



**HDMI® Extender over Coaxial Cable with IR\***

**CS-HDM3BTX1** **User Manual**  
**CS-HDM3BRX1**



+ CS-HDM3BRX1



**Important safety notice**

Please read below safety instructions carefully before installation and operation:

1. Please pay attention to all the warnings on this device.
2. Do not expose this unit to rain, moisture and liquid.
3. Do not put anything into the device.
4. Do not repair or open this device.
5. Make sure to have proper ventilation.
6. Shut off power and make sure environment is safe before installation.
7. Do not plug-in/out the network cables and IR cables when it is in using to avoid cables damage.
8. Use DCSV only. Make sure the specification matched if using 3<sup>rd</sup> party DC adapters.

**↑ Introduction**

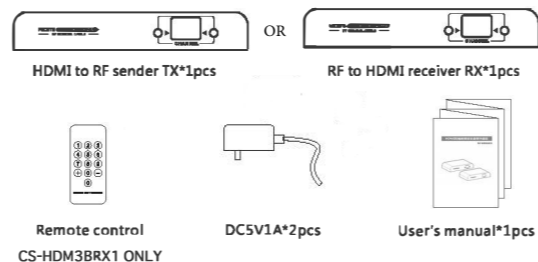
This HDMI over RF extender applies RF conversion technology to convert HDMI signal to HD digital TV signal and transmits by coaxial cable up to 700meters. It has the advantage of great image quality and strong anti-interference ability and can connect with CATV splitter to realize one to many and many to many video matrix connection.

**Features**

- 1) 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.
- 6) Supports IR control channel switching.\*

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**3 PACKAGE CONTENTS**

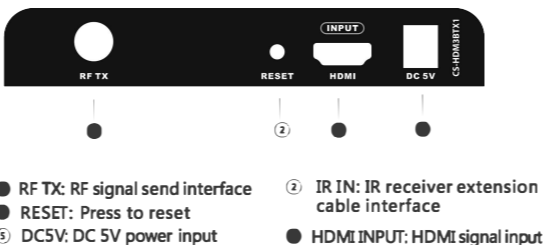


**4 INSTALLATION REQUIREMENTS**

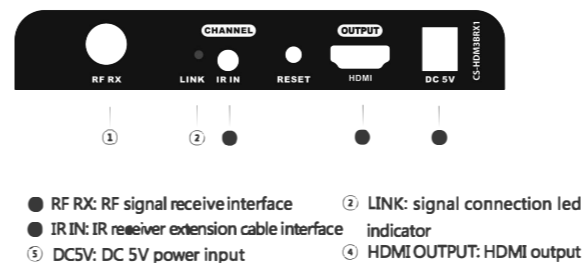
1. HDMI source device
2. Display device with HDMI port.
3. RG6(75-5) or upper level coaxial cables.

**5 PANEL DESCRIPTION**

**1. HDMI to TX**



**2. RF to HDMI receiver RX**



**3. Channel parameters settings**



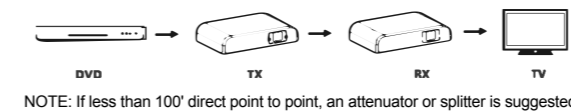
There are 100 (0-99) channels controlled by 2 buttons. Button left can select single digit and button right fortens digit. Combination of tens digit and single digit makes 99 channels totally. TX and RX can build connection only when they are set to same channel parameters and RX HDMI port outputs the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

**4. IR remote control**

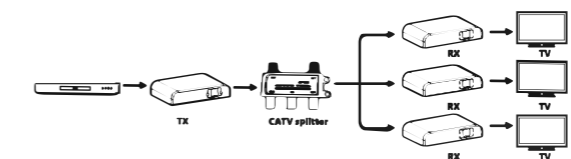
This IR remote control is just used to set channel. For example, set channel to be 99, just aim the IR remote control to IR receiver and press number 9, 9 and enter.

**6 Connection**

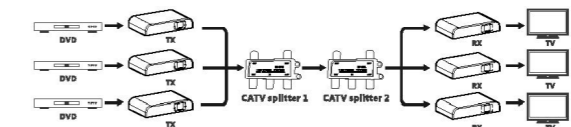
**6.1 One-to-one connection**



**6.2 One-to-many connection : Connect one CATV splitter to realize splitter function.**



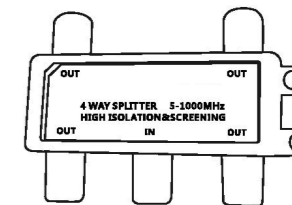
**6.3 Many to many connection : Connect two CATV splitters to build video matrix.**



Note: for above "CATV splitter 1", it needs to take "OUT" as the signal input and "IN" as signal output. For "CATV splitter 2", just follow the marks on the panel description.

**6.4 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 5-1000MHz bi-directional communication splitter to build video matrix.



**7 FAQ**

- Q:** It shows "NO SIGNAL" on screen?  
**A:** 1) Make sure to set TV source signal to the correct channel.  
 2) If LINK led is not on, check if TX and RX channel setting is the same.  
 3) If coaxial cable is too long, please refer to Appendix 1 to adjust channel setting.

**Q:** Image is not normal after setting channel (splash screen, disturbance, mosaic etc)?

**A:** Make sure coaxial cable connection is stable. Try other channel or reset RX.

**Q:** There is video image output but no sound?  
**A:** Reset TX or re-up TX electricity.

## 8 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	Please refer to Appendix 1
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	130(W)x80(D)x22(H)*2pcs
Weight	TX:1.67g RX:1.69g
Color	Black

## Appendix 1: Channel, frequency, cable distance mapping table

Channel (0-99)	Frequency band	Center frequency	Band width	RK sensitivity	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

Note:  
Above cable length value is offered based on RG6 (75-5) cable transmission. Professional ones can calculate the transmission length for different material cables by referring to appendix 1 and 2.

For example, from appendix 1, it shows channel 5 receive sensitivity is -80dBm. From appendix 2, it shows 700 meters RG6 cable signal loss value is -61.91 dBm at 211MHz. This value is less than -80dBm and it is within the required range. To achieve stable signal transmission, it needs to consider the signal loss caused by cables and connectors quality and leave more dBm.

## 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.	700							
	CALC	Clear						
Cable Loss in decibels (dB)								
F E E T ( ft )		Frequency	M E T E R S ( M )					
RG59/U	RG6/U	RG7/U	RG11/U	MHz	RG59/U	RG6/U	RG7/U	RG11/U
5.39	3.99	3.92	2.25	5	17.68	13.09	12.86	8.27
13.16	10.5	8.54	6.65	55	43.18	34.45	28.02	21.82
25.13	20.09	16.03	12.67	211	82.45	65.91	52.59	41.57
27.23	21.84	17.43	13.86	250	89.34	71.65	57.19	45.47

**Disclaimer**  
\* The product name and brand name may be registered trademark of related manufacturers. TM and ® may be omitted on the user manual. 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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