Meicheng

HDMI to RF Matrix Extender
VE-30RFM

USER MANUAL

▲VE-30RFM TX Transmitter

▲VE-30RFM RX Receiver

http://www.meicheng.com.tw

1. Introduction:

This product is designed to convert HDMI signal to HD digital TV signal based on DVB-T CATV signal, it uses 64QAM mode to realize the HD digital TV signal conversion and transmit via coaxial cables for long distance.

With the advantages of good image quality, strong resistance to interference and hundreds channels available. It's easy to build one-to-multi or multi-to-multi media matrix through extender, can be widely applied in CCTV, outer large screen, shopping mall advertisement, media education and digital KVM fields ect.

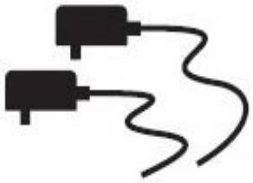
2. Important Safety Instruction

1. Do not mix up transmitter TX and receiver RX before installation.
2. Use DC 5V power supply only. Make sure specification matched if using adapters not supplied by factory.
3. When using cable which is shorter than 100m to test, it needs to connect an attenuator for at least 20db in series to get image output.

2.1 Package Contents

HDMI to RF Transmitter

HDMI to RF Receiver



DC5V/1A: 2pcs

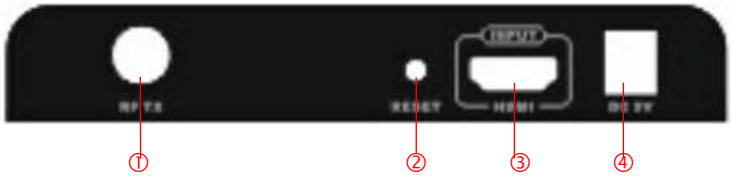
Manual

2.2 Installation Requirements

- HDMI source device (computer graphics card, DVD, PS3, HD monitor equipment ect).
- SDTV HDTV or projector with HDMI port.
- RG6（75-5）or upper level coaxial cables.
- Refer to ＜Appendix I ＞ of the signal attenuation for different type coaxial cables to different channels.
- Refer to ＜Appendix II ＞ of the frequency for channel specification.

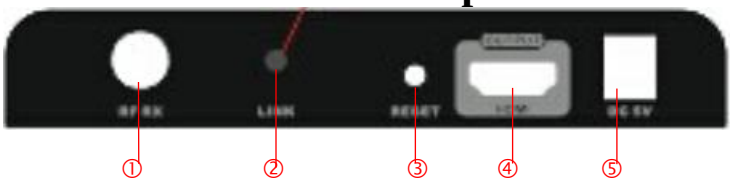
2.3 Interfaces

- **VE-30RFM TX rear panel**



①**RF TX**：RF signal send
②**RESET**：Press to reset
③**HDMI INPUT**：HDMI signal input
④**DC5V**：DC 5V power input

- **VE-30RFM RX rear panel**



① **RF RX**：RF signal receive
②**Link**：Connection LED indicator
③ **RESET**：Press to reset
④ **HDMI OUTPUT**：HDMI output
⑤ **DC5V**：DC 5V power input

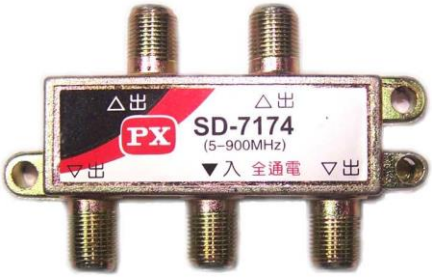
3. Channel Parameters Settings

There is 0-99 channels control by 2 buttons. Button "1" can select ten digit and button "2" for signal digit. Combination of ten digits and signal digits makes 99 channels totally. TX and RX cab build connection only when they are set to same channel parameters and RX HDMI port outputs the corresponding A/V content.

4. Connection:

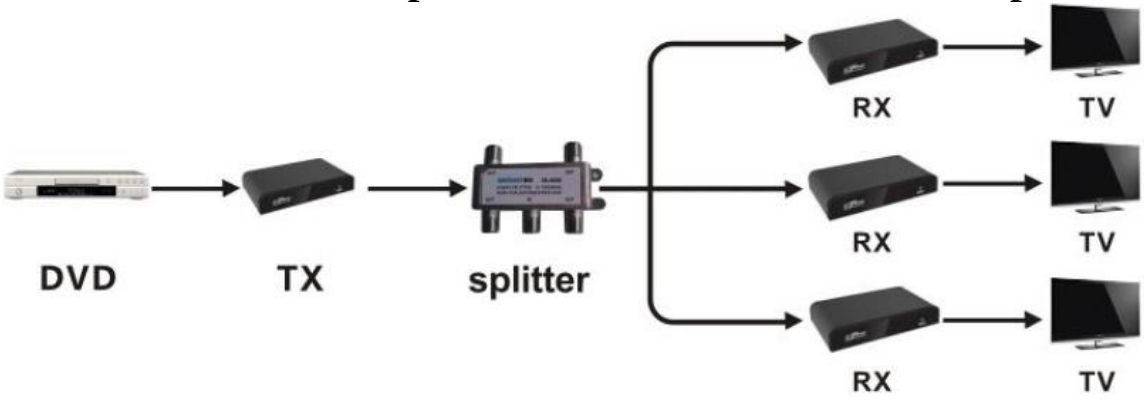
4.1 **Coaxial cable length calculation:** Firstly search in appendix 2 for the channel receive sensitivity. Then calculate cable length according to appendix 1 information. For example, channel 5 (177.5MHz) receive sensitivity is 80 dBm. Check appendix 1, 100m RG6 (75-5) cable attenuation is around 9.42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

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



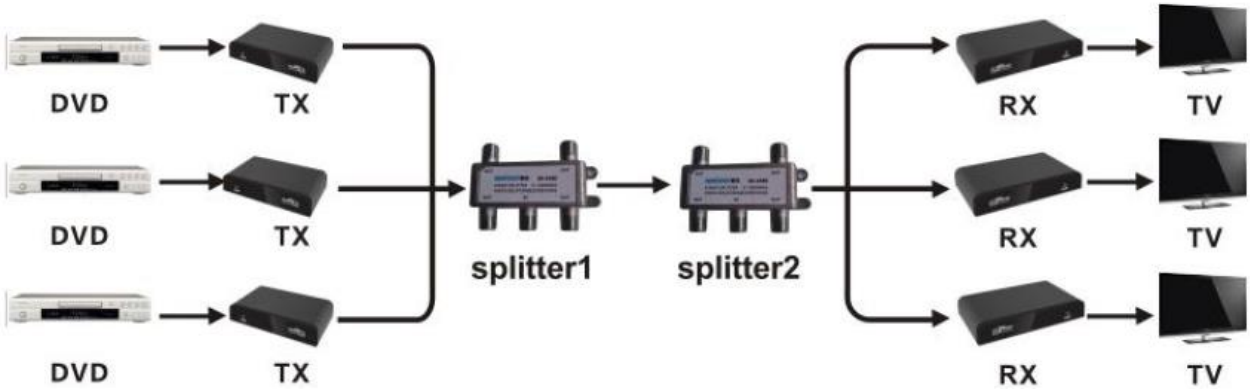
4.3 **One TX to one RX connection:**

4.4 **Connect with CATV splitter to achieve one TX to multiple RXs**



4.5 Connect with CATV splitter to achieve multiple RXs.

In below diagram, splitter1needs to take “OUT” as input and “IN” as output; splitter 2 is “OUT” for output and “IN” for input.



5. RFQs:

Q1：There is image but no sound.

A1：Reset TX or re-up TX electricity.

Q2：Image is not normal after switching channel (splash screen, disturbance, mosaic ect).

A2：1）Reset or re-up electricity.
2）Check coaxial connection.
3）Change other channel to test.

Q3：Black screen with “NO SIGNAL” on screen.

A3：1）If Link LED indicator is not light on, check if TX and RX channel setting is the same.
2）Adjust to low channel to test if coaxial cable is too long.
3）If coaxial cable is shorter than 100m, add 20 dB attenuator in series to weaken the signal.

6. SPECIFICATION:

Items	Specifications	Note
Power supply	DC5V / 1A	2pcs
HDMI signal	HDMI 1.3, compatible with HDCP	
HDMI　DDC signal	5Vp-p（TTL）	
Support input resolution	480i@60Hz, 480p@60Hz, 576i@50Hz, 576p@50Hz, 720p@50/60Hz, 1080i@50/60Hz, 1080p@50/60Hz	
Support output resolution	480i@60Hz, 480p@60Hz, 576i@50Hz, 576p@50Hz, 720p@50/60Hz, 1080i@50/60Hz, 1080p@50/60Hz	
Video encoding	H.264	
Audio encoding	MPEG 2	
Coaxial cable	RG6, RG7, RG11 ect	
Frequency point	100 ~ 1000 MHz	
Effective bit rate	Max: 31.6M bits	
Insertion loss	<2 dBm	
RF TX output consumption	+0 dBm	
RF RX sensitivity	It is different for every frequency point. Please refer to ＜Appendix 2＞.	
RF connector	Imperial（75Ω Type F）	
Transmission delay	500 ms	
Working temperature	0℃ ~ 50℃	
Storage temperature	-10 ℃ ~ 70 ℃	
Storage humidity	0% ~ 90%（not solidified）	
Power consumption	TX：<3.5 W , RX：<3 W	
Product dimension	LxWxH：13 x 6.8 x 2.4 cm / 168 g	

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

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

《Appendix 1》: Coaxial cable attenuation table: take 100m coaxial cable for an example. Or search in: http://www.net-comber.com/cable-loss.html

《Appendix 2》：Channel parameters:

Channel (0~99)	Band	Center Frequency [MHz]	BW [MHz]	Rx Sensitivity [dBm]	RG6 (75-5) cable Transmission distance[M]
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
Channel (0~99)	**Band**	**Center Frequency [MHz]**	**BW [MHz]**	**Rx Sensitivity [dBm]**	**RG6 (75-5) cable Transmission distance[M]**
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
Channel (0~99)	**Band**	**Center Frequency [MHz]**	**BW [MHz]**	**Rx Sensitivity [dBm]**	**RG6 (75-5) cable Transmission distance[M]**
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
Channel (0~99)	**Band**	**Center Frequency [MHz]**	**BW [MHz]**	**Rx Sensitivity [dBm]**	**RG6 (75-5) cable Transmission distance[M]**
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

Meicheng® MEI CHENG AUDIO VIDEO CO., LTD.
Address: 13F., No.2, Jian 8th Rd., Zhonghe Dist., New Taipei City 235, Taiwan
Tel: +886(2) 8228 0311, Fax: +886(2) 8228 0319
Website : www.meicheng.com.tw Email:mei.cheng@msa.hinet.net