

TOPFIELD



The User's Manual

Digital Terrestrial Receiver Personal Video Recorder

TF5800PVR



Please read this User's Manual carefully.
The menu structure and specification can be changed without notice.

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WARNING

Please read the following recommended safety precautions carefully for your safety.

MAINS SUPPLY : 90-250V AC 50/60 Hz.

OVERLOADING : Do not overload wall outlets, extension cords or adapters as these can result in fire or electrical shock.

LIQUIDS : Keep liquids away from the PVR. The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

FLAME SOURCES : Do not place naked flame sources, such as lighted candles, on the PVR or near the PVR.

SMALL OBJECTS : Coins or other small objects must be kept away from the PVR as they can fall through the ventilation slots of the PVR and cause serious damage.

CLEANING : Disconnect the PVR from the wall socket before cleaning it. Use a dry cloth lightly dampened(no solvents) to clean the exterior of the PVR.

VENTILATION : Do not block the PVR's ventilation slots. Ensure that a free airflow is maintained around the PVR.

Never stand the PVR on soft furnishings or carpets. Do not use or store the PVR where it is exposed to direct sunlight or near a heater.

Never stack other electronic equipment on top of the PVR.

ATTACHMENTS : Do not use any attachments that are not recommended as these may cause hazards or damage the equipment.

CONNECTION TO THE AERIAL ANTENNA : Disconnect the PVR from the mains before connecting or disconnecting the cable from the antenna. Failure to do so can damage the antenna.

SERVICING : Do not attempt to service this product by yourself. Do not remove the cover. Refer all serving to qualified service agents.

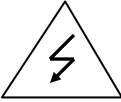



LIGHTNING : For protection we recommend that you connect the PVR via an external surge protection device. Disconnect the antenna cable from PVR during lightning storms.

WARNING

EARTHING : The antenna cable **must be earthed**.

LOCATION : Locate the PVR indoor place properly to prevent lightening, raining and direct sunlight. Do not allow the PVR to be exposed to hot, cold or humid conditions.

RESPONSIBILITY : Do not use the PVR and its contents for illegal purpose.
We are not responsible for any kind of illegal use.
Do not use the PVR to backup important data. It can be deleted.
We are not responsible for any kind of problems caused by TAP application programs.

	<div>CAUTION</div> <div>RISK ELECTRIC SHOCK DO NOT OPEN</div>	
 This symbol indicates "dangerous voltage" inside the product that presents a risk of electric shock or personal injury.	 This symbol indicates important instructions accompanying the product.	
CAUTION : TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.		
Warning		
Please do not insert metal or alien substance into the slots for the Modules and Cards. In doing so can cause damage to the PVR and reduce its life span.		

INTRODUCTION

INTRODUCTION

Thank you for purchasing the Personal Video Recorder (PVR).

This PVR is fully compliant with the international DVB standard and thus transmits digital images, sounds, information guides and teletext directly to your TV through the terrestrial broadcasting.

Now you can comfortably see and receive digitally transmitted music, news, movie and sports terrestrial broadcasts in your office or at your home. The PVR records and plays back terrestrial broadcasts. You can enjoy interesting games embedded in PVR.

In the Channel Search section, both the automatic channel search method and the manual search mode are provided. You can save up to 2000 TV and Radio channels and work around with the Favorite, Lock, Delete, Move and Sort functions.

The Menu is very modern and supports multiple languages. All functions can be carried out using the remote control and some of the functions can also be carried out using the front panel. The PVR is easy to use and adaptable for future advances. Please be aware that new software may change the functions of the PVR.

If you have any difficulties concerning the operation of your PVR, please refer to the relevant section of this manual, including the 'Troubleshooting'. This Manual will provide you with useful information on using the PVR.

CONTENTS

Please ensure that the following items are included with the PVR.

- 1) Remote control unit
- 2) Batteries (size AAA)
- 3) User's Guide (this document)
- 4) Loop through cable (to connect Tuner 1 and Tuner 2)
- 5) RF Cable
- 6) SCART Cable

FEATURES

FEATURES

- MPEG-2 Digital and fully DVB compliant
- MHEG engine supported
- 2 Common Interfaces for CONAX, CRYPTOWORKS, IRDETO, NAGRAVISION, SECA & VIACCESS
- 2 Tuners
- 2000 channels (TV and Radio) programmable
- Channel switching time less than 1 second
- Favorite channel list editing
- True-color On-Screen Display (OSD)
- Full Picture In Graphic (PIG) function
- Electronic Program Guide (EPG) for on screen channel information
- Subtitle supported
- Teletext supported by VBI insertion and software emulation
- Parental lock facility by channel and program event
- Program and Channel information transfer from receiver to receiver
- Exciting games embedded
- S/PDIF for digital audio or Dolby AC-3 bitstream output
- Recording capacity : 88 hours for 4Mbps stream with 160GB HDD
- Powerful trick mode supported
- Playback of the selected region repeatedly
- Dual Decoding(PIP)
- Dual Recording and Playback simultaneously
- Dual recording and Time-shifting simultaneously
- USB 2.0 supported for fast PC interface
- MP3 (MPEG-1 Layer 3) decoding

FRONT/ REAR PANELS

FRONT/ REAR PANELS

1) FRONT PANEL

- POWER

The power button of STB (ON / Stand by)

- LED

TV / STB

REMOTE

STAND BY

- DISPLAY

During the STANDBY mode, the current time is displayed.

When the power is ON, the current status is displayed (TV/ Radio/ Menu).

- CHANNEL

Change the channels

- VOLUME

Change audio volume level

- MENU

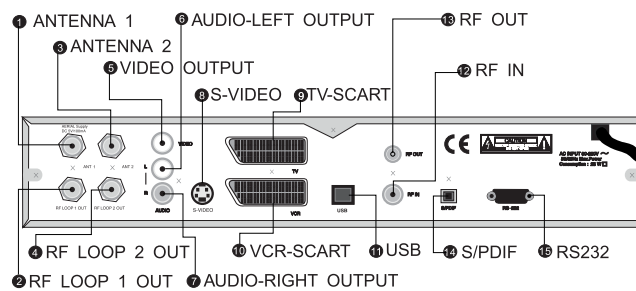
Display the Menu on screen.

- OK

Display channel List on screen.

Select an item in the menu.

2) REAR PANEL














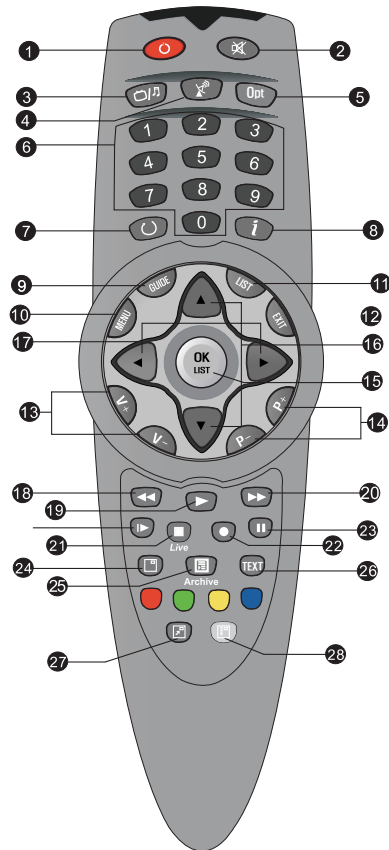
FRONT/ REAR PANELS

1. Antenna 1 IN
 - Connect the terrestrial antenna cable
- 2 RF Loopout 1
 - Use it to connect to another STB or Antenna 2 IN
- 3 Antenna 2 IN
 - Connect the terrestrial antenna cable or RF LOOP OUT 1
- 4 RF Loopout 2
 - Use it to connect to another STB or RF IN of RF modulator
- 5 VIDEO OUTPUT
 - Video output. (YELLOW)
- 6 AUDIO-LEFT OUTPUT
 - Audio output. (WHITE)
- 7 AUDIO-RIGHT OUTPUT
 - Audio output. (RED)
- 8 S-VIDEO
 - S-Video output. Connect the S-Video input of your TV.
- 9 TV SCART
 - Connect the TV SCART
- 10 VCR SCART
 - Connect the VCR SCART
11. USB port
 - Connect USB port of PC
- 12 RF IN
 - Connect the TV antenna or RF LOOP OUT 2
- 13 RF OUT
 - Connect the TV RF IN
- 14 S/PDIF
 - Optical output for Digital Audio
- 15 RS232
 - Upgrade the PVR Program & software











REMOTE CONTROL UNIT(RCU)

REMOTE CONTROL UNIT(RCU)

1. POWER Button ()
 - Switch the PVR between Operation and Standby mode.
2. MUTE Button ()
 - Enable / Disable the Audio.
3. TV/ Radio Button ()
 - Select the TV/Radio mode.
4. TV/STB Button ()
 - Change the terrestrial TV and STB mode.
5. Option Button ()
 - Display Fav List/Sound/Subtitle/Teletext Track modes
6. Numeric Buttons ()
 - Select the TV or Radio service channels and menu options.
7. RECALL Button ()
 - Select the previously viewed channel.
8. INFO Button ()
 - Display the program information box on the Screen and remove it.
 - Display the extended event information when the information box is displayed.
9. GUIDE Button ()
 - Display the EPG on screen when available.
 - Remove EPG when EPG is displayed.
10. MENU Button ()
 - Display the Menu on screen or return to previous menu from submenu.
11. LIST Buttons ()
 - Display Channel List on screen.



REMOTE CONTROL UNIT(RCU)

- 12 EXIT Button ()
 - Return to the previous menu and the screen.
- 13 V+/V- Buttons ( )
 - Adjust the volume (Increase / Decrease).
- 14 P+/P- Buttons ( )
 - Service up or down through the available service.
- 15 OK Button ()
 - Display Channel List on screen.
 - Select an item in the menu.
- 16 ▲/▼ Buttons ( )
 - Service up or down through the available services.
 - Move the selection bar in Menu.
- 17 ◀/▶ Buttons ( )
 - Adjust the volume (Decrease / Increase).
 - Change the value of the selected item in Menu.
- 18 ⏮ Button
 - Fast rewind when the progress bar is displayed.
 - Start reverse playback.
 - Change the speed of reverse playback.
- 19 ⏮ Button
 - Display the progress bar of time shifting or playback when no progress bar is displayed.
 - Start playback with normal speed.
 - Return to normal speed from trick mode.
- 20 ⏭ Button
 - Start fast forward or fast motion playback.
 - Change the speed of forward playback.
- 21 ⏸ Button
 - Stop time shifting, playback or recording.
- 22 ⏻ Button
 - Start recording.
- 23 ⏸ Button
 - Pause the playback and live picture.
- 24 ⏻ Button

REMOTE CONTROL UNIT(RCU)

- Move the position of Sub-picture at the PIP by clockwise.

25  Button

- Display file list. (Recorded service list, MP3 file list, Application file list)

26 TEXT Button ()

- Enable the digital teletext about interactive services.

27.  Button

- Exchange main-picture with sub-picture at the PIP.

28  Button

- Select the period for repeated playback or cutout.
- Display the channel list of Sub-picture.

*  Button

- Change 4:3 Center Extract -> 4:3 Center box -> 16:9 Full screen.

*     Buttons

The above buttons are used for Interactive Services . So, the function in each OSD Screen can be referred in each instruction message in help window.

INSTALLATION (Connection)

INSTALLATION (Connection)

First, connect both the aerial antenna and the TV to the PVR.

There are some of the most common ways to connect the equipment in this manual.

There are several ways of connecting the PVR to the existing Audio/TV system.

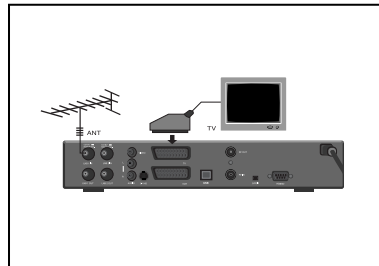
We recommend one of the following setup.

If you have problems with your connections and need help, contact your dealer or service provider.

Connection to TV, VCR and Hi-Fi

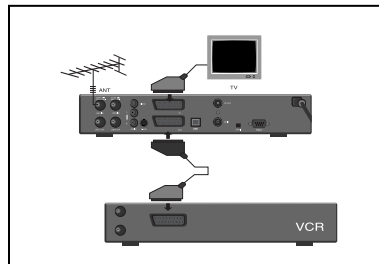
1) Connection to the TV with the SCART Cable.

Connect one end of the SCART cable to the TV SCART socket on the PVR and the other end to a SCART socket on the TV.



2) Connection to the VCR with a SCART Cable.

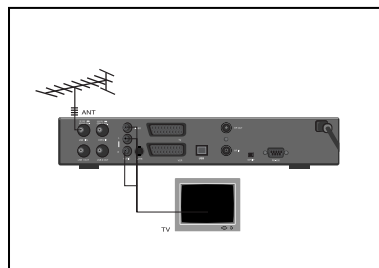
Connect one end of the SCART cable to the VCR SCART socket on the PVR and the other end to a SCART socket on the VCR.



3) Connection to the TV with the CINCH Cable.

Connect one end (3 connectors) of the CINCH cable to the AUDIO-RIGHT (red), AUDIO-LEFT (white) and the VIDEO output (yellow) socket on the PVR.

Connect the other end (3 connectors) to the AUDIO-RIGHT (red), AUDIO-LEFT (white) and the VIDEO input (yellow) socket on the TV or Hi-Fi.



INSTALLATION (Connection)

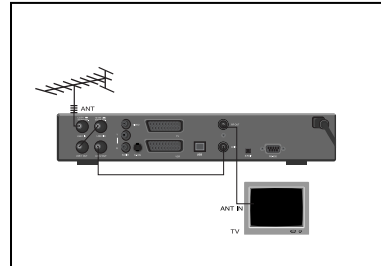
4) Connection to the TV using the RF cable.

Connect an aerial antenna or RF Loopout2 to RF IN socket on the PVR.

Connect one end of the RF cable to the RF OUT socket on the PVR.

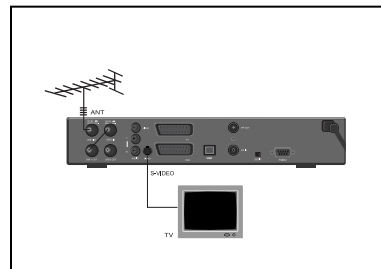
Connect the other end to the ANT IN socket on the TV.

* The output signal from RF Loopout2 can be weak because the signal is decreased in the tuners. If the signal is too weak, use aerial antenna instead of RF Loopout2.



5) Connection to the TV using the S-VIDEO.

Connect one end of the S-VIDEO cable to the S-VIDEO socket on the PVR and the other end to a S-VIDEO socket on the TV.

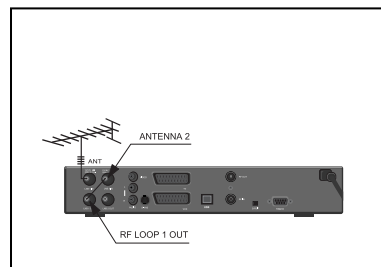


Connection to the Antenna.

Connect the aerial antenna cable to the Antenna In1 and connect the RF Loopout1 to Antenna In2.



* The signal from antenna can become weak at second tuner if connected from RF Loopout1 to Antenna In2.

Separate antennas for each tuner are recommended if the signal level of cascaded tuner is too weak.








GETTING STARTED

GETTING STARTED

Press the Power() button to operate the PVR from the STANDBY mode. Now, the Info Box will appear for a given time and disappear. By pressing  button, the Info Box will remain on the screen. The display time of the Info Box is adjustable in the **System Setting** menu of the **Main** menu.

IMPORTANT: Before taking charge of your new PVR, some important technical settings are essential.

- First, press the **MENU** () button on the RCU to make the Main Menu appear.
 - Go to the **Installation** item and press button.
 - Then, press  button at **Channel Search** item and go to the **Channel Search** menu.
 - Set the **Search Mode** to the **Auto**. (**Manual** or **advanced**)
 - Select the **Antenna Supply 5V** to **On** or **Off** according to your antenna.
 - Select the **Start Search...** item and press  button.
 - The search procedure will take a while. Press  button when the searching process is finished to confirm and save the new channel list.
 - For further information, please refer to the MENU OPERATIONS in this manual.
-
- Please press  button to apply MHEG application


MENU OPERATIONS

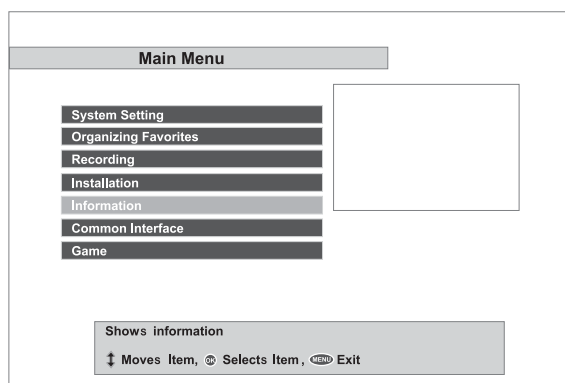
MENU OPERATIONS

Now this chapter assumes that the PVR system has been installed correctly, meaning:

- The aerial antenna for the PVR has been installed, connected to the PVR.
- The PVR is connected to the TV.
- The RCU has batteries and ready to control the PVR.

If the PVR has not been installed or connected properly, please refer to the **INSTALLATION** menu on this manual.

Many of the functions of the PVR are available from the **Main Menu**. Press  button to open it.



MENU OPERATIONS

System Setting

System Setting	
Time Setting	
Timer Setting	
Parental Control	
Language Setting	
A/V Output Setting	
OSD Transparency	5%
Info Box Display Time	5 Sec
Info Box Position	+0 line
Time Shifting	Enable

Adjusts the local time.

↑ Moves Item ◀ Selects Item ▶ Previous Menu ▶ Exit

Time Setting

The exact local current time can be adjusted by using the **GMT**, the **Time Offset** and the **Mode** sub menus.



Time Setting	
Mode	↔ Auto
Local Time	01/01/03 AM 12:00
GMT	
Time Offset	00:00

Changes the time setting mode.
In order to change the local time, set it to manual mode.



↑ Moves Item, ↔ Select Item, ▶ Previous Menu

MENU OPERATIONS

A. Mode

By using ,  buttons, you can select one of the **Auto/Manual** modes. The **Auto** mode updates the time settings automatically by the GMT received from the broadcast and the **Time Offset** you have inserted. The **Auto** mode is recommended.



B. Local Time

The Local Time is adjustable only when the Mode is in the **Manual** mode. Adjust the current time, if necessary, by using the numeric buttons and ,  buttons.

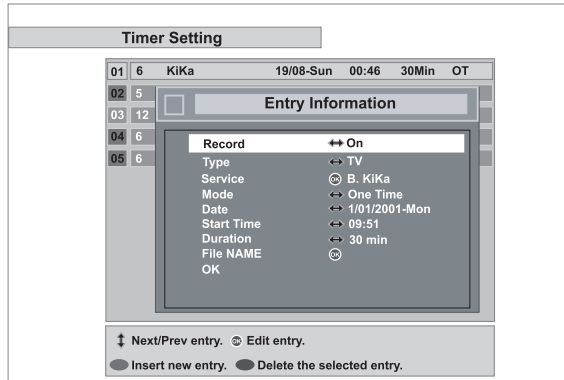
C. GMT

GMT is referred to the standard time of Greenwich. It cannot be changed.

D. Time Offset

The current time of the local area can be inserted. In another words, insert the time difference of the local time zone from the GMT. For example, if the local area is Seoul (the time difference from the GMT is 9), insert 9:00. The time is adjustable by using ,  buttons, 15 minutes at a time.

Timer Setting



Timer Setting

01	6	KikA	19/08-Sun	00:46	30Min	OT
02	5					
03	12					
04	6					
05	6					

Entry Information

Record ☒ On

Type ☒ TV

Service ☒ B. KikA

Mode ☒ One Time

Date ☒ 1/01/2001-Mon



Start Time ☒ 09:51

Duration ☒ 30 min

File NAME ☒

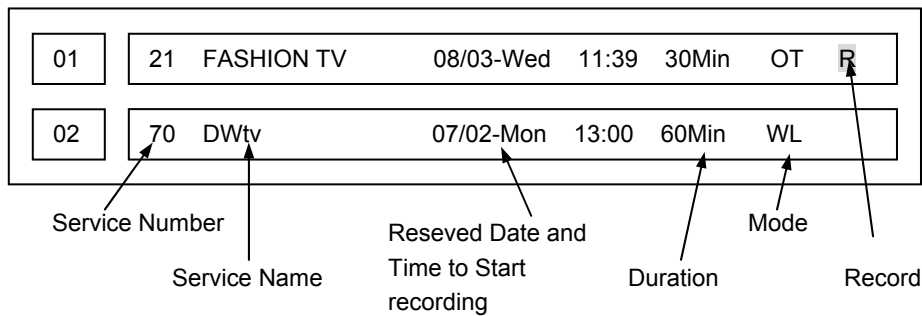
OK

↑ Next/Prev entry. ⌂ Edit entry.
















 Insert new entry.  Delete the selected entry.

MENU OPERATIONS

To insert new entry of **Timer Setting**, press  (Red) Button. Press  button to edit the entry, and press  (Green) button to delete the selected entry. There are **Record ON** and **OFF** modes in **Timer Setting**.



A. Record ON : This function is used for the delayed recording to the HDD of PVR.

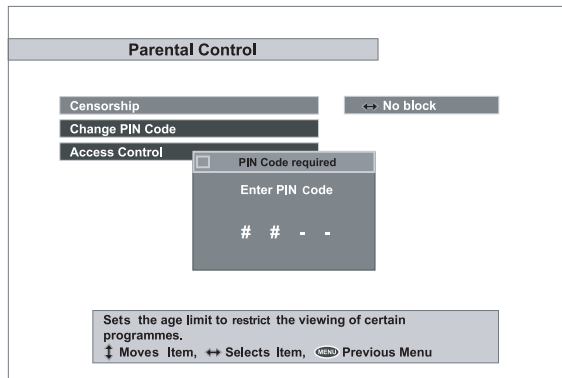
- **Type** : Select TV or Radio by pressing ,  button.
- **Service** : Select the service to be reserved for recording by pressing .
- **Mode** : By using ,  buttons, select one among **One Time**, **Everyday**, **Every Weekend**, **Weekly**, and **Every Weekday**.
- **Date** : Select the recording start date by pressing ,  buttons.
- **Start Time** : Select the recording start time. ,  buttons and  -  buttons are available.
- **Duration** : Select the recording duration by pressing ,  buttons.
- **File Name** : To change file name as you want, press  button. The keyboard will appear.
- **OK** : To confirm the setting for the reserved recording, press  button.

B. Record OFF: It is a useful function for reserved recording to a VCR or for wakeup function like VCR Timer. If the **Record** item is set to **Off**, the PVR wake up and play it by the reserved conditions, but does not record it to the HDD of PVR.

For details, refer to the explanation of **Record ON**.

MENU OPERATIONS

Parental Control



Password to various menus can be configured. The PIN Code box will automatically appear when this menu is selected. The default PIN Code is **0000**.

A. Censorship

The **Censorship** item blocks programs according to each specific setting.

Use , buttons to select the items below.

No Block : Access to everyone.

Total Block : Access to no one without PIN code.

If the channel is limitation free, the block function will not work.

4~18(age): Inaccessible for viewers within each minimum age limit if a maturing rating of the event is same or lower than the age limit.

In case of inaccessible, the STB asks the PIN Code and check the age limit.

B. Change PIN Code

Go to the **Change PIN Code** item to configure new PIN Code. Press button, then a box will appear on the screen. Enter the PIN code by using the numeric buttons on your RCU.

C. Access Control

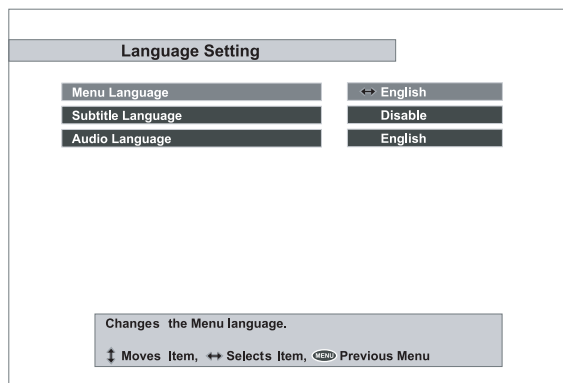
The **Access Control** menu controls access to following items: **Time Setting**, **Language Setting**, **A/V Output Setting**, **Organizing Channels**, **Organizing Favorites**, **Installation** and **IRD Lock**. Press , buttons to **Locked/Unlocked** the access.

MENU OPERATIONS

Locked means controlling the access to the specific menus with the PIN Code system. The default PIN Code is **0000**.

Language Setting

There are many languages available for the menu.



A. Menu Language

It is an item for changing the language of the Main menu.

Select the language that the menus will be shown in.

* The supported language can be changed without any notice.

B. Subtitle Language

It is an item for changing the language of the subtitle. As long as the services support it, the subtitle language is changeable by pressing **Opt** button on your RCU and select **Subtitle Track** menu.

* The supported language can be changed without any notice.

Caution : To activate interactive service, language must be set to Disable in the Subtitle Language item.

C. Audio Language

It is an item for changing the language of the Audio.

If more than one audio language is transmitted, select the language that the audio will be supported in.

* The supported language can be changed without any notice.

MENU OPERATIONS

A/V Output Setting

The PVR has many A/V Outputs. Control this menu properly according to external components connected to the PVR. Configurations concerning Audio and Video can be made here.


A. TV Type

Select your TV standard. For automatic **PAL/NTSC** selection, set it to **Multi**.



B. Video Output

Select the mode of Video output among **RGB**, **S-Video**, **YUV** and **CVBS** on TV SCART by using ,  buttons.



C. VCR SCART Type

Select the VCR SCART type either **Standard** or **External A/V**. In case of **External A/V**, the source of TV SCART Output will be selected between VCR SCART input and internal AV by pressing  button on the RCU. In case of **Standard**, it will be done automatically by the SCART functionality.




D. TV Aspect Ratio

Select your TV screen format. Select **4:3** or **16:9** mode by using ,  buttons.



E. 16:9 Display Format

If you have a TV set with the 4:3 picture format and transmission is in 16:9, you can select the display format. Select the **Letter Box** or **Center Extract** by using ,  buttons.

F. Sound Mode

It allows you to configure the sound mode. Select the **Stereo**, **Mono**, **Left** and **Right** mode by using ,  buttons. The Sound mode is configurable later on by pressing  button on your RCU and select **Sound Track** on the window.

G. RF Type

When the PVR is connected to the TV by an RF cable, you may need to select the correct TV standard system. Select the **PAL G**, **PAL I**, **PAL K**, **NTSC-M** mode by using ,  buttons.

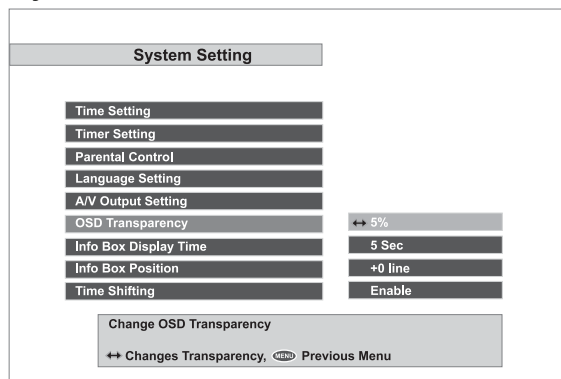
MENU OPERATIONS

H. RF Channel

Select a RF channel by using  ,  buttons. The default RF channel is CH36.

When you change the RF channel number, you must also change to the same value on the TV. If you do not, there will be no picture and sound.

OSD Transparency





Adjust the OSD transparency of all the menus. The available levels are ranging from **0%** to **50%**.

Info Box Display Time

Adjust the time-out of the Info Box. Set the period of time that the Info Box is displayed on screen. The adjustable time is **0** to **30** seconds, **No info box** and **Never Hide**.

Info Box Position

Adjust the position of the Info Box. It allows you to change the position by using  ,  buttons.

Time Shifting

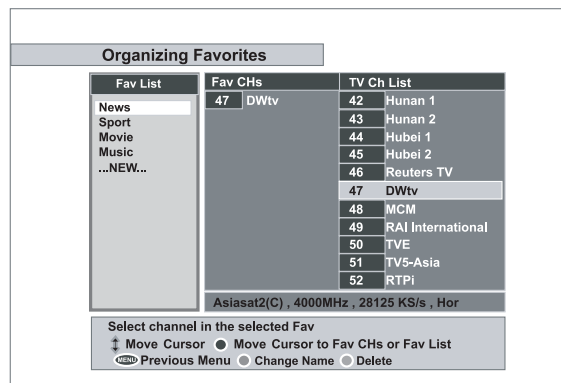
To enable the time shifting function, select **Enable**.

If the Time Shifting is enabled, the PVR records the current channel in live. And, you can take advantage of the time shifting function.

MENU OPERATIONS

To disable time shifting function, select **Disable**. If you don't want to use time shifting function or reduce the power consumption, let the time shifting disable .



Organizing Favorites



This mode is helpful in adding and deleting services to and from the favorite group. Under the menu **Organizing Favorites**, there are three different modes:

Fav List , **Fav CHs** and **TV** or **Radio Ch List**.

On the **Fav List** mode, four standard lists are selected as the default menus: **News**, **Sports**, **Movie** and **Music**. Up to 30 lists including these lists can be added and renamed. When deleting a service, select a service in the **Fav CHs** section and press the assigned button on the help message.

To add services into **Favorites**, locate the cursor to the desired service in **Ch List** and press  button. To delete a service from **Favorites**, locate the cursor to the service in **Fav CHs** and press  button.

MENU OPERATIONS

Recording

Recording	
Record NO.	1
Service	53 sat
Start Time	↔ Quick
Duration	2 Hour 0 Min
File Name	sat-1
Record Start	
Stop	
Timer Setting	

No recording
18706 MB Free

Select the record mode.
↓ Moves Item, ↔ Selects Item, [Exit] Exit

To record the service you want, you have to set the following options. You can record the service immediately. To reserve a recording, you have to use **Timer Setting** function in System Setting at Main menu. You can go to the **Timer Setting** menu directly by selecting **Timer Setting** item in this menu, too.

A. Record NO.

Two services can be recorded simultaneously. You can distinguish between the two records by this Recording NO. Press , button to select **Record NO.1** or **2**.

B. Service

Press button to display the service list. Select a channel to be recorded.

C. Start Time

There are two recording modes.

To record the selected service immediately, select the **Quick** mode.


To record current event including the data in the time shifting buffer, select **Current Event** mode. The **Current Event** mode is valid only when the event information of the channel exists.

D. Duration

To change the duration of the recording time, press or button.

MENU OPERATIONS


E. File Name

To change the file name of the service to be recorded, press  button at this item. You can change the file name by keyboard on screen.


F. Start

To start recording immediately, press  button at this item. For reservation you may use **Timer Setting** in **System Setting** menu.

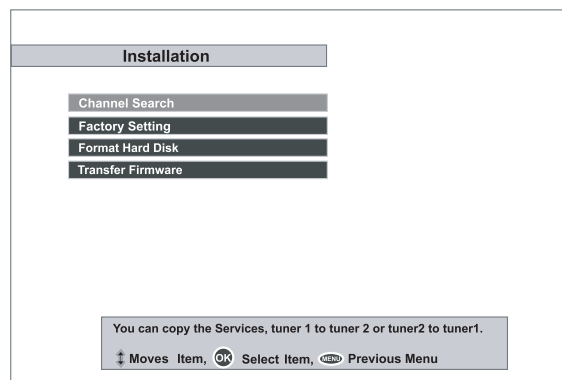
G. Stop

To stop recording immediately, press  button at this item.

H. Timer Setting

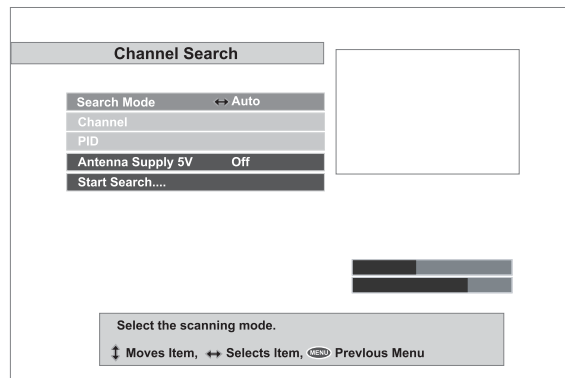
Press  button at this item to go to the **Timer Setting** menu directly.

Installation



MENU OPERATIONS

Channel Search



A. Search Mode

There are 3 search modes, **Auto**, **Manual** and **Advanced**. The **Auto** mode enables you to search all the services you can receive. The **Manual** mode enables you to search the services in the channel you want. On the **Advanced** mode, you can search the service by setting the **Audio PID**, **Video PID** or the **PCR PID**.

B. Channel

The available Channels are VHF 5~12 & UHF 21~69, which is based on the European specification. The Channel item is valid on **Manual** mode and **Advanced** mode

C. PID

This item is valid when the Search Mode is set to **Advanced** only.

Press  button to enter Video, Audio and PCR PID's.

1) Video PID

Insert the Video PID by using the numeric buttons on your RCU.


2) Audio PID

Insert the Audio PID by using the numeric buttons on your RCU.

3) PCR PID

Insert the PCR PID by using the numeric buttons on your RCU.

4) SAVE


To ensure the above Video, Audio and PCR PID change, press  button at this item.



MENU OPERATIONS


D. Antenna Supply 5V

When using an active antenna, it should be set to **On** to supply power to the Amplifier of the Antenna. (5V/max 100mA)

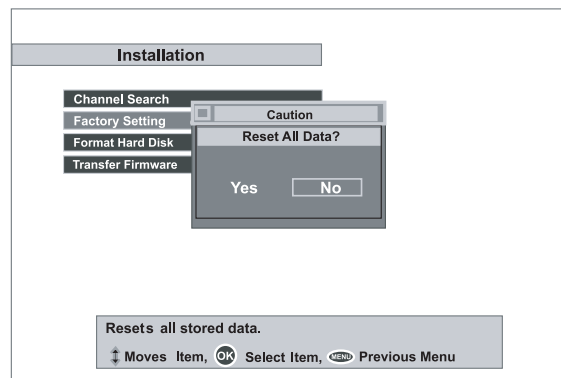
E. Start Search...

To start the searching process, press  button at this item.

To stop the searching process on the way, press either the  button or the  button. This menu will be shown as long as the PVR is searching for channels. All channels found will be listed in two columns on the screen with TV channels in one column and Radio channels in the other. Please note that the search procedure may take a few minutes.


When the search procedure is completed, the screen will show how many TV and Radio channels have been found. Press  button to save the channels.

Factory Setting



All the stored data can be reset just like it was manufactured.

Format Hard Disk

To format the HDD in PVR, Press  button at this Item.

Formatting Hard Disk will delete all the data and the files recorded in HDD permanently. If a new HDD is installed, it should be formatted because the file structure of PVR is different from others.

MENU OPERATIONS

You can not use the Time shifting, Recording and playback functions with an unformatted HDD.

Transfer Firmware

A. Transfer Program to Other IRD

It is used to transfer PVR firmware to other PVR for upgrading the PVR.

Notes: Please proceed this menu with connecting the PVR of same model and same specification.

B. Transfer Data to Other IRD

It is used to transfer PVR Data such as service information to other PVR for upgrading the PVR.

Notes: Please proceed this menu with connecting the PVR of same model and same specification.

Information

You can check the IRD(PVR) version and refer the calendar.





IRD Status

IRD Status	
System ID	---
Loader Version	----
Device Version	-----
Application Version	-----
Last Update	-----
Location	-----

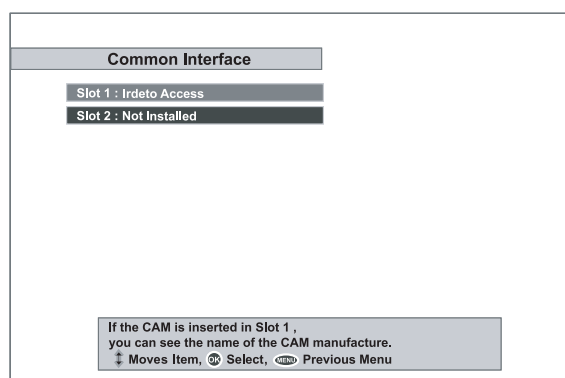
Check the PVR's system information here. It shows the System ID, Loader Version, Device Version, Application Version and Last Update.

MENU OPERATIONS

Calendar

Press  or  button to select the year. Press  or  button to select the month.

Common Interface



The menu differs according to each inserted CAM. If the module has not been installed yet, the phrase **Not Installed** will be indicated.

Game

ExBlock

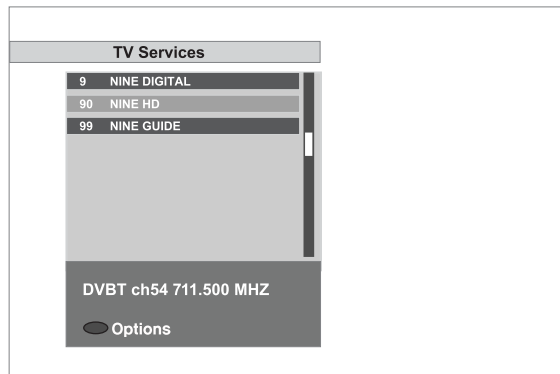
Bomb Hexa

Bug Man





FUNCTION GUIDE

FUNCTION GUIDE

Channel List




Press  button to see the Channel List. The Channel List displays as follows.

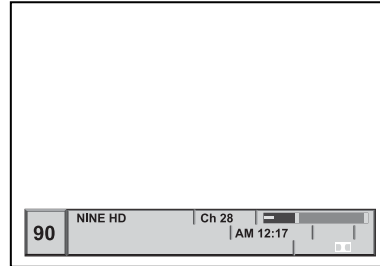
- Service provider.
- Scrambled Mark by \$.
-  (Red) button: Display the options. You can use this options by pressing ,  or  button.
 - **Show Provider** : Displays the channels by service provider.
 - **Sorting** : Selects among **Default**, **Alphabetic**, **FTA~CAS**, **CAS~FTA**, **Provider** and **Fav~NO Fav**.
 - **Rename** : Renames the marked channel.
 - **Lock** : Makes the marked channel **Unlocked** or **Locked**.
 - **Delete** : Deletes the marked channel.
 - **Add to FAV** : Adds the marked channel to the FAV List

FUNCTION GUIDE

Information Box

Press  button on the RCU to see the program information. The Information box displays as follows:

- . Channel Number
- . Channel Name
- . Detailed Program Information
- . Signal Level and Quality
- . Tuner Information
- . Information of subtitle and / or teletext
- . Parental Lock






You can hide the Information Box by pressing  button.


A. Live picture

Service Number	Service Name	Freq / BW	Signal Strength	
	Event Name	Time Information	CAS, Dolby Subtitle, Teletext	Parental Lock Mark
	Event Description	Start Time ~ End Time		

You can see the Current/Next event by pressing   button in the information box.


To control the volume in the information box, you have to press   button two times without interval. You can see extended information of the event by pressing  button once more.

B. Playback


	File Name	Freq / BW	Progress Bar	
	Event Name	Time Information	CAS, Dolby Subtitle, Teletext	
	Event Description	Duration		

FUNCTION GUIDE

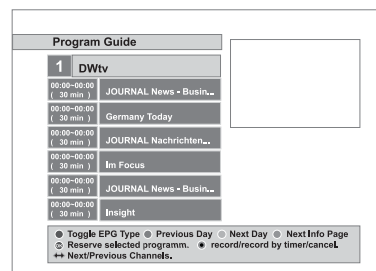
C. MP3



	Title	Bitrate	Progress Bar	
	Artist	Time Information		
	Album	Duration		



EPG (Electronic Program Guide)

To display the information about currently being broadcasted as well as those that will be broadcasted next, press  button on the remote control unit.


If EPG is available on programs, you will see the detailed description of the programs, start/end time and programs schedules etc.




  buttons will be used to move program and to see next program schedules.

  buttons will be used to switch the channel.



 button makes the reservation for the next program.

 button shows extended information of the event.

 button will change the contents of EPG between TV and Radio services.


 button switches the EPG from Single Service to Multi Service and in opposition.

Subtitle

You can choose a language of subtitle in the **Subtitle Track** by using  button on the RCU. If the broadcaster provides subtitles, you can see  symbol in the Information Box.

Caution : To activate interactive service, language must be set to **Disable**.

Teletext

If the broadcaster supports teletext, you can see  symbol in the Information Box. There are VBI insertion mode and software emulation mode in teletext. In the VBI insertion mode, which is always on, you can watch the teletext with your TV using the

FUNCTION GUIDE

RCU of your TV. To watch teletext with VBI insertion, your TV must support teletext. In the software emulation mode, you can watch the teletext even though your TV does not support teletext. You can watch the teletext using the RCU of PVR.

Press **Opt** button and select **Teletext Track** to watch the teletext with software emulation mode.

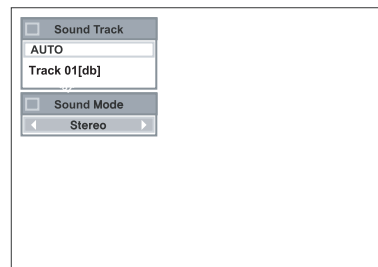
Press **EXIT** (**EXIT**) button to escape from teletext.

Sound Track


You can choose a language of soundtrack by pressing **Opt** button and selecting **Sound Track** when a broadcaster supports various languages of soundtrack.

Also, it is possible to choose a mode among Stereo, Mono, Left and Right using **V-** , **V+** buttons. **Opt** button is used for multifeed function, too. If the multifeed is available in current service,

Multifeed Track will be displayed first. You can change the display to Options selection menu by pressing **Opt** button once more.

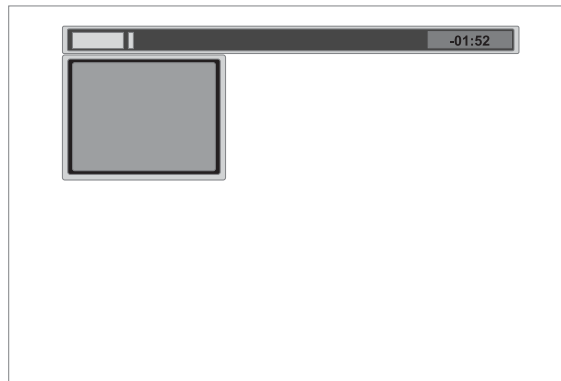


Multifeed

If multifeed is available in the channel, Multifeed Icon () will appear at the right side of the Information box. If available, the Multifeed Track and Options are toggled by **Opt** button. It is possible to choose one of the multifeed channel.











FUNCTION GUIDE

Time Shifting



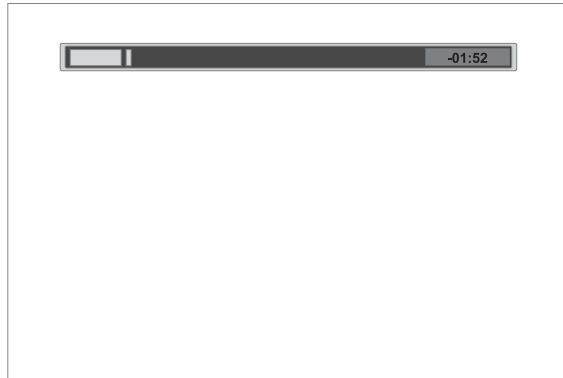
1. To use **Time Shifting** function, the **Time Shifting** option should be enabled.
To find the Time Shifting option menu, follow the steps below.









Main Menu → System Setting → Time Shifting → Enable

2. Press  button to display Time Shifting progress bar. You have to press  button once more to display Time Shifting progress bar during Trick mode. (such as Fast Forward, Reverse Playback, Slow motion)
3. To go to the desired playback position, press ,  button or ,  button.
This function is valid while the Time Shifting progress bar is displayed.
4. To remove the Time Shifting progress bar at once, press ,  or  button.
5. To go to the live video, press  button.

FUNCTION GUIDE

Recording while Time Shifting



1. Press  button to display Time Shifting progress bar.
 2. To go to the desired position, ,  button or ,  button.
 3. Press  button to start recording.
 4. The recording will be started from the selected position.
 5. Press  button to stop Time Shifting.
 6. Press  button once more to stop recording.
- Caution** : If the recording time is less than about 1 minute, the recorded file will not be saved.

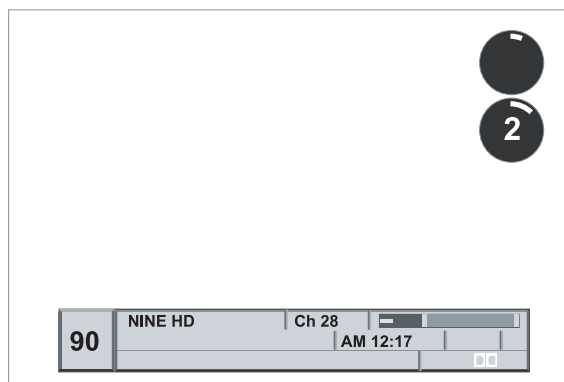
FUNCTION GUIDE

Recording, Checking and Editing the reserved delayed recording



To record services, refer to the following steps. There are four kinds of recording references.

Caution : If the recording time is less than about 1 minute, the recorded file will not be saved.



Immediate Recording by RECORD button



A. Recording




Press  button to record the service you are watching. To specify the stop time, go to **Recording** menu and modify **Duration** item. To go to the **Recording** menu, press  button once more or go to **Recording** item of Main Menu.

B. Checking and modification

A **Recording Icon** () will be displayed on the upper rightmost of the TV screen for several seconds if the recording is initiated. Press  button to see the **Recording Icon**.

To check and modify the recording options, go to **Recording** menu.

C. Stop

Press  button and select the service to stop the Recording by confirming  button. If only one service is being recorded, it is possible to stop the recording by pressing  button twice.

FUNCTION GUIDE

Immediate Recording by Menu Selection




Recording	
Record NO.	1
Service	53 sat
Start Time	↔ Quick
Duration	2 Hour 0 Min
File Name	sat-1
Record Start	
Stop	
Timer Setting	

Select the start time to record,
 ↑ Moves Item, ↔ Selects Item, EXIT Exit


* Precaution (Dual Recording)

Before starting recording on the Menu, you have to select one of the **record NO.** There are **Record NO.1** and **2** to distinguish between the two records for dual recording. In case of one channel is recorded at **Record NO.1**, only **Duration** and **Stop** item of **Recording** menu will be enabled. But, all the sub-menu of **Record NO.2** will be enabled.

A. Recording



To go to **Recording** menu, press  button and select **Recording** item by pressing  button. Select the options that you want to record with. Select **Start** item and press  button. For detailed information, refer to the explanation of **Recording** menu in Menu operations.



B. Checking and modification

A Recording Icon () will be displayed on the upper rightmost of the TV screen for several seconds if the recording is initiated.

To check and modify the recording options, go to **Recording** menu.

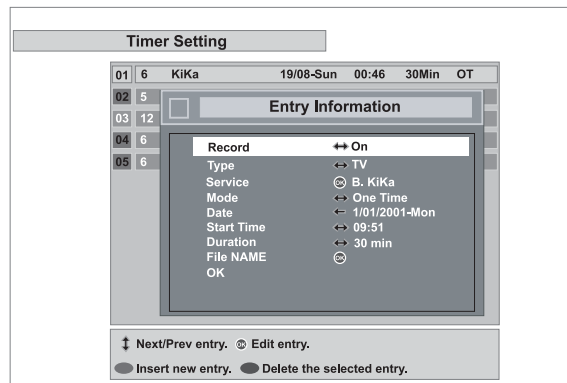
C. Stop

Press  button and select the service to be stop the Recording by pressing  button.





Otherwise, go to **Recording** menu and press  button at  item.

FUNCTION GUIDE

Delayed Recording





A. Record

Go to **System Setting** menu and press  button at the **Timer Setting** item. At **Timer Setting**, press  (Red) button to insert a new recording entry. Set the options that you want to record with by using  or  button. For detailed information, refer to the explanation of **Timer Setting** menu in **Menu operations**.

B. Checking and modification

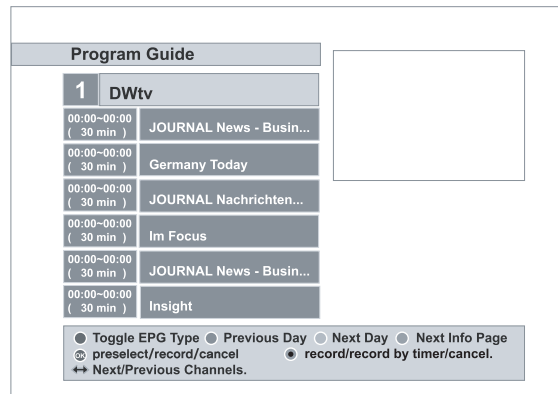
To check the delayed recording options, go to **Timer Setting** menu. You can change the options there.

C. Cancel

To cancel the delayed recording, go to **Timer Setting** menu. Press  (Green) button and confirm with  button at **Cancel** item.

FUNCTION GUIDE

Recording by EPG



A. Record

Press button to display EPG. Select a service that you want to record, and press button. Instead of button, two times pressing of button is valid for delayed recording. In these cases the Recording mark () will be displayed.

B. Checking and modification

Press button to display EPG. The reserved services for delayed recording will be marked with a Recording mark () or Reserved Event mark ().

Pressing the button once more at the service can modify the parameters of delayed recording. If you press the button in the modification window, the modification will be canceled.

C. Cancel

Press button to display EPG. To cancel a reservation of delayed recording, select the service you want to cancel and press button once or twice till the recording mark disappears on the service.

FUNCTION GUIDE




Playback a Recorded Service





1. Press button to display the recorded service list.
2. You can use several useful editing functions at **Recorded Services** menu as followings.
 - A. **New Folder** : Press (Green) button to make new folder.
 - B. **Move to Folder** : Press (Yellow) button to move the Service to a folder.
 - C. **Option** : By pressing (Blue) button, you can use optional functions such as
 - **Sorting by Alphabetic, Size, Time.**
 - **Rename**
 - **Lock**
 - D. **Delete File** : Press (White) button to delete the recorded service.
 - E. **Event Info** : Press button to display extended event information.
3. Select a recorded service at the list.
4. Press button to start playback.
5. Press button to display Time Shifting progress bar. You have to press button once more to display Time Shifting progress bar during Trick mode. (such as Fast Forward, Reverse Playback, Slow motion)
6. To go to the desired playback position, press , button or , button.
This function is valid while the progress bar is displayed.
7. If you enter the position by percent with numeric button of RCU, the playback position will be moved to the point. This function is valid while the progress bar is not displayed.

FUNCTION GUIDE



* Successive Playback of Services

Press  (Red) button to number the services among the recorded services list and press  or  button to playback the multi-services in sequence automatically. This function is very convenient for you to descramble the pay TV service with proper CAM module and smart card. You can descramble the scramble services and copy it while you are not using this PVR. Please refer to descrambling Recorded Services.




* MP3 and TAP

Press ,  buttons at recorded service list to go to MP3 files and program files(TAP).

Stop

- 1.This function is available for playback.
- 2.To stop playback, press  button.
- 3.You can stop the recording in the recorded service list, too. To stop the recording, press  button at the selected recording file.

Pausing

To pause the live picture or playback, press  button.
Press  button again or  button to quit pausing.

1. Pause from live video

If the PAUSE is kept more than 10 seconds with enabled Time Shifting mode, the live picture is changed to time-shifted playback. The video continues from the paused image when resumed from PAUSE.

2.Pause from Time Shifting




The video continues from the paused image when resumed from PAUSE.

3. Pause from Playback





The video continues from the paused image when resumed from PAUSE.

FUNCTION GUIDE





Slow Motion Playback

1. To playback in slow motion (without sound), press the  button.
2. Slow motion speed can be adjusted by pressing the  button repeatedly.
3. There are 3 steps (1/2, 1/4, 1/8) in slow motion playback.
4. Press  button to resume playback with normal speed.
5. The slow motion function is available for the playback and the time-shifted playback.





Fast Motion Playback

1. If there is a Time Shifting or Playback progress bar, remove the progress bar by pressing  button.
2. Press  button for fast motion playback. To change the playback speed, press  button repeatedly.
3. There are 3 steps (2, 4, 6) in fast motion playback.
4. Press  button to resume playback with normal speed.
5. The fast motion function is available for the playback and the time-shifted playback.

Fast Forwarding and Rewinding

1. Press  button to display Time Shifting or Playback progress bar.
2. To go to the desired playback position, press button  or  button. This function is valid while the progress bar is displayed.
3. To remove the progress bar at once, press  button.

Reverse Playback

1. If there is a Time Shifting or Playback progress bar, remove the progress bar by pressing  button.
2. Press  button for reverse playback. To change the playback speed, press  button repeatedly.
3. There are 3 steps (1,2,3) in reverse playback.
4. Press  button to resume playback with normal speed.
5. The reverse playback function is available for the playback and the time-shifted playback.







FUNCTION GUIDE

Recording The Descrambled Live Service

1. Select the live picture you want to record. Descramble the service with a proper CAM and smart card. The live service should be decoded well with the proper CAM and smart card.
2. Start recording according to the recording procedure.
3. During recording, don't change the channel neither try the time shifting function.

Caution : If there is any disturbance such as channel changing or time shifting during recording, the recorded file will be changed to the scrambled format from this position. If the recording time is less than about 1 minute, the recorded file will not be saved.

Descrambling Recorded Services







1. Select and playback a service you want to descramble. Descramble the service with a proper CAM and smart card. The playback service should be decoded well with the proper CAM and smart card.
2. Press  button to display Playback progress bar.
3. To go to the desired position, press  button or  button.
4. Start playback and the picture should be descrambled with a proper CAM and smart card. The fast/slow motion descrambling is possible by fast/slow motion playback.
5. Start recording by **RECORD** () button.
6. The video displayed on TV will be recorded.
7. Press **STOP** () button to stop recording.
8. Press **STOP** () button again to stop playback.
9. You can playback the multi-service(Pay TV) in sequence. For detailed explanation, refer to **Playback a Recorded service**.

Caution : If the descrambling time is less than about 1 minute, the recorded file will not be saved.

FUNCTION GUIDE

Copying from Recorded Services

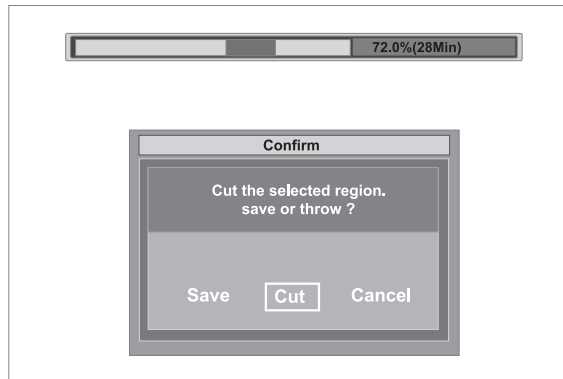


1. Select and playback a service to copy.
2. Press  button to display Playback progress bar.
3. To go to the desired position, press  button or  button.
4. Start playback the recorded video you want to copy. The fast/slow motion copying is possible by fast/slow motion playback.
5. Start copying by  button.
6. The video displayed on TV will be copied.
7. Press  button to stop copying.
8. Press  button again to stop playback.

Caution : If the copying time is less than about 1 minute, copying will not be done successfully. It is recommended not to change the playback speed.

FUNCTION GUIDE

Cut Out / Save Selected Region



1. Start playback a recorded service.
2. Press button to display Playback progress bar.
3. To specify one end of region, press the (White) button with the progress bar.
4. To specify the other end of region, move the cursor by pressing (or) or (or) button.
5. Press (Blue) button to cut or save the selected region. Then, a message box appears.
6. To cut out selected region, press the button at **cut** item in the message box.
7. To save the selected region, press button at **save** item in the message box.

Time Shifting while Recording

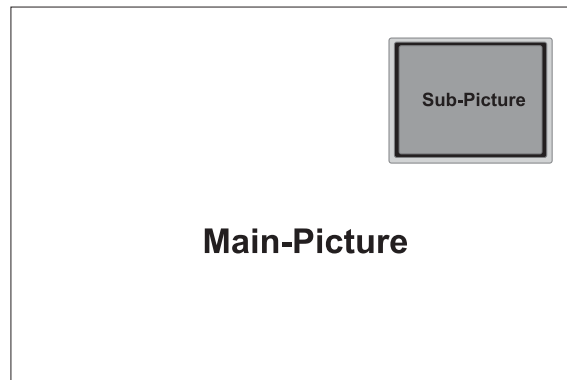
During single recording, Time Shifting is possible. But, if you are recording 2 services at the same time, Time Shifting is possible only in the recorded channel.






Zapping while Recording

For the tuner being recorded with, all the channels in the same Channel can be selected. For the other tuner, all the scanned channels can be selected.








FUNCTION GUIDE

Picture In Picture (PIP)






1. Press  button to display PIP. Press  button repeatedly to change the size of sub-picture or to remove the sub-picture.
2. At PIP screen, press  button to exchange main-picture with sub-picture.
Remarks: It is not possible to exchange main-picture with sub-picture when a recorded service is in playback in main-picture and a live service plays in sub-picture.
3. To display the service list of main-picture, press  button. You can select a service in the service list.
To display the service list of sub-picture, press  button.
4. If the both of main and sub-picture are scrambled, only the main-picture will be played.

Dual Recording

1. Press  button to start Recording.
2. You can use the Time-shifting function while recording another service. It is possible to record two services at the same time, too.
3. To record the 2nd service, press  button at the service you want to record.
4. You can check the status of recordings in the recorded service list. To check it, move the cursor to the file that is being recorded.
You can stop the recording there, too. To stop the recording, press  button at the selected recording file.
5. It is possible to stop the recording in the live picture. To do it, press  button and press  button after selecting the recording by  ,  button.

FUNCTION GUIDE

File List

The file list has 3 lists. They are **Recorded Services**, **MP3** and **Program Files**. The lists are selected by  ,  buttons. The File list is displayed by pressing  button.

File List (Recorded Services / MP3 / Program Files)										
1	22/08	File Name 1								
Recording Number	Date of Recording	File name					Selection Number		Scrambled Icon	Lock Icon

Information of selected file	Help Messages
------------------------------	---------------



Information of HDD

Recorded Services List

The file list is displayed by pressing  button. The file list of **Recorded Services** can be selected by  ,  buttons from other list.


1. You can see the file number, file name, date of recording, information of scramble, locking, Service name, event information, file size, HDD information, etc.

2. Folder


A new folder can be made by pressing  (Green) button. The new folder will be named as **GROUP #**. The name can be changed by  (Blue) button. The keyboard will be displayed if you select the **Rename** there.

FUNCTION GUIDE


3. Move

Press  (Yellow) button after selecting a file you want to move. The lists of Folders will appear. You can select a folder you want.

4. Delete

Press  (White) button after selecting a file you want to delete. You have to confirm it to delete at confirmation box.

5. Sorting, Rename, Lock

Press  (Blue) button to display option list. You can sort, rename and lock the selected file or folder. If a file is locked here, the **Lock icon** will appear in the file list.

6. Icons



Scrambled Icon

Icon (color)	Description
\$ (Yellow)	Scrambled
\$ (Yellow/Green)	Partially Scrambled
\$ (Green)	Descrambled
None	Non-scrambled (FTA)




Lock Icon ()

It means that the file is locked. To play the files you have to enter the PIN code.



7. Playback

To playback the selected file, press  button or  button.

8. Successive Playback of Services


Press  (Red) button to number the services among the recorded services list and press  or  button to playback the multi-services in sequence automatically.

9. Successive copy of Services

Select the services you want to copy by pressing  (Red) button. You can start copying by pressing  button.




This function is very convenient for you to descramble the pay TV service with proper CAM module and smart card. You can descramble the scramble services and copy it while you are not using this PVR.

10. Event information

If there was Event information when the service was recorded, you can see the information by pressing  button.



FUNCTION GUIDE

MP3 File List


The file list is displayed by pressing  button. The file list of **MP3 files** can be selected by  ,  buttons from other list.

1. You can download the MP3 files via USB from PC using Altair.exe.(You can get it from www.i-topfield.com) The list of MP3 files will be displayed here.


2. Folder

A new folder can be made by pressing  (Green) button. The new folder will be named as GROUP #. The name can be changed by  (Blue) button. The keyboard will be displayed if you select the **Rename** there.


3. Move

Press  (Yellow) button after selecting a file you want to move. The lists of Folders will appear. You can select a folder you want.



4. Delete

Press  (White) button after selecting a file you want to delete. You have to confirm it to delete at confirmation box.




5. Sorting, Rename

Press  (Blue) button to display option list. You can sort, rename the selected file or folder.


6. Play

To play the selected file, press  button or  button.

7. Successive Playback of MP3 files

Press  (Red) button to number the files among the file list and press  or  button to play the files in sequence automatically.

8. Play by folder



To play the files in specific folder, select a folder and press  button.

9. Select Play mode

To select a play mode of MP3, press  (white) button. There are **normal**, **repeat one** and **repeat all** modes.



FUNCTION GUIDE

Program File List


The file list is displayed by pressing  button. The file list of **Program files** can be selected by ,  buttons from other list.

1. You can download the TAP(Topfield Application Program) via USB from PC using Altair.exe.(You can get it from www.i-topfiled.com).The list of the TAP will be displayed.


2. Folder

A new folder can be made by pressing  (Green) button. The new folder will be named as GROUP #. The name can be changed by  (Blue) button. The keyboard will be displayed if you select the **Rename** there.


3. Move

Press  (Yellow) button after selecting a file you want to move. The lists of Folders will appear. You can select a folder you want.


4. Delete

Press  (White) button after selecting a file you want to delete. You have to confirm it to delete at confirmation box.

5. Sorting, Rename


Press  (Blue) button to display option list. You can sort and rename the selected file or folder.

6. Run

To run the selected file, press  button.


7. Auto Run




If you want a program runs automatically when the PVR starts up, move the program to the **Auto Start** folder.

If you are pressing the  button when the PVR starts up, the program in the **Auto Run** folder will not run. Remove the program from the **Auto Run** folder if you do not want to auto run.

FUNCTION GUIDE

Progress Icon

There will be Icons during Playback, Time Shifting, Recording and Copying. They will be displayed for a seconds. To display it again, press  button.

Icon (color)	Description
 (Red)	Recording. <ul style="list-style-type: none">- Small Circle in the large circle means the current service you are watching is being recorded.- The number in the large circle means recording number. And, the service being recorded is not the service you are watching.- The outer circle mean displays the rate of progress.
 (Green)	Playback. <ul style="list-style-type: none">- The figure in the circle shows you the playback speed.- The outer circle displays the rate of progress.
 (Red)	Copying. <ul style="list-style-type: none">- The character C in the circle means copying.- The outer circle displays the rate of progress.

SOFTWARE UPGRADE AND PC INTERFACE

SOFTWARE UPGRADE AND PC INTERFACE

Software Upgrade

The PVR has stable and convenience software to use. But, to improve the PVR the new software of the PVR may be released.

Whenever a problem is found or functions are added or modified, the software in the PVR has to be upgraded to enjoy better function.

The latest news, software, utility, driver, product and manual will be found at Topfield website <http://www.i-topfield.com>

There are some methods to download the new software.

(a) PVR to PVR download via RS232C

It is possible to download the firmware or channel data from PVR to another PVR.

(b) PC to PVR download via RS232C

You need the **TFD-down.exe** to download the software.

Start download at PC and turn on the PVR.

(c) PC to PVR download USB

You need to the **TFDN_USB.exe** to download the software.

Start download at PC and turn on the PVR.

For more information, refer to the **Transfer firmware** chapter of **Menu Operations**.

File download and upload via USB

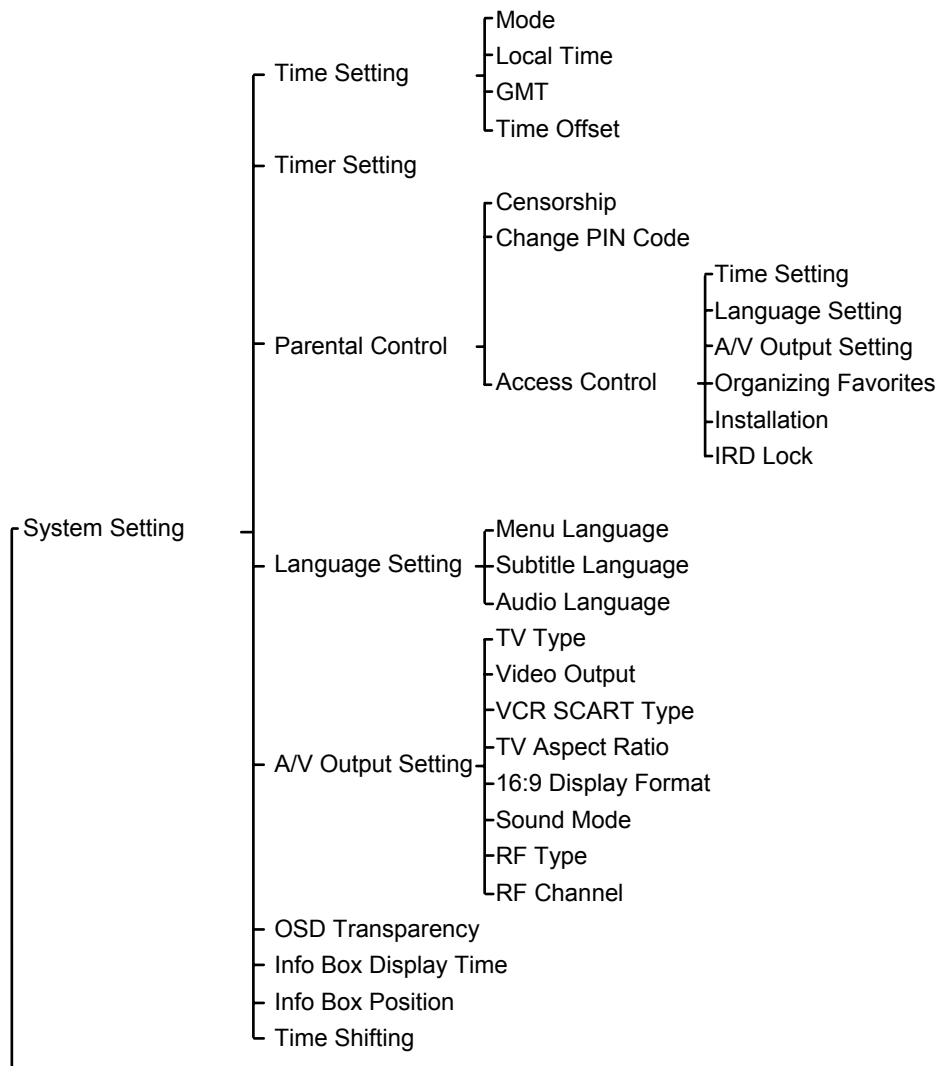
You can upload or download the **TAP**(Topfield Application Program), MP3 and the recorded services to or from your PC. You need to the **Altair.exe** to enjoy it.

You can download the **TFD-down.exe**, **TFDN_USB.exe**, **Altair.exe** at Topfield website <http://www.i-topfield.com>

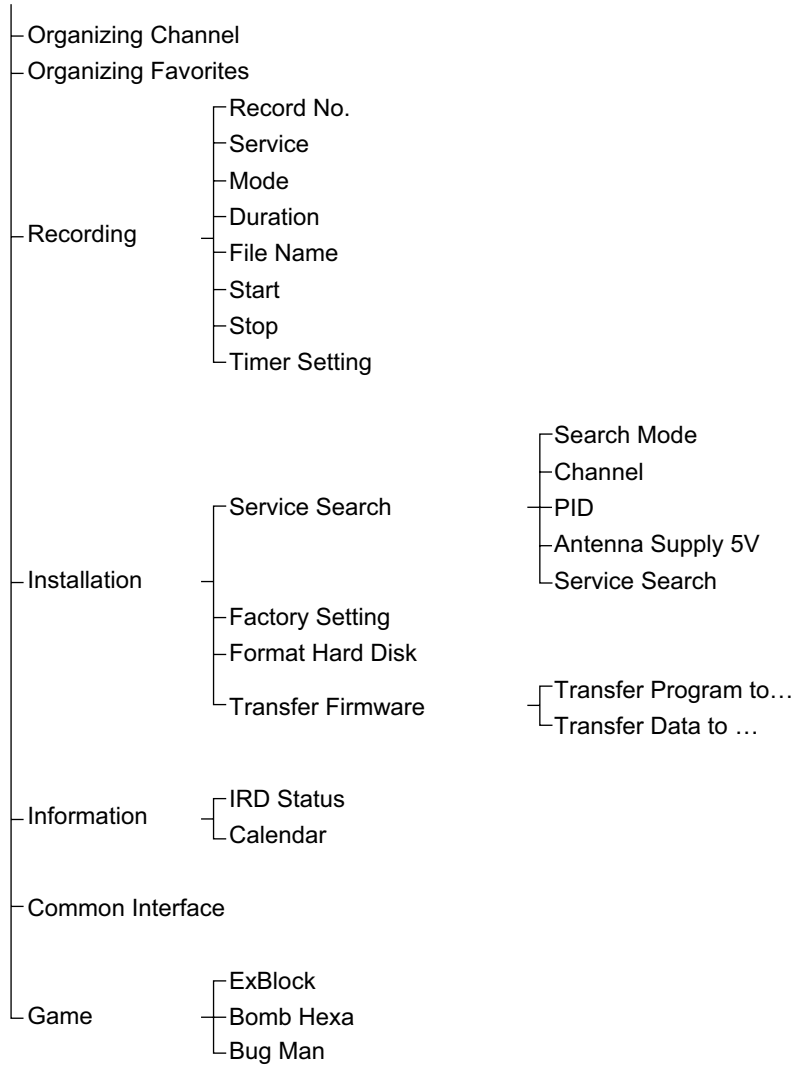
The **TAP** application can be developed and used by users. The users can make their own functions by **TAP**. Topfield does not confirm the **TAP** developed by users, and does not have any responsibility.

MENU MAP

MENU MAP



MENU MAP



SPECIFICATIONS

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Tuner & Service Decoder

Item	Specification
2 Tuners	
Input/Loop through Connector	F-type, IEC 169-2, Female/male
Frequency Range	174 ~ 230MHz, 470 ~ 862MHz
Signal Level Input	-78 ~ -20dBm
Modulation	OFDM
Carrier Mode	2k and 8k hierarchical/non-hierarchical
Constellation	QPSK, 16 and 64 QAM
Guard Interval	1/4, 1/8, 1/16 and 1/32

MPEG Transport Stream A/V Decoding

Item	Specification
Transport Stream	ISO/IEC 13818-1 MPEG-2
Profile Level	2 x MPEG-2 MP@ML (PIP)
Aspect Ratio	4:3, 16:9, Pan & scan, Letterbox
Video Resolution	720 x 576
Audio Decoding	MPEG-1 Layer 1, 2 & 3

Main System

Item	Specification
Main Processor	RISC CPU
Memory	Flash-ROM: 2MB
	RAM: 64MB
	EEPROM: 2Kb
HDD	80GB, 120/160GB(optional)

Front Panel & RCU

Item	Specification
7 Keys	CH-/+, VOL-/+, MENU, OK, STANDBY
4-digit 7-segment LEDs	Service number or Time display
3 LEDs	TV/SAT, REMOTE, STANDBY
RCU	46 Keys

Conditional Access Interface

Item	Specification
PCMCIA	2 slots
	DVB Common Interface Standard

SPECIFICATIONS

A/V & Data In/Out

Item	Specification
TV-SCART	Video CVBS/S-VIDEO/RGB output/YUV
	Audio L/R output
VCR-SCART	Video CVBS output, Audio L/R output
	Video CVBS/S-VIDEO/RGB input bypass
	Audio L/R input bypass
S-VIDEO	Video S-VIDEO output
RCA A/V	Video CVBS output
	Audio L/R output
S/PDIF	Digital audio or Dolby AC-3 bitstream output
RS-232C	9 pin D-sub type
	Transfer rate 115.2Kbps
USB	USB2.0 Device

RF-Modulator

Item	Specification
RF-Connector	75Ω, IEC 169-2, Female/Male
Output Channel	CH21 ~ 69(PAL) / CH14 ~ 83(NTSC)
TV standard	PAL G/I/K, NTSC M selectable by Menu

Power Supply

Item	Specification
Input Voltage	90 ~ 250VAC, 50/60Hz
Type	SMPS
Power Consumption	Running: Max. 55W, Standby: 14W
Protection	Separate internal fuse.

Physical Specification

Item	Specification
Size(W x H x D)	340 x 60 x 265 mm
Weight(Net)	4.2Kg

* Specifications and functions may be changed for improvement without notice in advance.

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