

HP8516T 8 CH Mux DVB-T Modulator

User's Manual



Web-NMS Version: 1.10

Software: 4.11

Hardware:1.00

Catcast Technology Co., Ltd. (Chengdu)

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DIRECTORY

Chapter 1 Product Outline

1.1 Outline

HP8516T is a high performance and cost-effective DVB-T modulator designed by Catcast. It has 16 DVB-S/S2 FTA tuner input, 8 groups multiplexing and 8 groups modulating, and supports maximum 512 IP input through GE1 and GE2 port and 8 IP (MPTS) output through GE1 port and 8 non-adjacent carriers (50MHz~960MHz) output through the RF output interface. To meet customers' various requirements, this device is also equipped with 2 ASI input ports.

HP8516T is also characterized with high integrated level, high performance and low cost. It supports dual power supply (optional). This is very adaptable to newly generation broadcasting system.

1.2 Features

- 16 DVB-S/S2 FTA Tuner + 2 ASI input+512 IP (GE1 and GE2) input over UDP and RTP protocol
- 8*DVB-T RF output
- Excellent RF output performance index, MER > 40db
- Support 8 groups multiplexing + 8 groups DVB-T modulating
- Support accurate PCR adjusting
- Support PSI/SI editing and inserting
- Support Web management, Updates via web
- Redundancy Power Supply (optional)



1.3 Principle Chart

1.4 Technical Specifications

	16 DVB-S/S2 FTA Tuner							
Input	512 IP (GE1 and GE2)input over UDP and RTP protocol							
	2 ASI input, BNC interface							
		Input Frequency	950-2150MHz					
		Symbol rate	2-45Msps					
	DVB-S	Signal Strength	-65~-25dBm					
Tuner Section		FEC Demodulation	1/2, 2/3, 3/4, 5/6, 7/8 QPSK					
		Input Frequency	950-2150MHz					
	DVB-S2	Symbol rate	QPSK 1~45Mbauds 8PSK 2~30Mbauds					
		Code rate	1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10					
		Demodulation Mode	QPSK, 8PSK					
	Maximum PID Remapping	128per input channel						
Multiplexing		PID remapping (automatically or manually)						
	Function	Accurate PCR adjusting						
		Generate PSI/SI table automatically						
	Standard: EN300 744							
Modulation	FFT: 2K 8K							
· · · · · · · · · · · · · · · · · · ·	Bandwidth: 6M, 7M,	8M						
	Constellation: QPSK, 16QAM, 64QAM							

	Guard interval: 1/4, 1	Guard interval: 1/4, 1/8, 1/16, 1/32						
	FEC: 1/2, 2/3, 3/4, 5/6, 7/8							
	8 IP(MPTS) output of	ver UDP /RTP, 100M/1000M self-adaption						
	8 DVB-T RF output							
Stream output	Remote	Web NMS $(10M/100M)$						
	management							
	Language	English and Chinese						
	Software Upgrading	Web						
	Dimension	482mm×200mm×44.5mm						
	(W*D*H)	48211111×300111111×44.311111						
	Weight	3.7kg						
General	Temperature	0~45°C(Operation); -20~80°C(Storage)						
	Dowen	AC 100V±1050/60Hz;						
	Power	AC 220V±10%, 50/60HZ						
	Consumption	25W						

1.5 Appearance and description

Front Panel Illustration:



1	Power indicator
2	Reset: Reset webmaster IP address, recover it to default IP
2	address
3	USB port for upgrade
4	NMS port: Network management interface
5	Data port (GE1&GE2) : IP out port
6	ASI input port
7	RF output port

Rear Panel Illustration

									-									
RF IN1	RF IN2	RF IN 3	RF IN4	RF INS	RF IN6	RF IN7	RF IN 8	RF IN9	RF IN10	RF IN11	RF IN12	RF IN 13	RF IN14	RF IN15	RF IN16	AC 1009-2	10V 50/60Hz 2	^ ⊂€ ₽
			1													2		3
	1		16	char	nnels	RF	IN I	[ntei	rface	;								
	2		Int	egra	ted p	owe	r swi	itch	and s	ocke	et							
	3		Gr	ounc	ling	Wire	;											

Chapter 2 Installation Guide

2.1 Acquisition Check

When user opens the package of the device, it is necessary to check items according to packing list. Normally it should include the following items:

•	HP8516T 8 CH Mux DVB-T Modulator	1pcs
•	User's Manual	1pcs
•	RF/Loopout Cables	7pcs
•	Power Cord	1pcs

2.2 Installation Preparation

When users install device, please follow the below steps. The details of installation will be described at the rest part of this chapter. Users can also refer rear panel chart during the installation.

The main content of this chapter including:

- Checking the possible device missing or damage during the transportation
- Preparing relevant environment for installation
- Installing modulator
- Connecting signal cables
- Connecting communication port (if it is necessary)

2.2.1 Device's Installation Flow Chart Illustrated as following:



2.2.2 Environment Requirement

Item	Requirement
Machine Hall Space	When user installs machine frame array in one machine hall, the distance between 2 rows of machine frames should be 1.2~1.5m and the distance against wall should be no less than 0.8m.
Machine Hall Floor	Electric Isolation, Dust Free Volume resistivity of ground anti-static material: 1X10 ⁷ ~1X10 ^{10Ω} , Grounding current limiting resistance: 1M (Floor bearing should be greater than 450Kg/m ²)
Environment Temperature	5~40°C(sustainable), 0~45°C(short time), installing air-conditioning is recommended
Relative Humidity	20%~80% sustainable 10%~90% short time
Pressure	86~105KPa
Door & Window	Installing rubber strip for sealing door-gaps and dual level glasses for window
Wall	It can be covered with wallpaper, or brightness less paint.
Fire Protection	Fire alarm system and extinguisher
Power	Requiring device power, air-conditioning power and lighting power are independent to each other. Device power requires AC power 100-240V 50-60Hz. Please carefully check before running.

2.2.3 Grounding Requirement

- All function modules' good grounding is the basis of reliability and stability of devices. Also, they are the most important guarantee of lightning arresting and interference rejection. Therefore, the system must follow this rule.
- Coaxial cables outer conductor and isolation layer should keep proper electric conducting with the metal housing of device.
- Grounding conductor must adopt copper conductor in order to reduce high frequency impedance, and the grounding wire must be as thick and short as possible.
- Users should make sure the 2 ends of grounding wire well electric conducted and

be antirust.

- It is prohibited to use any other device as part of grounding electric circuit
- The area of the conduction between grounding wire and device's frame should be no less than 25mm².

2.2.4 Frame Grounding

All the machine frames should be connected with protective copper strip. The grounding wire should be as short as possible and avoid circling. The area of the conduction between grounding wire and grounding strip should be no less than 25mm².

2.2.5 Device Grounding

Connecting the device's grounding rod to frame's grounding pole with copper wire.

2.3 Wire's Connection

The grounding wire conductive screw is located at the right end of rear panel, and the power switch, fuse, power supply socket is just beside ,whose order goes like this, power switch is on the left ,power supply socket is on the right and the fuse is just between them.

• Connecting Power Cord

User can insert one end into power supply socket, while insert the other end to AC power.

• Connecting Grounding Wire

When the device solely connects to protective ground, it should adopt independent way, say, share the same ground with other devices. When the device adopts united way, the grounding resistance should be smaller than 1Ω .

✤Caution:

Before connecting power cord to HP8516T 8 CH Mux DVB-T Modulator, user should set the power switch to "OFF".

2.4 Signal Cable Connection

The signal connections include the connection of input signal cable and the connection

of output signal cable. The details are as follows:

HP8516T 8 CH Mux DVB-T Modulator Cable Illustration:

• NMS Cable illustration (CAT5):



• **RF Input/Loop Cable Illustration:**



Chapter 3 Web-based NMS Management

Users can only control and set the configuration with the web Brower in the PC.

4.1 login

The default IP address of this device is 192.168.0.136. (We can modify the IP through the front panel.)

Connect the PC (Personal Computer) and the device with net cable, and use ping command to confirm they are on the same network segment.

I.G. the PC IP address is 192.168.99.252, we then change the device IP to 192.168.99.xxx (xxx can be 1 to 254 except 252 to avoid IP conflict).

Use web browser to connect the device with PC by inputting the Encoder & Modulator's IP address in the browser's address bar and press Enter.

It will display the Login interface as Figure-1. Input the Username and Password (Both are defaulted as "admin".) and then click "LOGIN" to start the device setting.

Web Management		
♦ ♦ [] 192.168.0.136		☆ マ C 🛃 - Google 👂 🏫 🗳
	IMPANY	
	Username: Admin	
	Password:	LOGIN
	Default User:admin	
	Default Password:admin	
	Copyright @201	1

Figure-1

4.2 Operation

Summary:

When we confirm the login, it displays the WELCOME interface as Figure-2 where users can have an overview of the device's system information and working status.

welcome to use W	le			2017-05-05 13	58:24 [EN ¶	·文![Exit]
Summary Status	DEVICE INFORM	ATION			↓ System	language set
Parameters ▶Tuner ▶TS Config	System	Information	Software Version:	1.22 Build 200.00 Apr 5 2017		
Modulator IP Stream Svetem			Hardware Version: Web Version:	0.20.0.0		System
Network Password Configuration Firmware Log			Product ID: Uptime:	00339400-000002f0-0000000-0000000 0 Day-00:11:34		nformation
an click any item h	ere to enter					

Parameters \rightarrow Tuner 1-16

tl ir

HP8516T support 16 DVB-S/S2 Tuner input. From the menu on left side of the webpage, clicking "Tuner1-16", it displays the information of each encoding channel as Figure-3.

ent				2017-05-05 14:01:17	[EN 中文][
Summary	TUNER CONFIGURATION				
Parameters	# Tuner	TS Lock	Signal	Param	Action
TS Config Modulator IP Stream	1 DVBS/S2	19.964 Mbps	Quality: 29% Strength: 62%	Satellite Freq: 3840.000 M LNB Freq: 5150.000 MHz symbolrate: 27500 Ksps	Hz
System Network	CH 1 Config]		× •••• 12537.000 M 10750.000 MHz 5: 41248 Ksps	/Hz Edit
Configuration Firmware Log	: L	ite Frequency: 38 NB Frequency: 51 Symbolrate: 27	40.000 MHz 50.000 MHz 500 Ksps	req: 12721.000 M 10750.000 MHz e: 41248 Ksps	/Hz Edit
		LNB Voltage: V 22K: O Satellite: 1	(13V) V n V (1-8)	req: 3750.000 M 5150.000 MHz ≱: 10490 Ksps	Hz
			(1.0)	req: 3808.000 M 5150.000 MHz Apply Close e: 8800 Ksps	Hz

Figure-3

Parameters → TS Config:

From the menu on left side of the webpage, clicking "TS Config", it displays the interface where users can configure the TS output parameters.

➤ TS Config→Output TS:

From the menu on top side of the webpage, clicking "Output TS X", it displays the

welcome		2017-05-05 14:02:50 [EN 中文]
ummary	TS CONFIG	
Status		
arameters	Output TS 1- Stream Select General PID Bypass	
Tuner	Oldout TE 1	
TS Config	E + Output TS 2	
Modulator	⇒Lose = →Normal	-> Overflow
* IP Stream	(34.7/34.7M) ★ (B→Output	t TS 1 (prog: 4) [19.6/31.7]
vstem	P 1: Output TS 4	CCTV 1 <=TUNER_CH1 [301]
Herein and The Control of Control	E Output TS 5	CCTV 2TUNED CH4 (202)
Network	Output TS 6	SCIV 2 C-TONER_CIT[S02]
Password	Output TS 7 Refresh Input	CCTV 7 <=TUNER_CH1 [303]
Configuration	T4: Cutout TS 8 Refresh Output	CCTV 10 <=TUNER_CH1 [304]
Firmware	T5: Diverselvin	
Log		
	7: 🛄 [307] CCTV 15	
	ATUNER_CH3 (prog. 0) [0.0/0.0/0]	
	STINER CH5 (prog. 0) ID 0.00 MM All Input	
	→6:TUNER_CH6 (prog. 0) I0 0/0 0/1	
	→8:TUNER_CH8 (prog: 0) [0.0/0.0M]	
	→9:TUNER_CH9 (prog: 0) [0.0/0.0M]	
	=11-TUNER_CH11 (proc. 0) ID 0/0.000	

interface where users can check output TS of each channel. (Figure-4)



➤ TS Config→Stream select:

From the menu on up side of the webpage, clicking "Stream select", it displays the interface where users can select program(s) to multiplex out and modify program info. (Figure-5)

o use Web Manageme	2017-05-05 14:03:06 [EN 中文]
Summary	
▶ Status	1 S CONFIG
arameters	
▶ Tuner	Output TS 1- Stream Select General PID Bypass
TS Config	
Modulator	≡ + / × â
P Stream	⇒Lose ⇒ Locked ⇒ Normal → Overflow
ystem	
Network	
Password	© 2: 2 [302] CCTV 2 <=TUNER_CH1 [302]
Configuration	*3: ▼ [303] CCTV 7 <= TUNER CH1 [303]
Firmware	
Log	Refess Output
	1 €:
	, 7: [] [307] CCTV 15
	→2:TUNER_CH2 (prog: 0) [0.0/0.0/0]
	→ TUNER CH3 (prog. 0) [0.0/0.0/1]
	→ 0.100 CH9 (prog. 0) 10.0/0.0M1



Configure 'Input Area' and 'Output Area' with buttons in 'Operation Area'. Instructions are as below:

→Lose → Locked : To check input IP lock or not, green means current IP locked

→Normal → Overflow : To check current TS overflow or not, red color means current TS

overflow, need reduce program

CA Filter : To filter/not filter the source CA information

^{[™] PidRemap} : To enable/disable the PID remapping

Refresh Input To refresh the input program information

Refresh Output To refresh the output program information

Select one input program first and click this button to transfer the selected

program to the right box to output.

Similarly, user can cancel the multiplexed programs from the right box.

All Input To select all the input programs

All Output To select all the output programs

Parse program To parse programs

Program Modification:

The multiplexed program information can be modified by clicking the program in the 'output' area. For example, when clicking TV-201 <=CH2_Module 2 [201], it triggers a dialog box (Figure 6) where users can input new information.

	Program Information		[close]
Г	Program From Input:	TUNER_CH1 [301]	
	Service Name:	CCTV 1	
IE	Program Number:	101	
C	Logic Channel Number:	1	
C	Service Type:	0x01	
C	Service Provider:	CCTV	
C	PMT Descriptor Tag:	0×00	
C	PMT Descriptor Data:		(Hex)
C	PMT PID:	0x0020	
C	PCR PID:	0x0021	
E	MPEG-2 Video PID:	0x0022	
E	MPEG-2 Audio PID:	0x0023	
E			
E			Apply Close



> TS Config \rightarrow General:

From the TS Config menu on up side of the webpage, clicking "General", it displays the interface where users can set output mode, enable PSI/SI table out, NIT insert/VCT insert, PCR correction. (Figure-7)

welcor						2017-05-05 14:03:22 [EN	中文
immary	TOCOURIO						
Status	TS CONFIG						
rameters			F	1			
Tuner	Output TS 1+	Stream Select	General	PID Bypass			
TS Config Modulator	Second second						
IP Stream	Stream						
stem	Output Mode:	Mux out	•	PAT Insert:			
	SDT Insert:			BAT Insert:			
Network	Share BAT:			CAT Insert:			
Configuration	PMT Insert:	V		TDT Insert:	V		
Firmware	TOT insert:			TS ID:	1		
Log	ON ID:	1	-	PCR Correct			
	PCR Speed BW	0	11 	PCR State BW	0	2. •	
	NIT						
	NIT Insert:	Disable	•				
	IPTV Sync						
	IPTV Sync:			Sync Period:	60	Sec	
						Apply	



> TS Config→PID Bypass:

From the TS Config menu on up side of the webpage, clicking "PID Bypass", it displays the interface as Figure-8 where user can add PIDs to be passed, click the "+" symbol, input current IP channel number, then input current IP source Pid and output Pid which is customer needed , then click "set"

ome to use web want		2017-05-05 14:03:37 [EN 中文]
ummary	TS CONFIG	
* Status		
arameters		
Tuner	Output TS 1+ Stream Select General PID Bypass	
TS Config		
' Modulator	Index Input Channel Input PID(0x) Output PID(0x)	
'IP Stream		
stem		
Network		
Password		DEI-AII
Configuration		
Firmware		
Log		

Figure-8

Parameters → **Modulator**:

From the menu on left side of the webpage, clicking "Modulator", it will display the Modulator Configuration screen as Figure-9. Here user can set modulation parameters.

HP8516T 8 CH Mux DVB-T Modulator User's Manual

					2017-05-05 14:03:5	9 [EN 中文][E	Exit]
Summary	MODULATOR					_	*
▶ Status	Center Frequenc	y: 678.000 MHz	Standard: DVE	BT.			
Parameters	Level(All Carriers	s): 0.0 dBm	Channel Info.(Alarm/Active	e/Total): 0/8/8		
▶ Tuner	Guard laton/alt	1/20	Constallation	ELOAM			
► TS Config	Guard Interval.	1/32	Constenation	040241	•		
Modulator	Code Pater	om ▼	Annh	20	•		
· II Sueam	Code Rate.	110	- the second sec				Quickly Confi
System	Channel	Frequency	Gain offset	Status	Bit(Act/Max)		
▶ Network	1	650.000 MHz	0.0 dB		21.7/31.7 M	/ -	
Password	0	659 000 MHz	95 0 A		0.0/21.7 M		Channel Con
Configuration Firmware	2	008.000 MHZ	0.0 08		0.0/31.7 M		
► Log	3	666.000 MHz	0.0 dB		0.0/31.7 M	1	
	4	674.000 MHz	0.0 dB	•	0.0/31.7 M	1	
	5	682.000 MHz	0.0 dB	•	0.0/31.7 M	1	
	6	690.000 MHz	0.0 dB	•	0.0/31.7 M	2	
	7	698.000 MHz	0.0 dB	•	0.0/31.7 M	1	
	8	706.000 MHz	0.0 dB		0.0/31.7 M	1	

Figure-9

Parameters → IP Stream:

HP8516T supports TS to output in IP (8*MPTS) format through the DATA port.

Click 'IP Stream', it will display the interface where to set IP out parameters (Figure-10).

8CH DVBT Mo	dulator										6
Management								2017-0	5-05 14:04:56 [EN ⁴	中文][Exit]	
Summary Status	IP STREAM										
Parameters		IP Address	Port	Protocol	Pkt Length	Null PKT Filter	Status	Bit(Act/Max)	ModulatorChannel		
Tuner		1	224.2.2.2	2001	UDP	7			19.9/31.7 M		Click here to
► TS Config		2	224.2.2.2	2002	UDP	7			0.0/31.7 M	1	Config IP output
► IP Stream		3	224.2.2.2	2003	UDP	7			0.0/31.7 M	/	Coning iF outpu
System		4	224.2.2.2	2004	UDP	7			0.0/31.7 M	/	
► Network		5	224.2.2.2	2005	UDP	7			0.0/31.7 M	/	
Password		6	224222	2006	UDP	7	m		0.0/31.7 M	1	
► Firmware		7	224222	2007	LIDP	7			0.0/21.7 M		
► Log		0	224.2.2.2	2007	UDD	7			0.0/31.7 M		
		8	224.2.2.2	2008	UDP	1			0.0/31.7 M		
						m					

Figure-10

System → Network:

Click 'Network', it will display the interface as Figure-11 where to set network parameters.

CH DVBT Mod	dulator				
				2017-05-05 14:05:49	[EN 中文][E
	NETWORK				
summary					
▶ Status					
Parameters	NMS				
Tupor		IP Address:	192.168.0.136		
TS Config		Subnet Mask:	255.255.255.0		
► Modulator		Gateway:	192.168.0.1		
▶ IP Stream		Web Manage Port:	80		
System		MAC Address:	20:17:05:04:16:26		
			20.11.00.04.10.20		
Network					
Password				Apply	
Firmware					
►Log	DATA				
		IP Address:	192.168.144.136		
		Subnet Mask:	255,255,255,0		
		Gateway:	192 168 144 1		
		MAC Address:	20:27:05:04:16:26		
				Apply	
	•		m		

Figure-11

System → password

From the menu on left side of the webpage, clicking "Password", it will display the screen as Figure-12 where to set the login account and password for the web NMS.

velcome to use Web Mai	2017-05-05 14:05:58 [EN 中文] [E
Summary	PASSWORD
▶ Status	
Parameters	
Tuner	Modify the login name and password to make the device safely. If forget the name or password, you can reset it
►TS Config	by keyboard. The default login name and password is "admin". Also please note the capital character and
▶ Modulator	lowercase character.
► IP Stream	
System	Current UserName: admin
▶ Network	Current Password:
▶ Password	Now UserName
▶ Configuration	
▶ Firmware	New Password:
►Log	Confirm New Password:
	Appy

Figure-12

System → Configuration:

From the menu on left side of the webpage, clicking "Configuration", it will display the screen as Figure-13 where to save/ restore/factory setting/ backup/ load your configurations.

CH DVBT Mod	ulator
welc	2017-05-05 14:06:08 [EN 中文] [Exit]
Summary Status	CONFIGURATION
Parameters	
Tuner	Save Restore Factory Set Backup Load
►TS Config	
▶ Modulator	
► IP Stream	When you change the parameter you shoud save configuration ,otherwise the new configuration will lost after
System	reboot.
▶ Network	
Password	
▶ Configuration	Save config
▶ Firmware	
▶ Log	
	۲ (۱۱۱) ۲۰۰۲ (۲۰۰۲) ۲۰۰۲ (۲۰۰۲) ۲۰۰۲ (۲۰۰۲) ۲۰۰۲ (۲۰۰۲) ۲۰۰۲ (۲۰۰۲) ۲۰۰۲ (۲۰۰۲) ۲۰۰۲ (۲۰۰۲) ۲۰

Figure-13

System → Firmware:

From the menu on left side of the webpage, clicking "Firmware", it will display the screen as Figure-14 where to update firmware for the modulator.

welcom	2017-05-05 14:06:21 [EN 中文] [E
Summary Status	FIRMWARE
Parameters Tuner TS Config Modulator IP Stream System	 Warning: 1. Upgrade firmware(software and hardware) to get new function, please choose the right firmware to upgrade. If you use a wrong file, the device may not work. 2. Upgrade will keep a long time, please do not turn off the power, otherwise the device will not work. 3. After upgrade. you must reboot device manually.
 Network Password Configuration Firmware Log 	Current Software Version: 1.22 Build 200.00 Apr 5 2017 Current Hardware Version: 0.20.0.0 File: Browse
	Upprode

Figure-14

System→ Log:

From the menu on left side of the webpage, clicking "Log", it will display the log interface as Figure-15 where to check or export the Kernel/System log.

CH DVBT Modu	lator
welcome to use V	2017-05-05 14:06:54 [EN 中文] [E >
	LOG
Summary	
▶ Status	Log Type: Kernell og v Auto 0 v Evand
Parameters	r o source la
Tuner	U.0000001 Booting Linux on physical CPU 0x0 Control (Control Control
►TS Config	0.000001 CPLF ARM/7 Processor [113/c0901 miscion of (ARM/7), cre18/c537d
► Modulator	0 0000001 CPU: PIPT / VIPT nonaliasing data cache. VIPT aliasing instruction cache
►IP Stream	0.000000] Machine model: xlnx,zynq-7000
	0.000000] cma: Reserved 16 MiB at 0x0d800000
System	0.000000] Memory policy: Data cache writealloc
▶ Network	[0.00000] On node 0 totalpages: 65536
P Decoword	[0.000000] free_area_init_node: node 0, pgdat 40560200, node_mem_map 4fdf0000.
Configuration	[0.00000] Normal zone: 512 pages used for memmap
Configuration	0.000000] Normal zone: 0 pages reserved
Firmware	0.000000] Normal zone: 65536 pages, LIFO batch:15
Log	0.0000000 PERCPU: Embedded 9 pages/cpu @44dd3000 s8128 r8192 d20544 u36864
	0.000000 pcpu-alloc: so126 ro 192 02/0544 036664 alloc=9-4096
	0.000000 pcputation. [0] 0 [0] 1
	0.000000 Built 1 20nemsts in 20ne order, intrumy grouping on: Total pages, 60/24
	L 0.000000 log buf lan individual may coursolitativitan: 131022 butas
	[0.000000] log_but_len individual max contributions: 131072 bytes
	0 0000001 log_buf len min size: 131072 bytes
	0.0000001 log buf len: 262144 bytes
	0.000000] early log buf free: 129664(98%)
	0.000000] PID hash table entries: 1024 (order: 0, 4096 bytes)
4	

Figure-15

Chapter 4 Troubleshooting

Catcast's ISO9001 quality assurance system has been approved by CQC organization. For guarantee the products' quality, reliability and stability. All Catcast products have been passed the testing and inspection before ship out factory. The testing and inspection scheme already covers all the Optical, Electronic and Mechanical criteria which have been published by Catcast. To prevent potential hazard, please strictly follow the operation conditions.

Prevention Measure

- Installing the device at the place in which environment temperature between 0 to 45 °C
- Making sure good ventilation for the heat-sink on the rear panel and other heat-sink bores if necessary
- Checking the input AC voltage within the power supply working range and the connection is correct before switching on device
- Checking the RF output level varies within tolerant range if it is necessary
- Checking all signal cables have been properly connected
- Frequently switching on/off device is prohibited; the interval between every switching on/off must greater than 10 seconds.

Conditions need to unplug power cord

- Power cord or socket damaged.
- Any liquid flowed into device.
- Any stuff causes circuit short
- Device in damp environment
- Device was suffered from physical damage
- Longtime idle.
- After switching on and restoring to factory setting, device still cannot work properly.
- Maintenance needed

Chapter 5 Packing List

•	HP8516T 8 CH Mux DVB-T Modulator	1pcs
•	User's Manual	1pcs
•	RF/Loopout Cables	7pcs
•	Power Cord	1pcs