

# User manual

 **FERGUSON**

**FX-6600CR, FX-7600UCI**



*English*

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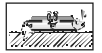
## SAFETY INSTRUCTIONS

Please observe all warnings and instructions on the equipment and contained in these operating instructions. You must install the dish with correct direction and angle.



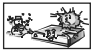
Please carefully read this user's manual before using the receiver.

Please place the receiver in horizontal and stable conditions, keeping it away from vibrating.



To avoid electric-shock hazards, do not open the cabinet, refer servicing to qualified personnel only. If cabinet is opened warranty will be invalid.

If device is moved from warmer place to a colder one some problem might occur. Please switch off the receiver and turn it on after 1 or 2 hours.



Please switch off completely the receiver during thunder, during abnormal phenomenon, before cleaning it and in case it remains out of service for a long period.

Keep the receiver away from flower vases, tubs, sinks, etc., in order to avoid damaging the equipment. Do not touch power supply with wet hands.



Do not expose the receiver under the sunlight. And keep it away from the heat source or humid environments. Do not block ventilation holes of the receiver so that air can circulate freely.

Don't put any objects on the player.



Be sure to turn the receiver off and disconnect the AC power cord before cleaning the receiver surface. If the surface is dirty, wipe clean with a cloth which has been dipped in a weak soap/and/water solution and wrung out thoroughly, and then wipe again with a dry cloth.

Do not connect cables while power is plugged.

Do not use damaged cables for connections: you could cause fires.

Please switch off completely the receiver while making all connections.

The product purchased is a sophisticated electronic device which is not suitable for children under 18 years.

We do not assume responsibility for damages caused to people or object, deriving from use of the device made by people under 18 years.

## SOFTWARE FOR DOWNLOADING

Ferguson has used all the available means to deliver to its users software updates guaranteeing the best possible parameters of the satellite television receivers. Ferguson reserves the right to make corrections, changes or modifications of the software used in the receiver on any basis whatsoever and without prior notice. The current version of the software is available on the following website <http://www.ferguson-digital.eu>

## USER MANUAL

Telstar has used all the available means to ensure the latest information regarding its products. Ferguson does not give a warranty regarding the contents of this User Manual and waives any implied warranties regarding market value or fitness for specific purposes. The information contained herein provide guidelines allowing the operation and maintenance of the receiver.

Ferguson reserves the right to make changes, corrections or to translate the User Manual without giving prior notice of such changes. Therefore, it is recommended that users visit our website regularly to receive the latest information.

## SYMBOLS USED ON THE RECEIVER



### **The Digital Video Broadcasting logo.**

This logo tells you that this receiver is compliant with the DVB standards.



### **The caution risk of electrical shock - do not open symbol**

This symbol tells you that you are not allowed to open the receiver. Only authorized (service) technicians are allowed to open the box.



### **The CE mark.**

This mark tells you that the receiver is following the provisions of Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to the electromagnetic compatibility and the provisions of Council Directive 73/23/EEC and 93/68/EEC on the approximation of the laws of the Member States relating to low voltage and electrical safety.



### **The double insulation symbol.**

This symbol tells you that the receiver is electrically safe within the normal use of the receiver as stated in the safety chapter.



### **Environment protection first!**

- Your appliance contains valuable materials which can be recovered or recycled.
- Leave it at a local civic waste collection point.

## I GENERAL INFORMATION

This digital satellite receiver is a highly cost-effective digital satellite receiver integrated. It provides 6000 channels storage with fast searching and inter-channel switching capability. The receiver is definitely one of the best choices to deliver your digital life.

### 1. Main Features

- ✓ Up to 6000 Channels TV & Radio Programmable
- ✓ Up to 100 Satellites Programmable
- ✓ Digital Audio Stream through optical S/PDIF
- ✓ Component (YPbPr) output
- ✓ Advanced Electronic Program Guide (EPG)
- ✓ Supports 20 Timers
- ✓ Supports Teletext and Subtitles
- ✓ Multi Language OSD Menu
- ✓ Quick search function
- ✓ Separate TV/Radio List & Favourite Group List
- ✓ SCPC & MCPC Receivable from C/Ku-Band
- ✓ Program search in automatic, advanced and manual way
- ✓ DiSEqC1.0, 1.1 and DiSEqC1.2, USALS Control Compatible
- ✓ Program List Download through RS-232
- ✓ Smart Card Interface for pay TV

### 2. Unpacking

Unpack the receiver and check to make sure that all of the following items are included in the packaging.

- ✓ 1 x Remote Control Unit (RCU)
- ✓ 1 x User's Guide
- ✓ 1 x Digital Satellite Receiver

### 3. General Operation of STB

Throughout this manual you will notice that the everyday operation of your STB is based on a series of user friendly on screen display and menus. These menus will help you get the most from your STB, guiding you through installation, channel organizing, viewing and many other functions.

All functions can be carried out using the buttons on the RCU, and some of the functions can also be carried out using the buttons on the front panel.

Please be aware that new software may change the functionality of the receiver.

Should you experience any difficulties with the operation of your unit, please consult the relevant section of this manual, including the Problem Shooting, or alternatively call your dealer or a customer service adviser.

#### **NOTE:**

Please be aware that new software may change the functionality of the receiver. The photo and the function explanation involved in this specification is for reference only. If there is any mistake, please refer to the entity.

## 4. Remote Control Unit

### Power On

Turns the Receiver ON/OFF.

### Mute

Switches the sound ON/OFF.

### TV/DBS

Switches between TV and Satellite Mode.

### TV/RADIO

Switches between TV and Radio Mode.

### FAV

Displays the favorite channel list.

### Find

Quickly Find channel function

### RECALL

Returns to the previously viewed channel

### CH ▲▼

Turns to the next or the previous channel

### VOL ◀▶

Adjusts the sound volume (increase/decrease)

### VCR/DBS

Selects either VCR or DBS for the TV output mode when connecting the VCR by the Scart connector.

### 0~9/A~Z

Direct selection of TV/Radio channel and other commands by the numeric keys. Input the character by the alphabetical keys.

### OK/LIST

Shows the Channel list or selects an item on the Menu

### MENU

Displays the Menu on the screen

### EXIT

Returns to the previous menu and the screen

### PG/UP, PG/DW

Turns to the next or previous channel list

### PAUSE

Stops the playing picture for a short period

### ZOOM

Makes zooming the current displaying channel

### T/TEXT

Shows the Teletext on the screen if the TV can be available

### TIMER

Turns the STB off automatically after certain minutes

### EDIT

Arranges the current channel information

### SUB.T

Selects the subtitle for the current channel if applicable

### AUDIO

Chooses the audio language and relative volume

### INFO

Displays the program information box on the screen

### SIGNAL

Checks the LNB signal and quality

### EPG

Displays the EPG (Electronic Program Guide)

### MULTI PICTURES

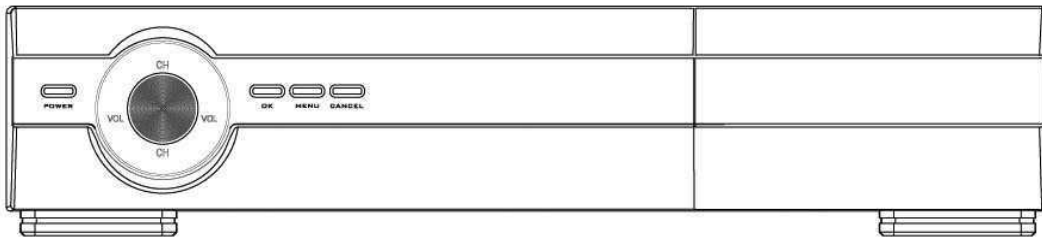
Shows the Multi Pictures on the screen

### SAT

Changes the Satellite on the channel list

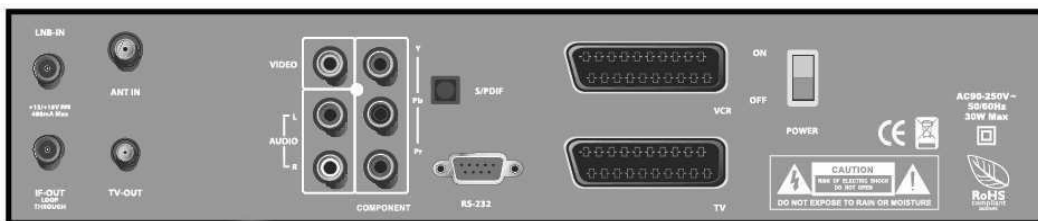


## 5. Front Panel



- POWER** : Turns the receiver ON/OFF
- CH ▲▼** : Changes the channels on the screen and moves the cursor up/down in the Menu
- VOL ◀▶** : Increases/Decreases the volume levels or changes the setting in the Menu.
- OK** : Shows the Channel List on the screen and use to make selections in the Menu.
- MENU** : Shows the Main Menu on the screen
- CANCEL** : Cancels the selected function

## 6. Rear Panel



- LNB IN** : Connects the coaxial cable from the LNB
- ANT IN** : Connects the terrestrial antenna
- IF OUT** : Connects to another Satellite receiver if required
- TV OUT** : Connects to the TV for terrestrial broadcasting reception
- SCART VCR** : Connects receiver to VCR
- VIDEO** : Provides a composite video output to TV or other equipments.
- COMPONENT (YPbPr)** : Provides a component video output to TV or other equipments.
- AUDIO (L/R)** : Provides the stereo audio output to TV or other equipments
- SCART TV** : For the video / audio input of the TV
- S/PDIF** : Digital Audio Interface
- POWER** : Power connection cable AC 90 to 250VAC. 50Hz/60Hz

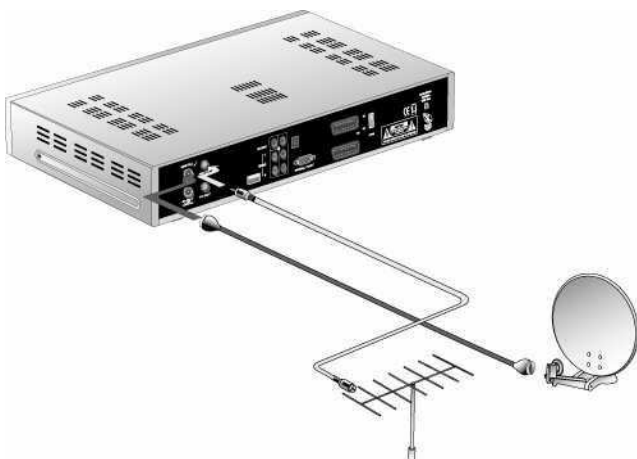
## 7. Connection Diagram

This section explains the installation of the receiver. Refer to the manuals supplied with the equipment for the installation of outdoor equipment such as the dish antenna. When adding new equipment, be sure to refer to the related parts of the manual for the installation.

### 7.1 Connecting to Dish and TV

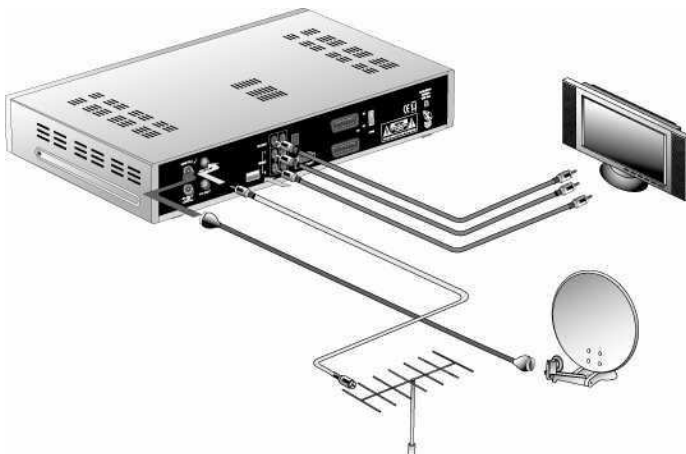


Connect satellite antenna cable directly to the LNB IN socket of the receiver.



Connect air antenna cable to the ANT IN socket of the receiver (optional).

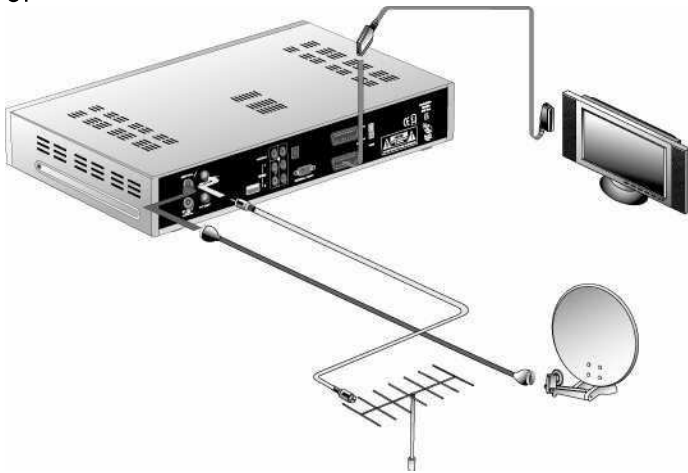
According to your TV type, please connect Receiver with:



- **Component** RCA cables (recommended for picture quality). Connect the COMPONENT (YPbPr) of Ferguson STB to the correct Video Inputs in TV with three RCA cables. Connect digital optical audio to amplifier or stereo RCA audio cable to TV set.

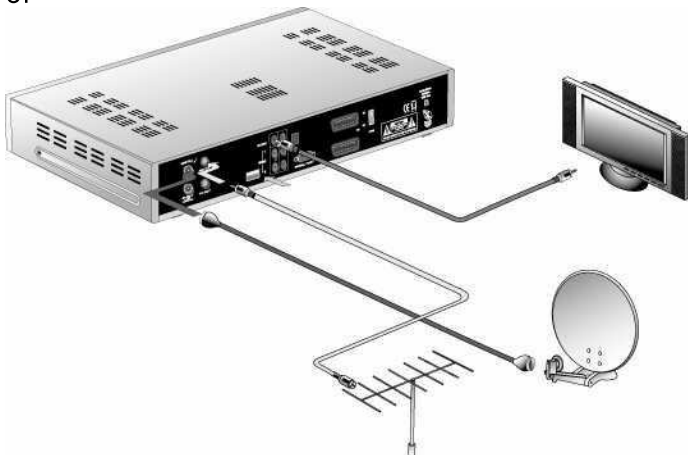


or



- **SCART** cable (recommended for ease of installation – only one cable). Connect the TV SCART of Ferguson STB to TV with fully featured SCART cable.

or



- **CVBS** RCA cable. Connect the VIDEO of Ferguson STB to the correct Video Input in TV with RCA cable. Connect digital optical audio to amplifier or stereo RCA audio cable to TV set.

## 7.2 Connecting to recording device



Connect the VCR SCART of Ferguson STB to recording device with fully featured SCART cable.

### 7.3 Connecting to Dishes using DiSEqC Mode



If you want to use a DiSEqC switch for more than one satellite, connect DiSEqC switch OUT to LNB IN connector of the receiver.  
You can use Toneburst switch or DiSEqC 1.0 / 1.1 / 1.2 switch.

### 7.4 Connecting to Dish using USALS Mode

If you want to use a USALS motorized antenna, connect antenna OUT connector to LNB IN connector of the receiver.

## II OPERATION

### 1. Main menu

Press **MENU** button, "Main menu" and the following 4 sub-Menu will be displayed on the screen.



#### - **Installation**

Antenna Setup, Auto Search, Manual Search, Motorized Dish Setup, Blind Scan, Factory Reset.

#### - **System Setup**

Language, TV Setup, Time Setup, Lock, Product Information, Others, Front Display (only FX 7600 UCI)

- **Common Interface** (FX 7600 UCI)/**Smartcard** (FX 6600 CR)

#### - **Utility**

Edit Satellite, Add Channel, Calendar, Game, Bio Rhythm, Timer Setup

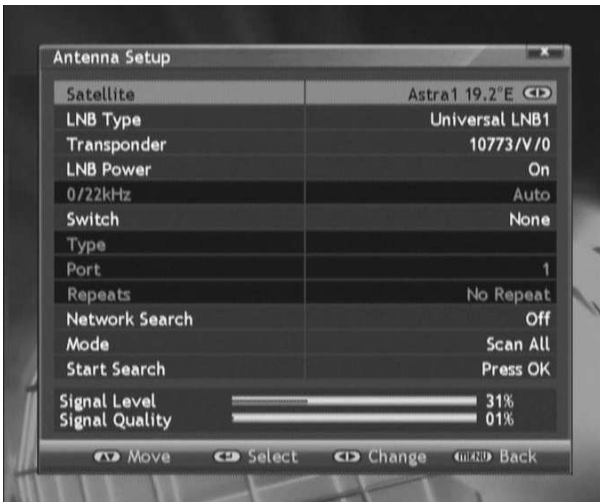
The detailed functions of 4 sub-Menus are described on the following pages

### 2. Installation

Press **Menu** button and select "Installation"

#### 2.1 Antenna Setup

Set up the antenna to get the proper signal and then, search the channels.



- **Satellite:** You can select a satellite which want to get the signal.

- **LNB Type:** You can select a LNB frequency among Universal LNB 1/2, CB and single, CB and Normal, Digitruk LNB, LNB 5750,9750 etc.

- **Transponder:** select the desired TP(transponder)

- **LNB power:** You can select LNB power ON or OFF.

- **0/22kHz:** You can select 22kHz ON or OFF.

- **Switch:** You can select the available switch mode according to your DiSEqC

- o **None:** No DiSEqC switch is used

- o **DiSEqC 1.0:** You can select one among DiSEqC A/B/C/D.

- o **DiSEqC 1.1:** You can select one among DiSEqC A/B/C/D.

- **Network Search:** If you select "On", it will search selected TP and other TPs belonging to the network. If "Off", it will search only the designated TP.

- **Mode:** If you select "Scan All", it will search all the channels (scrambled and FTA) on the selected satellite. If you select "Scan FTA", It will search only the FTA channels.

- **Start search:** Press **OK** button to start searching the channels, once the signal gets high sensitivity.

## 2.2 Auto Search

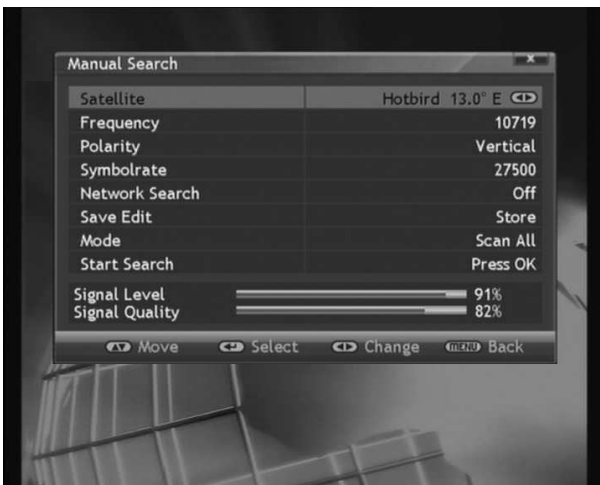


This function is used to automatic search channels on satellites, which has been selected. First select satellites you want to search by using ▲▼, and pressing **OK**. When done press **Green** to scan all channels or press **Yellow** to scan only FTA channels.



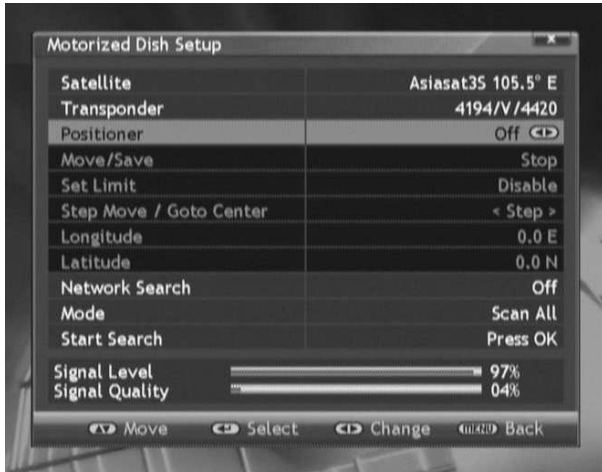
During search progress you will see progress bar and current search results for TV and Radio channels.

## 2.3 Manual Search



- **Satellite:** select a satellite which want to get the signal.
- **Transponder:** select the desired TP (transponder)
- **Polarity:** select desired polarity Vertical or Horizontal
- **Symbol rate:** enter proper symbol rate for TP
- **Network Search:** If you select "On", it will search selected TP and other TPs belonging to the network. If "Off", it will search only the designated TP.
- **Save Edit:** You can choose ◀▶ whether to
  - o *Store* – means add new TP, **OK** to confirm
  - o or to *Delete* – means to remove TP, **OK** to confirm
- **Mode:** You can choose to scan all or only FTA channels
- **Start Search:** Press **OK** to start search.

## 2.4 Motorized Dish Setup

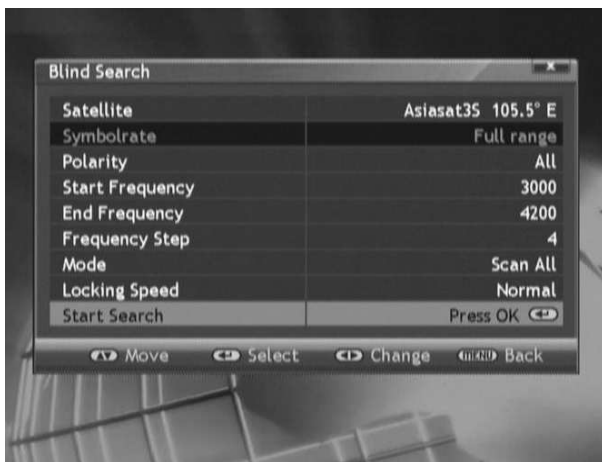


- **Satellite:** select a satellite which want to get the signal.
- **Transponder:** Select the desired TP (transponder)
- **Positioner:** Select "DiSEqC 1.2" or "USALS" for setting up the positioner.
- **Move/Save:** You can adjust antenna position to EAST to WEST by pressing ◀▶ buttons.
- **Set Limit:** You can set or clear the limits of antenna position with ◀▶ buttons press **OK** button to save / clear.
- **Step move/ Go to center:** If you press **OK** button, it will go to the center position of the positioner.
- **Longitude:** You can set the longitude of the present location in USALS menu.
- **Latitude:** You can set the latitude of the present

location in USALS menu.

- **Network Search:** If you select "On", it will search selected TP and other TPs belonging to the network. If "Off", it will search only the designated TP.
- **Mode:** If you select "Scan All", it will search all the channels (scrambled and FTA) on the selected satellite. If you select "Scan FTA", It will search only the FTA channels.
- **Start Search:** Press **OK** button to start searching on the channels.

## 2.5 Blind Scan



If you press **OK**, the Receiver will automatically search all the available symbol rate and frequencies for the selected satellite. This function will detect transponders on selected satellite and then search channels on those transponders.

## 2.6 Factory Reset



You can clear all the set up data values of the Receiver to the factory default condition.

- **Factory Reset:** It recovers all the setup data to the factory default stage.



**NOTE:** On selecting factory reset you will lose all of data and information, which was previously installed!

- **Delete All Channels:** It deletes all the currently searched channel data.
- **Channel Backup:** It press **OK**, it backs up the currently searched channel data.
- **Channel Recovery:** If press **OK**, you can choose

either to recover you channel list that was previously saved or one of default channel list. Choose and press **OK** to confirm.

### 3. System Setup

Press **MENU** button and select "System Setup" for the following sub menus.

#### 3.1 Language



You can select the desired language for Menu, Audio and Subtitle.

#### 3.2 TV Setup



You can setup the system for your TV.

- **Aspect Ratio:** You can select 16:9, 4:3, 4:3 Center or 4:3 Letter Box.
- **Video Output:** You can select RGB or CVBS.
- **SPDIF Output:** You can select digital optical audio output to be ON or OFF.
- **RF Type:** You can select PAL G, PAL I or PAL K.
- **RF Channel:** You can select RF modulator channel between Ch 21~69. The factory default channel is 21.

#### 3.3 Time Setup



You can setup the Local Time for this receiver.

- **GMT:** You can select ON or OFF.
  - o If you select GMT off, you can adjust the current Date/ Hour / Minute.
  - o If you select GMT On, you can adjust the Time Zone, Summer Time, Time Offset.
- **Time Zone:** You can select a city where you belong to.
- **Summer Time:** In case of summer time period, you may select ON.
- **Time Offset:** You may adjust the time by a minute.
- **Local Time:** Your local time is displayed here.

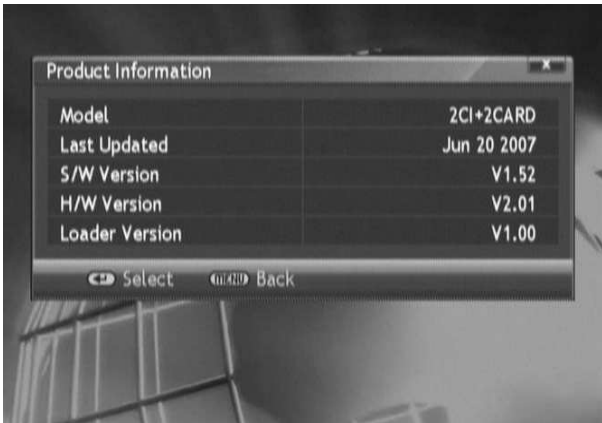
### 3.4 Lock



You can set up or change Password for Receiver and each Menu as follows.

- **Channel Lock:** You can select On, Off or Once for locking on the current channel. If you choose Once, it will not ask password again when you return to the channel again.
- **Installation Lock:** You can lock the Installation Menu by selecting On.
- **Receiver Lock:** You can lock the receiver by selecting On. You should put password first in order to enter the channel or menu.
- **Change PIN Code:** You can change the current password with new one. The initial PIN code is 0000.

### 3.5 Product information



It informs you the product's version and other information.

### 3.6 Others



- **Channel switch:** You can select the channel switching method among Auto, Direct or Delayed when you are watching small screen in the channel list.

*Delayed:* By pressing **OK** in the channel list mode, the current channel is shown on the small screen.

*Direct:* By changing the channels in the channel list mode, the small screen is also changed.

*Auto:* In the positioner mode, it is automatically changed to the Delayed mode.

In the normal procedure, the small screen is changed as Direct mode.

- **Channel Number:** You can select the Channel numbering mode between satellite and all

channels.

- **Channel Change Mode:** You can select the channel changing mode among Picture Freeze, Picture Hide or Fade In /Out.
- **Banner Timeout:** You can select the banner bar appearing time.
- **Network Search:** You can select On or Off.
- **Signal Curve:** You can select On or Off.
- **Signal Beep Sound:** You can select On or Off.
- **Transparency:** You can control the transparency of screen from 0% to 90%.

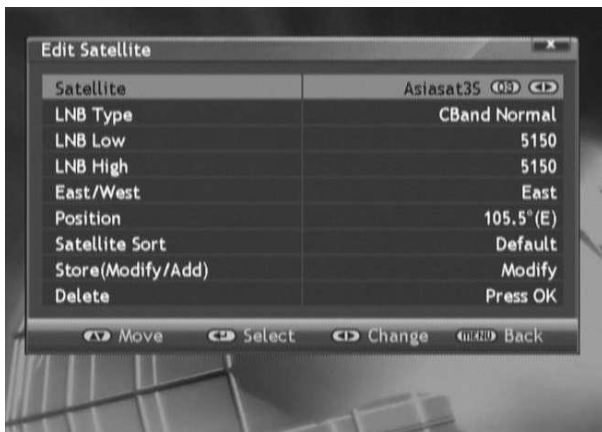
#### 4. Common Interface (FX 7600 UCI)/Smartcard (FX 6600 CR)



User can check CI slot or CARD information if applicable.

#### 5. Utility

##### 5.1 Edit Satellite

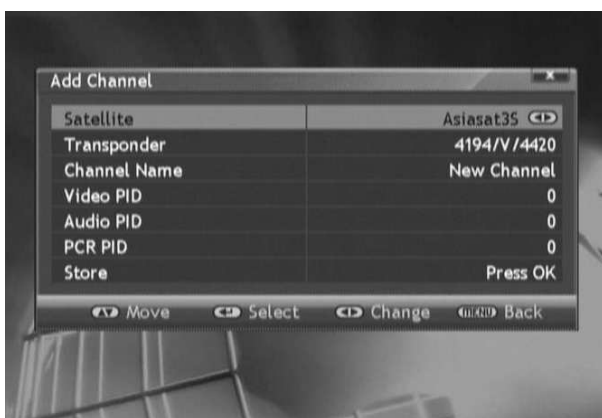


You can edit or delete the satellite information.

- **Satellite:** You can select a satellite to edit
- **LNB Type:** you can choose type of your LNB
- **LNB Low:** a range of low frequency
- **LNB High:** a range of high frequency
- **East/West:** You can select the angle and East or West of satellite position.
- **Position:** You can change position of Antenna
- **Satellite Sort:** You can sort the satellite name on the sat list by Default, Degree (SAT position), A to Z (Alphabetical).
- **Store(Modify/Add):** You can add or modify and save the new setting for satellite by pressing **OK** button.

- **Delete:** You can delete the selected satellite by pressing **OK** button.

##### 5.2 Add Channel



You can add channels by adjusting TP or PID.

- **Satellite:** You can select a satellite whose channel will be added.
- **Transponder:** You can select a TP whose channel will be added.
- **Channel Name:** It can be added by pressing the numeric buttons.
- **Video/Audio/PCR PID:** Each PID can be input by pressing the numeric button.
- **Store:** You can save the changed data by pressing **OK** button.



### 5.3 Calendar



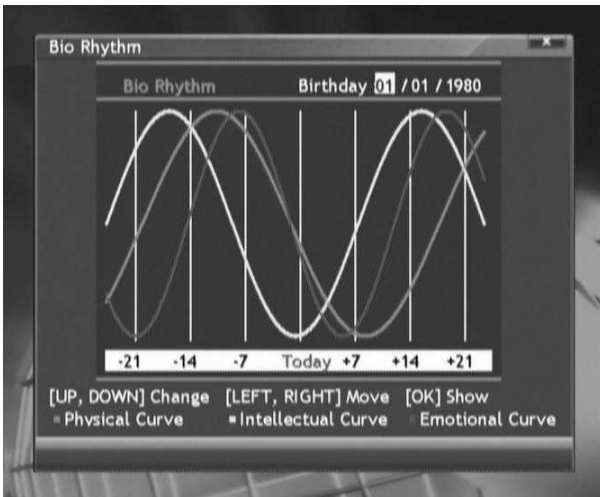
There is build in calendar.

- **RED** button: previous year
- **GREEN** button: next year
- **YELLOW** button: previous month
- **BLUE** button: next month

### 5.4 Game

There are build in games for your entertainment.

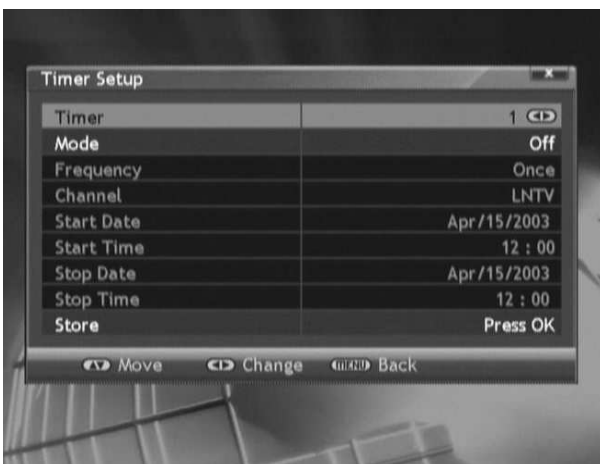
### 5.5 Bio Rhythm



It shows the Bio Rhythm by entering your birthday.

- The **Right, Left** buttons can change the year, month, and date.
- The **Up, Down** buttons can change the present condition data.
- By pressing **OK** button, you can show the Bio Rhythm.

### 5.6 Timer Setup



**Timer:** Choose number of timer you want to use.

**Mode:** Use **◀▶** to choose mode Wake up, Reminder, Sleep Timer, VCR or Off

**Frequency:** Use **◀▶** to choose frequency Once, Daily, Weekly or Everyday M-F

**Channel:** Use **◀▶** to choose channel or press **OK** to see channel list. On channel list you can use **▲▼** or numerical key to jump to requested channel.

**Start Date:** Press **OK** to choose start date from calendar.

**Start Time:** Use numerical key to enter start time.

**Stop Date:** Press **OK** to choose stop date from calendar.

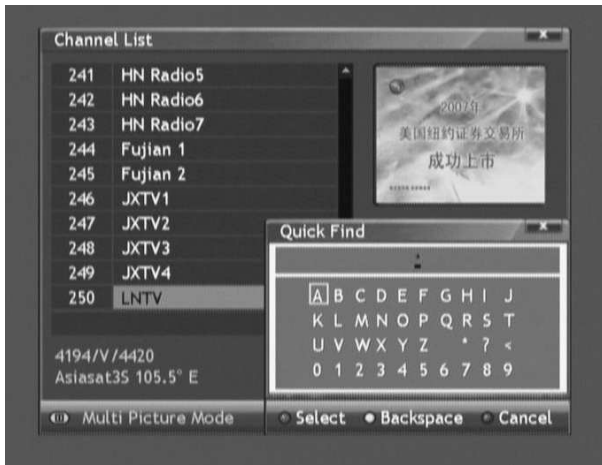
**Stop Time:** Use numerical key to enter stop time.

**Store:** Press **OK** to save.

## 6. Channel List

When you see any channels, press **OK** button and then channel's information will be shown via a small window.

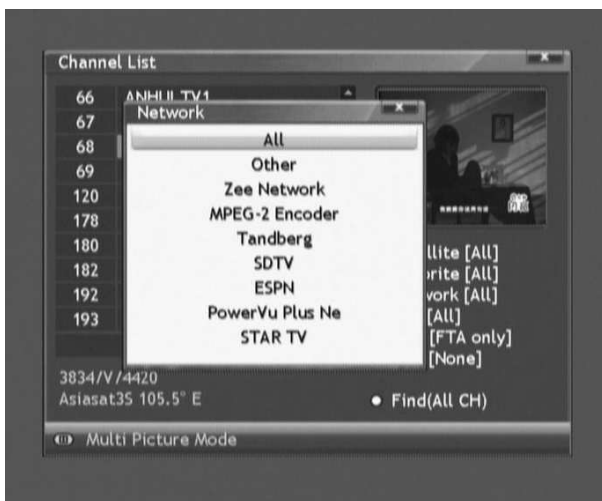
### 6.1 Quick Find (White button)



By pressing **White** button, you can enter to the Quick Find menu in which you can search the channels with the channel name.

You can access directly to this function by pressing **FIND** on remote control.

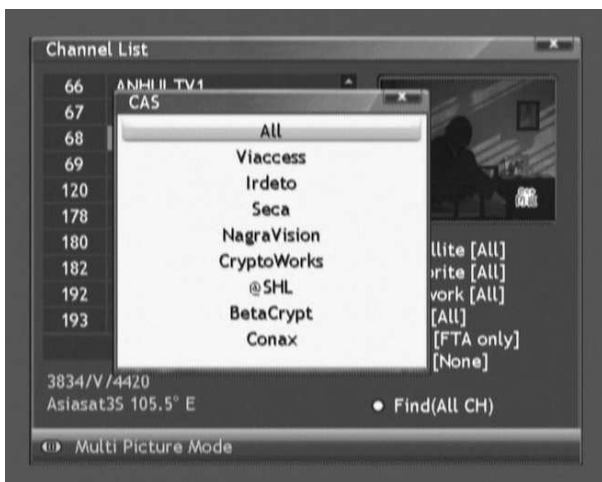
### 6.2 Network (Red button)



By pressing **Red** button, you can search the channels by network.

This option will succeed only if requested channels contain proper information about network.

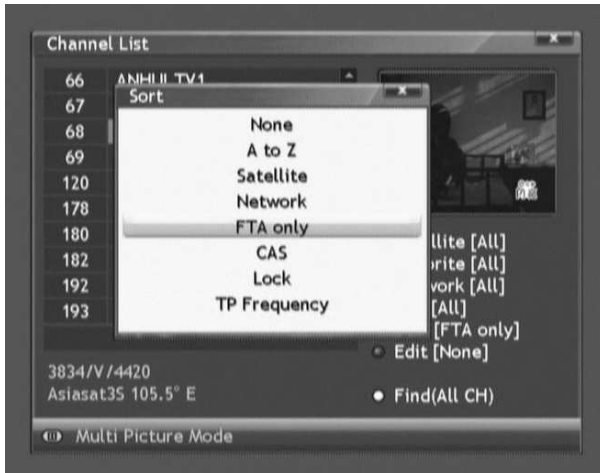
### 6.3 CAS (Green button)



By pressing **Green** button, you can search the channels by CAS.

This option will succeed only if you watched request channels at least one time.

## 6.4 Sort (Yellow button)

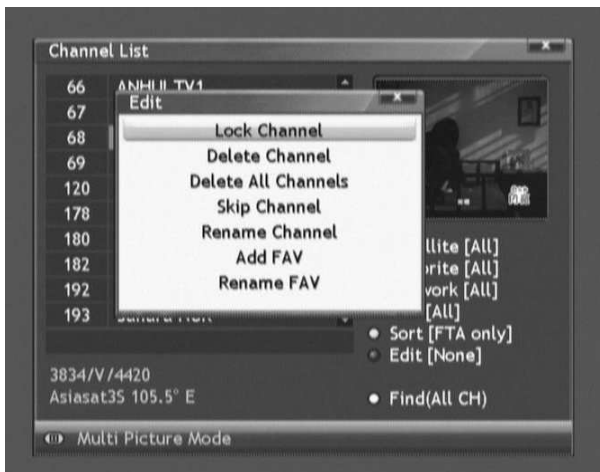


By pressing **Yellow** button, you can sort the channels as follows.

- **A to Z:** List up alphabetically
- **Satellite:** List up by the satellite list.
- **Network:** List up by the Network name.
- **FTA only:** List up by free to air channels.
- **CAS:** List up by scrambled channels and free channels.
- **Lock:** List up by un-locked and locked channels.
- **TP Frequency:** List up by frequency of transponder.

## 6.5 Edit (Blue button)

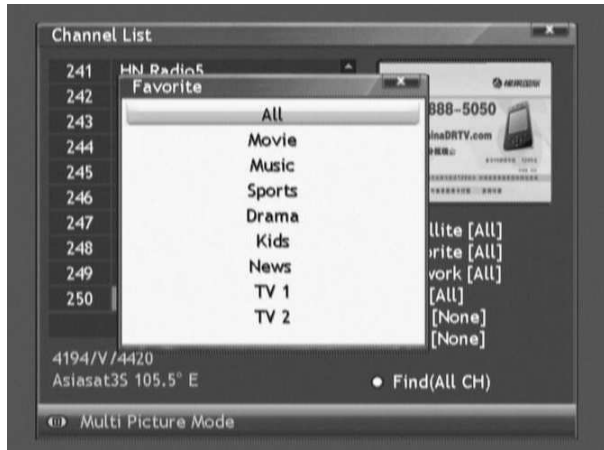
By pressing **Blue** button, you can edit the channels properly as follows.



- **Lock Channel:** Select ▲▼ the channels you want to lock by pressing **OK** and press **Blue** to save.
- **Delete Channel:** Select ▲▼ the channels you want to delete by pressing **OK** and press **Blue** to save.
- **Delete All Channels:** All channels on current view list will be deleted! Press **Blue** to confirm.
- **Skip Channel:** Select ▲▼ the channels you want to skip by pressing **OK** and press **Blue** to save.
- **Move Channel:** Select ▲▼ the channels you want to move by pressing **OK**. Next press **Blue** and move cursor ▲▼ to requested position. Then press **OK** to confirm.
- **Rename Channel:** Change the channel name by using alphabetic buttons.
- **Add FAV:** Enable you to add channels to favorite list as Movie, Music, Sports, Drama, Kids etc. Select ▲▼ favorite name and press **OK**. Next select ▲▼ the channels you want to add by pressing **OK** and press **Blue** to save.
- **Move FAV:** Make the channel move on the favorite list.
- **Rename FAV:** Enable to rename favorite list name.

## 7. Favorite List

How to make the favorite list while you are watching any channels.



- Press **OK** button and then channel name and small window will be displayed.
- Select Edit mode by pressing blue button and small menu displayed
- Select Add FAV and then choose one of favorite category among Movie, Music, Sports, Drama, etc.
- Put the channels to the selected favorite category

In order to bring up the favorite channels, while you are watching any channel,

- Press **FAV** button and then small window for favorite category will be displayed above info bar
- Select the category you want see and selected channels will be displayed

- Choose a channel which you want to watch
- You can change the channel in the selected favorite category.


In order to bring up the all the channels, while you are watching the favorite channel,

- Press **OK** button and channel list in the selected favorite category will be displayed
- Select Quick Find by pressing **White** button and all the channels will be displayed.

## 8. Multi Picture Function



This receiver has the function to show the several channels on the screen at the same time.




- Press  button and then you can select the multi picture screen from 4/9/13/16 pictures.

The channel name and small pictures will be displayed. Only one channel at the moment will be live, other will be represented by still pictures.

## 9. EPG (Electronic Program Guide)



You can check the information of the current channels by using **EPG** button if the channel has the EPG information such as story, time table, etc.

- *Current / Next*: By pressing **Red** button, you can see the current program schedule.
- *Extended*: By pressing **Green** button, you can see the detailed information as the program story the program's starting/ ending time and etc, if the channel has the EPG information.
- *Weekly Mode*: By pressing **White** button, you can see weekly mode window. Press **OK** and  to select day. Next   keys to select program. By pressing **OK** on selected program you can see extended info.

## 10. Direct Buttons



### RECALL

You can go to the previous channel which you have just watched.



### ZOOM

To see the specific part widely, press **ZOOM** button. The small green line square box is designating that the part is magnified.



### T/TEXT (Teletext)

If the channel has the Teletext information you can see Teletext Information.



### AUDIO

You can get the desired audio language by pressing **AUDIO** button and selecting the language. And you can select ◀▶ stereo / left / right audio mode.

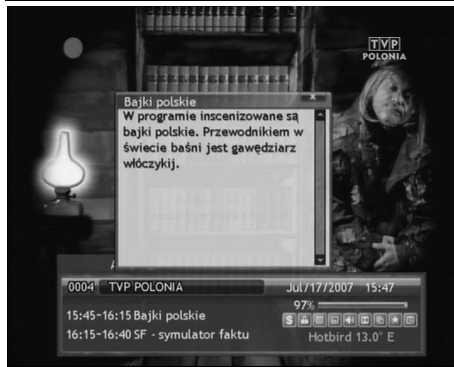


You can adjust audio offset by pressing **AUDIO** button twice for each channel independently.



## SUB. T

You can select the subtitle - if provided by channel.



## INFO

You can get the information about the current channel such as channel number, channel name, current time and etc.



*Scramble*: Showing if the channel is pay channel



*Lock*: Showing if the channel has been locked by user



*Teletext*: Showing when available Teletext



*Subtitle*: Showing when available Subtitle



*Audio*: Showing when available Multi Audio



*Dolby*: Showing when available 5.1Ch digital sound



*Multi Video*: Showing if the channel is NVOD, Multifeed



*Favorite*: Showing if the channel has been set as Favorite channel by user



*Timer*: Showing when Timer Setting ON



## SAT

If you press **SAT** button, you can see the satellite list what you installed. If you select one, the list will be shown for the channels of the selected satellite.



## F1 (MULTIFEED)

If there is multifeed data on channel, press **F1** button to see multifeed menu.

## SPECIFICATION

<b>Tuner</b>	
Input Connector	1x F Type
Output Connector	1x F Type 75 Ohm
Frequency Range	950 - 2150MHz
Input Impedance	750Ohm
Signal Level	-25dBm ~-65dBm
LNB Power & Polarization	Vertical +13.0V ~+14.0V Horizontal +18V ~+ 18,9V
22kHz Tone	Frequency 22kHz ±20% Amplitude 0.6Vp-p ±0.2Vp-p
Demodulation	QPSK
Symbol Rate	2-42Msps
FEC Decoder	Convolution Code Rate 1/2, 2/3, 3/4, 5/6 and 7/8 with Constraint Length K=7
<b>Memory</b>	
Flash	2 MB
SDRAM	8 MB
<b>MPEG Transport Stream A/V Decoding</b>	
Transport Stream	MPEG-2 ISO/IEC 13818 Transport Stream Specification
Profile & Level	MPEG-2 MP @ ML
Input Data Rate	15Mbit/s Max
Video Resolution	720x576(PAL), 720x480(NTSC)
Audio Decoding	MPEG-1 Audio Layer 1,2
Audio Mode	Stereo, Dual Channel, Joint Stereo, Mono
Sampling Rate	44,1kHz; 48kHz
<b>A/V &amp; Data In/Out</b>	
2x SCART	For TV, for recording device
Component Video Out	For plasma TV (RCA x3 YPbPr)
Digital Audio Out	Optical
Analog Audio Out	RCA x2 (stereo)
CVBS Video Out	RCA x1
Data Interface	RS232C, 115200Kbps, 9 Pin D-Sub male
<b>RF-Modulator</b>	
RF-Connect	75Ohm, IEC 169-2 Male/Female
Frequency	470 – 860 MHz
Output Channel	CH21-69
TV Standard	PAL-G, PAL-I, PAL-K
<b>Power Supply</b>	
Input Voltage	AC90 ~250V. 50/60Hz
Power Consumption	25W Max.
Protection	Separate Internal Fuse and Chassis Grounding. The Input shall have Lightning or Electric Shock Protection.
<b>Physical Specification</b>	
Size (WxHxD)	300mm x 60mm x 210mm
Weight	About 2.52kg
<b>Environment</b>	
Operation Temperature	±0°C ~ +50°C
Storage Temperature	-20°C ~ +65°C

## GLOSSARY

**CA - Conditional Access** - Encryption system used to secure content and grant access only to subscribers.

**CAM - conditional access module** - is an electronic device, usually incorporating a slot for a smart card, which equips a set-top box with the appropriate hardware facility to view conditional access content that has been encrypted using a conditional access system.

**CI - Common Interface** - is the slot on a digital television receiver into which a conditional access module (CAM) may be inserted for satellite television. A receiver with a common interface allows the user to access encrypted television broadcasts as opposed to free-to-air (FTA) channels.

**DVB-S** is the original Digital Video Broadcasting forward error coding and modulation standard for satellite television. DVB-S is used in both MCPC and SCPC modes for broadcast network feeds, as well as for direct broadcast satellite services. The transport stream delivered by DVB-S is mandated as MPEG-2.

**EPG - Electronic Programme Guide**, also known as an Interactive Programme Guide or IPG, provides an on screen guide to channel listings, programme information or pay per view events.

**FTA - Free-to-air** - broadcasts that are sent unencrypted and may be received via any suitable receiver.

**LNB - low-noise block converter** - is used in communications satellite (usually broadcast satellite) reception. The LNB is usually fixed on the satellite dish.

**MCPC - multiple channels per carrier** - several subcarriers are combined into a single bitstream before being modulated onto a carrier transmitted from a single location to one or more remote sites.

**Monoblock LNB** - is a unit consisting of two LNBs and is designed to receive satellites spaced close together.

**Pay-TV - Pay television** or **Premium Television** refers to subscription-based television services, provided digital cable or satellite, but also by digital terrestrial methods.

**SCPC - Single channel per carrier** - refers to using a single signal at a given frequency and bandwidth.

**STB - Set-top box** - Receiver device that processes an incoming signal from a satellite dish, aerial, cable, network or telephone line.

**TP - Transponder** - One of the transmitters on a satellite. A transponder transmits on a particular frequency to which a set-top box must tune to receive a signal. Typically each transponder can carry multiple compressed digital television channels.

**DiSEqC - (Digital Satellite Equipment Control)** is a communication protocol for use between a satellite receiver and a device such as a multi-dish switch or a small dish antenna rotor. It is compatible with the actuators used to rotate large C band dishes if used with a DiSEqC positioner.

**USALS - (Universal Satellites Automatic Location System)** - is a satellite motor protocol that automatically creates a list of available satellite positions in a motorised satellite dish setup. It is used in conjunction with the DiSEqC 1.2 protocol.