

HDMI to RF Extender over Coaxial Cable

BA101HDMI-RF

User's Manual

1. INTRODUCTION

This product designed to convert HDMI signal to HD digital TV signal based on DVB-CATV transmission mode. Being different from traditional analog CATV signal, it uses 64QAM mode to realize the HD signal to HD digital TV signal conversion and transmit via coaxial cable up to 700 meters distance; Besides, according to CATV splitter, it is easy to build one to multiple and multiple to multiple video matrix.

With the advantages of good image quality, strong resistance to interference and hundreds channels available, it can be widely applied in CCTV, outer large screen, shopping mall advertisement, media education and digital KVM fields etc.

Important safety notice

Please read below safety instructions carefully before installation and operation:

- Do not mix up transmitter TX and receiver RX before installation.
- Use DC5V only. Make sure the specification matched if using adapters not supplied by factory
- When use cables shorter than 100m to test, it needs to connect an attenuator for at least 20dB in series to get image output.

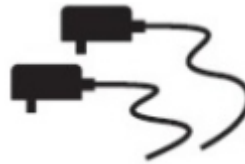
2. PACKAGE CONTENTS



HDMI to RF sender TX*1pcs



RF to HDMI receiver RX*1pcs



DC5V1A*2pcs



User's Manual

3. INSTALLATION REQUIREMENTS

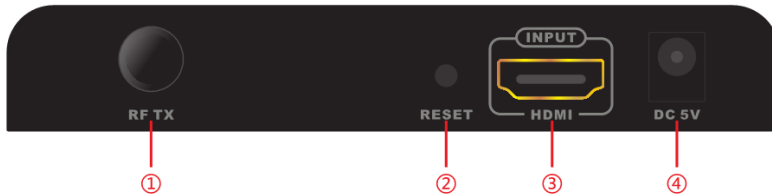
1. HDMI source device (computer graphics card, DVD, PS3, HD monitor equipment, etc).
2. SDTV, HDTV or projector with HDMI port.
3. RG6 (75-5) or upper level coaxial cables.
4. Refer to appendix the signal attenuation for different type coaxial cables to different channels.
5. Refer to appendix 2 the frequency for channel specification.

Features

- 1) Support HDMI1.3. Full compatible with HDCP.
- 2) Transmit up to 700meters with RG6 (75-5) at 1080P@60Hz.
- 3) Support up to 100 channels.
- 4) Support CATV splitter and amplifier connection.
- 5) High quality image, long distance transmission and strong anti-interference ability.

4. PANEL DESCRIPTION

4.1. TX real panel



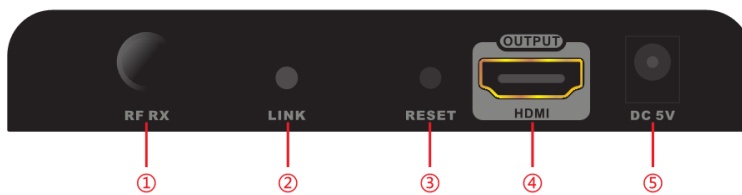
RF TX: RF signal send interface

RESET: Press to reset

HDMI INPUT: HDMI signal input

DC5V: DC 5V power input

4.2. RX real panel



RF RX: RF signal receive interface

LINK: signal connection led indicator

RESET: Press to reset

HDMI OUTPUT: HDMI output

DC5V: DC 5V power input

5. CHANNEL PARAMETERS SETTINGS



There are 100 (0-99) channels controlled by 2 buttons. Button 1 can select tens digit and button 2 for single digit. Combination of tens digit and single digit makes 99 channels totally. TX and RX can build connection only when they are set to same channel parameters and RX HDMI port outputs the corresponding A/V content.

5.1 Connection

5.1.1. Coaxial cable length calculation: firstly search in appendix 2 for the channel receive sensitivity. Then calculate cable length according to appendix 1 information. For example, Channel 5 (177.5MHz) receive sensitivity is 80dBm. Check appendix 1 for 100m RG6 (75-5) cable attenuation is around 9.42dBm (177.5MHz is close to 211MHz). Based on this 9.42dBm (100M)*8=75.36dBm (800M). Take stability and performance difference for cables into consideration 700m RGB cable is recommended.

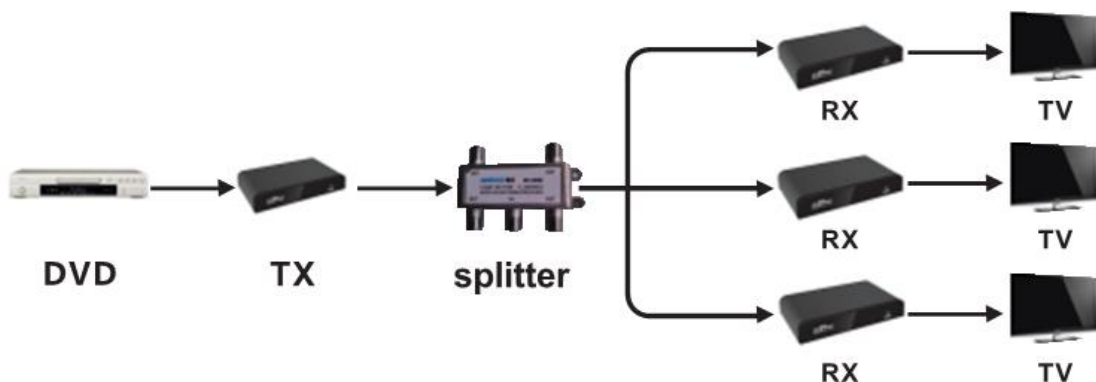
5.1.2. CATV splitter when using CATV splitter for one to multiple and multiple to multiple connection, it needs to consider distribution loss, insertion loss and different type cables loss to every channels to calculate cable distance, Choose splitter with low loss(distribution loss and insertion loss) high isolation, strong shielding 5-1000MHz and bidirectional transmission to build video matrix net.



One TX to one RX connection

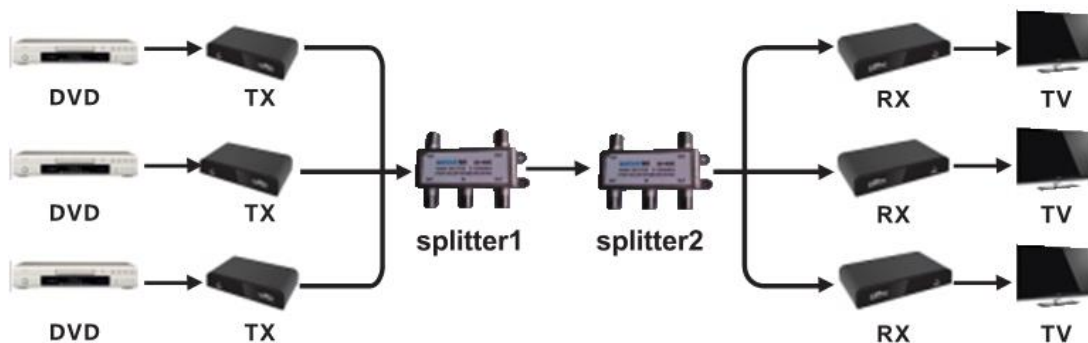


Connect with CATV splitter to achieve one TX to multiple RXs



Connect with CATV splitter to achieve multiple TX to multiple RXs.

In below diagram, the splitter 1 need to take "OUT "as input and "IN" as output; splitter 2 is "OUT "for output and "IN" for input.



6. FAQ

1)Q: There is a picture but no sound?

A: Reset TX or re-up TX electricity

2)Q: Image is not normal after switching channel(splash screen,disturbance,mosaic etc)

A: Reset or re-up electricity.Check coaxial cable connection or change other channel to test.

3)Q: Black screen with "NO SIGNAL" on screen?

A: If LINK led is not light on, check if TX and RX channel setting is the same.

Adjust to low channel to test if coaxial cable is too long.If coaxial cable is shorter than 100m, add 20dB attenuator in series to weaken the signal.

Other notes

1. Cable length is suggested to be 300-700meters. If cable is shorter than 100meters, it needs to connect a 20dBm (at least) signal attenuator to get image output.
2. Refer to appendix 1 for channel-frequency mapping table; Refer to appendix 2 for the coaxial cables signal loss for different channel signal.
3. When using CATV splitter for 1 to many and many to many connection, it is suggested to use low consumption, high isolation and shielding 5-1000 MHz bi-directional communication splitter to build video matrix.

7. SPECIFICATION

Items	Specification
HDMI signal	Full compatible with HDCP
HDMI DDC signal	5Vp-p(TTL)
HDMI input/output resolution	480i@60Hz、480p@60Hz、576i@50Hz、576p@50Hz、720p@50/60Hz、1080i@50/60Hz、1080p@50/60Hz
HDMI graphics resolution	1280x720@60Hz、1920x1080@60Hz
video encoding	H.264
Audio encoding	MPEG2
Coaxial cable	RG6/RG7/RG11
frequency point	100~1000MHz
Effective bit rate	Max:31.6Mbits
insertion loss	<2dBm
RF TX output consumption	+0dBm
RF RX sensitivity	It is different for every frequency point. Please refer to Appendix 2
RF interface	Imperial system (75Ω Type F)
Transmission delay	500ms
Power supply	DC5V/1A
Power consumption	TX<3.5W RX<3W
Enclosure material	Metal
Product dimension	180 (W) x30 (D) x22 (H) mm *2pcs
Weight	TX:167g RX:169g
Color	Black

Appendix 1: Channel, frequency, cable distance mapping table

Channel (0-99)	Frequency band	Center frequency [MHz]	Band width[MHz]	RX sensitivity (dBm)	RG6(75-5) cable transmission distance(meters)
0	default	177.5MHz	7	-80	700
1	user defined	240	8	-79	600
2	Special (VHF low band)	149.5	7	-80	700
3	Special (VHF low band)	156.5	7	-80	700
4	Special (VHF low band)	163.5	7	-80	700
5	VHF III	177.5	7	-80	700
6	VHF III	184.5	7	-80	700
7	VHF III	191.5	7	-79	700
8	VHF III	198.5	7	-75	700
9	VHF III	205.5	7	-75	700
10	VHF III	212.5	7	-79	700
11	VHF III	219.5	7	-79	700
12	VHF III	226.5	7	-80	700
13	Special (UHF hyper band)	410	8	-79	450
14	Special (UHF hyper band)	418	8	-79	450
15	Special (UHF hyper band)	426	8	-79	450
16	Special (UHF hyper band)	434	8	-79	450
17	Special (UHF hyper band)	442	8	-79	450
18	Special (UHF hyper band)	450	8	-79	450
19	Special (UHF hyper band)	458	8	-79	450
20	Special (UHF hyper band)	466	8	-79	450
21	UHF IV	474	8	-79	450
22	UHF IV	482	8	-79	450
23	UHF IV	490	8	-78	450
24	UHF IV	498	8	-76	450
25	UHF IV	506	8	-71	450
26	UHF IV	514	8	-76	400
27	UHF IV	522	8	-77	400
28	UHF IV	530	8	-74	400
29	UHF IV	538	8	-77	400
30	UHF IV	546	8	-78	400
31	UHF IV	554	8	-76	400
32	UHF IV	562	8	-78	400
33	UHF IV	570	8	-78	400
34	UHF IV	578	8	-78	400
35	UHF IV	586	8	-75	400

36	UHF IV	594	8	-64	400
37	UHF IV	602	8	-76	400
38	UHF V	610	8	-78	350
39	UHF V	618	8	-78	350
40	UHF V	626	8	-78	350
41	UHF V	634	8	-78	350
42	UHF V	642	8	-75	350
43	UHF V	650	8	-76	350
44	UHF V	658	8	-77	350
45	UHF V	666	8	-77	350
46	UHF V	674	8	-78	350
47	UHF V	682	8	-77	350
48	UHF V	690	8	-77	350
49	UHF V	698	8	-78	350
50	UHF V	706	8	-77	350
51	UHF V	714	8	-77	350
52	UHF V	722	8	-77	350
53	UHF V	730	8	-76	350
54	UHF V	738	8	-70	350
55	UHF V	746	8	-64	350
56	UHF V	754	8	-77	350
57	UHF V	762	8	-78	350
58	UHF V	770	8	-78	350
59	UHF V	778	8	-78	350
60	UHF V	786	8	-78	350
61	UHF V	794	8	-78	350
62	UHF V	802	8	-78	350
63	UHF V	810	8	-79	300
64	UHF V	818	8	-79	300
65	UHF V	826	8	-77	300
66	UHF V	834	8	-77	300
67	UHF V	842	8	-76	300
68	UHF V	850	8	-77	300
69	UHF V	858	8	-77	300
70	UHF V	866	8	-77	300
71	UHF V	874	8	-77	300
72	UHF V	882	8	-77	300
73	UHF V	890	8	-77	300
74	UHF V	898	8	-74	300
75	UHF V	906	8	-74	300
76	UHF V	915	8	-74	300
77	UHF V	924	8	-74	300

78	UHF V	930	8	-70	300
79	UHF V	938	8	-70	300
80	UHF V	946	8	-70	300
81	user defined	240	8	-79	600
82	user defined	250	8	-79	600
83	user defined	260	8	-79	600
84	user defined	270	8	-79	600
85	user defined	280	8	-79	600
86	user defined	290	8	-79	600
87	user defined	330	8	-79	550
88	user defined	340	8	-79	550
89	user defined	350	8	-79	550
90	user defined	360	8	-79	550
91	user defined	370	8	-79	550
92	user defined	380	8	-79	550
93	user defined	390	8	-79	550
94	user defined	400	8	-79	500
95	user defined	410	8	-79	450
96	user defined	420	8	-79	450
97	user defined	430	8	-79	450
98	user defined	440	8	-79	450
99	UHF IV	474	8	-79	450

Appendix 2: coaxial cable signal loss table (website: <http://www.net-comber.com/cable-loss.html>)

Enter cable length: 100, 250, or 555.55, in feet or meters.

Cable Loss in decibels (dB)								
FEET (ft)				Frequency	METERS (M)			
RG59/U	RG6/U	RG7/U	RG11/U	MHz	RG59/U	RG6/U	RG7/U	RG11/U
0.77	0.57	0.56	0.36	5	2.53	1.87	1.84	1.18
1.88	1.5	1.22	0.95	55	6.17	4.92	4	3.12
3.59	2.87	2.29	1.81	211	11.78	9.42	7.51	5.94
3.89	3.12	2.49	1.98	250	12.76	10.24	8.17	6.5
4.05	3.24	2.59	2.06	270	13.29	10.63	8.5	6.76
4.27	3.43	2.74	2.17	300	14.01	11.25	8.99	7.12

4.5	3.61	2.89	2.29	330	14.76	11.84	9.48	7.51
4.64	3.72	2.98	2.36	350	15.22	12.2	9.78	7.74
4.88	4	3.2	2.53	400	16.01	13.12	10.5	8.3
5.3	4.28	3.41	2.69	450	17.39	14.04	11.19	8.83
5.5	4.51	3.61	2.85	500	18.04	14.8	11.84	9.35
5.9	4.76	3.8	3.01	550	19.36	15.62	12.47	9.88
6.18	4.98	3.99	3.16	600	20.28	16.34	13.09	10.37
6.96	5.62	4.5	3.58	750	22.83	18.44	14.76	11.75
7.54	6.09	4.87	3.9	870	24.74	19.98	15.98	12.8
7.9	6.39	5.11	4.1	950	25.92	20.96	16.77	13.45
8.09	6.54	5.25	4.23	1000	26.54	21.46	17.22	13.88

Disclaimer

The pictures on the user manual are just for reference, and there may be some slight difference with the real products.

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