



IP32PAL

32 CHANNEL

IP TO ANALOG MODULATOR

NMS IP: 192.168.1.30
User Name: user
Password: user

A Note from Helix about this Manual

Intended Audience

This user manual has been written to help people who have to use, integrate and to install the product. Some chapters require some prerequisite knowledge in electronics and especially in broadcast technologies and standards.

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1. INTRODUCTION |

IP32PAL is a high density IP to analog RF platform that carries 32 free adjacent channels in a 2U box. Browser based user interface facilitate system setup and maintenance efficiency. This outstanding headend system consume much less power then other competitors, eventually reduce operating cost and extend life cycle.

2. FEATURES

1. System provides 1 GE input ports for both MPTS and SPTS video streams
2. Receive IP streams and output up to 32 channels in NTSC or PAL standard
3. Easy configuration and software upgrade by built-in Web UI
4. Support running text and image overlay
5. Support BISS decryption as an option
6. Support multi sound tracks and subtitles selection

3. SPECIFICATION

GbE INPUT			
Input Connector	1 x RJ45	Addressing	Unicast, Multicast
Transport Protocol	UDP, RTP	MPEG Transport	SPTS, MPTS
TS DECODING			
Video Resolutions	Up to 1080P	MAX decoding stream	32 channels
Video Form	MPEG1/2/4; H.264; H.265; AVS; AVS+; VC1	Audio Form	MPEG-1 Layer I/II/III; WMA, AAC, AC3
Additional capabilities	Teletext; BISS decrypt	Aspect Ratio Control	4:3(Letterbox&PanScan); 16:9
Multi-sound track	Support	Multi language subtitle	Support
RF OUTPUT			
Connector	F female connector	Output Level	≥ 53dBmV combined
Number of RF channels	Max 32 agile modulated channels	Adjust Range	10dB per 1CH
Supported Standard	NTSC, PAL BG/DI/DK	Audio Output Format	MONO
STD,HRC and IRC	Support	Audio Level Adjust Range	0 ~ 100%
Output Frequency	48 ~ 860 MHz	RF Test Point	-20dB Relative to output
Out-band Rejection	≥ 60dB	Differential Gain	≤ 5%
Flatness	-2dB per carrier	Group Delay Response	≤ 100nS
Return Loss	12 dB (min)	2K Factor	≤ 2%
GENERAL			
Management	NMS	Consumption	<X/X/320W
Language	English	Weight	11.46/12.62/13.78KG
Power Supply	AC 90~264V	Dimension	471.5*430*88.6 (MM)

**TO REDUCE THE RISK OF ELECTRICAL SHOCK,
DO NOT REMOVE COVER FROM THIS UNIT.
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.**

WARNING: TO PREVENT SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE



CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

4. SAFETY INSTRUCTIONS

1. Read all safety and operating instructions before you operate the modulator
2. Retain all safety and operating instructions for future reference
3. Heed all warnings on the modulator and in the safety and operating instructions
4. Follow all installation, operating and use instructions.
5. Unplug the modulator from the AC power outlet before cleaning. Use only a damp cloth for cleaning the exterior of the modulator
6. Do not use accessories or attachments not recommended by us, as they may cause hazards, and will void the warranty
7. Do not operate the modulator in high-humidity areas, or expose it to water or moisture.
8. Do not place the modulator on an unstable cart, bracket or table. The modulator may fall, causing serious personal injury and damage to the modulator. Install the modulator only in a mounting rack designed for 19" rack-mounted equipment.
9. Do not block or cover slots and openings in the modulator. These are provided for ventilation and protection from overheating. Never place the modulator near or over a radiator or heat register.
10. We strongly recommend using an outlet that contains surge suppression or ground fault protection. For added protection during a lightning storm, or when the modulator is left unattended for long periods of time, unplug it from the wall outlet or PDU and disconnect the lines between the modulator and its source. This will prevent damage caused by lightning or power line surges.
11. Do not overload wall outlets or extension cords, as this can result in a risk of fire or electrical shock.
12. Never insert objects of any kind into the modulator through openings as the objects may touch dangerous voltage and will void the warranty. Refer all servicing to authorized service personnel.
13. Unplug the modulator from the wall outlet or PDU and refer servicing to authorized service personnel whenever the following occurs:
 - The power supply cord or plug is damaged
 - Liquid has been spilled into or objects have fallen into modulator
 - The modulator has been exposed to rain or water
 - The modulator has been dropped or the chassis has been damaged
 - The modulator exhibits a distinct change in performance

When replacement parts are required, ensure that the service technician uses replacement parts specified by us. Unauthorized substitutions may damage the modulator or cause electrical shock or fire, and will void the warranty.

5. Unpacking and Handling:

A full IP32PAL is shipped with all equipment assembled, wired, factory tested, and then packaged in an appropriate shipping container.



INTERNET CABLE * 1PCS



30 dB ATTENUATOR * 1PCS



AU/NZ POWER CORD * 1PCS

5.1 Mechanical Inspection

Inspect the front and rear of the equipment for shipping damage. Make sure the equipment is clean, and no wire, cable, or connectors are broken, damaged or loose.

5.2 Precautions

Avoid heat buildup

Ensure easy access to rack wiring

Facilitate servicing and maintenance

Avoid direct heating or air conditioning

Make sure rack supports are sufficiently rigid to support racks

Beware of dripping water onto equipment from leaky roofs, waveguide roof entries and cold water pipe condensations

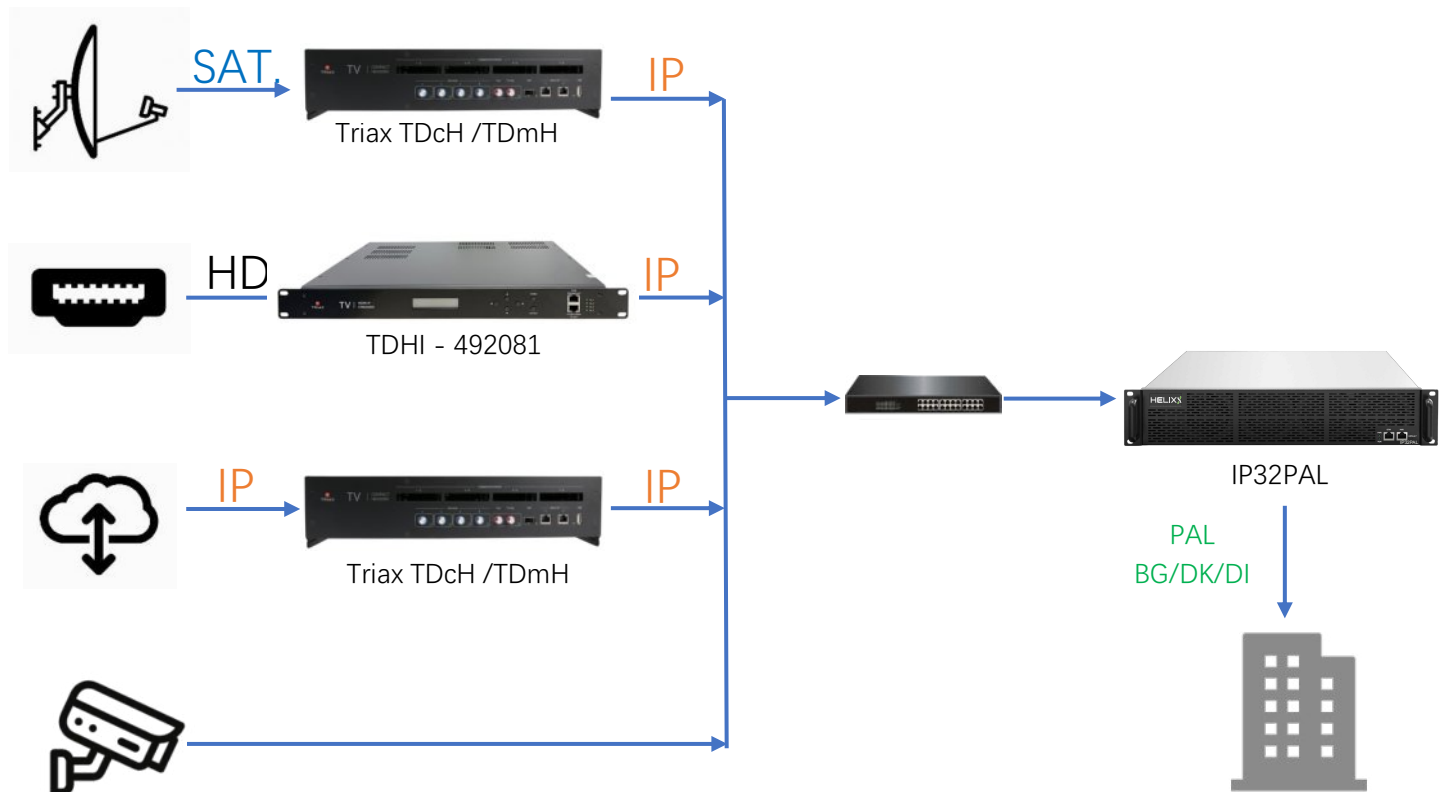
5.3 Damage in Shipment

Should any damage be discovered after unpacking the unit, immediately file a claim with the carrier. A full report of the damage shall be made and a copy forwarded to Seller.

6. INSTALLATION

Please follow the instructions below to install the IP32PAL

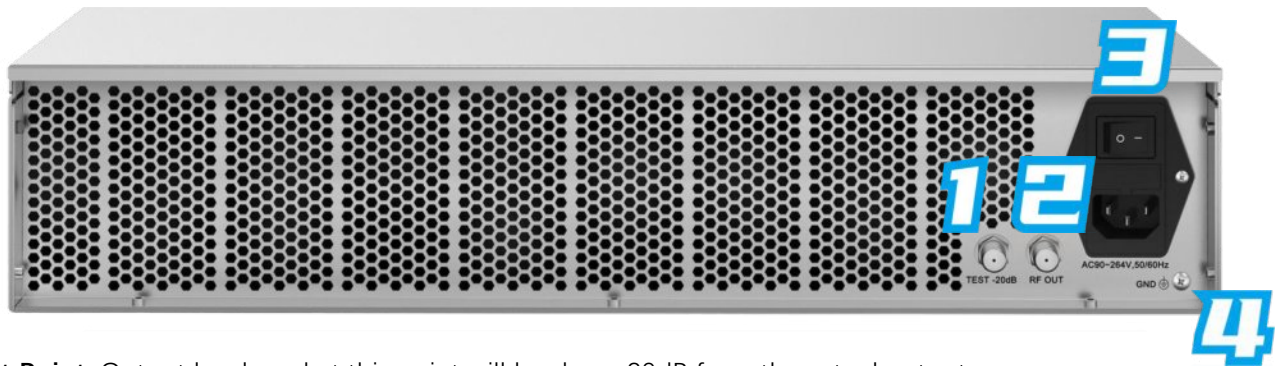
- Connect the power plug to the jack. Do not power up the modulator at this step.
- Connect to the proper earthing wire
- Connect the video source to the IP32PAL
- Power up the modulator
- Log into the modulator and set up the frequency



NOTICE:

1. Pay attention to the VLAN setting in the switch to avoid data conflict.
2. Use the attenuator to low the output level in case you are testing the modulator with the output cable to the TV directly.
3. Enable the VLAN settings in the modulator whenever it is needed.

7. REAR PANEL



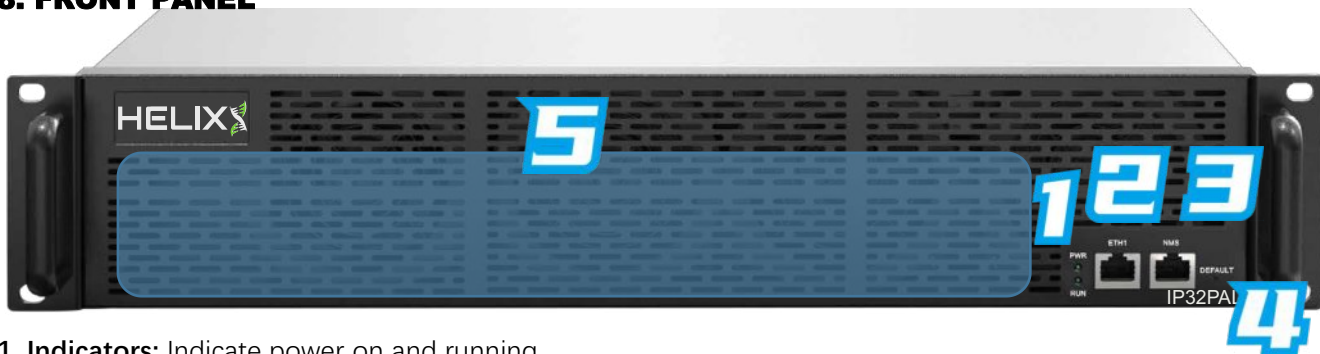
1. **Test Point:** Output level read at this point will be down 20dB from the actual output
2. **RF Output:** 32 modulated signal output is provided at this port
3. **Power Cord Socket and Cord:** Input power source from 90V to 264V
4. **GND:** For modulator grounding



WARNING:

For the protection of your equipment and its proper working, it is necessary to connect the IP32PAL to a ground connection.

8. FRONT PANEL



1. **Indicators:** Indicate power on and running
2. **ETH01:** To input IP signal here.
3. **NMS:** Net management system port [IP:192.168.1.30; USER NAME: user; PASSWORD: user]
4. **Default:** Press it for 10 seconds to restore the modulator settings.
5. **Ventilation Holes:** The heat-sink holes with dust-proof screen inside



DO NOT block the unit's ventilation holes.

9 SET UP THE MODULATOR

9.1 LOGIN

The IP32PAL has a friendly user interface for programming and monitoring the device. The user can get access to the built-in web UI by logging into Google Chrome, Firefox or Microsoft Edge accounts. (The best browsers)

The default user name and the default password are the following:

Username: **user**

Password: **user**



Please make sure your computer address is in the same IP segment as the modulator is.

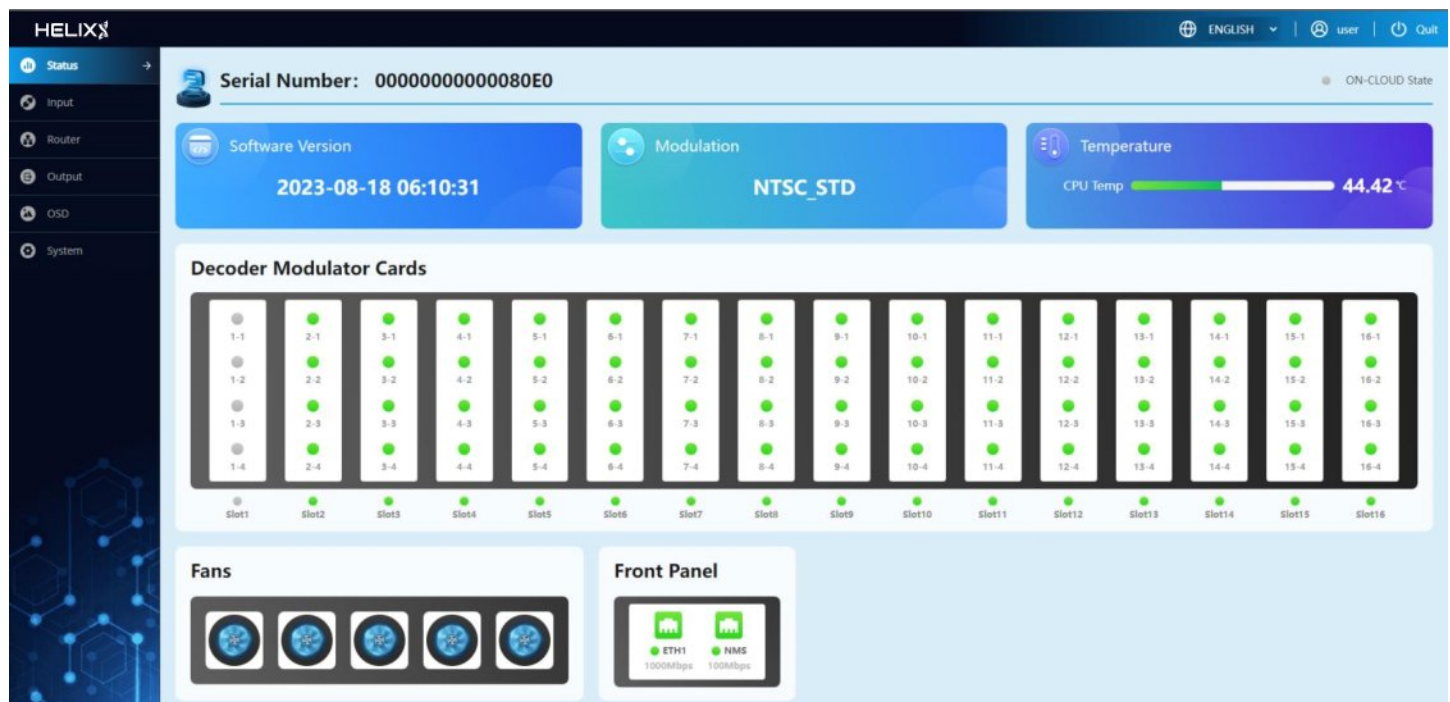
Remind: 1. Please change the user name and password if needed.

2. Username/password are case-sensitive and may contain letters or numbers.

3. Username/password must be a minimum of 1 byte and a maximum of 32 bytes in length.

9.2 SYSTEM STATUS

This page is a read-only one which displays the general health of the unit, such as temperature, Input and output ports and Serial number. The information is provided as a quick way to monitor the system or assist with troubleshooting issue.



In the left side, it is the MENU while the settings will be displayed in the right side.

Serial Number: The unique ID for this modulator.

Modulation: Indicates the RF output modulation.

Software Version: If there's something wrong with this device, please send this information to us.

Temperature: Indicates the CPU working temperature in real-time.

Decoder Modulator Cards: Indicates the output channels status. The green color means the output is good while the gray means no output..

Cooling Fans: There are four cooling fans installed in the left side of the case.

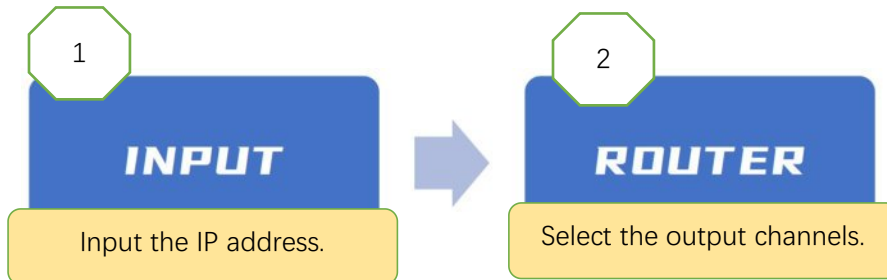


The fan is working in good condition.



The fan is down. Please replace it.

9.3 SETTING FLOW:



9.4 INPUT

Click the **+Add** button to add the IP address. >>>Choose the Multicast in normal situation and input your IP address. >>>Click **Submit** and the system will analysis the programs in IP address, which will be listed out in the Router.

For quick input, we also provide step mode. There are three modes in it -- IP address, Port and IP address with port. Choose any of them to meet your plan.

Add

☐ Unicast ☒ Multicast

IP Address:

Port:

Step Mode:

Step Times:

Count:

	NO.	IP Address	Port	Bitrate(Kbps)
☐	1	239.1.11.112	50000	3361.53
☐	2	239.1.1.136	50000	5156.14
☐	3	239.1.1.137	50000	5123.19
☐	4	239.1.1.138	50000	2577.43
☐	5	239.1.1.139	50000	2472.78

Step : The value range is from 1 to 10.

Count : The maximum value is 256. Notice that the note for this box is the available input number.

9.5 ROUTER

Forward The Selected

Cancel All

NO.	Service Name	Output Channel	Stream Type	State	Edit	Action
IP ETH1 239.1.11.112:50000 (1/1)						
1	KEN-00	2-1/N6 (83.25)				Cancel
IP ETH1 239.1.1.136:50000 (1/1)						
1	KEN-01	2-2/N95 (91.25)				Cancel
IP ETH1 239.1.1.137:50000 (1/1)						
1	KEN-02	2-3/N96 (97.25)				Cancel
IP ETH1 239.1.1.138:50000 (1/1)						
1	KEN-03	2-4/N97 (103.25)				Cancel
IP ETH1 239.1.1.139:50000 (1/1)						
1	KEN-04	3-1/N98 (109.275)				Cancel

In this list, you can see all the input streams and send the programs to the preset frequencies with the Forward button.

	Common PID edit : Video PID/ Audio PID/ Private PID
Stream Type ICON	: encrypted stream; : clear stream ; : video data; : audio data; : text data
	PSI/SI viewer. It will display the PSI/SI table here.
	Refresh. Click this ICON and the system will analysis the stream again.

In PID Edit, you can select the subtitles and sound tracks

NO.	SRC PID	Type	Forward	Subtitle Language
1	213	Mpeg-2 Audio	☒	
2	209	User private	☐	Czech
3	208	User private	☐	Romanian
4	206	User private	☐	Bulgarian
5	205	User private	☐	Hungarian
6	204	Mpeg-2 Audio	☐	
7	5698	Mpeg-2 Audio	☐	
8	201	Mpeg-2 Audio	☐	
9	5682	MPEG-2 Video	☒	

The language subtitles

The sound tracks

Stream Information:

 **Total Programs: 65**

 **Forwarded Programs: 7**

 **Not forwarded programs: 58**

This information is a summary of the router list, which is very helpful to the operators.

9.6 OUTPUT

Channel Input Mode: Input From List **Total attenuation:** 0 Submit Quick Channel Edit Bulk Edit

Slot Number		IP Info	Service Name	Attenuation (-dB)	Frequency(MHz)	Enable	Volume	Video Ratio	Action
1-1	☐	239.1.11.112:50000	KEN-00	40000	N2 (55.25)	☒	<input type="range" value="50"/>	50%	Full Screer ▼ Image Settings
1-2	☐	239.1.1.136:50000	KEN-01	40000	N3 (61.25)	☒	<input type="range" value="50"/>	50%	Full Screer ▼ Image Settings
1-3	☐	239.1.1.137:50000	KEN-02	40000	N4 (67.25)	☒	<input type="range" value="50"/>	50%	Full Screer ▼ Image Settings
1-4	☐	239.1.1.138:50000	KEN-03	40000	N5 (77.25)	☒	<input type="range" value="50"/>	50%	Full Screer ▼ Image Settings
2-1	☐	239.1.1.139:50000	KEN-04	40000	N6 (83.25)	☒	<input type="range" value="50"/>	50%	Full Screer ▼ Image Settings
2-2	☐	--	--	40000	N95 (91.25)	☒	<input type="range" value="50"/>	50%	Full Screer ▼ Image Settings
2-3	☐	--	--	40000	N96 (97.25)	☒	<input type="range" value="50"/>	50%	Full Screer ▼ Image Settings

There are two input modes for setting up the output frequency: Input From List and Manual Input. We would like to recommend you to use the Input From List to save time.

Setting from list: Select the channels from the drop box

Frequency(MHz)

N2 (55.25)

N58 (427.25)

N59 (433.25)

N60 (439.25)

N61 (445.25)

N62 (451.25)

N63 (457.25)

In the **Setting from list**, you can select the frequency in the drop box list. The used frequency will be in grey and the unused ones are in white as the picture shown in the left.

Manual Input: Set the channels by inputting the frequencies

Frequency(MHz)

In the **Manual Input**, you can input the frequency as you have.

Quick Channel Edit: Quickly generate 32 channels by plan

In the Setting from list mode

Quick Channel Edit

First Frequency(MHz)

N2 (55.25)

Cancel

Submit

In the Manual input mode

Quick Channel Edit

First Frequency(MHz)

55.25

Bandwidth

6M

Cancel

Submit

Other settings in the OUTPUT SETTING

Channel Input Mode:Manual Input

Total attenuation:0

Submit

Quick Channel Edit

Bulk Edit

Slot Number		IP Info	Service Name	Attenuation (-dB)	Frequency(MHz)	Enable	Volume	Video Ratio	Action
1-1	☐	239.1.11.112:50000	KEN-00	40000	55.25	ON	50%	Full Screen	Image Settings
1-2	☐	239.1.1.136:50000	KEN-01	40000	61.25	ON	50%	Full Screen	Image Settings
1-3	☐	239.1.1.137:50000	KEN-02	40000	67.25	ON	50%	Full Screen	Image Settings
1-4	☐	239.1.1.138:50000	KEN-03	40000	77.25	ON	50%	Full Screen	Image Settings
2-1	☐	239.1.1.139:50000	KEN-04	40000	83.25	ON	50%	Full Screen	Image Settings
2-2	☐	--	--	40000	91.25	ON	50%	Full Screen	Image Settings

Total attenuation : Adjust the combined output level

Slot Number 1-1: the first 1 stands for the first card while the second 1 stands for the first output channel in the first card

Attenuation: The current channel output level adjustment. The range is 20dB max and the step is 1dB.

Enable: To enable or disable the RF output. When one channel is disable, its settings will be frozen.

Frequency: Input the frequency or select from the list. All frequencies and channels are agile and free from 48~860MHz.

Volume: Adjust the sound level by the slide bar

Display Ratio: The picture ratio—4:3 letter box/ 4:3 Pan Scan/ 16:9 / Full Screen. Choose the right ratio to match your TV.

Image Settings: To fine tuner the color standard, brightness, contrast, hue, Saturation and Sharpness for each channel.

Image Settings (Slot Number1-1)

Color Standard

NTSC

Brightness

12%

Contrast

12%

Hue

0%

Saturation

12%

Cancel

Submit

NOTICE: The system will submit the **ATTENUATION**, **IMAGE SETTINGS** and **VOLUME** automatically. The other settings need to be saved by clicking the **SUBMIT** button.

Bulk Edit: This is the quick mode to edit the ATTENUATION, VOLUME, VIDEO RATIO AND COLOR STANDARD for all channels.

Attenuation (-dB)	Frequency(MHz)	Enable	Volume	Video Ratio
40000	N2 (55.25)	ON	50%	Full Screen
40000			50%	Full Screen
40000			50%	Full Screen
40000			50%	Full Screen
40000			50%	Full Screen
40000			50%	Full Screen
40000			50%	Full Screen
40000			50%	Full Screen
40000			50%	Full Screen
40000			50%	Full Screen

10. OSD (On Screen Display)



NOTICE: To activate the function, please set up the modulator time first. You can go with **System>>>Time Parameters>>>Time and Date>>>TODAY**

Basic Parameters Time Parameters

Auto ☐

Date Time 2021/02/24 13:34:04

Local Timezone

Time 13:34:04

Clear Today OK

Press TODAY and the modulator will read the time from your laptop.

In the OSD setting, you can set the running text and logo

File Upload

File Type Text

Reminder: The input text size cannot exceed 500 bytes!!!

Text Content Thank you for using our product.

Style Settings

Y Coordinate 0 Set

Font Size 33

Transparency 0

Font Color Background Color

Scroll Speed Slow Scroll Direction Left

Play Schedule

Enable

Interval Mode No

Starting Time 2023/08/18 17:52:43

Duration User-defined 1 Minutes

To Channel Nothing selected

Submit

Click SUMIT and the modulator will display the running text and logo in the TV



11. System Parameters

11.1 Basic Parameters

 **Basic Parameters**

Device Name:

DTV

TS Subtitle:

☐ DVB Subtitle Enable

Device name: Input name for the modulator
TS Subtitles : Enable the subtitle function

11.2 Time Parameters

 **Time and Date**

Enable NTP:

☐

Time And Date:

2023-08-18 18:09:32

Local Timezone:

(UTC+8:00) Beijing, Kual ▼

Please set up the right time to activate the OSD function

11.3 Network Parameters:

 **NMS**

IP Address:

192.168.2.68

Subnet Mask:

255.255.255.0

Default Gateway:

192.168.2.1

Primary DNS:

192.168.2.1

Secondary DNSS:

192.168.2.1

MAC Address:

00:66:70:00:7E:E8



Set up modulator's NMS IP address and Unicast IP address.



Making changes in this area can affect the system communication.
PROCEED WITH CAUTION.

11.4 ETH Parameter

 **ETH Parameters**

IGMP:

V2

ETH IP:

192.168.100.100

ETH MAC:

60:70:00:7E:E8:00

IGMP: Please select the right IGMP version according to your input streams.

ETH IP: This modulator's input port IP address, which should be different from the NMS port.

ETH MAC: It is not recommended to change it.

11.5 Account

 **Current User Information**

Current Username:

Current Password:

 **New User Information**

New Username:

New Password:

Confirm Password:

Submit

To verify the user name and the password, please input your current user name and password. **Please notice that they are both case-sensitive.**

If you forget your new user name or new password, you can use the reset button in the front panel to restore.



Making changes in this area can affect the system communication.
PROCEED WITH CAUTION.

11.5 System Parameter

Upgrade System from file

Click the Browse button below and import the upgrade file, then click the Upgrade button to upgrade the system. The device will automatically restart,after the upgrade is completed.

Browse

Upgrade

Restore to factory settings

Click the Restore button to reset the device to the Factory defaults. The device will automatically reboot,when the restore is completed.

Restore

Reboot

Click the Reboot button to reboot the device.

Reboot

Export Settings

Click the Export button,then the device will back up all the current settings into your computer.

Export

Import Settings

Click the Browse button below and load the configuration file, then click the Import button to apply the file. The device will automatically reboot,when the restore is completed.

Browse

Import

Upgrade system from file: Upgrade the modulator with the latest software. The upgrade time for the decoder part will take about 10 minutes.

Restore to factory settings: The restore function will recover the input and output settings and the IP address to the factory mode.

Reboot: To reboot the modulator.

Export Settings: Back up the input and output settings to your computer.

Import Settings: Recover the settings to the modulator from your computer.



NOTICE: Another way to restore the settings
Press the default button in the front panel for 3 to 5 seconds. If you see the running light is flashing, that means the restore is completed.

12.Terms and Abbreviations

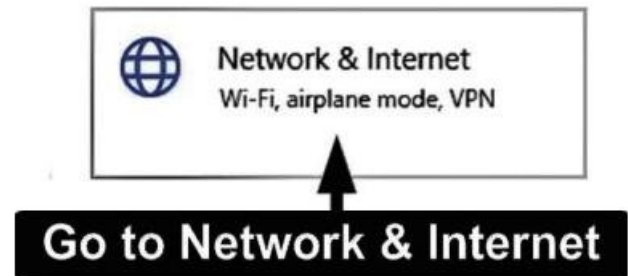
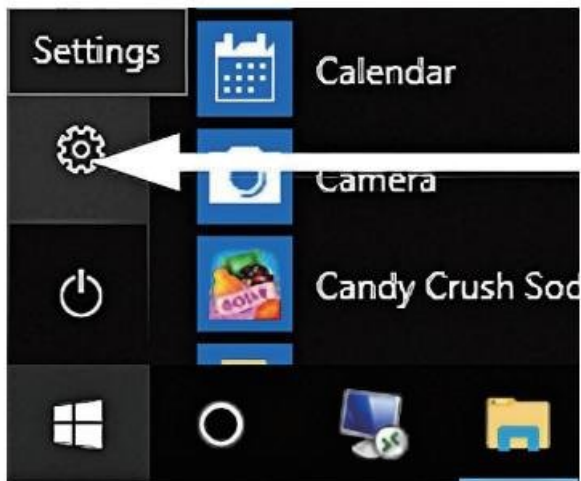
Term	Explanation
PID	Packet Identification
SID	Service Identification
TSID	Transport Stream Identification
NIT	Network Identification Table
NID	Network Identification used in NIT
ONID	Original Network Identification used in NIT
STB	Set Top Box, DVB receiver that is connected to a TV set
TS	Transport Stream
ES	Elementary Stream
MPTS	Multi-program Transport Stream
SPTS	Single-program Transport Stream
IGMP	Internet Group Management Protocol
UDP	User Datagram Protocol
RTP	Real-time Transport Protocol
HLS	HTTP Live Streaming

13.Quick IP Ethernet Connection Guide



NOTICE: Make sure you login your system as the administrator.

14.1 Go to “ Windows Start”



14.2 Go to Windows Settings

14.3 Go to “ Network & Internet”

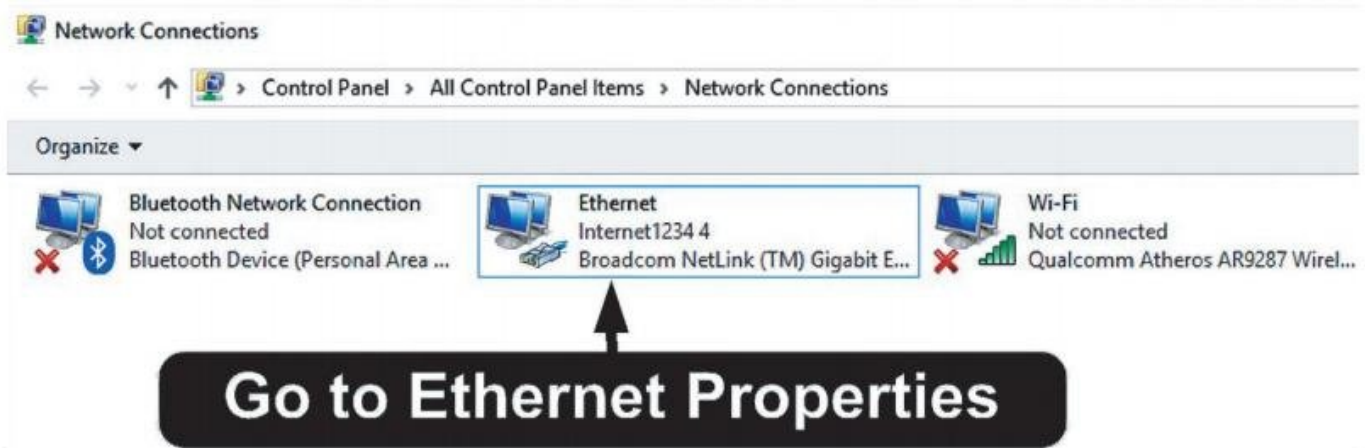
14.4 Go to “Ethernet” on the left side of the menu



14.5 Go to “ Change adapter options”



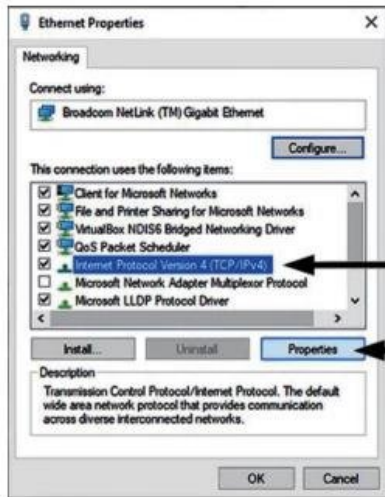
14.6 Double click on the Ethernet Source or Right Click and select “Properties”



14.7 Open Properties



14.8 Go to “Internet Protocol Version 4 (TCP/IPv4)”

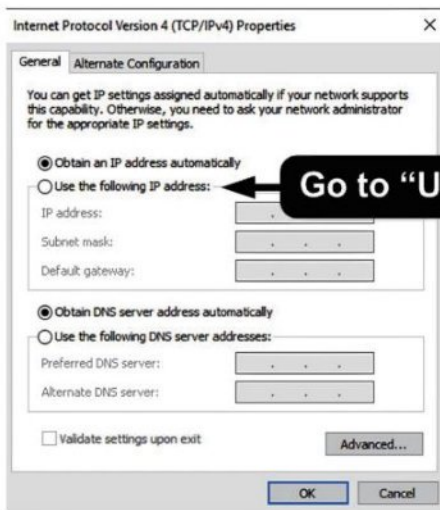


Go to Internet Protocol Version 4 (TCP/IPv4)

Go to Properties

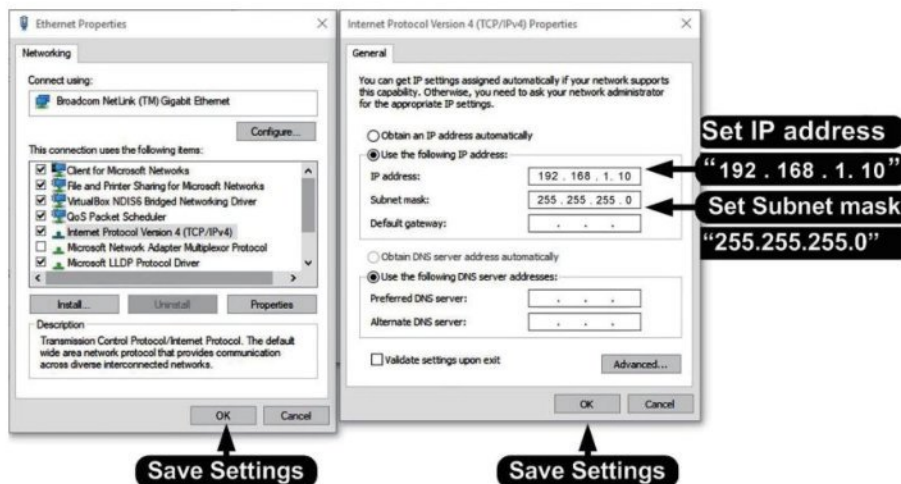
14.9 Go to "Properties"

14.10 Go to "Use the following IP address"



Go to "Use the following IP address"

14.11 Set IP address



Set IP address

"192.168.1.10"

Set Subnet mask

"255.255.255.0"

Save Settings

Save Settings

Set IP address: 192.168.1.10

Set Subnet mask: 255.255.255.0

Set Default gateway: 192.168.1.1

14.12 Save all the settings.

14.Common Troubleshooting

SN	Symptom	Recommended Action
1	LED is not lit.	Check the power cord connection
2	Can't login to the NMS	Check Chapter 15
3	The WEB UI is not in order and can't save the settings	Clear your browsing data
4	No RF output	Check the output setting
		Check the output modulation
		Check the cable connection
5	No video and audio in TV	Check the video and audio in another TV
		Check the input video resolution
		Check the output frequency
6	Bad picture and on-off sound	Check the connection of the video source
		High output level: Add the attenuator to low the level
		Low output level: Add an amplifier to boost up the level
7	No service available	Check the internet cable
		Check the input IP stream address
		Check the IP streamer
8	Other issue	Please contact us for technical support

15.WARRANTY

Helix Electronics equipment has been thoroughly tested and found to be in proper operating condition when shipped from the factory and is warranted to be free from defects in materials or workmanship that may develop within one year of the date of purchase. Helix agrees to remedy such or furnish a new part, or at its option an entire unit, or any part of a unit that disclosed such defect, provided that the unit or part is returned to Helix or Helix authorized service facility according to the terms listed below.

Prior authorization with a return authorization number issued by Helix or its representative is required for all returns. The purchaser shall be responsible for all freight charges on shipment to Helix unless otherwise authorized. Charges to return a unit or part to purchaser will be paid by Helix. Claim for damage in shipment to the purchaser must be filed by the purchaser with the carrier in accordance with the carrier's regulations.

Helix shall not be responsible for the shipping charge if the returned unit turns out to be flawless.
A Return Material Authorization (RMA) Number is required on all products returned to Helix. Regardless if the product is being returned for repair or credit. Before returning product, please contact the Helix sales stockest who you contact with.

Buyer :		RMA Number:
Mode Number	Products ID Number	Problem

If there's not enough space in this form, please attach a separate sheet of paper.

Thanks for using our products.
For more Helix products,
please visit our website:
digitalimports.co.nz