RFT-836

Twin QPSK/QAM remux modulator

User Manual

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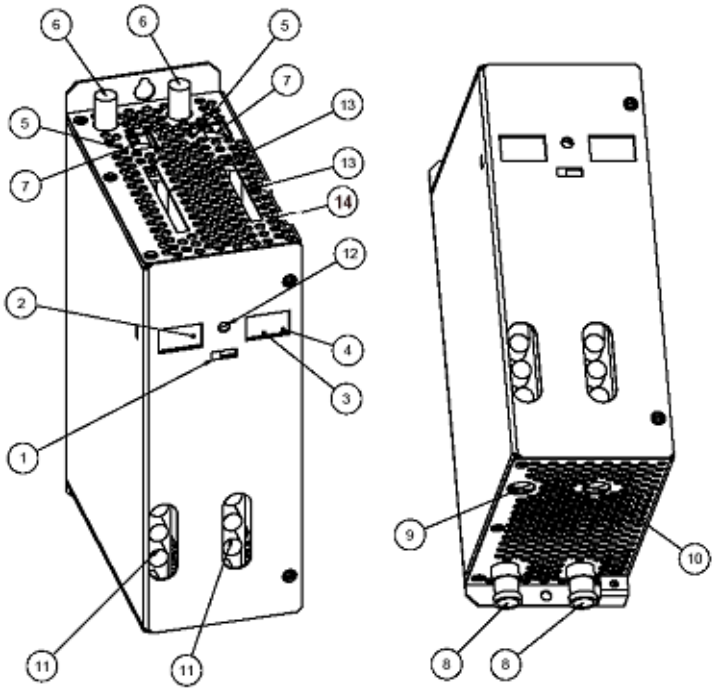
1. Purpose of use

RFT-836 is designed for a processing two QPSK modulated satellite signals into two QAM multiplex.

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 that the unit is powered

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

6. LNB IN (e.g through RFZ-802)

7. USB port is 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-831 unit (max. 4 units in chain in stand-alone installation)

11. VIDEO/AUDIO connectors for monitoring

12. IR detector

13. CAM slot

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

RFT-836 can be mounted either to RFT-800 frame (RFT-800 User Manual) or stand-alone. Do not cover the air passage holes.

Signals from LNB are fed to IF-connectors (6) at the top of unit. Maximum total current of LNB connector is 250 mA.

NOTE! LNB supply voltage must be fed only from one RFT-836 unit to each LNB. For other units must be selected Power OFF (Configuration menu/LNB control mode) or use original RFZ-series DC-blocked splitters.

When RFT-836 is mounted for RFT-800 system, the power voltage is supplied through active output combiner (RFC-808 or RFC-816). When RFT-836 is mounted stand-alone, power supply unit (RFP-804 or RFP-808) must be mounted to the left side of RFT-836 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-836 units in chain can be supplied with one power supply (RFP-804) in stand-alone installation.

When RFT-836 is mounted for RFT-800 system, cable to network is connected to active output combiner (RFC-808 or RFC-816). When RFT-836 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.

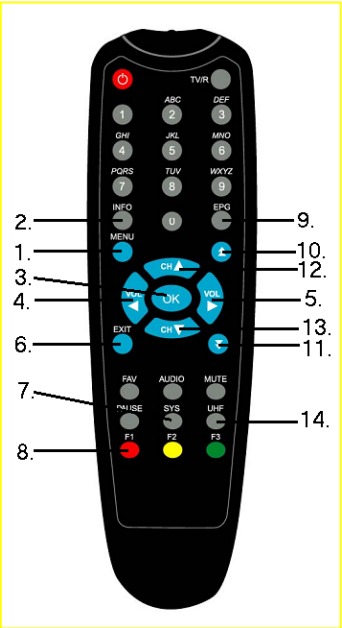


Fig 2.

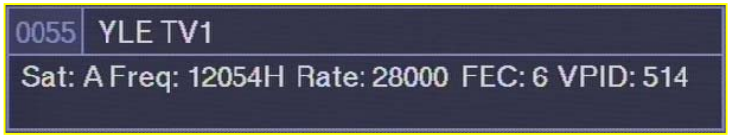
1.	**MENU**	Main OSD menu
2.	**INFO**	Channel information
3.	**OK**	Confirm selection
4.	**VOL <**	Audio volume, select left (audio output only)
5.	**VOL >**	Audio volume, select right (audio output only)
6.	**EXIT**	Exit from menu
7.	**SYS**	Add or remove programs to output MUX
8.	**F1**	BER
9.	**EPG**	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 satellite number i.e. DiSEqC switch control, 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.

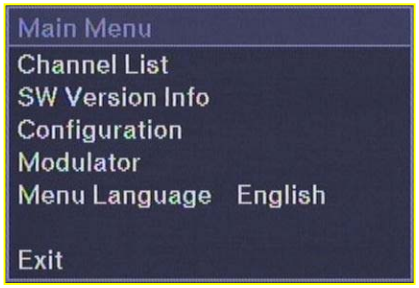
3.2 First time set-up

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.

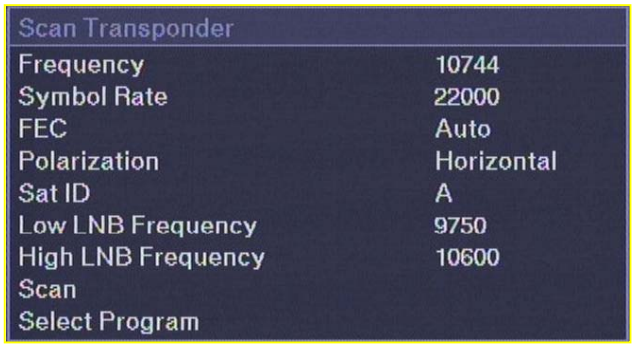
3.3 Set-up

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



Select "Configuration".

If you want to select Astra or Hotbird channels select "Select Program" and press OK. Transponder parameters are selected with OK.



If channels are not stored, write the parameters of transponder and press "Scan".

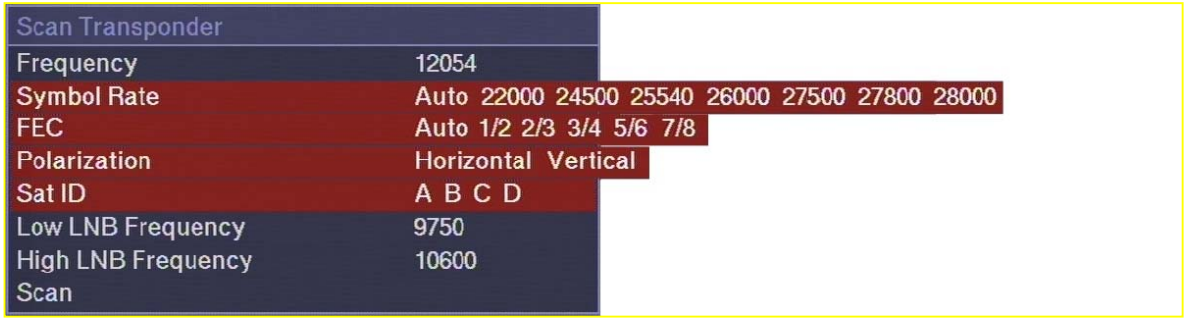
You can adjust transponder frequency using numeric keys, left and right keys or double arrow keys.

You can select Symbol Rate from preset values using left and right arrow keys or select "Auto" to try all these preset values. You can also enter any symbol rate using numeric keys or double arrow keys.

FEC can be set to "Auto" or any fixed value using left and right keys. Polarization is also selected using left and right keys. Sat ID will be used in channel information and to control DiSEqC switch.

When using non-universal LNBs, you can adjust the local oscillator frequency values accordingly.

All selectable options in "Scan Transponder" are shown below.



It takes few minutes to scan transponder. After transponder have been scanned you can select programs from “Select Program” or “Channel List (in main menu)”.

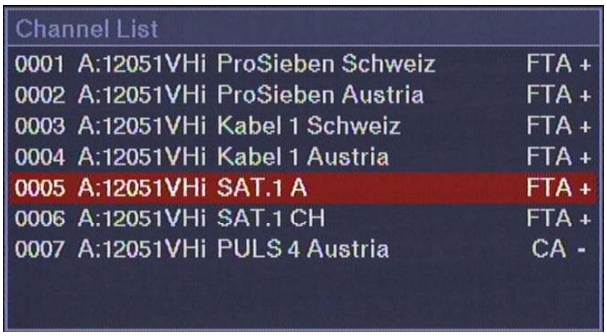
On channel list all stored channels are listed with sequence number, satellite indication (the satellite is indicated as following A=Astra, B=Hotbird), transponder frequency and band information.

After channel program name on right column channel status is shown. “FTA” stands for free channel available without a Conditional Access module or a viewing card. “CA” stands for Conditional Access channel. To view a CA channel an appropriate Conditional Access Module and a viewing card will be needed. This information is only normative and can be missing in some cases.

You can scroll the list using up and down arrow keys (Fig 2. no 12 or 13).

To select a programs for outgoing COFDM stream press SYS key (Fig 2. no. 7). 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 (default after transponder scan). To save and exit select + or $ marked program and press OK key.

NOTE! When FTA time-sharing program (e.g. regional program) is selected to outgoing mux, this same program must NOT be selected to analogue output (AV connectors). You must select also the original program (e.g. national programs) to same mux. When time-share program is descrambled at the head end (marked with $) it must be selected to analogue output (select it and press OK) .



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. It is recommendated that the stream is between 60 .. 80%. Otherwise there can be pixeling in pictures. If you want to select only one program for outgoing MUX, you can add bit rate by selecting higher FEC e.g. 1/2 or 2/3 .

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.

Most of the system set-up is done in Configuration Menu. Select “Configuration” and press OK to enter.

Below are all selectable options in Configuration menu.

You can select the audio language in two ways. Firstly you can select from preset languages selecting “Audio Language” and using left and right arrow keys (Fig 2. no 4 or 5) to select the language name.

Secondly if your language is not among the preset languages you can freely write any 3-character language name. Use double arrow keys (Fig 2. no 10 or 11) to select character position, which will be underlined, and select needed character using up and down keys (Fig 2. no 12 or 13). Use double arrow keys to exit edit with no character underlined.

Select “ALL” if all received languages will be transmitted to digital output.

You can also select subtitle language in a similar manner or you can select OFF to turn off subtitling. Subtitling language selection is effecting only for analogue output (video/audio out). All subtitles are transmitted to digital output.

In “LNB Control Mode” you can select Normal or Power OFF using left and right arrow keys.

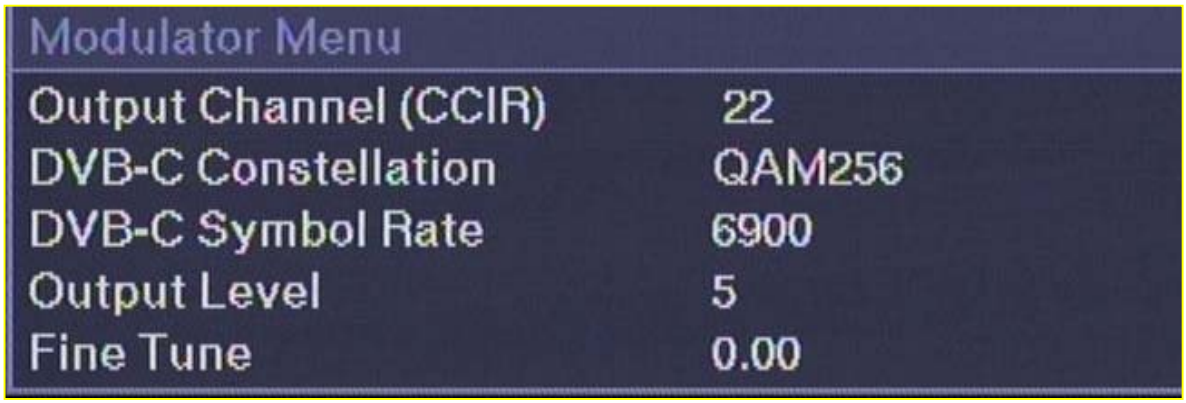
In “Start-Up Video Display” menu there are options “Normal” and “Modulator Menu”.

When MPEG-4 programs are received or scrambled channels are not descrambled at the headend select “Modulator Menu”. Otherwise select Normal.

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).

Select DVB-C Constellation. QAM 32, QAM 64, QAM 128 and QAM 256 are selectable. The most comm is QAM 64. If QAM 256 is used, the S/N of network must be very good (60 dB).

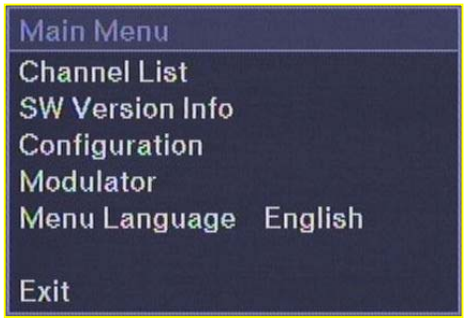
Select appropriate DVB-C Symbol Rate (1000 … 8000). The common symbol rate in most cable networks is 6900. The used symbol rate effects for the bandwidth. 6900 ksymb/s corresponds 8 MHz bandwidth.

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.

NOTE! The optimum bit rate is 80% from maximum.

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.



To select menu language, select “Menu Language” in main menu and press OK.

You can select the menu language using left and right keys. Press EXIT key to exit 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.

4. Technical specification

QPSK INPUT		
Number of channels		2
Tuners		2
Input frequency range		950 - 2150 MHz
Input level		-70 … -25 dBm
Waveform		QPSK (SCPC, MCPC)
Symbol rate		4-45 MS/s
FEC decoder		Automatic
Transport stream		MPEG-2 ISO/IEC 13818
CI slot		2
QAM OUTPUT		
Modulation		QAM 32, 64, 128, 256
Output frequency range		114 MHz - 858 MHz
Symbol rate		1-8 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, 19” rack 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.