

Matchmaster

TV Reception Systems

For the Best

14MM-DTM2 INSTRUCTION MANUAL



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1 GENERAL

1.1 Description

The 14MM-DTM2 modulator is able to generate a signal in DVB-T format (Digital Terrestrial Television) from HDMI input.

14MM-DTM2 is an H.264 encoding, DVB-T modulator device to convert 4K Pass FHD HDMI signal to DVB-T RF out. The DTM2 is equipped with one HDMI input, one HDMI out(with 4K pass-through) and one DVB-T RF out.

The 14MM-DTM2 module automatically adjusts the compression rate to the available Bandwidth using the modulation DVB-T parameters.

1.2 Specifications

Source input	
Input Channel	1
Video	HDMI
Video System	480i/p, 576i/p, 720p, 1080i/p, 4K (3840x2160 or 4096x2160)
Audio System	HDMI
Compression	
Video	H.264 Baseline Profile Level 4.0
Video Resolution	1080p 25 / 30 Max
Video Bit Rate	18Mbps Max
Audio	MPEG-2 / AAC
Audio Bit Rate	192 Kbit/s
DVB Insertion Tables	
Editable Field	Service Name, Network Name, Provider Name, TS ID, Network ID, Original NET ID, LCN, NIT Version, Private Data, Country
RF Output	
Type	1 Multiplex DVB-T with a digital TV service
Frequency	177-858 MHz
MER	30dB Min.
Output level	100dB μ V
RF Level Adj.	0dB ~ -30dB
Attenuation step	1dB per step
Connections	
HDMI In	HDMI In
HDMI Out	4K Pass Through
RF Output	1 DVB-T RF output with type F female, 75 ohm
RF Input	RF Combiner

Modulation	Standard	DVB-T (ETSI EN 300 744)
	Constellation	QPSK, 16QAM, 64QAM
	Guard Interval	1/4, 1/8, 1/16, 1/32
	Code Rate	1/2, 2/3, 3/4, 5/6, 7/8
	FFT Carriers Mode	2K, 8K
	Bandwidth	6MHz, 7MHz, 8MHz, 7-8MHz
Power Supply	12V Adaptor	
Display	LCD panel @ 2 x 16 characters (on front panel).	
Configuration	6 Local keys on front panel: - ENTER Key: Select parameter, or menu - L / R Keys: Move menu, or characters - Up / down: Select value of the figure, or field - MENU keys: Return to start menu	
Environmental for operating	Temperature range	5°C- 40°C
	Relative Humidity	80% @ 30°C

Note

To be able to see the 4K signal output from HDMI OUT (HDMI Pass through) port , the specifications requirement of connected TV listed as below:

- 4K Ultra HD (3840x2160) Resolution
- HDMI 2.0
- HDCP 2.2
- Support 4K50P/60P
- HDMI 2.0 Cable

*Specifications subject to change without prior notice.

2 INSTALLATION

2.1 Power Supply

To start using it, connect the external power supply to the 100-230V mains and the 12V to the instrument input.

Once connected to power, the device turns on and it takes about 37 seconds to be operational. Then the message "Keyboard Locked" appears on the display.

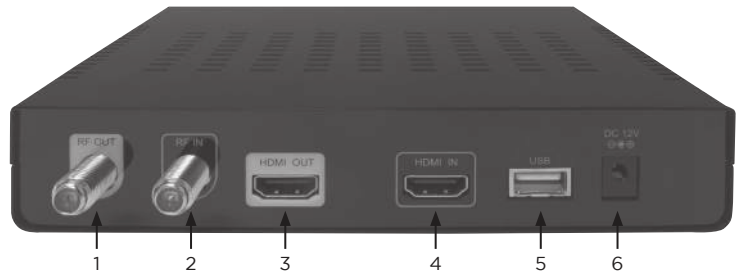
2.1.1 Operation via external power supply

Use only the external power adapter supplied with the instrument.

2.2 Connection

2.2.1 Connection diagram examples

Connection diagram for one module



1. TV with DVB-T built in or DVB-T STB
2. RF Combiner
3. HDMI Out (4K Pass Through)
4. HDMI In (Media Device)
5. USB (S/W update)
6. DC 12V

ATTENTION! For this configuration you should use output frequencies different from the ones that your TV is currently using.

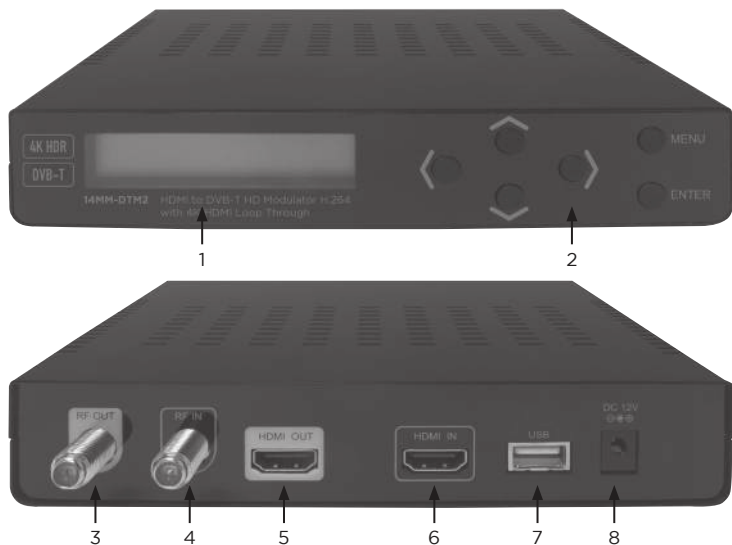
2.3 Navigation and edition of values.

The instrument is configured through its 6 keys and front panel display. In general, it is not necessary to configure the instrument to generate a DVB-T signal compatible with any digital terrestrial television receiver.

- Enter Button - Select parameter/menu
- Left/Right Button - Move left/right between menu/characters
- Up/Down Button - Increase/decrease value of the figure/field
- Menu Button - Return to start menu

3 OPERATING INSTRUCTIONS

3.1 Description of controls and components



1. Display (LCD).
2. Menu navigation keys.
3. TV COFDM Output.
4. RF Combiner
5. 4K Pass Through
6. HDMI IN
7. USB: S/W update
8. Input 12V DC power adapter (included).

Note: Display indication

The resolution of the LCD Display is representative of the video resolution of the RF output.

Please refer to below table:

HDMI In	LCD Display	RF Out	HDMI Out (HDMI Pass through)
3840x2160p50/60	1920x1080p50/60	1920x1080p25/30	3840x2160p50/60
1920x1080p50/60	1920x1080p50/60	1920x1080p25/30	1920x1080p50/60
1920x1080p24	1920x1080p24	1920x1080p24	1920x1080p24
1920x1080i50/60	1920x1080i50/60	1920x1080i50/60	1920x1080i50/60
1280x720p50/60	1280x720p50/60	1280x720p50/60	1280x720p50/60
720x576p50	720x576p50	720x576p50	720x576p50
720x576i50	720x576i50	720x576i50	720x576i50
720x480p60	720x480p60	720x480p60	720x480p60
720x480i60	720x480i60	720x480i60	720x480i60

3.2 Starting

1. After connecting the power to the instrument, the message "Initial..." "Please Wait..." appears for 37 seconds.
2. Then the message "Keyboard Locked" appears. To access to the configuration menus the user has to enter a password.
3. Press **ENTER**.
4. The field "Enter Password" appears. Enter the access code. (By default: 0000).
5. Press **ENTER**.
6. The field "Network Setting" appears, this is the first option on the configuration menu.

3.3 Configuration menu

1. Frequency: It sets the frequency value for the output signal. Important: Check that the selected frequency is not already being used by a current television distribution channel.
2. RF Level Adj: It adjusts the power level of the output signal, in dB units. Its range from 0 to -30 dB.
3. Bandwidth: Channel bandwidth. (6, 7, 8, 7-8MHz).
4. FFT Carriers: Signal transmission mode. (2K,8K).
5. Guard Interval: Safety signal margin. (1/4, 1/8, 1/16, 1/32).
6. Constellation: Constellation type used to transmit signal(QPSK,16QAM, 64QAM).
7. Code Rate: Available values are (1/2, 2/3, 3/4, 5/6, 7/8).
8. Video Output: Video encode. H.264 of the video output.
9. Audio Output: Audio encode. Selection between MPEG-2 and AAC
10. Video Bitrate: Select video bit rate(2-18Mbps).
11. Audio Bitrate: Bitrate to encode the audio. Available values are between 192 kbit/s.
12. Service Name: Service name edit.
13. Provider Name: Service provider name edit.
14. Service ID: Service ID edit.
15. LCN: It specifies the index for the service sorting on the digital terrestrial television receiver. Values are between 1 and 999.
16. Country: Country selection for LCN sorting.
17. Original Net ID: Identifier of the original network. It is the number to identify the network from where the signal comes.
18. Network ID: It is the number that identifies the network where the signal is distributed.
19. Network Name: Network name edit.
20. TS ID: It is the transport stream identifier.

21. NIT Version: Network Information Table version. In some countries it should match with other tables version received from the receiver.
22. Information: It shows the firmware version installed in the instrument. This option is not editable.
23. Apply Setting: It saves the current configuration on the non-volatile memory of the instrument.
24. New Password: It allows the user to change to a new password to access the menu.
25. Load Default: It returns to the default values.

3.4 Menu Tree

Main	Layer 1	Layer 2	Menu Options
Network Setting	1 Country	Australia	Australia, Croatia, Czech, Denmark, Estonia, Finland, France, Ireland, Italy, Latvia, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak, Sweden, UK, Other
	2 Original Net ID	12801	
	3 Network ID	12803	
	4 Network Name	Private Network	
	5 TS ID	5001	
	6 NIT Version	28	
CH & Enc Setting	1 Service Name	Video 1	
	2 Provider Name	MMTV	
	3 Service ID	1	
	4 LCN	400	1-999
	5 Video Output	H.264	
	6 Audio Output	MPEG-2	AAC/MPEG-2
	7 Video Bitrate	12Mbps	2-18Mbps
	8 Audio Bitrate	192Kbps	
RF Setting	1 Frequency	CH28 529.5MHz	177-857MHz
	2 Constellation	64QAM	QPSK, 16QAM, 64QAM
	3 Guard Interval	1/16	1/4, 1/8, 1/16, 1/32
	4 Code Rate	3/4	1/2, 2/3, 3/4, 5/6, 7/8
	5 FFT Carrier	8K	2K, 8K
	6 Bandwidth	7MHz	6, 7, 8MHz
	7 RF Level Adj.	00dB	0dB ~ -30dB
Information	1 FW APP	5.1.2.x.xxx.xx.xx.xx	
Load Default	1 Yes, No		
Change Password	1 0000		

Network Setting	Default	
Country	NEW ZEALAND	NEW ZEALAND LCN
Original Net ID	8746	8746
Network ID	13313	13313
Network Name	Private Network	Private Network
TS ID	101	101
NIT Version	28	28
CH&Enc Setting		
Service Name	HDMI 1	HDMI 1
Provider Name	MMTV	MMTV
Service ID	101	101
LCN	1	1
Private Data Specifier Descriptor tag 0x05	0	0x00000037
Audeo Output	MPEG-2	MPEG-2
RF Setting		
Frequency	CH25 506.00MHz	506.00MHz
Constellation	64QAM	64QAM
Guard Interval	1/16	1/16
Code Rate	3/4	3/4
FFT Carrier	8K	8K
Bandwidth	8MHz	8MHz
RF Level Adj	30dB	30dB