

Field Termination User Manual

For terminating regular HDMI cable

Thank you for purchasing the Luxi Electronics patented HD DIY (Do It Yourself) field termination products. If you are an experienced installer with the DIY products, you can just print out this first page with wire color coding picture for your reference. If you are new to the DIY products, please make sure you read through all the pages before performing the termination.

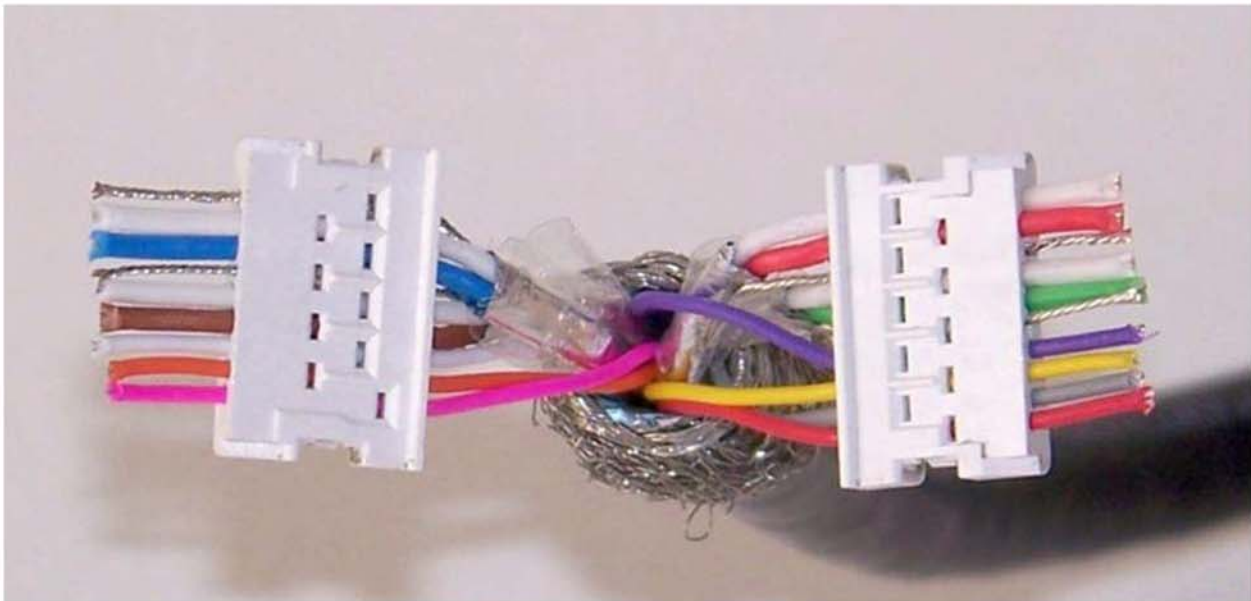
Wire color coding

Since there's no industry-wide HDMI color coding standard, please follow the instructions below closely.

Making a new cable:

If you are using Luxi HDMI raw cable (or other branded HDMI raw cable with the same wire colors), please follow the wire color coding below.

If you are using a HDMI raw cable with different wire colors, please mark the color cross reference on a piece of paper and make sure the same wire goes to the same pin on both ends.



Repairing one end of an existing cable:

If you are repairing a pre-terminated HDMI cable and only need to re-terminate one end, please write down the color coding for each pin carefully **before** cutting off the old plug.

Identifying the components

First, make sure you have all the necessary parts for the field termination.



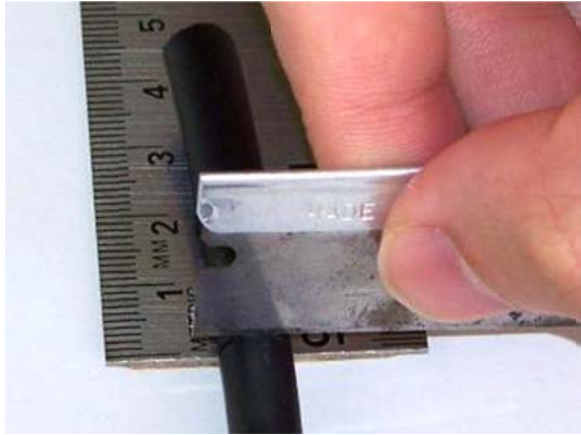
As shown in the picture above, you need the Luxi HDMI DIY connector components (5-piece), Luxi connector clamshell (2-piece), Luxi raw HDMI cable (or other 28 AWG cable), Luxi hand tool and a knife.

Be familiar with the component names as show below. HDMI connector has a wider side with 10 pins and a narrower side with 9 pins. We call the wider side the top side. The bottom wire holder can be easily identified by a keyed slot off the rest of the slots, see the red circle in the picture. For the two wire holders, the side with many slots is the inner side; this is the side which will be pushed onto the sharp pins of the connector core.



Step 1, wire preparations

1.1 Use a blade to cut around a circle of the HDMI cable overall jacket about 4 cm (1-1/2") from the end



1.2 Use the blade to slice along the cable overall jacket then peel off the overall jacket



1.3 Fold back the braids



1.4 Remove the overall aluminum foil; now the 19 wires inside the HDMI cable are exposed



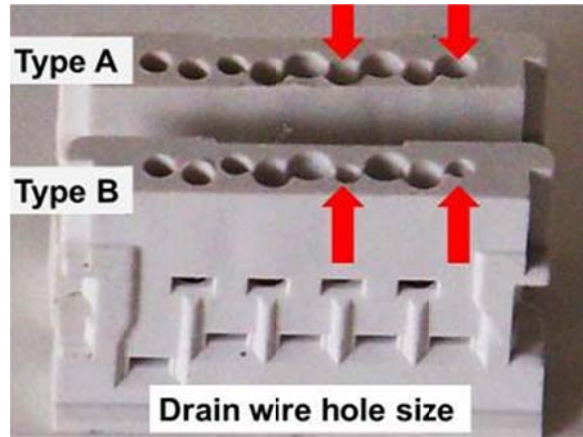
1.5 There are 4 twisted pairs. Cut off the plastic wrap on each pair 1/4" (6 mm) from the end



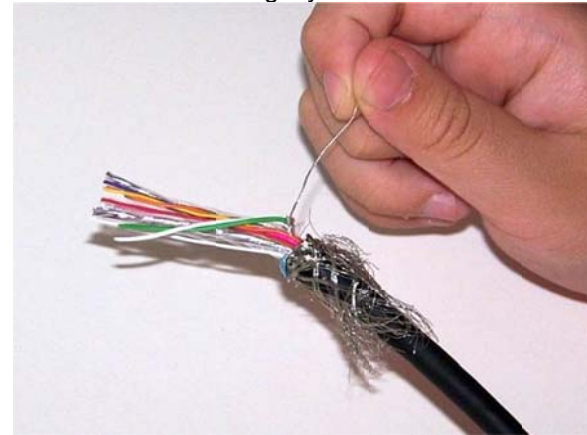
1.6 Cut off the aluminum foil from the very end



1.7 **Important!** 2 types of wire holders:
 Type A: the drain wire hole size is the same size as the twisted pair holes; Type B: while the drain wire hole size is much smaller

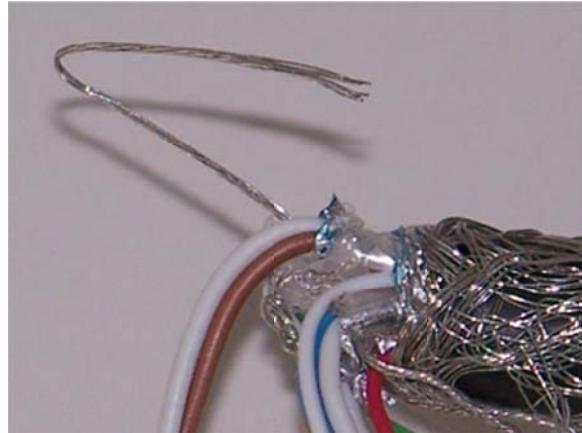


1.11 **Important!** If you have Type B, twist each drain wire tightly into a solid wire

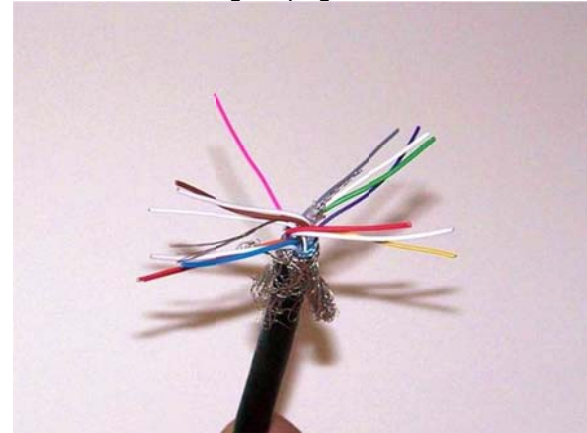


1.8 If you have Type B, skip to step 1.11

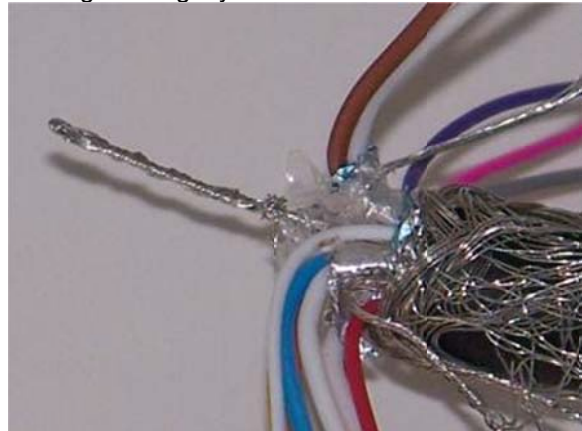
1.9 **Important!** If you have Type A, fold back each drain wire in half



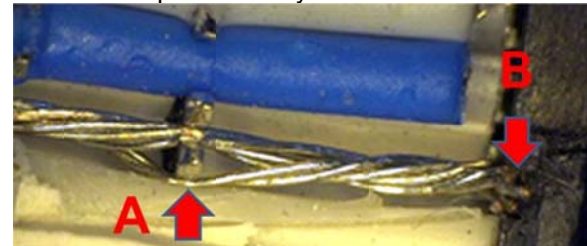
1.12 Fan the wires out into two groups based on color coding on page 1



1.10 **Important!** Twist the drain wires together tightly to form a thicker drain wire

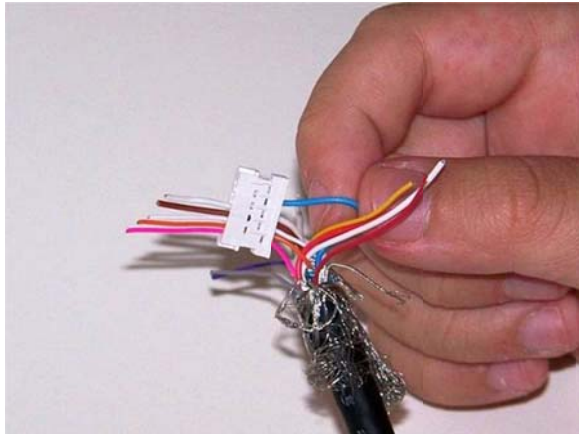


Important tip: the most common potential problem in DIY termination is the drain wire short circuit to the adjacent wire, see the picture below. If the drain wire is not twisted tightly, some strands may fall out of the V shaped pin and touch the next wire at point A. If the end of the drain wire is not cut cleanly, it may touch the next wire at point B. Pay extra attention to them

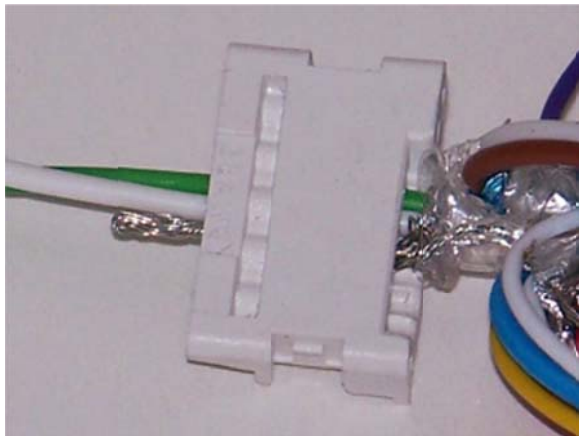


Step 2, wire threading

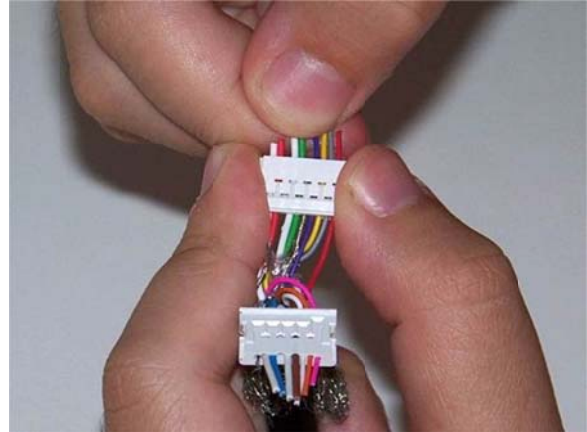
2.1 Carefully thread the wire one by one thru the wire holder per the color coding on page 1; the entrance has counter-sink holes; thread the 4 drain wires the last, make sure no strands left out



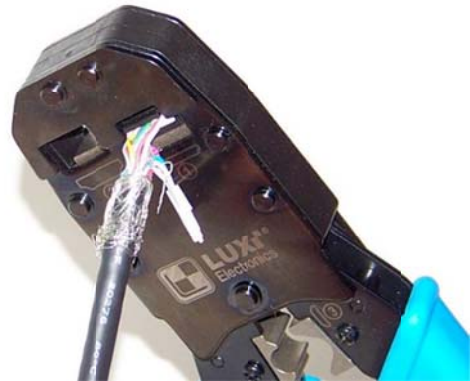
2.2 **Important!** If you have wire holder Type A, make sure to fold and twist the drain wire into a thick wire (step 1.7 thru 1.10), and make sure the thick drain wire does not slide to the adjacent holes to create a potential short.



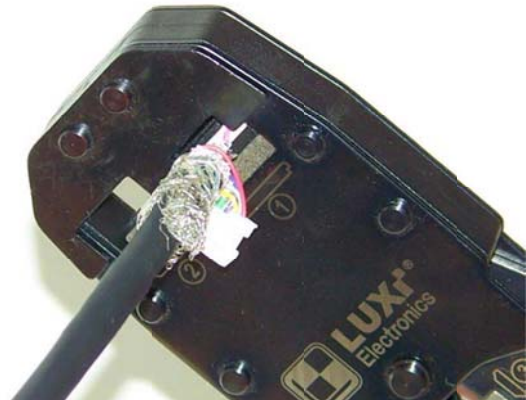
2.3 **Important!** Slide the wire holders as far inward as they can go for best performance



2.4 Insert one of the wire holders all the way into No. 1 hole of the hand tool following the marked orientation; perform a pre-crimp. Inspect the wire ends for any potential short



2.5 Slide and line up the other wire holder to about the same position; repeat the pre-crimp to it. Inspect the wire ends for any potential short



2.6 This tool has a ratchet design. If you ever need to release the latch, turn the thumb nail in the marked direction



2.7 Check the finished wire holders



During the pre-crimp the recessed blade would cut off the wires and a tiny slice of the wire holder; this is normal.

Check the cut wire ends for any potential short; check the drain wires from 4 twisted pairs to make sure they don't touch each other, and don't touch the overall cable shield or won't touch the metal shells in the next step. Use small piece of electric tape to cover it if necessary. The touched drain wires may trigger false reading of the tester (some LEDs might not lit) but won't affect overall signal performance.

Step 3, final assembling

3.1 Line up the two wire holders onto the connector core; make sure the top holder goes on top; inner side engage with the pins



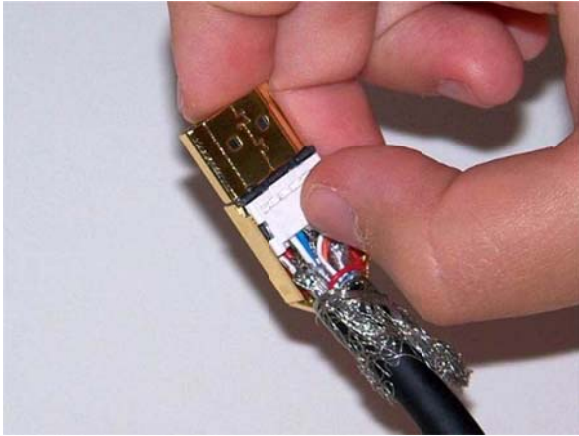
3.2 Use your fingers to press the wire holders into the connector core half way



3.3 Insert the connector core with both wire holders all the way into No. 2 hole of the hand tool and perform crimp



3.4 Slide the connector core into the top metal shell, push up with your thumbnail until you hear or feel a click



3.7 Use the hand tool's No. 3 dies to crimp the strain relief tabs onto the cable jacket with regular wires; make sure it's a tight crimp



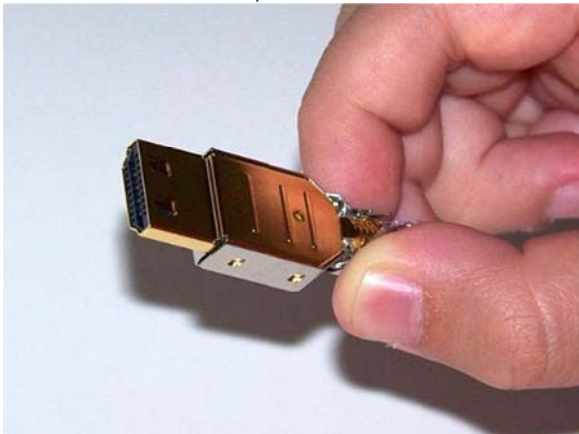
3.5 Place the bottom metal shell onto the top metal shell, line up the 4 notches, push together until you hear or feel clicks



3.8 Trim off the excessive drain wires and braids



3.6 Use the finger tips to gently bend the strain relief tabs inward; be careful not to be cut



3.9 Place the metal shells into the bottom clamshell



3.10 Place the top clamshell onto the bottom clamshell and press them together until you hear or feel clicks



3.11 Peel of the plastic protection skin from the clamshells



Congratulations! You've just made a beautiful HDMI termination!



Testing

After finishing termination on both ends of the HDMI cable, use a Luxi HHT-100 HDMI hand held tester to test the cable and to make sure all pins are connected correctly.



If some pins get crossed or shorted, cut off the end with problem and re-terminate it.

Once pass the continuity test, connect the cable in the system to perform a signal test. If you see a normal picture on the screen and hear normal sound, the cable is good.

Max cable length

The max cable length depends on many factors such as the signal data rate (resolution), source device signal quality, TV sensitivity and the compatibility between them. As a rule of thumb, this DIY cable typically should work for up to 12 m (40') at 1080p signal rate. If the cable run is longer than 12 m (40') or you do not get a picture after the continuity test, insert a Luxi EHD-110 HDMI Extender at the TV end in between the cable and the TV to extend the distance. The max distance with extender is up to 24 m (80') with 1080p signal.

Troubleshooting

The Luxi DIY components are well designed and made. As long as the wires are inserted into the correct holes per the color coding on page 1, and drain wires are properly inserted to prevent sliding to the adjacent holes to create a potential short, and the wire slacks are reduced to minimum by sliding the wire holders as far as you can, the performance should be guaranteed by the design and better than the equivalent factory soldered HDMI cables.

If the terminated wires passed the HDMI tester test, all the connections in the system are secure and the all devices are powered up, but there's no picture or sound on the TV, try the simple steps below for troubleshooting:

- 1) Lower the source device (Blu-ray player, cable STB etc.) resolution to one step lower, e.g. from 1080p to 1080i; if the picture or sound comes out on the TV, then most likely the problem you had before was bandwidth/cable length related. Insert the Luxi HDMI Extender between the cable and the TV to fix the problem.



- 2) If after lowering the source device resolution and there's still no picture or sound on TV, then most likely the problem in the system is caused by the DDC line communication error (also known as handshaking or copyright errors). Insert a Luxi Communicator in between the cable and TV to fix the problem.



See the HDMI troubleshooting guide on Luxi website for more details.

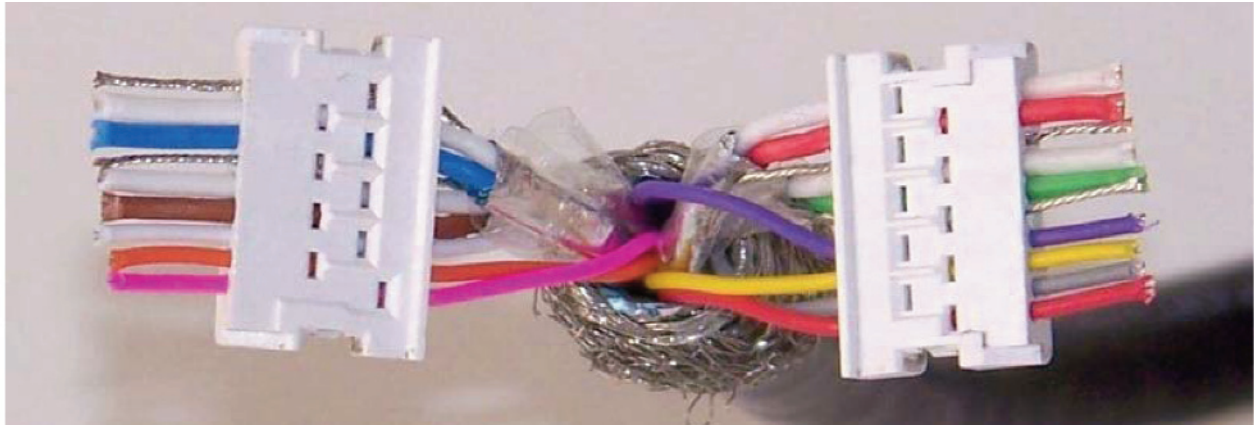
Technical support

Please contact your distributor or directly to Luxi Electronics for technical support.

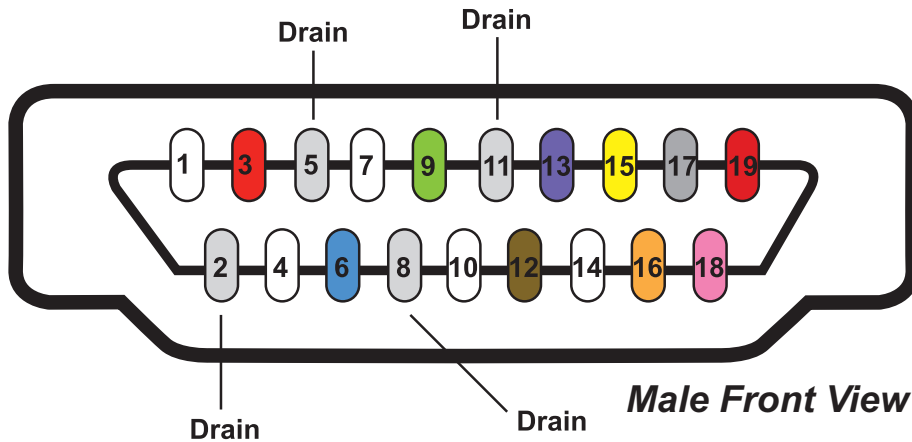
Re-order part numbers

You can re-order these parts from authorized Luxi distributors:

Part number	Model	Description
22-001-02	HD-280RD250	HDMI 28 AWG raw regular cable, 76 m/250'
22-001-03	HD-280RD500	HDMI 28 AWG raw regular cable, 152 m/500'
22-002-02	HD-300RB250	HDMI 30 AWG raw ribbon cable, 76 m/250', B stock with splice
22-002-03	HD-300RB500	HDMI 30 AWG raw ribbon cable, 152 m/500', B stock with splice
22-002-04	HD-300RB250	HDMI 30 AWG raw ribbon cable, 76 m/250'
22-002-05	HD-300RB500	HDMI 30 AWG raw ribbon cable, 152 m/500'
68-009-01	DIY-28DS10	10 pack HDMI 28 AWG DIY connector for regular cable and clamshell bundle
68-010-01	DIY-30BS10	10 pack HDMI 30 AWG DIY connector for ribbon cable and clamshell bundle
68-011-01	DIY-28T	HDMI 28/30 AWG DIY hand tool
74-005-01	EHD-110	HDMI Extender, F-M pigtail
74-006-01	CHD-110	HDMI Communicator, F-M pigtail
75-001-01	HHT-100	HDMI hand held tester



Wire Holder - 9 Conductors (Right to Left)		Wire Holder - 10 Conductors (Left to Right)	
Drain - Pin 2	Blue/White Pair	White- Pin 1	Red/White Pair
White - Pin 4	Blue/White Pair	Red- Pin 3	Red/White Pair
Blue - Pin 6	Blue/White Pair	Drain- Pin 5	Red/White Pair
Drain - Pin 8	Brown/White Pair	White- Pin 7	Green/White Pair
White - Pin 10	Brown/White Pair	Green- Pin 9	Green/White Pair
Brown - Pin 12	Brown/White Pair	Drain- Pin 11	Green/White Pair
White - Pin 14	Individual Conductor	Purple- Pin 13	Individual Conductor
Orange - Pin 16	Individual Conductor	Yellow- Pin 15	Individual Conductor
Pink - Pin 18	Individual Conductor	Gray- Pin 17	Individual Conductor
		Red- Pin 19	Individual Conductor



Male Front View of Connector

Pin #	Description	Pin #	Description
Pin 2	TMDS Data2 Shield	Pin 1	TMDS Data2+
Pin 4	TMDS Data1+	Pin 3	TMDS Data2-
Pin 6	TMDS Data1-	Pin 5	TMDS Data1 Shield
Pin 8	TMDS Data0 Shield	Pin 7	TMDS Data0+
Pin 10	TMDS Clock+	Pin 9	TMDS Data0-
Pin 12	TMDS Clock-	Pin 11	TMDS Clock Shield
Pin 14	Reserved for Future Use	Pin 13	CEC
Pin 16	SDA (I ² C Serial Data Line for DDC)	Pin 15	SCL (I ² C Serial Clock for DDC)
Pin 18	+5 V Power (max 50 mA)	Pin 17	DDC/CEC/HEC Ground
		Pin 19	Hot Plug Detect (All versions) & HEC