

Professional Digital Decoder

User's Manual

DCH-4000P

<http://www.pbi-china.com>

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1. Warning

* Please refer to the explanation below before operating to avoid user hurt or device breakdown. Please do NOT power on before safety installation procedure checking.



Danger! Electricity!

Please use the outlet with the grounded pin. If not use the machine for a long period, please pull out the power plug from the outlet to avoid the damage by the lightening or electric wave. Make proper layout of circuitry to protect the machine from the destruction by hoof or extrusion and impact by something laid on it.



Urgent instance!

Please pull out the plug in any following cases :

1. Wire or plug is damaged.
2. Filtered by the liquid, or fall into water.
3. Poured by rain or water.
4. Drop from a high place or the chassis is broken.



No Dismantle!

1. Please do NOT dismantle the machine by yourself.
2. Please do NOT change the parts by yourself. If the machine cannot work, please call the agent and professional repairer.



Depart From Dampness!

Do not use the machine in the area with high humidity or put it in the water or wet place.



No pressing heavily!

Please do NOT put too much pressure on the machine.



No touching!

Please do NOT touch the machine during thunderstorm.



Product specification and appearance are based on the actual product purchased; any changes will not be notified accordingly.

2. Introduction

DCH-4000P is a professional IRD with a variety of input (including DVB over ASI, IP, QPSK, QAM, COFDM and DS3) and output (CVBS, SDI, ASI, DS3 and IP) combinations. An appropriate IP port equipped as an option supports DVB over IP applications. LAN control and monitoring are achieved with TCP/IP, SNMP and HDMS*.

(*Headend Devices Management System, a PBI's proprietary software)

2.1. Features:

Fully complies with MPEG-2, MP@ML and DVB-S/-T/-C standards

IP input or output with UDP/RTP (optional)

Multicast and Unicast on IP

Supports PAL, NTSC or SECAM

Supports various Conditional Access systems

SDI video output with digital audio embedded

Two sets of independent ASI outputs

Automatic PMT update

Compatible with Multiple De-encrypt CI modules

DS3 I/O for TS (optional)

Switchable audio sound track

Teletext VBI, EBU subtitle and DVB subtitle

Upgradeable through LAN

Easy-to-use LCD menu

2.2. Options:

DVB-S, DVB-T or DVB-C tuner input

High Speed 100M Base-T IP output

High Speed 100M Base-T IP input

DS3 I/O card

3. Appearance Introduction

3.1. Front Panel List

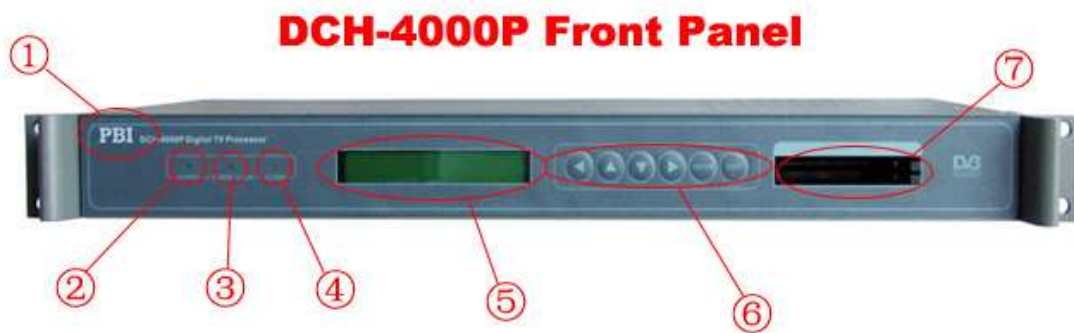


Figure 3.1 Front Panel of DCH-4000P

- (1) PBI logo
- (2) Power LED
- (3) Tuner lock LED
- (4) Alarm LED
- (5) LCD (20×2 characters)
- (6) Control Panel
- (7) Common Interface (×2 slots)

3.2. Rear Panel List



Figure 3.2 Rear Panel of DCH-4000P

- (1) TS/IP Input/Output interface
- (2) XRL L interface
- (3) XRL R interface
- (4) RGB/YUV interface (G/Y)
- (5) RGB/YUV interface (B/U)
- (6) RGB/YUV interface (R/Y)
- (7) CVBS1 interface
- (8) L-Audio-R interface
- (9) CVBS2 interface
- (10) ASI IN interface
- (11) ASI/SDI Output interface
- (12) ASI Output interface
- (13) RS-232 interface
- (14) Ethernet interface
- (15) Tuner Out interface
- (16) Tuner In interface
- (17) Power socket
- (18) ON/OFF switcher

3.3. Usage of Control Buttons

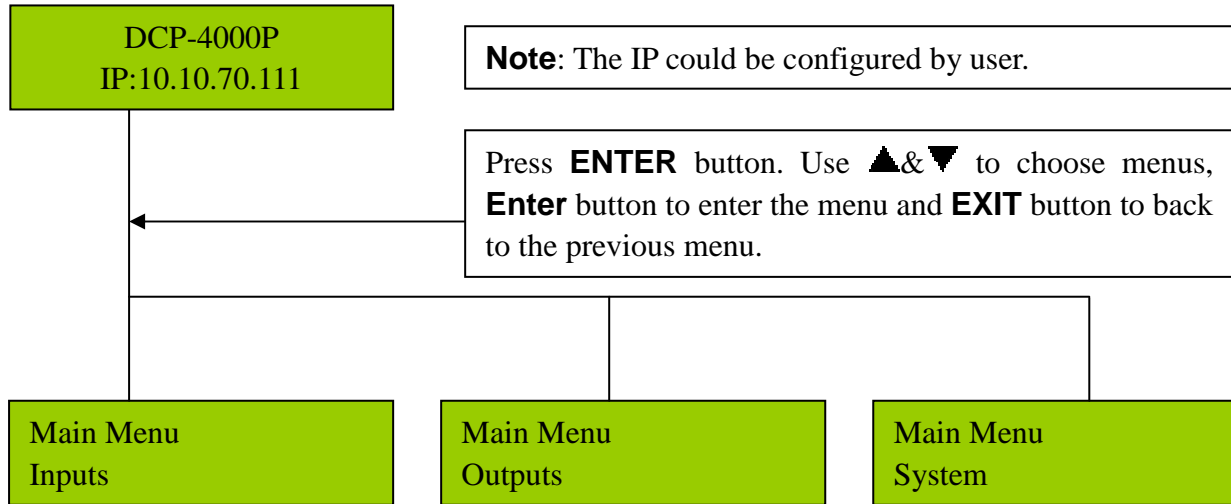


Figure 3.3 Control Unit

ENTER	Call the menu and confirm the performance
EXIT	Go back to the previous menu or cancel the operation
▲&▼	Zapping or switch the options of the menu and modify the values of options
◀&▶	Move cursor Left /Right

4. Operation on Front Panel

After power on and connecting necessary cables, the LCD will display below information:

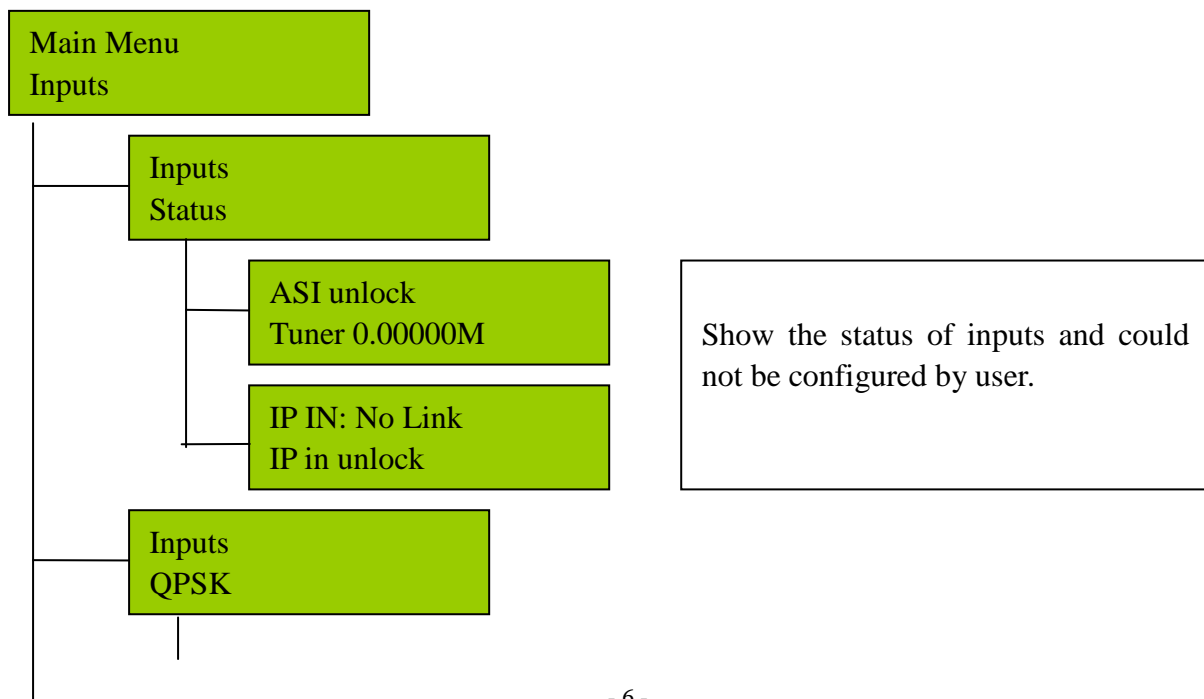


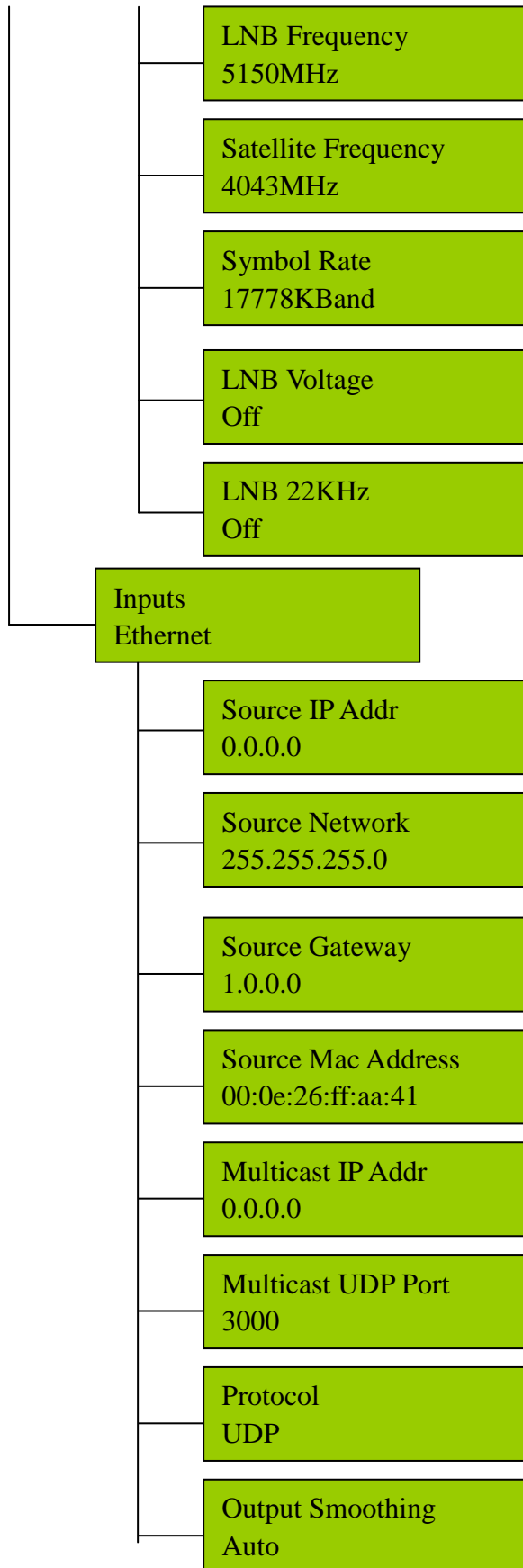
There are three submenus in Main Menu, including **Inputs**, **Outputs** and **System**.

4.1. Inputs Menu

Under Inputs Menu, the user could monitor configure the parameters of the Tuner and IP input settings.

There are three submenus in Inputs menu, including **Status**, **QPSK** and **Ethernet**. Press **ENTER** button to enter edit mode. Press ◀&▶ buttons to move cursor and use ▲&▼ button to modify the value. Press **ENTER** button to confirm the operation and **EXIT** button to cancel.





LNB Frequency
5150MHz

Satellite Frequency
4043MHz

Symbol Rate
17778KBand

LNB Voltage
Off

LNB 22KHz
Off

Inputs
Ethernet

Source IP Addr
0.0.0.0

Source Network
255.255.255.0

Source Gateway
1.0.0.0

Source Mac Address
00:0e:26:ff:aa:41

Multicast IP Addr
0.0.0.0

Multicast UDP Port
3000

Protocol
UDP

Output Smoothing
Auto

Press **ENTER** button to enter the edit mode. Use ▲▼◀▶ to key in the value. Press **ENTER** to confirm and **EXIT** to cancel

Press **ENTER** button to enter the edit mode. Use ▲▼ to modify the value. Press **ENTER** to confirm and **EXIT** to cancel.

Press **ENTER** button to enter the edit mode. Use ▲▼◀▶ to modify the value. Press **ENTER** to confirm and **EXIT** to cancel

Use ▲▼◀▶ to modify the source gateway.

Show the source Mac address. This option cannot be configured by user.

Use ▲▼◀▶ to modify the value.

Use ▲▼◀▶ to modify the value of the UDP Port.

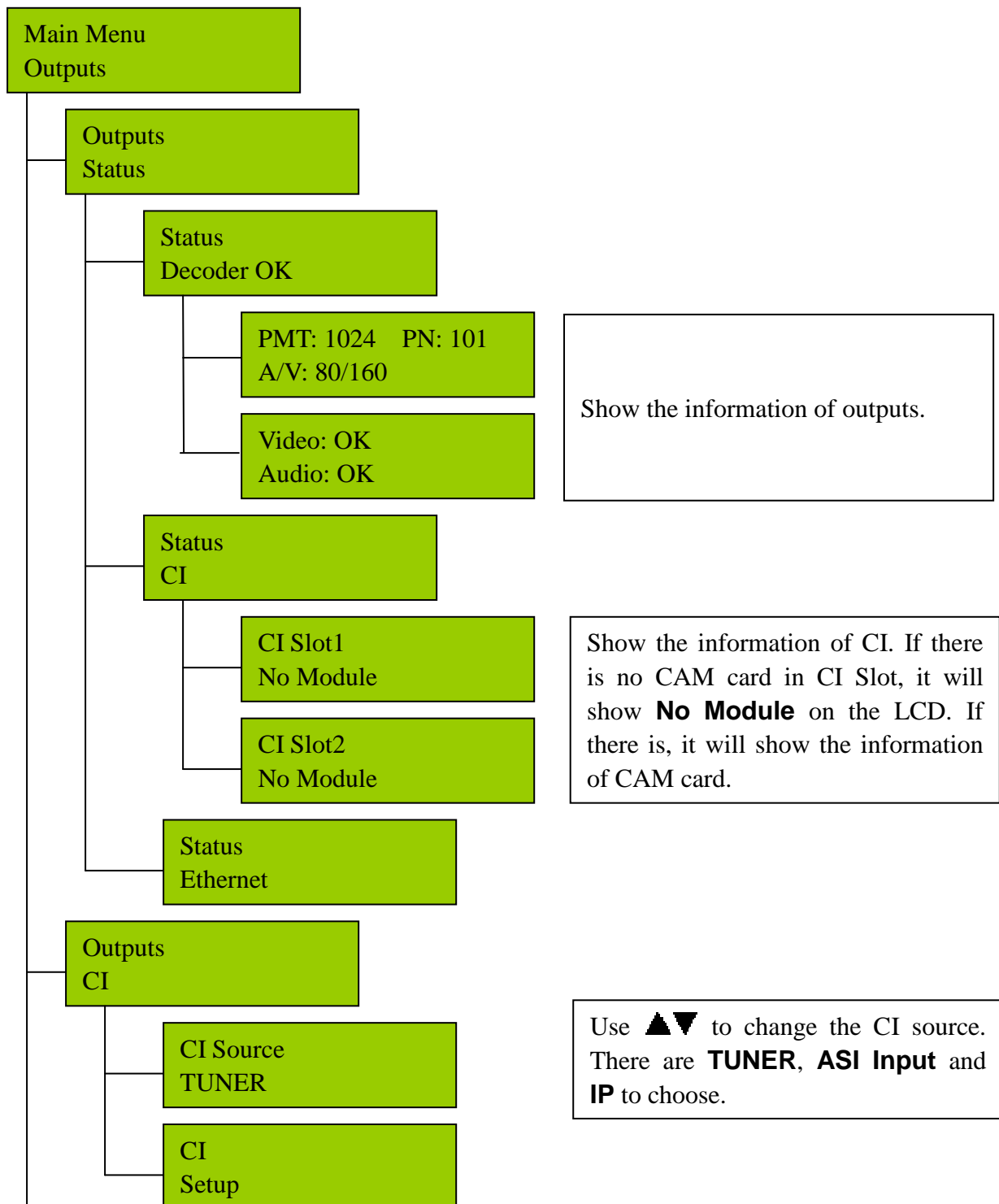
User can configure the protocol to be **UDP** or **RTP**

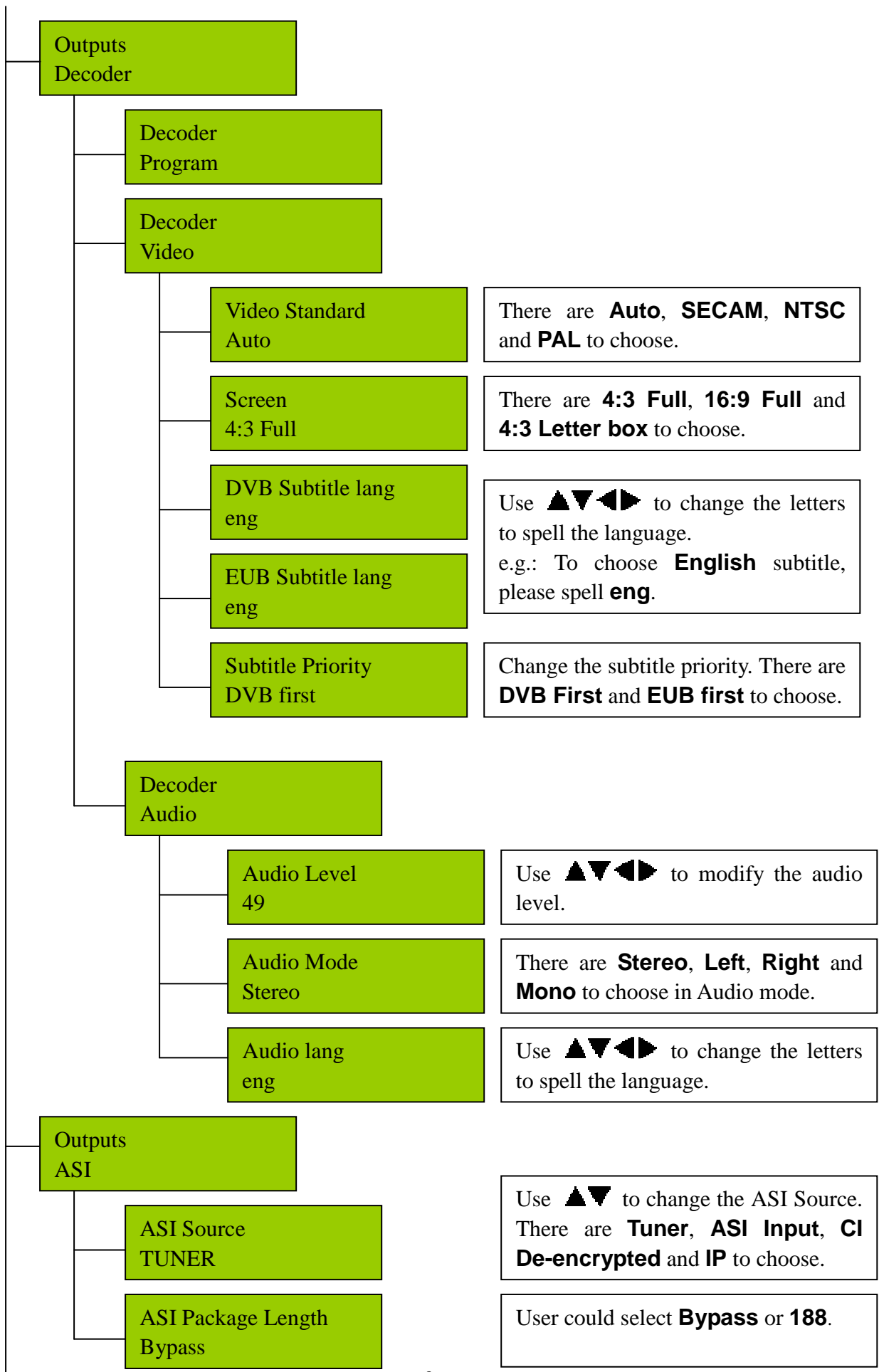
User can choose **Auto**, **Disable** and **Fixed Rate**.

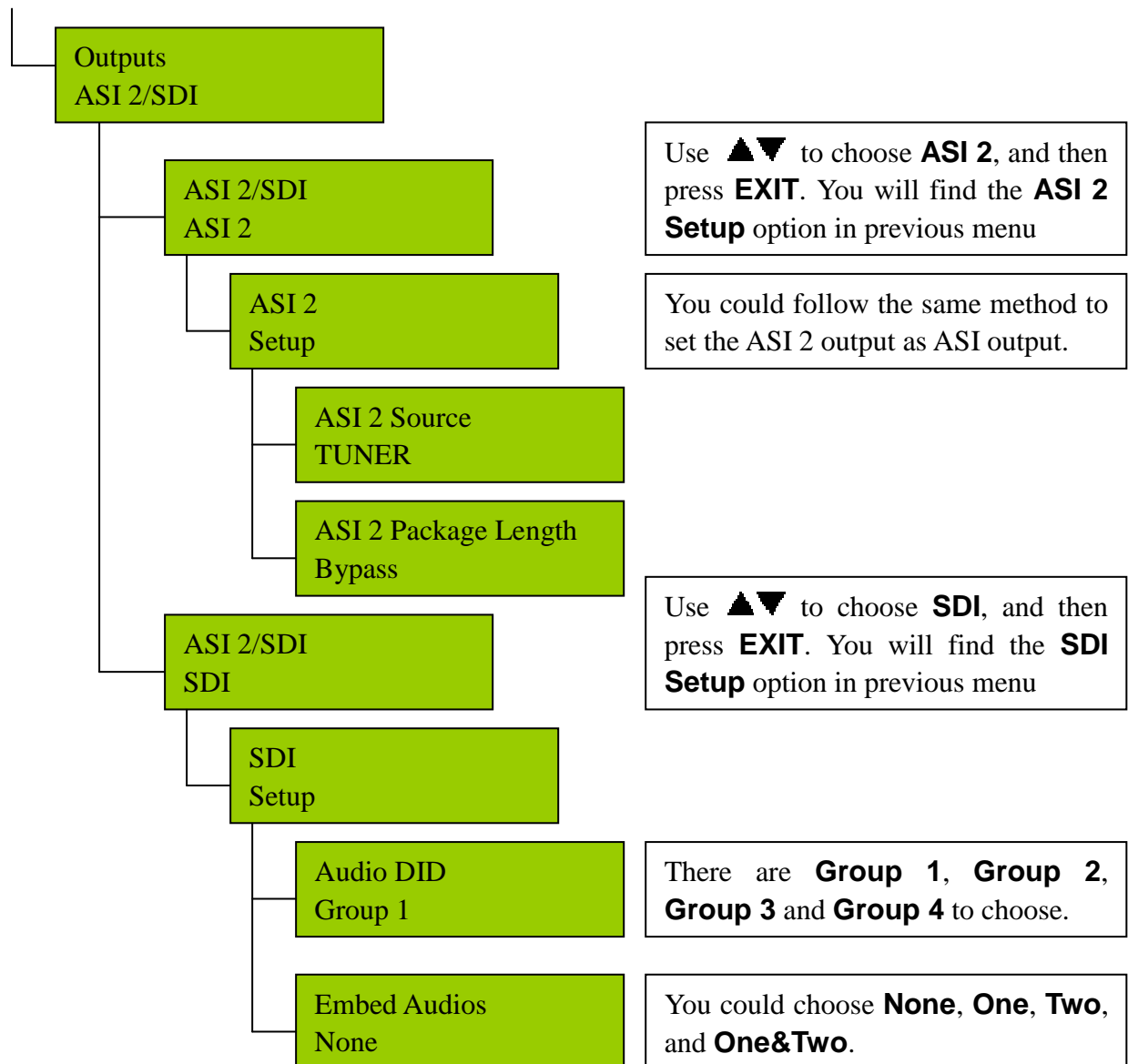
4.2. Outputs Menu

Under Outputs Menu, the user could configure the settings of output programs, such as the source signal for CI (CI Source), video standard, aspect ratio, DVB/EBU Subtitle, Audio mode and language, the source for ASI/SDI output, SDI output with or without audio embedded etc.

There are five submenus in Outputs menu, including **Status**, **CI**, **Decoder**, **ASI** and **ASI 2/SDI**. Press **ENTER** button to enter edit mode. Use **◀&▶** button to move cursor and use **▲&▼** button to edit the value. Press **ENTER** button to confirm the operation and **EXIT** button to cancel.



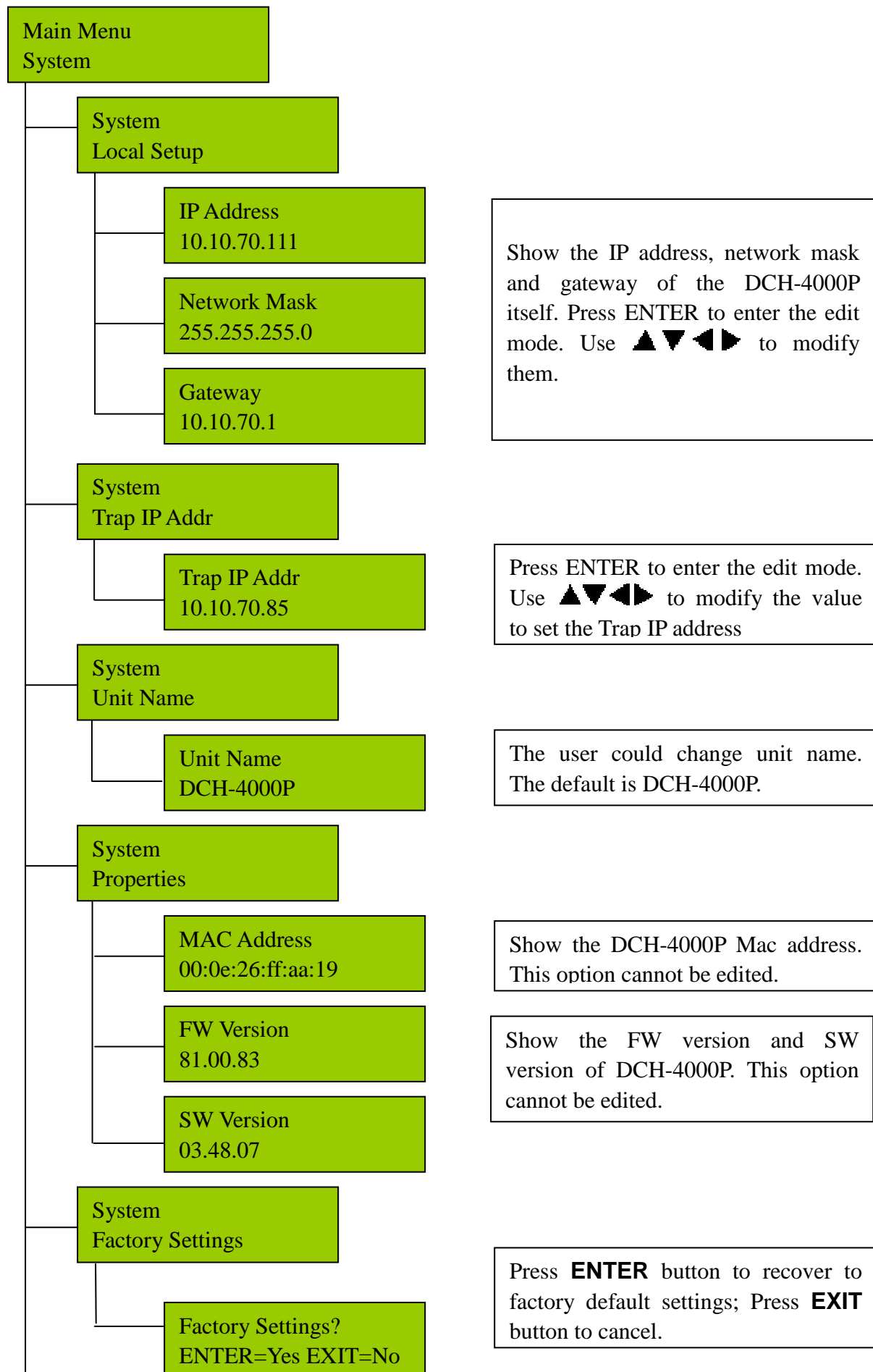


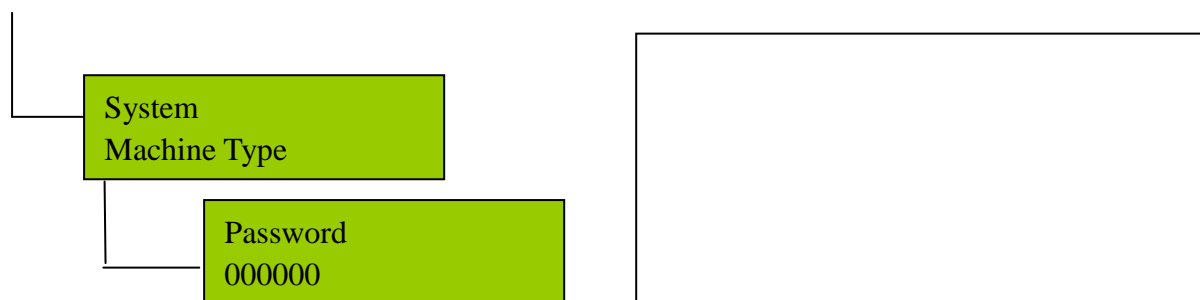


4.3. System Menu

Under System Menu, the user could configure the IP address, unit name of the DCH-4000P, or recover to the factory default settings, also the user could configure the TS/IP convertor to be IP input or output.

There are six submenus in System menu, including **Local Setup**, **Trap IP Addr**, **Unit Name**, **Properties**, **Factory Settings** and **Machine Type**. Use **ENTER** button to enter edit mode. Press ◀▶ button to move cursor and use ▲▼ button to modify the value. Press **ENTER** button to confirm the operation and **EXIT** button to cancel.





5. Frequently Asked Question

1. Why is there no display on LCD?

Answer: Please check whether the power supply is connected well first. If not, insert it well and switch on.

2. Why is there no input signal?

Answer: Please check whether the input cable is connected well first. If not, insert it well. If it is connected well, please check whether there is any damage on it. If there is, please change a good cable.

3. Why can't the Tuner be locked?

Answer: Please check the settings of the Tuner; be sure the settings are correct to receive the satellite signal come from the LNB.

4. Why can't the ASI be locked?

Answer: Please check the BNC cable first, make sure the cable is connected well and there are programs transmitted to DCH-4000P via the BNC cable.

6. Appendix

6.1. Specification

QPSK Demodulation & FEC Parameters	
Input Frequency Range	C & Ku Band, 950~2150MHZ
Input Level	-25dBm ~ -65dBm
Input Impedance	75ΩF type
Symbol Rate	2~45Mb/s (SCPC or MCPC)
Rolling Off Factory	0.20 or 0.35
Punctured Rates	1/2, 2/3, 3/4, 5/6, 6/7, 7/8
Reeds Salomon Decoding	204, 188, T = 8 & I=12

DVB-C QAM Demodulation

Connector	IEC, Female (7/8MHz) or F Female (6MHz) Input
Input Symbol Rate Range	1~7Mbs (PAL), 1~6Mbps (NTSC)
Demodulation	16/32/64/128/256 QAM
Tuner Bandwidth	6 MHz or 7 MHz or 8 MHz factory optional
FEC Decoder	1/2, 2/3, 3/4, 5/6, 7/8; K=7
Frequency Range	50~860MHz
Digital Signal Input Level	-15~15dBmV
Input Impedance	75ΩF-type

DVB-T COFDM Demodulation

Connector	IEC, Female (7/8MHz) or F Female (6MHz) Input
1 IF Loop through	Yes
Frequency Range	470-862MHz, 174-230MHz
Input Symbol Rate Range	4.98~31.67Mbit/s (8MHz bandwidth)
Constellation	QPSK, 16-QAM, 64-QAM
Tuner Bandwidth	8MHz
Digital Signal Input Level	-20 to -75dBmV
Input Impedance	75Ωunbalanced
FFT mode	2K/8K
Guard Interval	1/4, 1/8, 1/16, 1/32, off
FEC Code Rate	1/2, 2/3, 3/4, 5/6 and 7/8

DS3 Input

Input Impedance	75Ω
Connector	BNC
Maximum Input Code Rate	44.736Mbit/s
Format	Unframed Framing according to G.804/G.752 (DS3)

DS3 Loop Through Output

Impedance	75Ω
Maximum Output Code Rate	44.736Mbit/s
Connector	BNC
Format	Unframed Framing according to G.804/G.752 (DS3)

TS over IP Output

Connector	100base-T RJ45
Output Bit Rate	70Mbits/s Max.
UDP/RTP	Multicast or Unicast
Multicast Control Protocol	IGMPV2

I/O Interface on back panel

LNB I/O	1×Input, 1×loop through output
RS-232	1×9-pin D-sub male
RJ45	1×Ethernet control port, 1×TS over IP output (factory optional)

ASI input	1
ASI output	2×Redundant output
SDI output	1(user optional)
RGB output	1×RCA
CVBS output	1×RCA, 1×BNC
Audio XRL Balance Output	1
General	
Operating Temperature	0-45°C
Storage Temperature	-20~70°C
Humidity	<85%
Power Supply	Ac 90V~260V 50Hz/60Hz
Dimensions	483mm×255mm×44mm
Approximately Net Weight	5Kg

6.2. Option List

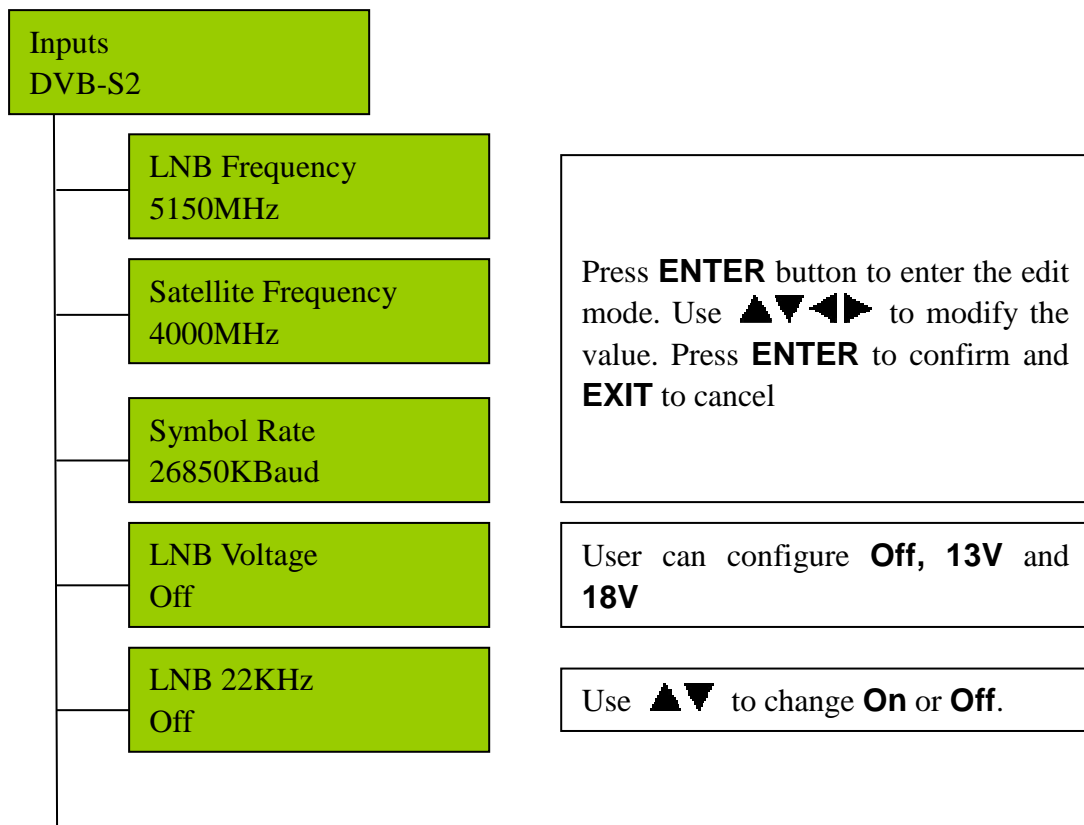
Function	DCH-4000P-30		DCH-4000P-41					DCH-4000P=42							
	-S	-C	-T	-D	-S2	-S	-C	-T	-D	-S2	-S	-C	-T	-D	-S2
IP Output (TS)											✓	✓	✓	✓	✓
IP Input (TS)						✓	✓	✓	✓	✓					
DS3 Input/Loop through				✓					✓					✓	
DVB-S Input	✓					✓					✓				
DVB-S2 Input					✓					✓					✓
DVB-C Input		✓					✓					✓			
DVB-T Input			✓					✓					✓		
PCMCIA Slot								✓							
ASI TS Input/Output								✓							
Audio Embedded SDI Output								✓							
Ethernet Remote Control								✓							
BNC Video Output								✓							
A/V Output								✓							
Balance XRL Audio Output								✓							
Simulcrypt Compliant								✓							
✓ Standard															

7. Technology Support

ADD: Room216 Floor2B, Dingjun Building,
No. 75 SuZhou Street,
Beijing, 100080, China
TEL: +86-10-6263-8833
FAX: +86-10-6263-7776
E-mail: mkt@pbicn.com

8. DVB-S2 Input Menu

When use DVB-S2 input, there will be some differences in input menu. Please refer to below menu tree for more details .



Demodulator Mode DVB-S	Use ▲▼ to change demodulator mode to DVB-S or DVB-S2.
Operation Mode QPSK 1/2	There are 14 operation modes: eight QPKS (1/2, 2/3, 3/4, 3/5, 4/5, 5/6, 8/9, 9/10) and six 8PSK (2/3, 3/4, 3/5, 5/6, 8/9, 9/10)
Pilot On	Use ▲▼ to change demodulator
Roll-off Factor 0.2	There are three factors: 0.2 , 0.25 and 0.35 .