RFT-856HD

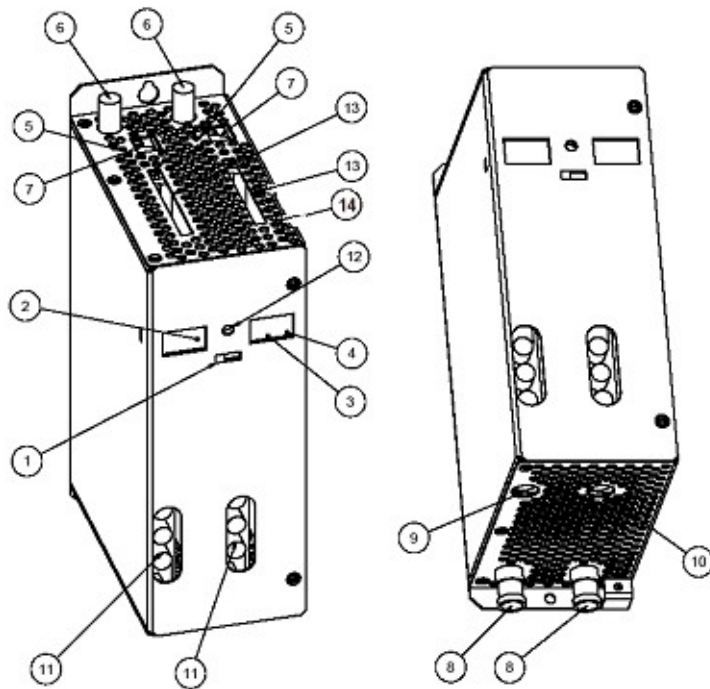## 2 MUX DVB-T/T2/C --> QAM HD remux modulator

User Manual

1. Purpose of use

RFT-856HD is designed for a processing two DVB-T2/-T mux programs into two DVB-C mux.

2. Installation

The connections and indications are shown in Fig 1.

1. Control switch to program channel 1 (left) or channel 2 (right). The switch must be set to middle position when programming is ready

2. Channel number (CCIR)

3. Cable-TV S channel indicator led

4. The signal led shows the output channel mode or that the unit is powered

5. Signal led indicates that receiver is locked to selected transport stream

6. ANT IN

7. USB ports are for possible software update

8. RF OUT + DC IN in RFT-800 frame installation

9. DC IN (only in stand-alone installation)

10. DC OUT for next RFT-856 unit (max. 4 units in chain in stand-alone installation)

11. VIDEO/AUDIO connectors for monitoring

12. IR detector

13. CAM slot , not in this model RFT-856HD

14.   Bit rate indicator. Red = overload, Green = under maximum

RFT-856 can be mounted either to RFT-800 system (RFT-800 User Manual) or stand-alone. Do not cover the air passage holes.

Signals from antenna are fed to IEC-connectors at the top of unit.

When RFT-856 is mounted for RFT-800 frame, the power voltage is supplied through active output combiner (RFC-808 or RFC-816). When RFT-856 is mounted stand-alone, power supply unit (RFP-804 or RFP-808) must be mounted to the left side of RFT-856 due to the ventilation. DC connector is connected to left side of DC connector at the bottom of unit (9). You can loop-through DC from the right side DC connector (10) to next unit with the DC cable. Maximum four RFT-856 units in chain can be supplied with one power supply (RFP-804) in stand-alone installation (max. two units with RFP-802).

When RFT-856 is mounted for RFT-800 system, cable to network is connected to active output combiner (RFC-808 or RFC-816). When RFT-856 is mounted stand-alone, RF OUT (8) is connected to cable network via external RF combiner (RFZ-802).

VIDEO/AUDIO connectors (11) are for monitoring the unit while programming.
NOTE! CA module (13) for smart card must be installed and removed only when power is OFF.

3. Programming

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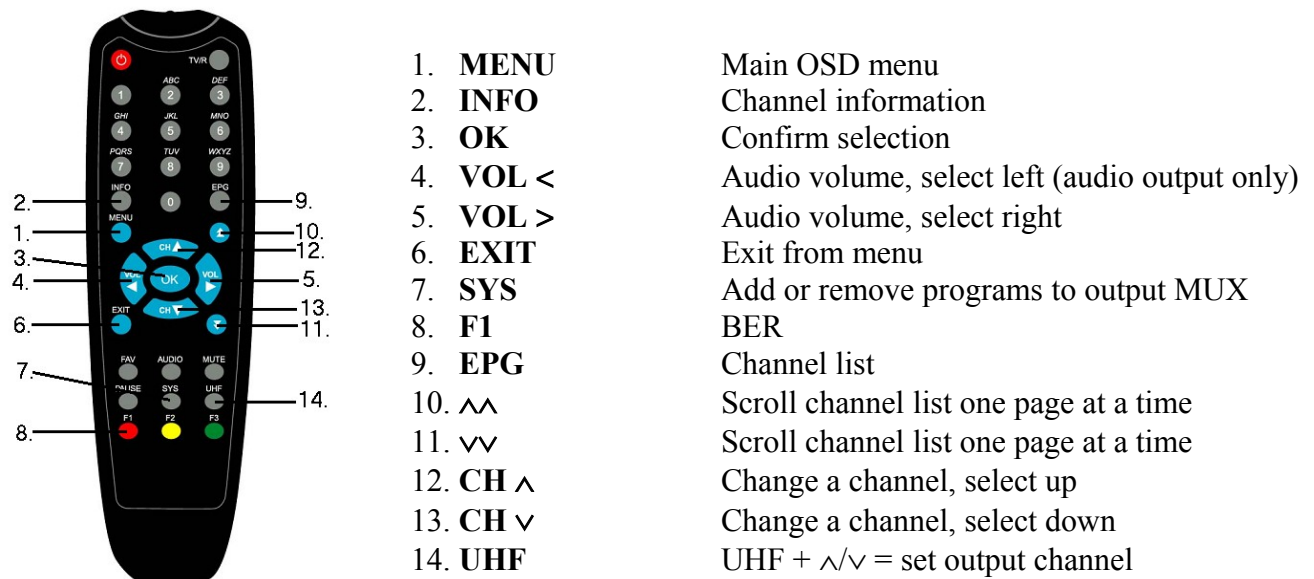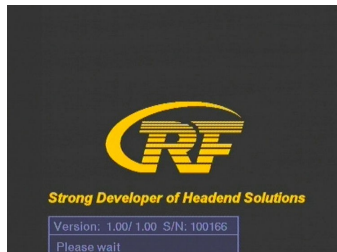

Fig 2.

1.	**MENU**	Main OSD menu
2.	**INFO**	Channel information
3.	**OK**	Confirm selection
4.	**VOL <**	Audio volume, select left (audio output only)
5.	**VOL >**	Audio volume, select right
6.	**EXIT**	Exit from menu
7.	**SYS**	Add or remove programs to output MUX
8.	**F1**	BER
9.	**EPG**	Channel list
10.	∧∧	Scroll channel list one page at a time
11.	∨∨	Scroll channel list one page at a time
12.	**CH** ∧	Change a channel, select up
13.	**CH** ∨	Change a channel, select down
14.	**UHF**	UHF + ∧/∨ = set output channel

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 channels (Fig 1. no 2). The factory set channels are E40 and E42.

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.

Next program info for channel previously selected is displayed and the channel opened, if possible. Info shows program name, transponder frequency, data rate, FEC and channel video PID number.

Please note that opening a channel will take longer time when a conditional access module is inserted. It is recommended to use updated smart card. If the channel list is empty, welcome screen will remain displayed.

3.2 First time set-up

When using the unit for the first time, you must first connect video and audio connectors to monitor. After this you can continue set-up using on-screen menus.
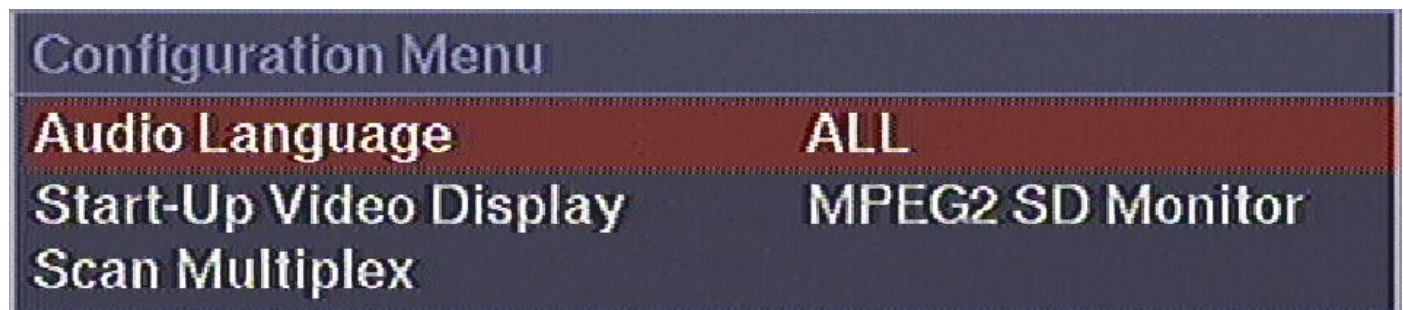
To control the unit first slide front panel switch to left or right position to control receiver 1 or 2 respectively. When programming is ready, the front panel switch must be slide to center position. This will prevent accidental changes to be made while controlling other units.

3.3 Set-up

To start set-up, press Menu key (Fig 2. no 1). Main Menu will be displayed.

```
Main Menu
Channel List
SW Version Info
Configuration
Modulator
Menu Language    English

Exit
```

Select "Configuration".

```
Configuration Menu

Audio Language              ALL
Start-Up Video Display      MPEG2 SD Monitor
Scan Multiplex
```

Following settings can be selected:

- Audio Language (recommended ALL)
- NOTE! When MPEG-4 programs are received or scrambled channels are not descrambled (marked with +) at the headend select "Modulator Menu". Otherwise select "MPEG2 SD Monitor".Start-Up

Select "Scan Multiplex" and write multiplex frequency. Then select "Scan".

```
Scan Multiplex
Frequency                   714,0
Scan
```
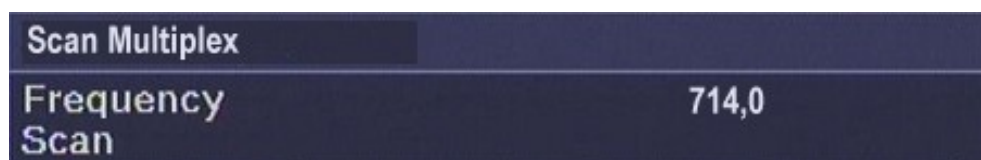
You can adjust frequency using numeric keys, left and right keys or double arrow keys.

When scanning is ready Channel List is shown.

To select a programs for outgoing COFDM stream press SYS key The meaning of symbols are + = FTA program selected, scrambled program selected but not opened at the headend, $ = scrambled program selected and opened at the headend, - = program is not selected. To save and exit select + or $ marked program and press OK key.

The default value is "+".

The logical channel number (LCN) can be modified as following. Select the wanted program number (e.g. 0004) in Channel List menu. Then just press the wanted position number (e.g. 02). The set-top-box set this program to memory place no 2. NOTE! LCN setting works only in the set-top-boxes which support LCN function.

The LCN selection can be canceled by typing 00.

NOTE! After selecting programs go to "Modulator" menu and press OK to check the status of bit rate. "Fill" beam shows how many percentage of the maximum stream is used.
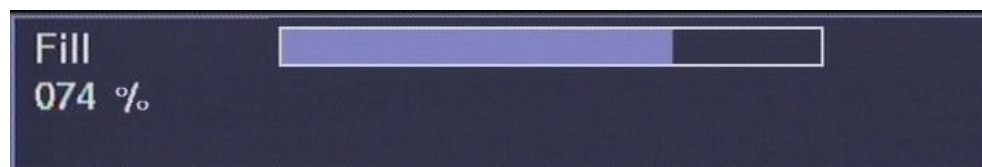
3.4 Other functions

In main menu, select "SW Version Info" and press OK to display receiver and user interface version numbers plus unit serial number info.

Menu Language = menu language.

3.5 Modulator set-up

To adjust the parameters of outgoing DVB-C stream and other modulator options, select "Modulator" and press OK.

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

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).

To adjust modulator output attenuation use left and right arrow keys. You can fine tune output frequency when using different channel grid than CCIR. Adjustment is done using left and right arrow keys in steps of 1 MHz. Adjustment range is ± 4 MHz. You can monitor the adjusted frequency in parenthesis on the same line.

Select DVB-C Constellation QAM 64.

NOTE! If outgoing bitrate is less than 50% of maximum, select bigger constellation value (e.g. QAM128 or even QAM256 , if it is needed) to reach bigger bit rate.

The appropriate symbol rate can be set by writing symbol rate by remote controller.

The symbol rate is effecting the used channel band width, the 6900ksymb/s is equal to 8MHz band width.

Select output level. The number indicates gain (0= minimum level and 20 = maximum level).

Press EXIT key to exit from menu. The settings you made will be saved.

When programming is ready, the front panel switch must be slide to center position. This will prevent accidental changes to be made while controlling other units. The display, except two led, are switched off in 6 minutes after programming is finished.

Technical specifications

COFDM (DVB-T/DVB-T2)/QAM (DVB-C) INPUT

Number of channels	2
Tuners	2
Input frequency range	177,5 - 858 MHz
Input level	45 … 85 dBuV
Bandwidth	7 MHz or 8 MHz
FEC decoder	Automatic
CI slot	-

QAM OUTPUT

Modulation		QAM 32, 64, 128, 256
Output frequency range		114 MHz - 858 MHz
Symbol rate		1-7,5 Msymb/s
Output level		85 - 105 dBuV
Data interface		2* USB 1
Input connectors		F-female 75 ohm
Output connectors		F-male 75 ohm
Power consumption		16VDC/1,2A
Dimensions	W*H*D	72mm*218mm*129mm
Mounting		RFT-800 system or stand alone

This symbol on the product or on its packing means that within the European Union the product must be taken to separate collection at the product-end-of life.

Do not dispose of these products as unsorted municipal waste.

Fore more information about where you can drop off your waste equipment for recycling, please contact your local city office, your house disposal service or the shop where you purchased the product.