussed in following sections which you must follow for best results (like getting home at night at a decent hour instead of troubleshooting an installation). This is not like NASCAR racing where you can “fudge” and get away with it.



For more information see section titled “How to Get the Best Performance”

A Brief Introduction to HDMI®

HDMI (High Definition Multimedia Interface) is a digital transmission protocol for video and audio much like DVI. Another example of an audio/video digital transmission protocol is Display Port. HDMI is usually paired with HDCP or High-bandwidth Digital Content Protection, which is a form of digital rights management.

The specifications of HDMI are tightly regulated and owned by a private group, the HDMI consortium. HDMI is a registered trademark of this group that charges fees for licensing.

Special Features of the BVHD-10

Newest Generation HDMI signal processing

The BVHD-10 incorporates the latest generation of HDMI signal processing. These latest generation integrated circuits, coupled with painstaking care in surrounding circuit design, alleviate many of the earlier HDMI problems.

Active Signal Restoration

There are always some losses in sending a signal more than short distances. The BVHD-10 Driver and Receiver correct for these losses and restore the HDMI signal for the greatest reliability and quality.

Long Cable Lengths

With the BVHD-10, using CAT-6 cable, you can run an HDMI signal up to 150 feet for 1080p and over 200 feet for 1080i. Your maximum lengths with Category 5e network wire will be approximately 10% less.

Screw Mount HDMI Connector Type

The HDMI connectors on both the HDD-10 Driver and HDR-10 Receiver are the locking type. Use a HDMI screw mount locking cable and you will have a secure connection that will never fall out.

Crafted in the Northwest Rainforest for Bulletproof Reliability

AudioControl crafts its products, now and since 1977, in factories in the Pacific Northwest Rainforest for greatest reliability. If you have any questions we are just a phone call away. Since the BVHD-10 is totally engineered and built at these United States factories, we are the experts on this product and do not have to “get back to you” with an answer.

Five Year Warranty

As for all AudioControl products, we know that bulletproof reliability is worth the extra expense that we engineer into the BVHD-10 and the extra time that we spend in the factory to ensure that reliability. When the BVHD-10 is dealer installed, we back it with a full five-year warranty. But then the real benefit of this extra cost and time is that you very rarely need to use the warranty.

How to Get the Best Performance from HDMI®

This is an important section of this manual. Sending HDMI, particularly with HDCP, involves a lot of different things happening at very high speed. Transmission or wiring errors often will result in no picture at all. In component video, you can have problems and still get a picture ranging from pretty good to bad. With HDMI, problems often mean no picture.

Error or losses in the signal chain accumulate! If that last statement is not scary enough, losses may be tolerated on some content material more than others. Bottom line, don't cut corners, some past wiring practices will get you into trouble, be leery of jobs where someone else ran the wiring, and pay close attention to the advice below.

What to do:

- use Category 6 (or better) network cable (attainable distances are shorter with Cat 5)
- use Cat 6 RJ-45 push through connectors and use the associated strain relief at the connector
- make sure the two wires in each pair are terminated to exactly the same length
- siamese Cat-6 is a good choice but not required

- keep the HDMI interconnect cable to the Driver and Receiver as short as feasible
- use high quality HDMI interconnect cables and, if possible, use 340 MHz (Cat 2) HDMI interconnect cables
- treat all cable in a kind and gentle fashion (see below) using large bend radiuses (minimum 1.25 inches)
- use shielded cable only for short runs as the shielding attenuates the signal

What NOT to do:

- pull or stretch the cable. Maximum pull tension is 25 pounds
- staple or dent the cable nor over-tighten with cable ties
- run parallel to power cables. Run at a right angle if possible
- untwist pairs into RJ-45 more than $\frac{1}{4}$ inch
- knot or kink the cable
- use couplers or splice the cable. Either will dramatically shorten the maximum cable length. The HDMI signal is extremely sensitive to very small variations in impedance.

Much of the advice above is the same as for gigabit Ethernet network wiring.

Troubleshooting

Since errors accumulate, troubleshooting with HDMI is a challenge. Adding one more piece to the signal chain may mean that there is no picture and, in fact, the bulk of the problem is not coming from the last component added but another, is causing most of the errors (such as the HDMI interconnect cable). The BVHD-10 uses state of the art restoration techniques, however, 1080p demands highest performance for all parts of the interconnect system, cables, and connectors. Here are some things you should know

Interoperability. Not all early components with HDMI connectors are compatible with more recent components and content. This, usually, will be a problem with the display (or sink). Each HDMI component includes processors that have to handshake and negotiate. Like the real world of politics, the negotiations are not always successful. A good practice is to hook up the source with the sink directly with a single HDMI cable before adding the BVHD-10 and check that those two devices (source and sink) are interoperable. For this test use a source and content with HDCP.

Source Switching. When sources are switched there is a boot and negotiation process between source and sink microprocessors. While that is ongoing, there will be no picture for several seconds.

HDCP Handshaking. HDCP requires verification of digital rights continuously, not just at initiation. Any break in communication of two seconds or possibly less may require a re-initiation. Unplugging and re-plugging an HDMI cable causes that re-boot of the processors or the re-boot may happen automatically by the source and the sink after several seconds.

Status LED Dim or Off. If you see this, try swapping the Cat 6 cables on either the Driver or Receiver end. Better is careful practice so that the Cat 6 cable plugged into “Video” at the Driver end is plugged into “Video” at the Receiver end.

Sparkles, Snow or Blinking Video. This means you are right on the edge in terms of acceptable data transmission quality. Try shorter or better quality HDMI interconnects first. Then look at the section above on “How to Get the Best Performance from HDMI” for hints. You may have this problem with more demanding content like games.

No Picture. Did you try connecting the HDD-10 and HDR-10 with shorter cables? If that did not help, look at the above section on “How to Get the Best Performance from HDMI”. The next step may be to try a 1080i signal if you are using 1080p. To check the installed network wiring, run a new cable outside the walls on a temporary basis as a way of testing the in-wall cable.

CAT 5 and CAT 6. What do you do if you have one Cat 6 and one Cat 5 wire available? Use the Cat 6 on “Video” and the Cat 5 on “DDC” for best results.

Other Issues. Please check our web page (www.audiocontrol.com) for more troubleshooting information. We constantly update those pages to be the best possible resource.

And now, a word from the legal department...

CONDITIONAL FIVE YEAR WARRANTY

Custom electronics installations are an invisible element of many modern homes. You don't appreciate what they do for you unless something goes wrong. AudioControl recognizes this fact and engineers the most bulletproof components we know how. We stand behind that quality, with a full FIVE YEAR parts and labor factory warranty when our components are installed by an authorized AudioControl dealer in the United States. Otherwise your warranty is one year. You will be happy to know that our warranty returns are rigorously tracked and very few of the units we build ever need to be repaired.

“Conditional” doesn't mean anything ominous. The Federal Trade Commission tells all manufacturers to use the term to indicate that certain conditions have to be met before they'll honor the warranty. If you meet all of these conditions, we will warrant all materials and workmanship on your AudioControl Active Balanced product for FIVE YEARS from the date you bought it, and we will fix or replace it, at our option, during that time.

Here are the conditional conditions:

1. A completed warranty card must be returned to us within 15 days after signing off on the products installation.

2. A sales receipt is required for proof of purchase showing when and from whom the unit was bought. We're not the only ones who require this, so it's a good habit to get into with any major purchase.

3. Your AudioControl product must have originally been purchased from or installed by an authorized AudioControl professional. This warranty is transferable. You do not have to be the original owner, but you do need a copy of the original sales slip.

4. You cannot let anybody (A) who isn't: the AudioControl factory or (B) somebody authorized in writing by AudioControl, service your product. If anyone other than (A) or (B) messes with your AudioControl product, that voids your warranty.

5. The warranty is also void if the serial number is altered or removed, or if the unit has been used improperly. Now that sounds like a big loophole, but here is all we mean by it:

Unwarranted abuse is: (A) physical damage (don't use your AudioControl product to play fetch with your dog or level your kitchen table, jack up your car or keep the rain off your head); (B) improper connections (120 volts into the power jack can fry the poor thing); (C) sadistic things. This is the best product we know how to build, but if you mount it to the filter pump of a hot tub, something will probably go wrong.

Assuming you conform to 1 through 5, and it really isn't all that hard to do, we get the option of fixing your old unit or replacing it with a new one.

Legalese Section

This is the only warranty given by AudioControl. This warranty gives you specific legal rights that vary from state to state. Promises of how well your BVHD-10 will perform are not implied by this warranty. Other than what we have covered in this warranty, we have no obligation, express or implied. Also, we will not be obligated for direct or indirect consequential damage to your system caused by hooking up the AudioControl BVHD-10.

Failure to send in a properly completed warranty card negates any service claims.

Specifications

Suggested cables for Driver to Receiver HDMI	Cat 6 or better 340 MHz (Cat 2)
Bandwidth	340 MHz
HDMI specification compatibility	1.3 and prior
Maximum recommended Cat 6 cable distance	
1080 p	150 feet
1080 i	200 feet
480 p	400 feet
Dimensions	4" w X 2.2" d X 1.2" h
Weight (driver and receiver)	2 lbs
Country of Origin	USA
Power transformer	12 vdc 300 ma

All specifications subject to change without notice like the Pacific Northwest weather and HDMI versions

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AudioControl®

For Those Who Consider Perfection Possible®

22410 70th Ave West • Mountlake Terrace, WA 98043 USA

Phone 425-775-8461 • www.audiocontrol.com