



- Be sure to read this User's Manual before starting the operation of the receiver
- Never open the cover. It is dangerous to touch the inside of the receiver due to possible electric hazard.
- When the receiver is unused for a long time, unplug the power cord from the wall outlet.
- Do not use a damaged power cord that may cause a fire or an electric shock.
- Do not touch a power cord with wet hand. It may cause an electric shock.
- Place the receiver in well ventilated and no-heat environment.
- When connecting cables, the receiver must have been powered off.
- Do not plug in/out CI module, when the receiver is powered on. But you can insert smart card to CI module with powered on.
- Do not stack the exposed firing device, such as candle, on top of the receiver.
- Do not expose the receiver to dripping or splashing and that no objects filled with liquids, such as vase, shall be placed on the apparatus.

How to Use This Manual

This manual provides complete instructions for installing and using this receiver. The following symbols will serve as follow.

-  **Warning** Indicates a warning information.
-  **Tips** Indicates any other additional important or helpful information.
- MENU**
(*Bold Character*) Represents a button on the remote controller or the receiver.
- Move to*
(*Italic Character*). Represents a menu item within a window

1.1 Features

Common Part

- Easy Graphic MENU Interface
- RS232C Port for Updating Control Software and Additional Service
- Video Connector(RCA, SCART)
- Supports DiSEqC 1.2
- Multi-language Function (Menu, Audio)
- Last Channel Memory
- OSD : Transparency & Blending, 256Colors
- Front Panel Buttons & IR Remote Controller User Interface
- Editing Functions (TV or Radio Channel, Transponder)
- EPG for On Screen Channel Information
- Channels Memory for Multi-satellite (up to 64)
- 3 Operation Modes (Digital TV, Digital Radio, Favorite)
- Connectors (RCA), S/PDIF
- Supports software downloading through satellite

Digital Part

- Receives QPSK Satellite Broadcasting RF Signal and Decodes the Digitally Encoded Signal
- Digital Tuner with Loop-through out
- SCPC/MCPC Receivable from C/KU-band Satellite.
- MPEG-2 Main Profile at Main Level
- Teletext Supported Through VBI & OSD
- 3500 Channels Memory

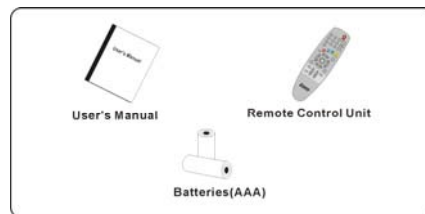
CI Part(CI Model Only)


- DVB Common Interface(Viaccess, Nagra Vision, Conax, Irdeto, Crypto works, ASTON)

SMART CARD

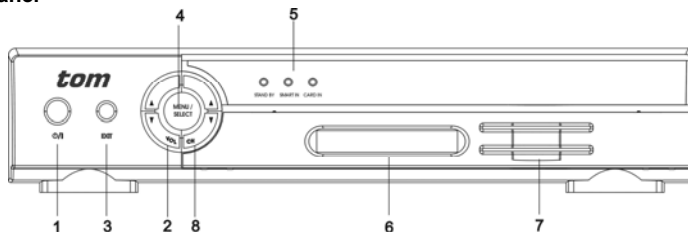
- SMART CARD Interface(VIACCESS)

1.2 Accessories



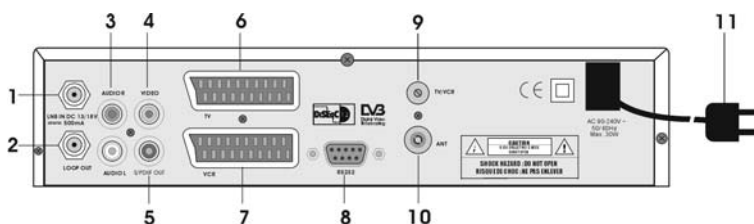
-  **Warning** Please don't recharge, disassemble, electric short, and mix with used or other battery types.

2.1 Front Panel



- 1. Power Button**
Turns the receiver On/Off.
- 2. Volume UP/DOWN Button**
Increases/decreases the volume levels in No-menu state. Change the setting values in specific Menu item.
- 3. Exit Button**
Exits from the current menu or cancels the current progressing operation if applicable.
- 4. Menu/Select Button**
Shows the System set-up menu in No-menu state. Activates the highlighted menu item in Menu state.
- 5. Display(4-digits 7-segments/3LED)**
The 4-digit displays channel information. In STAND BY mode, the 7-segment displays local time.
The red LED is the STAND BY indicator and the one yellow LED is the CAM in indicator. **(CI Model Only)**, the other green LED is the Card in indicator. (Viaccess)
- 6. CI Slot(CI Model Only)**
Insert CI module into CI slot for conditional access.
- 7. SMART CARD SLOT**
Insert smart card into smart card slot for conditional access.
- 8. Channel UP/DOWN Button**
Moves the cursor up/down in Menu state. Changes the current program to the next/previous program in No-menu state.

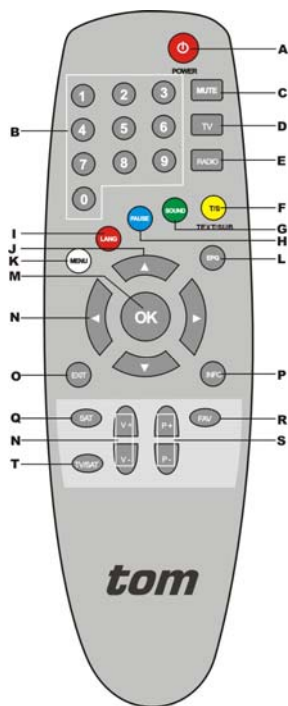
2.3 Rear Panel



- 1. LNB IN**
Connect the digital signal from your LNB of your satellite dish to this connector.
- 2. LOOP OUT**
Gives you the connection possibility to the extra receiver (analogue or digital).
- 3. AUDIO Right (Red RCA) and Left (White RCA)**
These connectors give you the possibility to connect the audio signal to an external amplifier, or the audio input of your TV.
- 4. VIDEO (Yellow RCA)**
This connector has a constant video signal for additional VCR-connections.
- 5. S/PDIF**
Output for connection to a digital audio amplifier.
- 6. TV Scart Connector**
Use this connector to connect your receiver to your TV using a scart cable.
- 7. VCR Scart Connector**
Use this connector to connect your receiver to your video recorder using a scart cable.
Your video signal will now be looped through to your TV.
- 8. RS232 Serial Port**
This serial port can be used to connect your PC to your receiver, and enables you to download new programmes into your receiver.
- 9. TV/VCR**
RF Modulator (male part). If you do not use a scart cable or RCA cable to connect your receiver to your TV, you will have to use this connector to connect the receiver to your TV, using a coax cable. If you connect your receiver to your TV like this, be sure that you set your TV to the Video channel.
- 10. ANT**
RF Modulator (female part). If you have an additional antenna (cable or terrestrial) as well, and you do not use a scart cable to connect the receiver to the TV, then your additional antenna has to be connected here. If you use a scart cable to connect the receiver to your TV, the additional antenna can be put directly into your TV.
- 11. Power Cord**
Your receiver requires a current of 90~240V AC (Auto-selectable), 50~60Hz +/-5%.
Make sure to check the power specification before connecting your receiver to the wall outlet.

2.2 Remote Control Unit

All features of the set-top box can be controlled with the remote

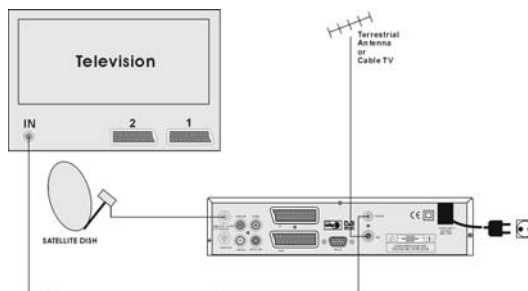


- A. POWER**
Turns the receiver On/Off.
- B. NUMERIC KEY(0-9)**
Controls the numerical operation and especially changes program directly.
- C. MUTE**
Mutes audio output of the receiver.
- D. TV**
Shows the current digital TV program list.
- E. RADIO**
Shows the current digital Radio program list.
- F. TEXT/SUB**
Shows Teletext, if available
- G. SOUND**
Selects sound mode to stereo or mono.
- H. PAUSE**
Pause the video/audio output.
- I. LANG**
Shows the list of the audio language and subtitle languages available in the current channel.
- J. UP/DOWN**
Changes the current program to the next/previous program in NO-menu state.
Moves the cursor to upward/downward in Menu state.
Increases/decreases the volume level in No-menu state.
- K. MENU**
Shows the menu or sub-menu and cancels the processing function if applicable.
- L. EPG**
View the program guide in No-menu state.
- M. OK**
Activates the highlighted menu item.
Display channel list according to TV/Radio Mode
- N. LEFT/RIGHT**
Changes the setting value in specific Menu item.
- O. EXIT**
Exits from the menu or sub-menu and cancels the progressing function if applicable.
- P. INFO**
Used for special function. Normally used for viewing channel information.
- Q. SAT**
Shows satellites list of the searched channels, changes current satellite.
- R. FAV**
Shows the current favorite program list.
- S. P+/P-**
Page up and down in menu list.
- T. TV/SAT**
Control scart output whenever TV/SAT button is pressed scart output is changed between receiver output and VCR input.

3.1 Connecting to TV & VCR

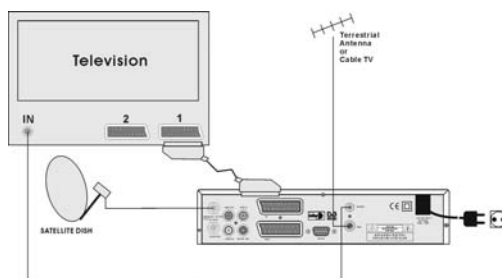
Basic connection with a coax cable

1. Connect the satellite signal from the LNB to the LNB IN connector.
2. Connect the RCA connector at the back of the receiver to the RCA-in connector on your TV set.



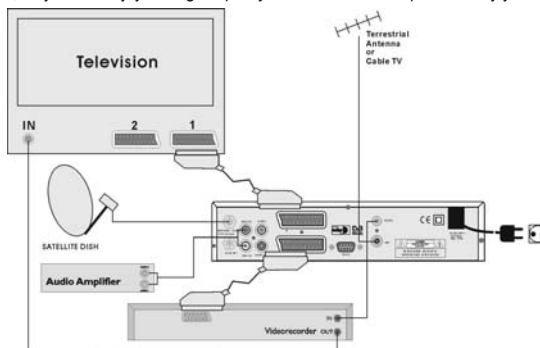
Basic connection with a Scart cable

1. Connect the satellite signal from the LNB to the LNB IN connector.
2. Connect the TV scart connector at the back of the receiver to the scart-in connector on your TV set.
3. Optional: connect an extra terrestrial or cable antenna to the ANT connect at the back of the receiver.



Advanced connection of the receiver to the TV set, VCR and Audio amplifier

1. Connect the satellite signal from the LNB to the LNB IN connector.
2. Connect the TV scart connector at the back of the receiver to the scart-in connector on your TV set.
3. Connect the VCR scart connector at the back of the receiver to the scart-in connect on your VCR set.
4. Connect an extra terrestrial or cable antenna to the ANT connector at the back of the receiver.
5. Connect a coax cable to the TV/VCR connector at the back of the receiver. Connect the other end of this coax cable to the coax-in connector of your VCR.
6. Connect the coax-out connector of your VCR to the video-in connector of your TV set with a coax cable.
7. Optional: Connect the audio left and right RCA-plugs(Red and White) on the back of your receiver to the left and right input of an Audio amplifier, so you can enjoy the digital quality of the sound that is produced by your receiver.



3.2 Connecting to Dish

Aiming a satellite dish and LNB to the correct longitude and Azimuth(angle of elevation) of a satellite is a specialist job, and can best be done by an official dealer.

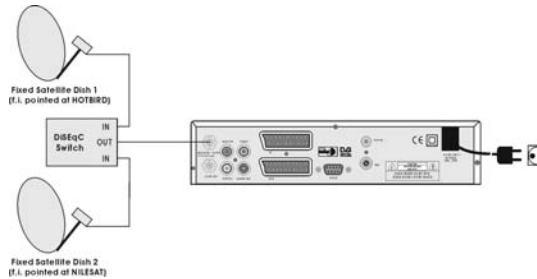
Connecting a fixed satellite dish to your receiver

Make your choice of which satellite you want to receive your signals from, and have your dealer aim your dish at the requested satellite. Connect a coax cable to your LNB and the other end directly to the LNB IN connector of your receiver.



Connecting multiple fixed dishes to your receiver using a DiSEqC 1.0 switch

If you want to watch program from more than satellites (For in instance from Astra and Hot Bird) it is advisable to use fixed dishes and a DiSEqC 1.0 switch. Have your Dealer aim the dishes at the requested satellites and connect the LNBs with coax cables to the IN connectors of the DiSEqC 1.0 switch. Connect the OUT connector of the DiSEqC 1.0 switch to the LNB IN connector at the back of your receiver.



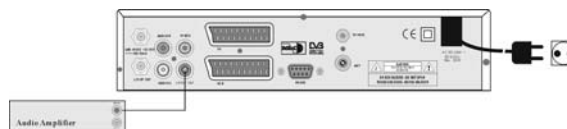
Connecting a dish on a motorized positioner to your receiver

Another possibility to watch program from multiple satellites is by mounting a dish to a motorized DiSEqC 1.2 positioner. Have your dealer mount the dish to the positioner, set the or react azimuth(angle of elevation) and let him set the center point for your positioner. Connect the LNB with a coax cable to the LNB connector of the positioner, and connect the REC connector of the positioner to the LNB connector at the back of your receiver.



Receiver to AMP with S/PDIF OUT

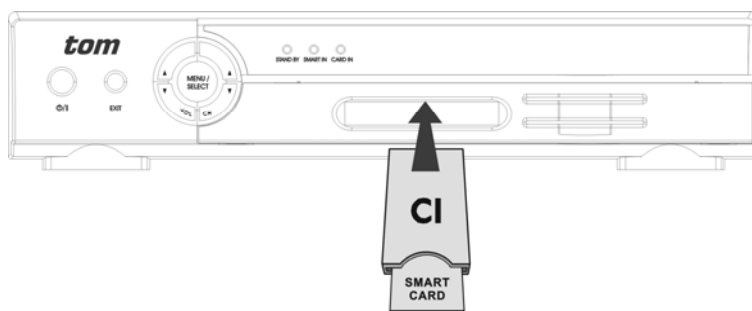
Connect the AMP to S/PDIF OUT.



3.3 Connecting to CI Module(CI Model Only)

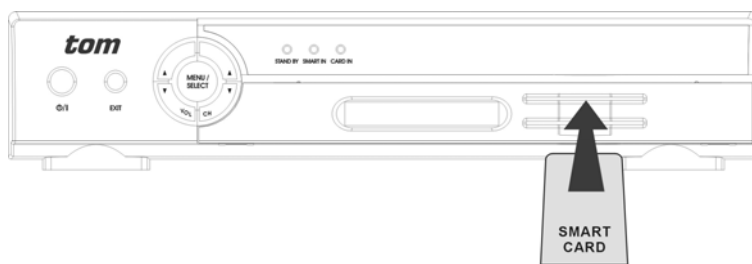
Insert CI module into CI slot for watching TV program from Service Provider.

Warning Do no plug in/out CI module when the receiver is powered on.
But you can insert smart card to CI module with power on.



3.4 Connecting to SMART CARD

Insert Smart Card into Smart Card slot for watching TV program from Service Provider.



4.1 Before Settings

Starting up for the First Time

1. Turn on your TV and receiver.
2. If it is first time using a receiver, you should set parameters for system configuration. After displaying the login screen, press the **MENU** button. The <screen1> will be appeared.

<screen 1>



Menu Information

The menu consists of main-menu and sub-menu, as you see in the <Screen 1>. Main-menu has items and each main-item has its sub-menu items.

<screen 2>



4.2 Basic Settings

To install the receiver properly you have to perform Antenna Setup.

When you have finished the setup procedure, you can start watching TV or listening to Radio.

1. Turn on your TV and receiver.
2. Press the **MENU** button to display the main menu. <Screen 1>
3. From the main-menu<Screen 1>, press the **OK** button on the Installation to display sub-menu. <Screen 2>

DiSEqC 1.2 Setup

If you use positioner Antenna, you can set East/West limit of your dish in the DiSEqC 1.2 SETUP menu at first. If you don't use positioner antenna, skip this section.

1. Press the **OK** button on the DiSEqC 1.2 Setup menu of *Installation*. And then, <Screen 3> will appear as displayed below.

<screen 3>



- Tips** If you want setup the antenna, Press **BLUE** button in RCU. <Screen3>
 If you want edit manual scan, Press **GREEN** button in RCU. <Screen 3>
 If you want scan, Press **YELLOW** button in RCU. <Screen 3>

2. If you selected [on] item of ON/OFF mode, you can setup position. Move the cursor to the [Position] item and then<Screen 4> will appear as displayed below.

<screen 4>



After move the cursor to the [Position] field, you can move position by pressing ◀▶ button.

- Tips** If you want auto position, Press **BLUE** button in RCU.
 If you want store position, Press **GREEN** button in RCU.
 If you want original pos. Press **YELLOW** button in RCU.

- You can button in RED<Screen 4>, the position set-up window will display below. <Screen 5>



<screen 5>

4. Select Limit Mode

- If you want setup the East Limit, Press **RED** button in RCU.
- If you want setup the West Limit, Press **BLUE** button in RCU.
- If you want enable Limit, Press **GREEN** button in RCU.
- If you want disable Limit, Press **YELLOW** button in RCU.

Antenna Setup

In order to setup your equipments(Satellite dish and LNB) you need to use the following menus. For the following setup you have to know the right frequency for your LNB(s).

- Press the **OK** button in the Antenna Setup menu of Installation <Screen 6> The Antenna Setup window will be displayed as below <Screen 7>.



<screen 6>

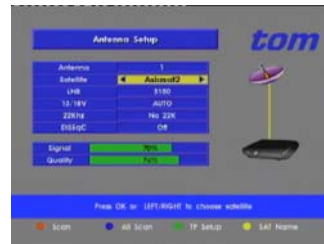
- In this Scan Antenna window, you can manipulate the current antenna lists or see the values of antenna configurations.



<screen 7>

Before start to scan antenna, you should set values of antenna configuration parameters.

- If you want to scan with a fixed antenna, set the LNB and various switch values in <Screen 7> following to your physical antenna setting.



<screen 8>

If your antenna is installed well and the signal strength of the program is good, the strength bar will be shown as green.



- If you want scan selected Satellite, Press **RED** button in RCU.
- If you want scan all Satellite, Press **BLUE** button in RCU.

4. For editing antenna name, Press **YELLOW** button in RCU. <Screen 7>

In the edit window, you can see one edit field and a keypad box, and you can move between edit field and keypad box easily with cursor key. Use **P-** key to re-input all characters, and **P+** to delete one character in the edit field. You can input characters from the keypad box. Press **EXIT** to cancel edit, and press **OK** on the edit field or press **MENU** on the keypad box to confirm edit.



<screen

9>

5. If you want to scan each transponder or edit transponder list. Press a hotkey buttons in RCU. <Screen 7>



<screen

10>

Press the **OK** button to scan the selected transponder. You can change polarity, frequency and symbol rate of a transponder, and edit transponder-name by pressing **OK** at [TP Name] field.

Tips If you want delete TP, Press **BLUE** button in RCU.



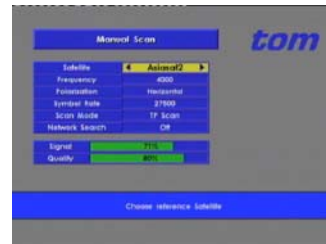
Tips If you want Insert TP, Press **RED** button in RCU. <Screen 10>
If you want Modify TP, Press **BLUE** button in RCU. <Screen 10>

<screen

11>

Manual Scan

You can scan TP frequency and channel manually in the Manual Scan menu. Press the **OK** button in the Manual Scan menu of Installation. <screen 6>



<screen

12>

First, select the satellite name in the [Satellite] item. Select or enter the accurate value frequency, polarization, symbol rate. Finally, Press the **OK** button to start channel scan. Also you want to channel scan, Press the **◀▶** button and change to [channel scan] on the [scan mode] field. <Screen 13>

Select or enter the accurate value Video PID, Audio PID, PCR PID. Finally, press the **OK** button to start channel scan.



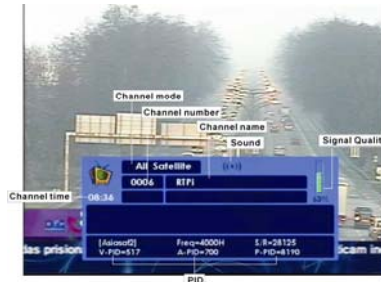
<screen

13>

4.3 Viewing TV(or Radio)

In normal viewing mode(NO-MENU State), only the current TV program is displayed on the screen.

In this mode, you can change channel with the numeric, **UP/DOWN** or **P+/-** buttons, and almost all of other remote control buttons have their functions. If you change channel, the banner bar will be displayed for few seconds as<Screen 15>.



<screen 15>

The function of remote control buttons in Normal viewing mode state is as follows.

- **MUTE** : Audio mute(displayed on left-upper)
- **PAUSE** : Video Freeze
- **Digital TV/RADIO** : Shows you the list of stored TV/RADIO channels.
- **SAT** : You can select all satellites or a satellite to view.
- **INFO** : View the channel information and the signal strength of current channel.
- **Numeric Key(0-9)** : Changes channel by inputting channel number directly.
- **Up/Down** : Changes the current program to the next/previous.
- **Left/Right** : Adjust volume level Down and Up.
- **OK** : View the channel list will be displayed.
- **LANG** : Shows the list of available audio languages.
- **FAV** : Shows the list of current favorite program. You can manipulate the favorite program list in.
- **MENU** : You can enter the Main Menu.
- **EXIT** : No function in No-menu state.

Viewing TV(or Radio) Program Menu

Press the TV(or Radio) button. You can view the TV(or Radio) program list.

- **Edit button(RED)** : You can edit channel information. (Skip, Lock, Delete, Move)
- **Favorite button(YELLOW)** : Select the channel you like. Also you make to favorite Group(Fav 1, 2, 3, 4)
- **Sort button(BLUE)** : You can sort the channel.
- **EPG button(GREEN)** : You want to view program guide information.



<screen

16>

Time Setting

You can set time in GMT or Local time.

- **GMT On/Off**: Select GMT or Local time.
- **Day, Month, Year, Hour, Minute**: When you select Local time, you must setup date and time.

Program Guide

If you want to view program guide information, Press **EPG** on viewing TV screen<Screen 15>.

Press **OK** to see the selected channel.
Use left or right key to show next/previous event on the program guide.



17>

<screen

Manipulating TV(or Radio) Program Menu

You can change channel information in Channel Organize of the main menu.



<screen 18>

1. Channel Edit

Modify channel information in current list.

1. **Skip button(RED)** : Skip the program when you change current channel.
2. **Lock button(BLUE)** : Control watching the program.
3. **Delete button(BLUE)** : Deletes the channel from the current list.
4. **Move button(GREEN)** : Change display order in the current list.



<screen

19>

2. Favorite Setup

Select the channel you like. If you want select to every group, Move the cursor to the channel you want to select press FAV1,2,3,4 button in. Then Press **EXIT** to save and finish.



<screen

20>



Tips If you press **fav** button in Normal states, you can see the every fav group list. <Screen 15>

3. Channel Sort

You can sort channel orders of channel list.

This gives you the opportunity to sort your program list by channel name, free or coded channel and satellite.



<screen

21>

4. Reset Channel
 You want to delete Scan Channels.
 Press the **OK** button in the Reset channel menu of Channel Organize.



22>

<screen

4.4 Other Settings

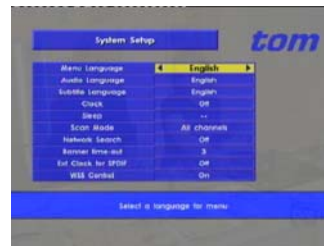
1. Turn on your TV and receiver.
2. Press the **MENU** button to display the main menu.
3. You can select *System Configuration* in the main menu<Screen 1>

The System Configuration menu has its 5 sub-menu.

- System Setup
- TV output Setup
- Timer Setup
- Parental Lock
- System Information

System Setup

- Menu Language** : Select osd menu language for your convenience.
- Audio Language** : Select Audio language for your convenience.
- Subtitle Language** : Select Subtitle language for your convenience.
- Time Zone** : You can set your local offset time.
- Clock** : Switch clock on/off in normal viewing mode.
- Sleep** : You can reconstruct sleep time.
- Scan Mode** : You can see the coded only channel, all channel, free only channel item of Scan Mode.
- Network Search** : Set this field to On to perform Network TP search.
- Banner Time-Out** : You can set automatic banner off time.



23>

<screen

TV Output Setup

You can set the various video output format.

- Aspect** : You can select TV type you have.
- Screen Mode** : You can select Pan Scan or Letter Box picture format.
- RF TV Mode** : You can select a video format of RF modulator.
- UHF** : You can select UHF.
- RGB/CVBS** : You can select RGB or CVBS color mode.
- Transparency** : You can regulate Transparency(0-10).
- Brightness** : You can regulate Brightness(0-10).
- Contrast** : You can regulate Contrast(0-10).
- Saturation** : You can regulate Saturation(0-10).



24>

<screen

Timer Setup

You can programming a power on/off interval timer by changing value in Timer mode field. You can set One/Daily/Weekly in Timer Cycle field and you can set the operation time with Time(and duration) field. Also you can select a channel to see when a receiver is power on with Channel an Channel Number field.



25>

<screen

Parental Lock

Changes the PIN(Personal Identification Number) which is used to control the access to the receiver and also individual channels.
 If you press the **OK** button on Parental Lock menu item, the following window will appear. In the window, you are requested to enter Current PIN, New PIN and Retype PIN for confirmation.



26>

<screen

System Information

Shows the system information including the Firmware version and model name.



27>

<screen

Factory Reset

Resets the parameters of the receiver to the factory default setting.

Warning Factory Reset will erase all installed data, use this function carefully.

Common Interface(CI Model Only)

You can navigate the menu, which is provided by CI module. This information varies a lot depending on the service provider.



28>

<screen

Smart Card

You can navigate the menu, which is provided by Smart Card module. This information varies a lot depending on the service provider.



29>

<screen

5. SAFETY PRECAUTIONS

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

5.1. POWER SOURCE

The receiver should be operated only from an 230 V AC, 50 Hz outlet. Please do not open the cover by yourself. There is high voltage in the set, which will danger your life. Please ask your nearest service center for help. When the device is in standby position the unit still carries high voltage. Disconnect the receiver from power source before operating on it. Please, pay attention to keep the appliance far from unattended children.

5.2. POWER CORD

The power supply cord should be placed so that they are not likely to be walked on or pinched by items placed upon them or against them. Pay particular attention to cord where they enter the plug, power outlet, and the point where they exit from the receiver. If power cord is damaged please do not connect the appliance and refer only to qualified personnel for substitution.

5.3. LIQUIDS

Keep liquids away from the receiver. The receiver must not be exposed to dripping or splashing and no objects filled with liquids, such as vases, can be placed on the apparatus. In case of pouring of liquids on the receiver disconnect immediately the main plug from the socket. **DO NOT TOUCH** the receiver with hands before disconnecting it.

5.4. SMALL OBJECTS

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

5.5. CLEANING

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

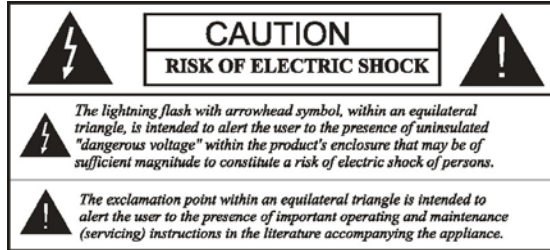
5.6. VENTILATION

Minimum distance of 10cm. from both sides and a distance of 15cm. to upwards around the apparatus should be kept for sufficient ventilation. Take care for a good air circulation. The ventilation slots should not be impeded by covering the ventilation openings with items such as newspaper, table-cloths, soft furnishings, curtains, carpets, etc.

5.7. CAUTION

- Please do not place the set and remote control under direct sun light.
- The set should be placed on a solid and safe base.
- The location should not be selected as a room with high humidity, as the condensation, arising in the kitchen for example, may cause malfunction or damage the set.
- Heating or other thermal radiations under the set also may cause malfunction or damage the set.
- The hot air, which arises during the operation, should be ventilated with sufficient air circulation. Please do not put the set into closed areas and do not cover it.
- Please avoid the contact of the set and remote control with water or humidity. Do not put into operation near bath, swimming pools.
- Connect the power supply of the receiver only after the installation is ready.
- The parabolic antenna has to be grounded correctly. For this you have to follow the appropriate VDE regulations.
- The apparatus shall used in moderate climate.
- No naked flame sources such as lighted candles should be placed on the apparatus.
- Never stack other electronic equipment on top of the receiver.
- Remove batteries from remote control when it is not to be used for a long period. Otherwise it can be damaged due to any leakage of batteries.

Safety label lies on the bottom of the set top box.



TOM Elektronik declares that this product is complying with the requirements of the European Community directives 89/336/CEE (EMC - Electromagnetic Compatibility) and 73/23/CEE (LVD - Low Voltage Directive)



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www.tom-elektronik.ch

A.1 Trouble Shooting

There may be various reasons for the abnormal operation of the receiver. Check the receiver according to the procedures shown below. If the receiver does not work properly after checking it, please contact the dealer. Don't open the receiver cover. It may cause a dangerous situation.

Symptom	Cause	Remedy
The display on front panel does not light up	The power cord is not Plugged in.	Check that the power cord is plugged in to the wall outlet.
No picture or sound	Wrong connection of the Audio/Video output of the receiver to TV. Audio muting. TV power off.	Connect the Audio/Video output of the receiver to TV correctly. Press the MUTE button. Turn TV on.
No picture	The receiver can't receive the signal. Incorrect values of some tuner parameters. Wrong direction of the dish	Check the antenna cable, replace the cable, or connect the cable to the receiver tightly. Set the values of tuner parameters correctly in Installation menu. Check the signal strength with a spectrum analyzer and adjust your dish correctly.
The remote controller does not working	The batteries of the remote controller are not inserted or exhausted	Check whether the batteries are inserted correctly in your remote controller Check the batteries, and if exhausted replace the batteries of the remote controller

Specifications

A.2 Specifications

1. Conditional Access Interface (CI Model Only)

PCMCIA	2 Slot(type I or type II) DVB Common Interface Standard (Viaccess, Nagra Vision, Conax, Cryptoworks, rdeto, ASN)
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2. Smart card

SMART CARD	1slot ISO 7816, GSM11.11 and EMV(payment systems) compatibility
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3. Tuner & Channel

Input Connector	F-type, IEC169-24 Female
Frequency Range	950MHz to 2150MHz
Input Impedance	75Ω unbalanced
Signal Level	-25 to -65 dBm
IF frequency	480MHz
IF Bandwidth	55MHz
LNB Power	Vertical : +13V Horizontal : +18V Current : Max, 500mA
Polarization	13V/18V
22kHz Tone	Frequency:22kHz±4kHz Amplitude:0.6V±0.2V
DiSEqC Control	Version1.0 or 1.2 Compatible
Demodulation	QPSK
Input Symbol Rate	2-45Ms/s
FEC Decoder	Convolution Code Rate 1/2, 2/3, 3/4, 5/6 and 7/8 with Constraint Length K=7

4. System & Memory

Main Processor	SC2005(LSI-LOGIC)
Flash Memory	2 Mbyte(up to 8Mbyte)
Processor SDRAM	8 Mbyte(up to 16Mbyte)
A/V decoder SDRAM	4 Mbyte(up to 4Mbyte)
EEPROM	8 Kbyte
Channel Memory	Digital Channel : 3500
Multi-Satellite	Up to 64
Multi-Language Menu	English/French/Russian/German/Polish/Italian

5. MPEG Transport Stream & A/V Decoding

Transport Stream	MPEG-2 ISO/IEC 13818 Transport Stream Specification
Profile Level	MPEG-2 MP@ML
Input Rate	Max 90Mbit/s
Aspect Ratio	4:3, 16:9
Frame Rate	25Hz for PAL, 30Hz for NTSC
Teletext	Through VBI / OSD
Audio Decoding	MPEG/MUSICAM Layer I & II
Audio Mode	Single channel/Dual channel Joint Stereo/Stereo
Frequency Response	20kHz~20kHz <+/-2dB 60kHz~18kHz <+/-0.5dB
Sampling Rate	32, 44.1, 48kHz

Specifications

6. Front panel

Display	4-digit 7-segment Display
Function keys	Power, Left/Right, Up/Down, Menu/Exit

7. AV & Data In/Out

TV Scart Output	RGB, CVBS, L, R Output with Volume Control
VCR Scart Output	CVBS, L, R Input CVBS, L, R Output : Option
RCA Output	CVBS, L, R Output(Yellow, White, Red Jack) with Volume Control
RCA Output(Cinch)	Digital Audio Output(S/PDIF)
Data Interface	RS-232, Bit Rate:115200baud Connector: 9-Pin D-Sub Male type

8. RF-Modulator

RF-Connector	75Ω IEC169-2, Male/Female
Frequency	470MHz to 860MHz
Output Channel	CH 21-69 for the Demodulator
TV Standard	PAL B/G/I/D/K Selectable by Menu Setting
Audio Output	Mono with Volume Control
Preset Channel	CH 40, Software changeable by Menu screen

9. Power Supply

Input Voltage	AC 90~240V, 50Hz~60Hz
Type	PWM Regulator
Power Consumption	Max. 30W
Protection	Separate Internal Fuse The input shall have the lightning protection

10. Physical Specification

Size(WxHxD)	280 x 55 x 235mm Excluding the foot. Foot height is 6mm
Weight	2.0kg

11. Environmental Condition

Operating Temperature	0~40°C
Storage Temperature	-30°C ~ 80°C
Operating Humidity Range	10 ~ 85% RH, Non-condensing
Storage Humidity Range	5 ~ 90% RH, Non-condensing

Glossary of Terms

A.3 Glossary of Terms

C band

3.7 ~ 4.2 GHz Frequency.

DiSEqC

Digital Satellite Equipment Control.

Ku band

11 ~ 18GHz Frequency.

LNB(Low-Noise Block converter)

The LNB is an electronic unit mounted on the satellite dish.

It receives the signals reflected by the dish and converts them to signals that can be used by Satellite receiver.

PID

Package Identifier.

PIN Code

Personal Identification Number. A four-digit code that is used for locking/unlocking. e.g. with the parental control feature.

Polarization

Polarization allows several program to be fitted into the same frequency band.

The signals from a satellite are transmitted either with linear(vertical or horizontal) polarization or circular(right or left) polarization.

RS232

Serial data port.