RFT-805HD

Digital modulator HDMI → COFDM
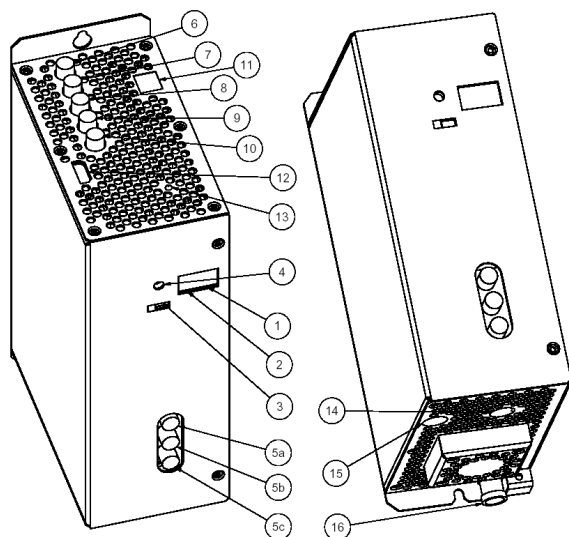
User Manual

1. Purpose of use

RFT-805HD is a Full-HD encoder to modulate high quality audio and video into COFDM (DVB-T) multiplex.

RFT-805HD support up to 1920*1080p resolution but it is recommendate to use max. 1920*1080i resolution as most of TV sets does not support 1920*1080p resolution.

2. Installation

The connections and indications are shown in Fig 1.

1. Cable TV S channel indication led
2. Channel number (CCIR)
3. Control switch to program a unit in ON position. The swirch must be set to OFF position when programming is ready.
4. IR detector.
5. VIDEO/AUDIO outputs for menu monitoring.
6. Audio IN (right)
7. Audio IN (left)
8. Video IN or YPbPr (Y)
9. YPbPr (Pb)
10. YpbPr (Pr)
11. USB port for SW update.
12. HDMI IN
13. When signal led is orange, the unit is initialized. When signal led is green, outgoing bit stream is ready. Red signal led means overloading.
14. DC IN/OUT
15. DC IN/OUT
16. RF OUT + DC IN in RFT-800 installation

RFT-805HD can be mounted either to RFT-800 system (RFT-800 User Manual) or stand-alone. Do not cover the air passage holes.

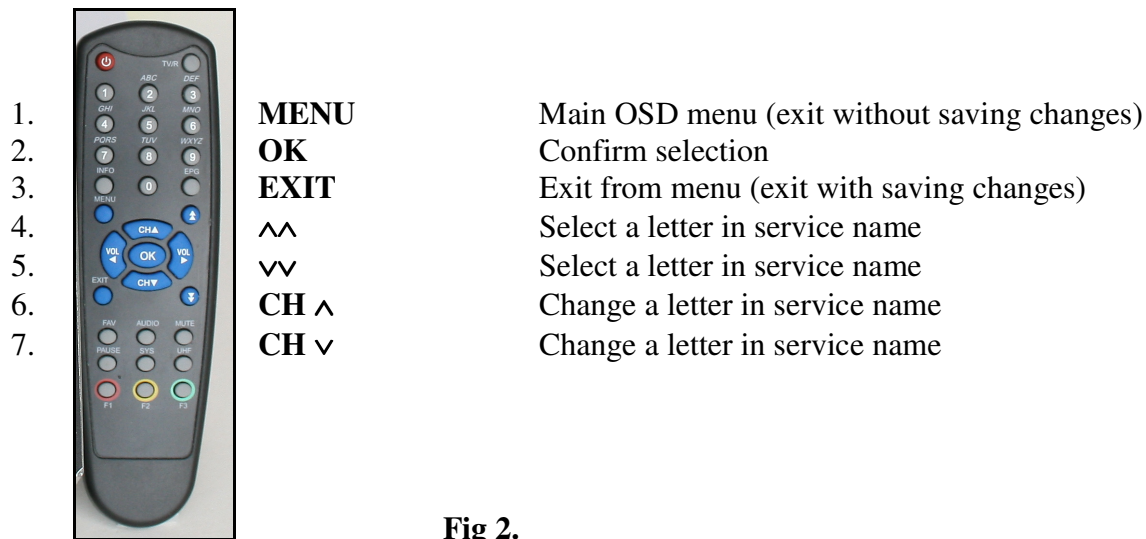HD audio/video signal is connected to HDMI connector (12.).

RF OUT (16) is connected to cable network.

VIDEO/AUDIO connectors are for user interface monitoring.

NOTE! If any black horiziontal stripes or white pixels exist in picture, the HDMI synchronisation is lost. The power of HDMI source must be switched OFF and ON.

3. Programming

The modulator is simple to program with the remote control unit (RCU-800). The main functions of RCU are shown in Fig 2.

1.	**MENU**	Main OSD menu (exit without saving changes)
2.	**OK**	Confirm selection
3.	**EXIT**	Exit from menu (exit with saving changes)
4.	**ʌʌ**	Select a letter in service name
5.	**vv**	Select a letter in service name
6.	**CH ʌ**	Change a letter in service name
7.	**CH v**	Change a letter in service name

Fig 2.

3.1 Power-up

At power-up this welcome screen is displayed. Main SW and user interface SW version numbers plus unit serial number are shown.

When the unit is powered the display lights up showing selected output channel. The factory set channel is E21.

The display is switched off after 3 minutes. Two signal led indicate that the unit is powered. The display lights up again by pressing any button of remote controller unit.

The selected program info is displayed and the channel opened.

3.2 First time set-up

When using the unit for the first time, you must first connect video output to monitor. After this you can continue set-up using on-screen menus.

To control the unit first slide front panel switch to ON position. When programming is ready, the front panel switch must be slide to OFF position. This will prevent accidental changes to be made while controlling other units.
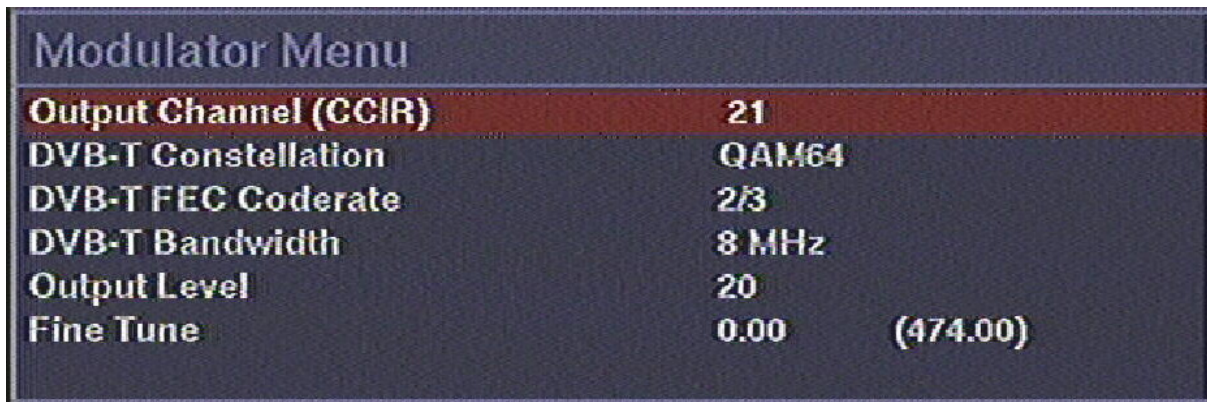
3.3 Set-up

To start set-up, press Menu key. Main Menu will be displayed.

```
Main Menu
Modulator Configuration
Encoder Configuration
Service Menu
Set Factory Defaults
Exit
```

Select " Modulator Configuration".

All selectable options of modulator menu are shown in below figure.

```
Modulator Menu
Output Channel (CCIR)    21
DVB-T Constellation      QAM64
DVB-T FEC Coderate       2/3
DVB-T Bandwidth          8 MHz
Output Level             20
Fine Tune                0.00      (474.00)
```

In Modulator menu can be selected:

- Output channel from S2 to E69
- DVB-T Constellation (QAM 64 is recommended)
- DVB-T FEC 1/2, 2/3, 3/4, 5/6 or 7/8 (3/4 is recommended)
- DVB-T Bandwidth 7 MHz or 8 MHz
- Output Level attenuator 0...20 dB (20 is maximum output level)
- Fine Tune of output frequency with 0,5 MHz steps

You can select output channel using left and right arrow keys. The channel number will be displayed simultaneously on front panel display. The selectable channels are S02 - S10, 5 - 12, S11 - S41 and 21 – 69 (CCIR).

Select "Encoder Configuration"

Encoder Configuration

Input Source	HDMI
System Bitrate	14000
Audio Mode	stereo
Audio Bitrate	192 kbps
Scale to SD	No
Audio Level	

Following options can be selected:

- Input video HDMI (also audio), Composite, YPbPr

- System Bitrate (total max. 30000 kbps)

- Audio mode (mono, stereo)

- Audio bit rate (64 … 384 kbps)

- Scale to SD (yes, no)

- Audio Level (adjustable only with analogue source, fixed with HDMI)

NOTE! Save with "EXIT" or MENU" .
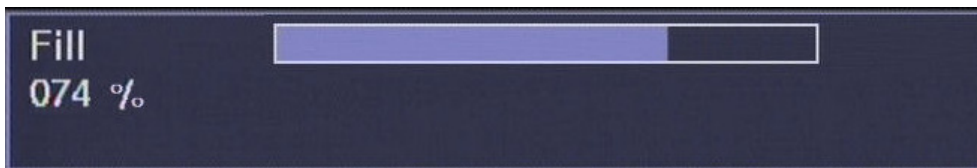
Select "Service Menu"

Service Menu

Service Name	TV
PMT PID	41
Video PID	42
Audio PID	43
PCR PID	44
Program Number	1
Logical Channel Number	0
Output Transport Stream Id	1
Output Original Network Id	1
Network Name	RF
Service Provider	RF

Following options can be selected:

- Service Name (Info is factory default). The name can be changed by selecting firstly a letter with double arrow UP/DOWN and then select a correct letter with single UP/DOWN arrow.   Save the name with EXIT push button of RCU.

- PMT PID (default value is 41)

- Video PID (default value is 42)

- Audio PID (default value is 43)

- Program Number (set 1)

- Logical Channel Number (LCN). 0 means no LCN value. LCN setting does not cancel NIT of operator.

- Output Transport ID. Select free value. Do not use two same values in same network.
- Output Original Network ID (used only in big cable operator networks)
- Network name
- Service Provider

NOTE! When programming is ready, check the status of bit rate. "Fill" beam shows how many percentage of the maximum stream is used.

3.4 Other functions

In main menu you can select "Set Factory Defaults" .

4. Technical specifications

VIDEO ENCODER		MPEG-4 H.264 AVC
Max. bitrate		28 Mbit/s
AUDIO ENCODER		MPEG-2 audio layer ½
		Compliant to ISO/IEC11172-3
Max. bitrate		384 kbps
COFDM OUTPUT		
Modulation		IFFT 2k mode, QPSK, QAM16, QAM64
Output frequency range		114 MHz - 858 MHz
Quard Interval		1/32
FEC		1/2, 2/3, 3/4, 5/6, 7/8
Output level		85 - 105 dBuV
Data connector		USB
Input connectors		HDMI; max. 1920*1080p resolution, recommendate max. 1080i
		RCA; YpbPr 720p724725/30/50/60Hz and 1080i/50/60Hz (not 1080p)
Output connector		F-male 75 ohm
Power consumption		16VDC/0,8A
Dimensions	W*H*D	72mm*218mm*129mm