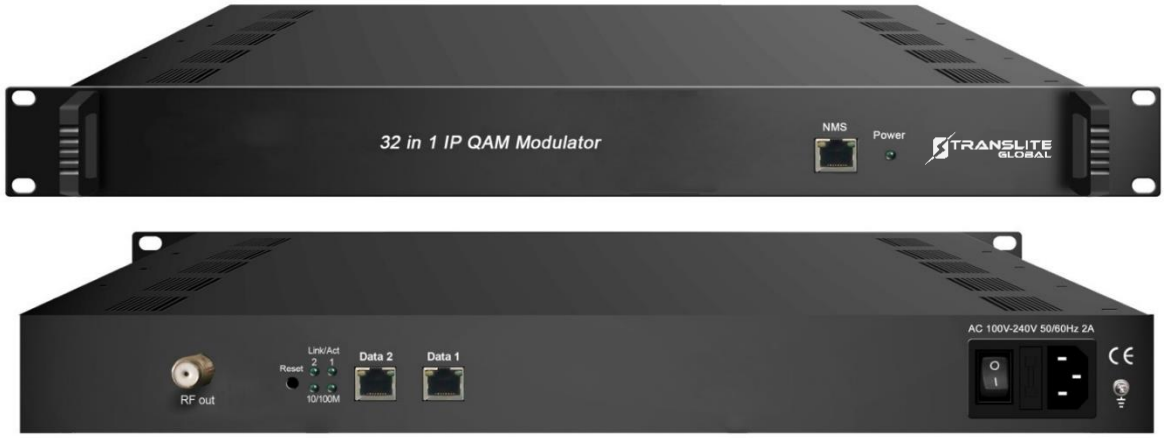
PRODUCT MODEL NUMBER: TL-9932 32 in 1 IP QAM MODULATOR



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CHAPTER 1

INTRODUCTION

1.1 PRODUCT OVERVIEW

TL-9932 32 in 1 IP QAM modulator is TRANSLITE Mux-scrambling-modulating all-in-one device. It supports maximum 1024 IP input through the 3 GE ports and 32 multiplexing scrambling QAM (DVB-C) modulating channels with non-adjacent carriers (50MHz~960MHz) output through the RF output interface. Its pay-as-you-grow modular design and flexible configuration are making it extremely scalable, very reliable with high performance, all of which are adaptable to newly generation CATV broadcasting system.

1.2 KEY FEATURES

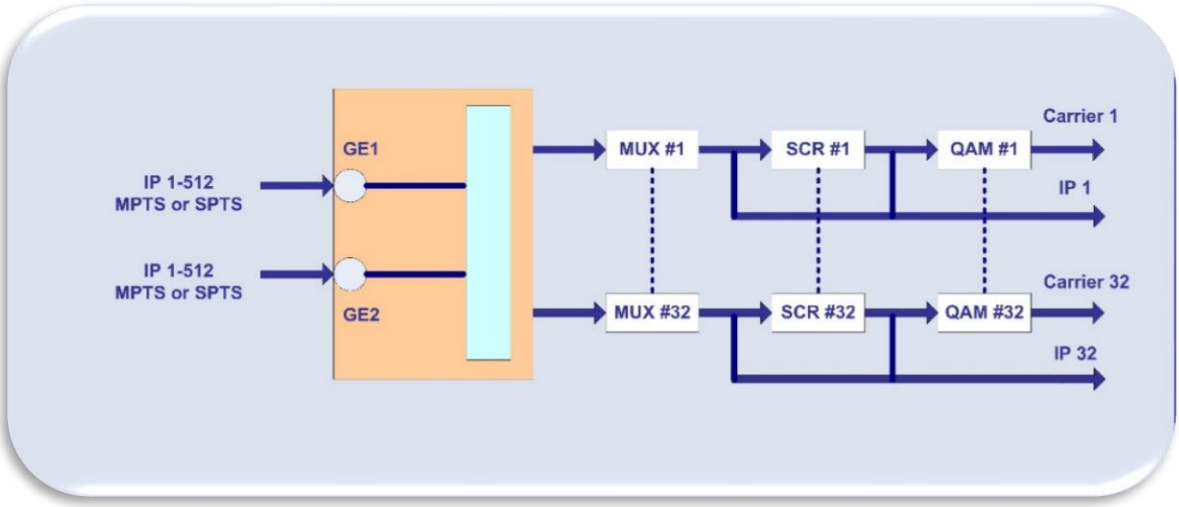
- 3 GE ports (max 1024 IP in):
- Data1 & Data2 bi-directional ports, max 512 IP in, 32 IP out
- Data port (located on front panel), max 128 IP in
- Max 840Mbps for each GE input
- Supports accurate PCR adjusting/CA filtering, PID remapping and PSI/SI editing
- Supports up to 256 PIDS remapping per channel
- Support 32 IP output through Data1 & Data2 over UDP/RTP/RTSP
- 32 non-adjacent QAM carriers output, compliant to DVB-C (EN 300 429) and ITU-T J.83 A/B
- Supports RS (204,188) encoding
- Support Web-based Network management

1.3 SPECIFICATIONS

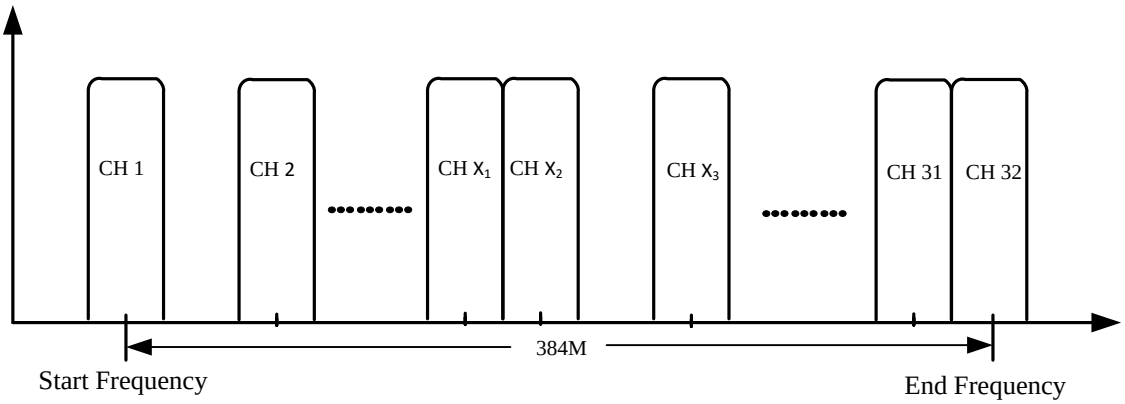
Input	
Input	512×2 IP input, 2*100/1000M Ethernet Port (SFP interface optional)
Transport Protocol	TS over UDP/RTP, unicast and multicast, IGMP V2/V3
Transmission Rate	Max 840Mbps for each GE input
Mux	
Input Channel	1024
Output Channel	32
Max PITranslite	256 per channel
Functions	PID re-mapping (auto/manually optional) PCR accurate adjustment PSI/SI table automatically generated
Scrambling Parameters	
Max simulscrypt CA	4
Scramble Standard	ETR289, ETSI 101 197, ETSI 103 197
Connection	Local/Remote connection
Modulators Parameters	
DVB-C Modulator Section	J.83A: Constellation : 16/32/64/128/256QAM Bandwidth: 8M J.83B: Constellation : 64QAM/ 256QAM Bandwidth: 6M
QAM Channel	32 non-adjacent carrier
Modulation Standard	EN300 429/ITU-T J.83A/B(DVB-C)
Symbol Rate	5.0~7.0Msps, 1ksps stepping
Constellation	16, 32, 64 , 128, 256QAM

FEC	RS (204, 188)
RF Output	
Interface	1 F typed output port for 32 carriers, 75Ω
RF Range	50~960MHz, 1kHz stepping
Output Level	-20dBm~+10dBm(87~117dbμV), 0.1dB stepping
MER	≥ 40dB
TS Output	
32 IP output over UDP/RTP/RTSP, unicast/multicast, 2*100/1000M Ethernet Ports (SFP)	
System	
Network management software (NMS) supporting	
General	
Dimension	420mm×440mm×44.5mm (WxLxH)
Temperature	0~45℃(operation), -20~80℃(storage)
Power Supply	AC 100V±10%, 50/60Hz or AC 220V±10%, 50/60Hz

1.4 PRINCIPLE CHART



Carrier Setting Illustration

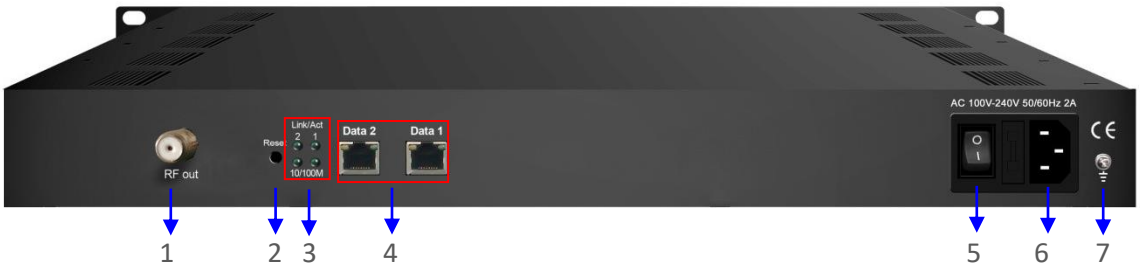


1.5 APPEARANCE AND DESCRIPTION

Front Panel Illustration

1	NMS/CAS: network management port and CA data port
2	Power Indicator

Rear Panel Illustration



1	RF output port
2	Reset IP: Reset webmaster IP address, recover it to default IP address
3	Link/Act indicators
4	Data Input /Output 1/2
5	Power switch
6	AC Power socket
7	Grounding

CHAPTER 2

INSTALLATION GUIDE

This section is to explain the cautions the users must know in some case that possibly injure may bring to users when it's used or installed. For this reason, please read all details here and make in mind before installing or using the product.

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:

- TL-9932 32 in 1 IP QAM Modulator
- User's Manual
- Power Cord

If any item is missing or mismatching with the list above, please contact local dealer.

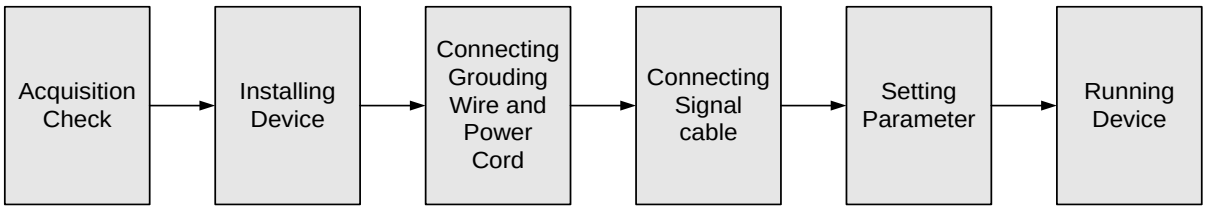
2.2 INSTALLATION PREPARATION

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 steps of the installation include:

- Checking the possible device missing or damage during the transportation
- Preparing relevant environment for installation
- Installing TL-9932 32 in 1 IP QAM Modulator
- Connecting signal cables
- Connecting communication port (if it is necessary)

2.3 DEVICE'S INSTALLATION FLOW CHART ILLUSTRATED AS FOLLOWING



2.4 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: 1X107~1X1010Ω, Grounding current limiting resistance: 1MΩ (Floor bearing should be greater than 450Kg/㎡)
Environment Temperature	5~40℃ (sustainable), 0~45℃ (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 110V±10%, 50/60Hz or AC 220V±10%, 50/60Hz. Please carefully check before running.

2.5 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 25mm^2.

2.5.1 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 25mm^2.

2.5.2 DEVICE GROUNDING

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

2.6 WIRE'S CONNECTION

Power Cord Connection:

The power socket is located on the right of rear panel, and the power switch is on the left of front panel. User can plug one end of the power cord to the socket and insert the other end to AC power. 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 TL-9932 32 in 1 IP QAM Modulator, user should set the power switch to "OFF".

Signal and NMS Cable Connection

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

TL-9932 32 in 1 IP QAM Modulator cable illustration:

- RF Input/Loop Cable Illustration:

- NMS Cable illustration (CAT5):

CHAPTER 3

WEB NMS MANAGEMENT

User can only control and set the configuration in computer by connecting the device to web NMS Port. User should ensure that the computer's IP address is different from this device's IP address; otherwise, it would cause IP conflict.

3.1 LOGIN

The default IP address of this device is **192.168.0.136**.

Connect the PC (Personal Computer) and the device with a net cable and use ping command to confirm they are on the same network segment. For instance, the PC IP address is 192.168.99.252, we then change the device IP to 192.168.99.xxx (xxx can be 0 to 255 except 252 to avoid IP conflict).

Launch the web browser an input the device 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 the default Username and Password are "admin". And then click "Login" to start the device setting.

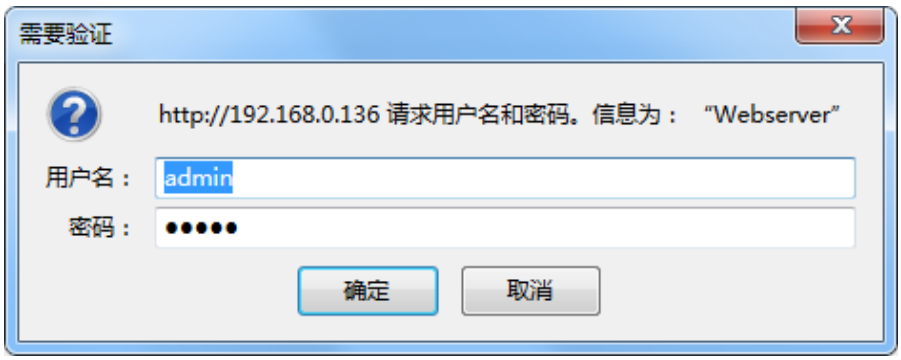


Figure-1

3.2 OPERATION

Summary:

When we confirm the login, it will display the summary interface as Figure-2 where users have an overview of the system information.

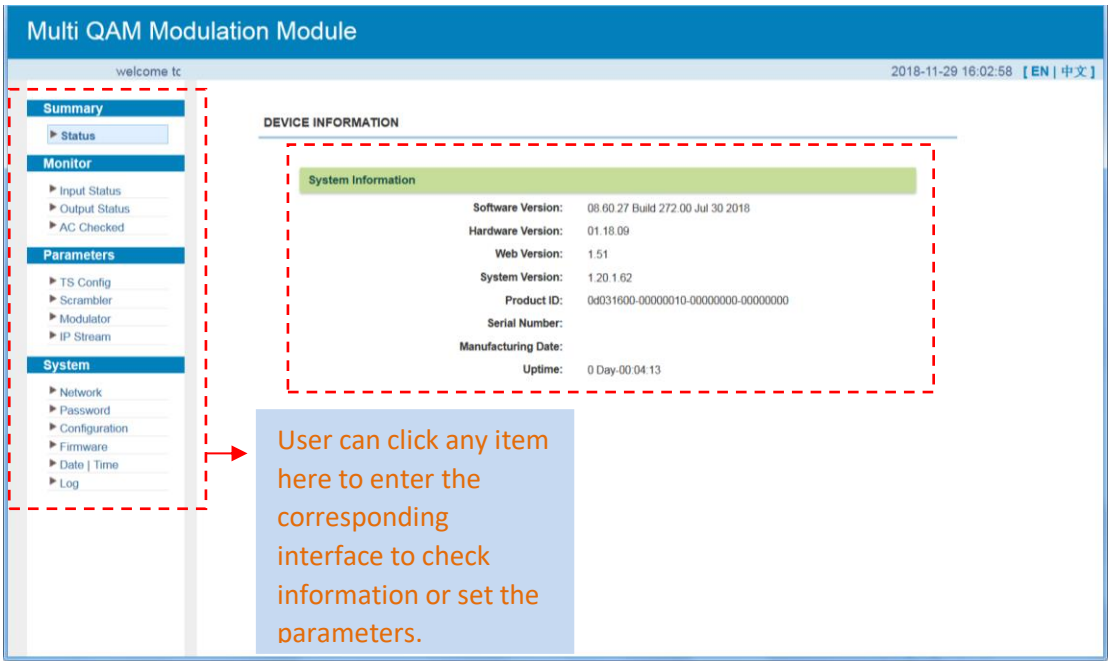


Figure-2

Monitor → Input Status:

Clicking “Input Status”, it will display the interface as Figure-3 where users can check the input status of Data1 and Data 2. Users need to add IP in “TS Config” part. Otherwise, it will monitor nothing.

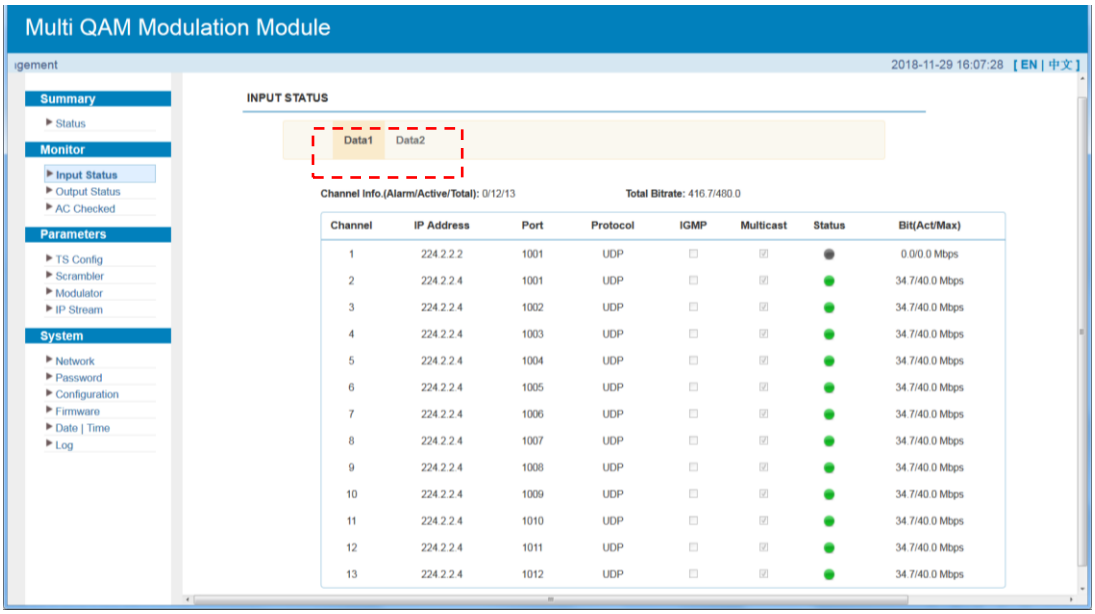


Figure-3

Monitor → Output Status:

Clicking “Output Status”, it will display the interface as Figure-4 where users can check output status of the 32 carriers and 32 IPs. Users need to enable the output status in “Modulator” and “IP Stream” part. Otherwise, it will monitor nothing.

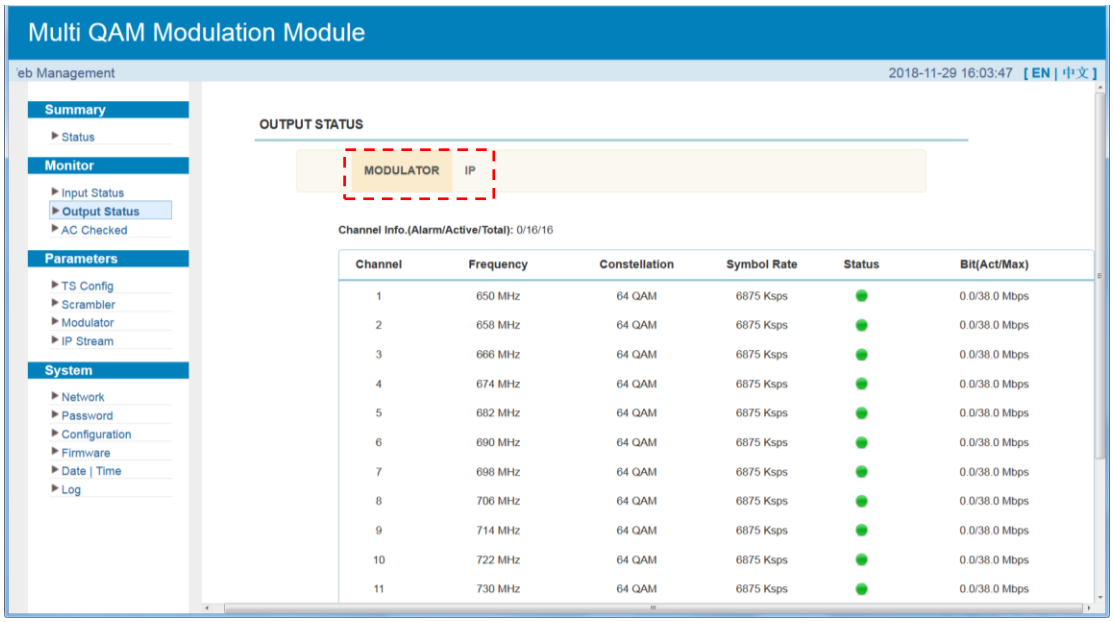


Figure-4

Monitor → AC Checked:

Clicking “AC Checked”, it will display the interface as Figure-5 where users can check scramble status.

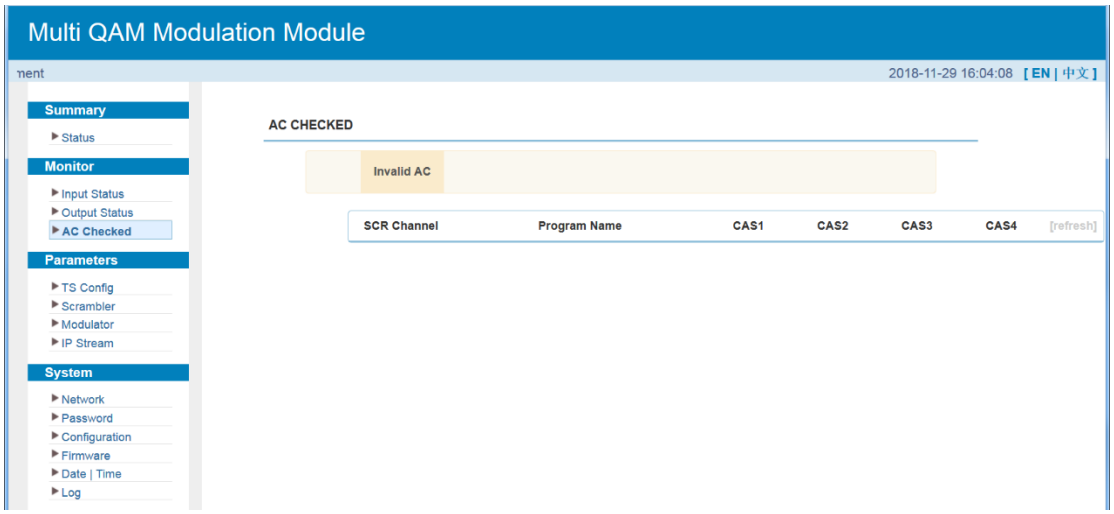


Figure-5

Parameters → TS Config:

Clicking “TS Config”, it will display the interface where users can configure the output TS parameters in this interface.

- **Output TS X**

  Clicking “Output TS X”, it will display the interface as Figure-6 where users can select the output TS channels.

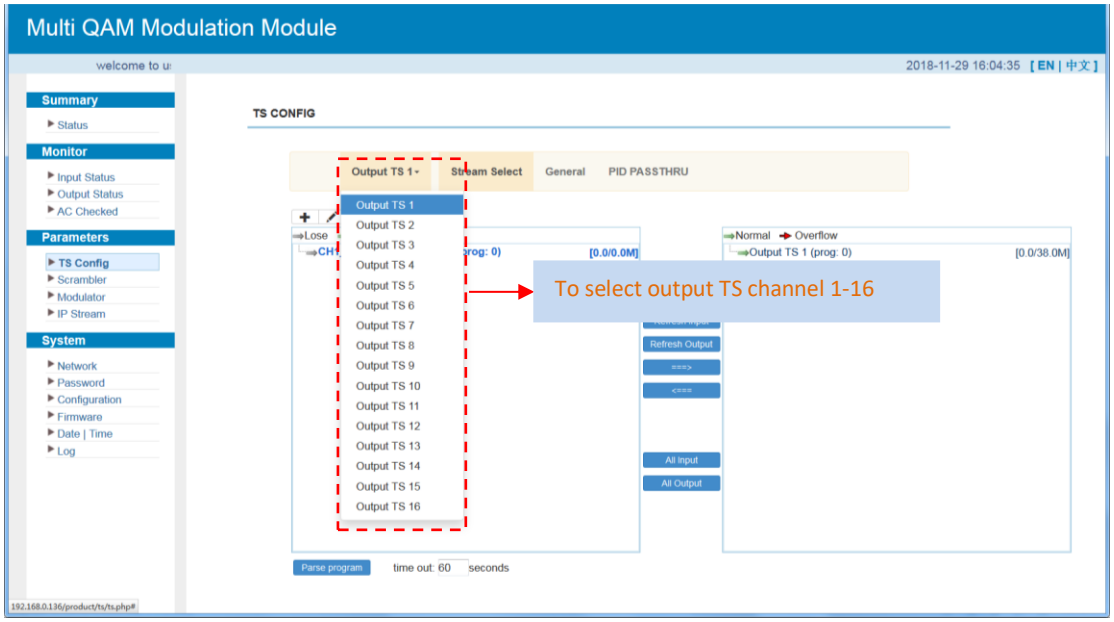


Figure-6

- **Stream Select**

  Clicking “Stream Select”, and click “+” to add IP input, then select one channel to parse, it will display the interface where users can choose the programs to Mux out.. (Figure-7)

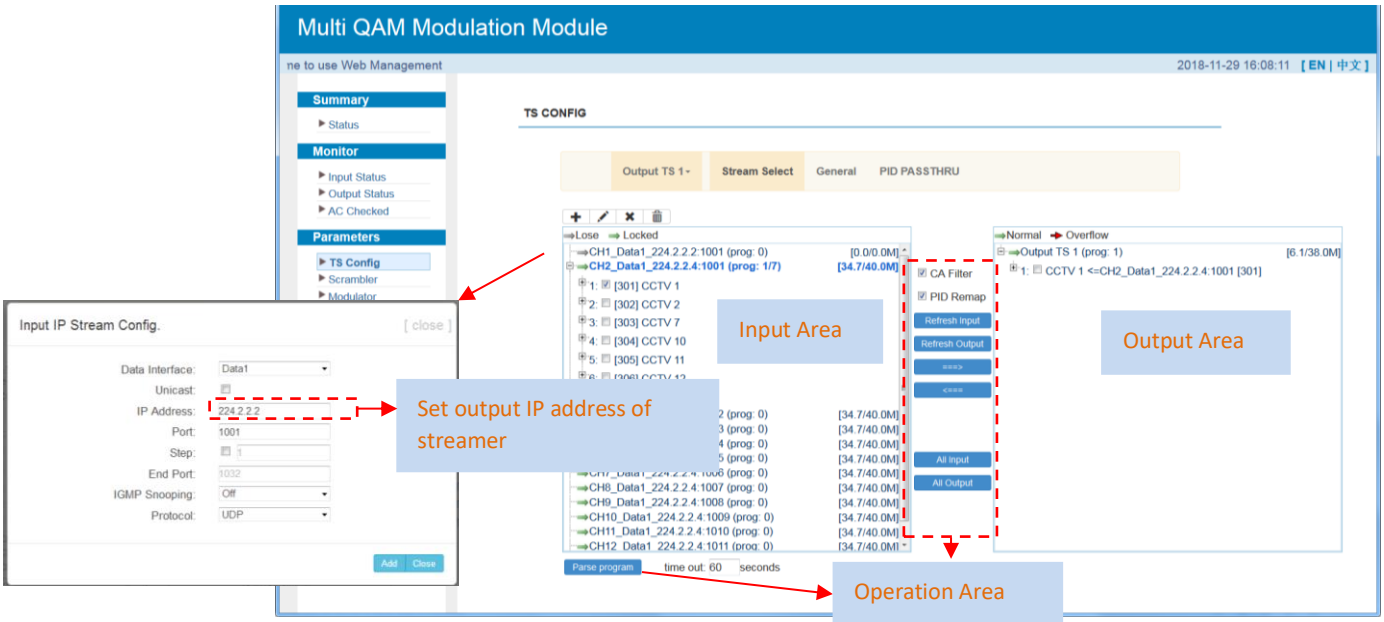


Figure-7

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

: To add input channel which come from Data1or Data 2 or Data/Module

: To edit the input channel

: To delete the input channel

: To delete all inputs channel

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 : Enable/disable the CA Filter function. Clicking the box, user can filter the input CA to avoid disturbing with the device scrambling function.

PID Remap: 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 time out: 60 seconds time limitation of parsing input programs

Program Modification:

The multiplexed program information can be modified by clicking the program in the 'output' area. For example, when clicking 1: CCTV 1 <=CH2_Data1_224.2.2.4:1001 [301], it triggers a dialog box (Figure-8) where users can input new information.

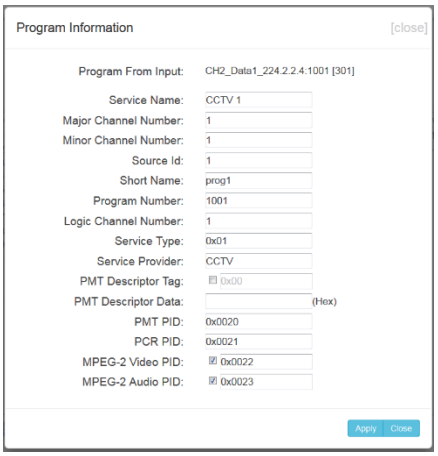


Figure-8

- **General**

  Clicking "General", it will display the interface where users can set parameters for each output channel. (Figure-9)

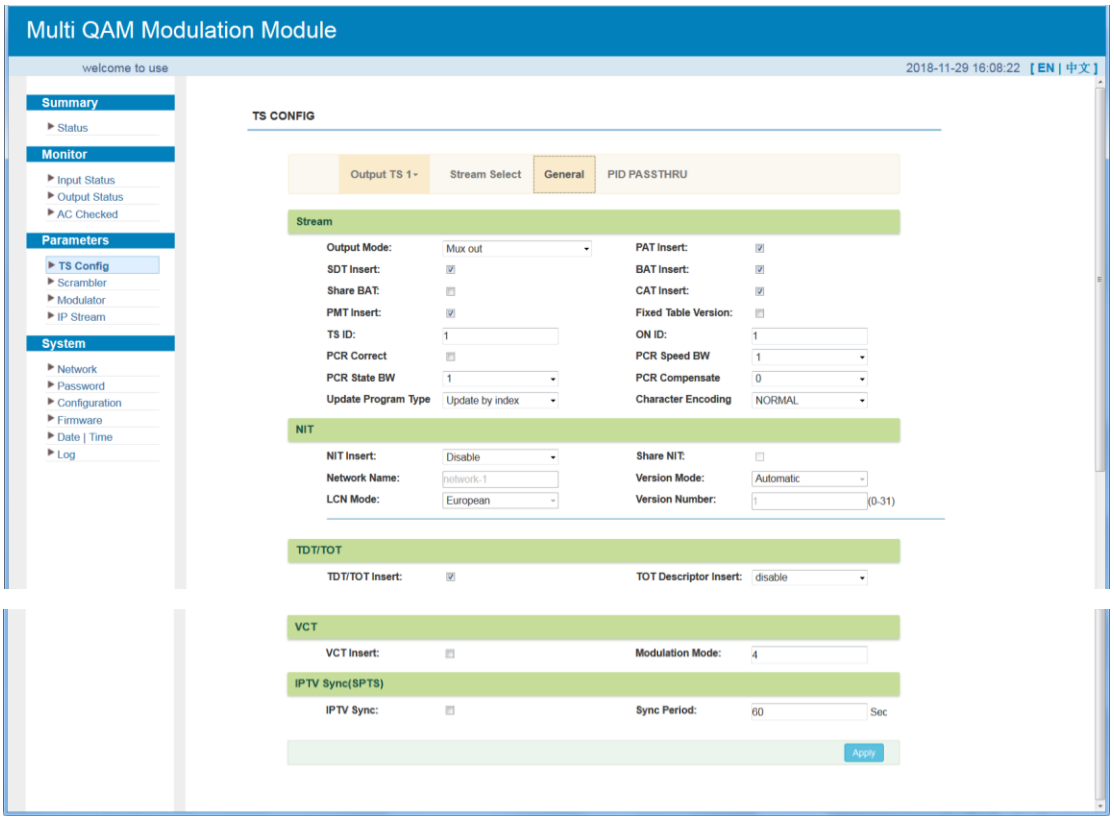


Figure-9

➢ PID Pass

Clicking “PID Bypass”, it will display the interface as Figure-10 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” to apply the parameters.

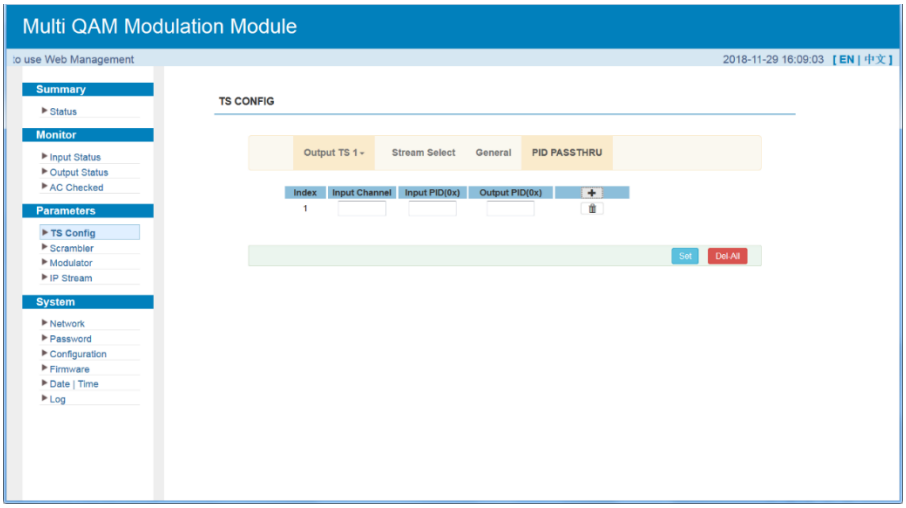


Figure-10

Parameters → Scrambler:

Clicking “Scrambler”, it will display the interface where users can choose the programs to scramble. (Figure-11)

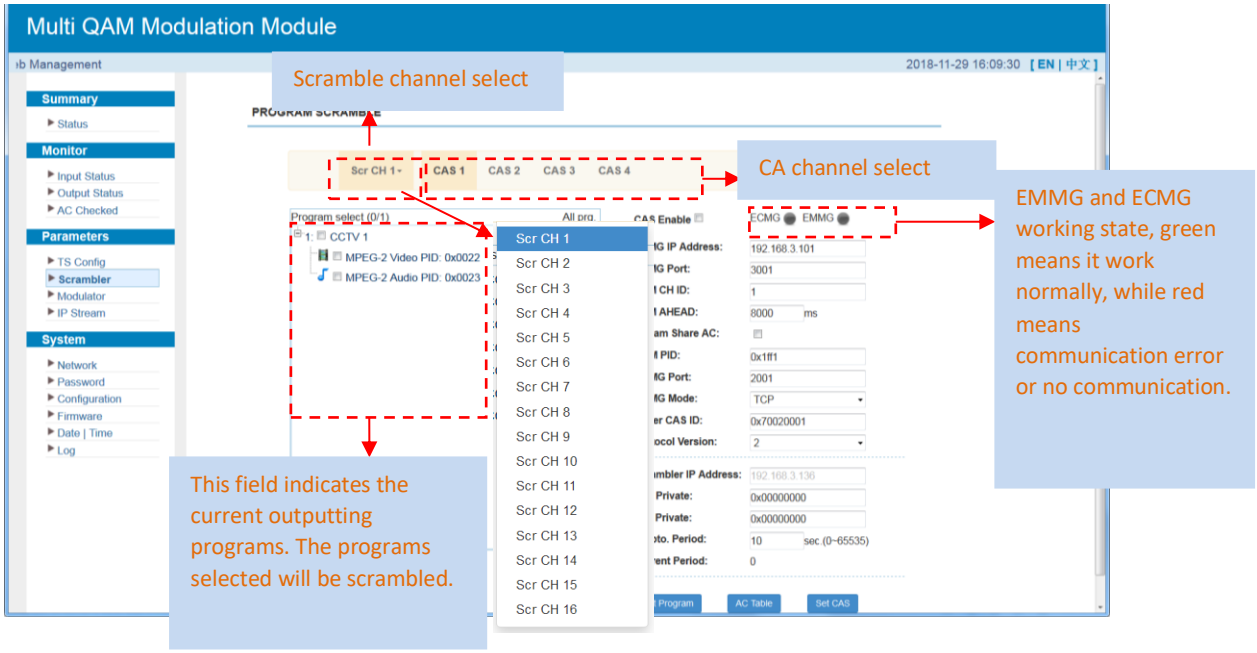


Figure-11

Parameters → Modulator:

Clicking “Modulator”, it will display the interface as Figure-12 where to set RF output parameters.

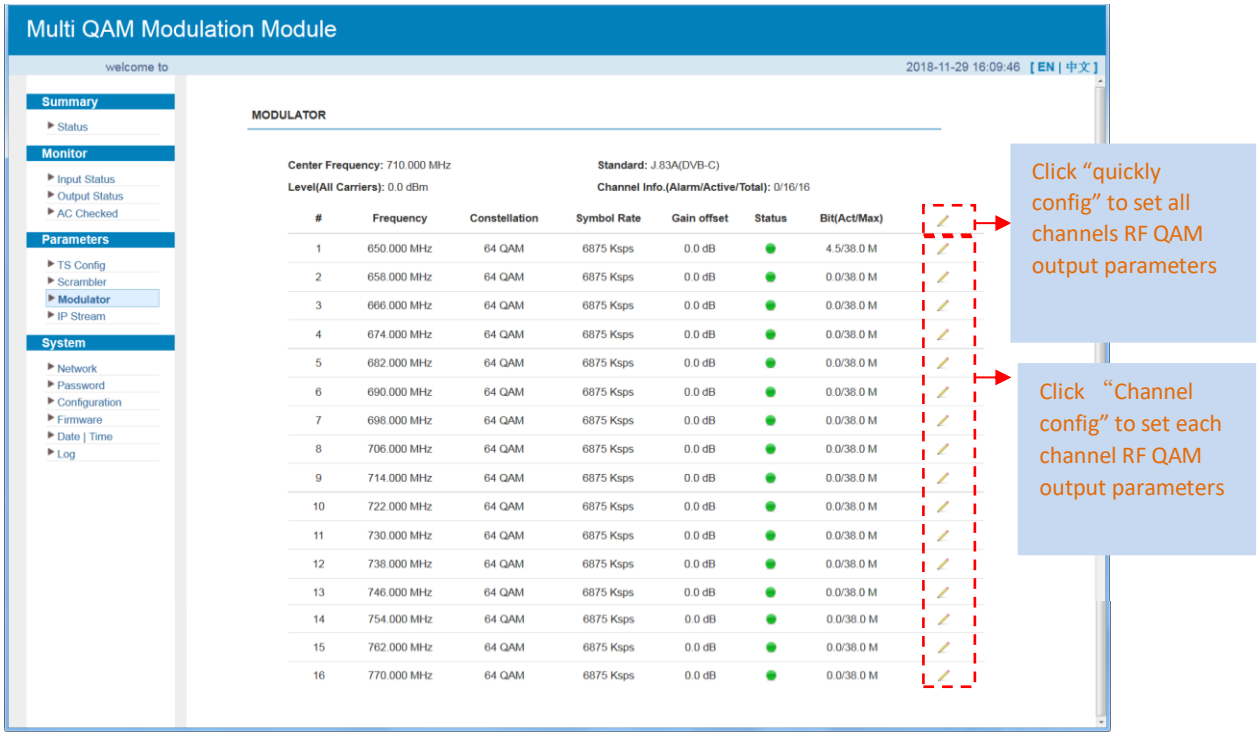
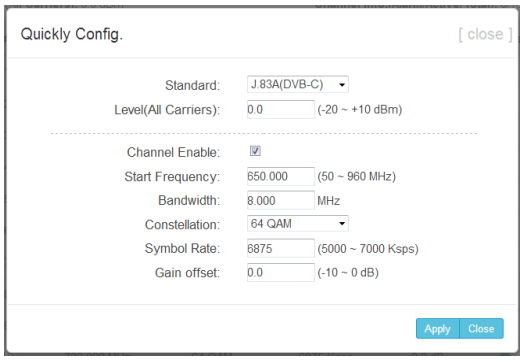
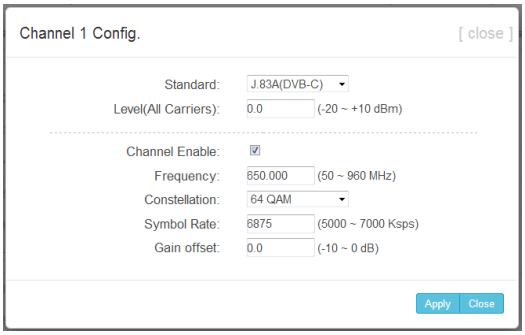


Figure-12

When users click “quickly config” button, it triggers a dialog box as follow where users can set all channels configration.



When users click “Channel config” button, it triggers a dialog box as follow where users can set the corresponding channel configration.



Parameters → IP Stream:

TL-9932 supports TS to output in IP (32*MPTS) format through the DATA port.

Clicking “IP Stream”, it will display the interface as Figure-13 where to set IP out parameters.

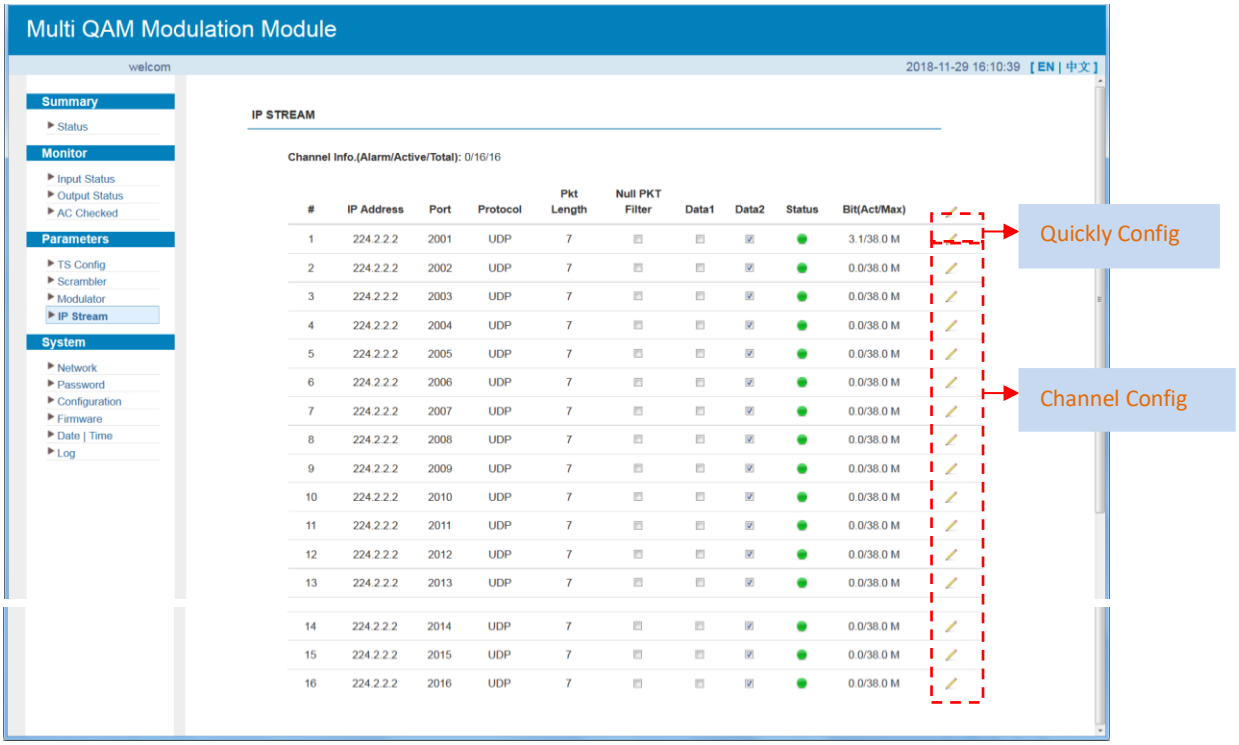
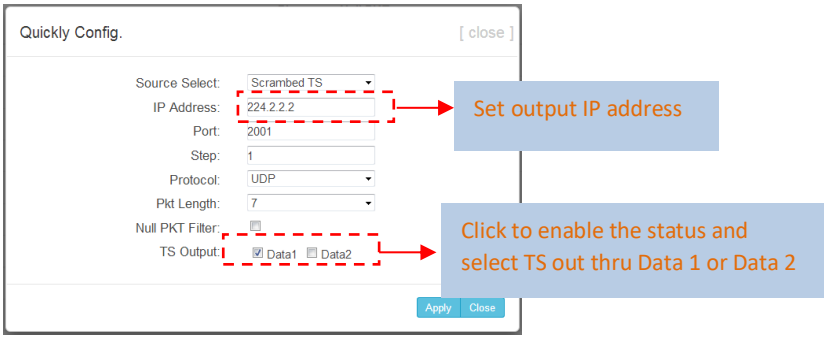
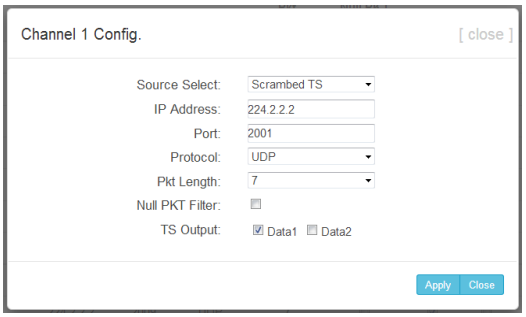


Figure-13

When users click “Quickly Config” button, it triggers a dialog box where users can set all channels MPTS configration simultaneously.



When users click “Channel Config” button, it triggers a dialog box where users can set corresponding MPTS channel configration.



System → Network:

Clicking “Network”, it will display the interface as Figure-14 where to set network parameters.

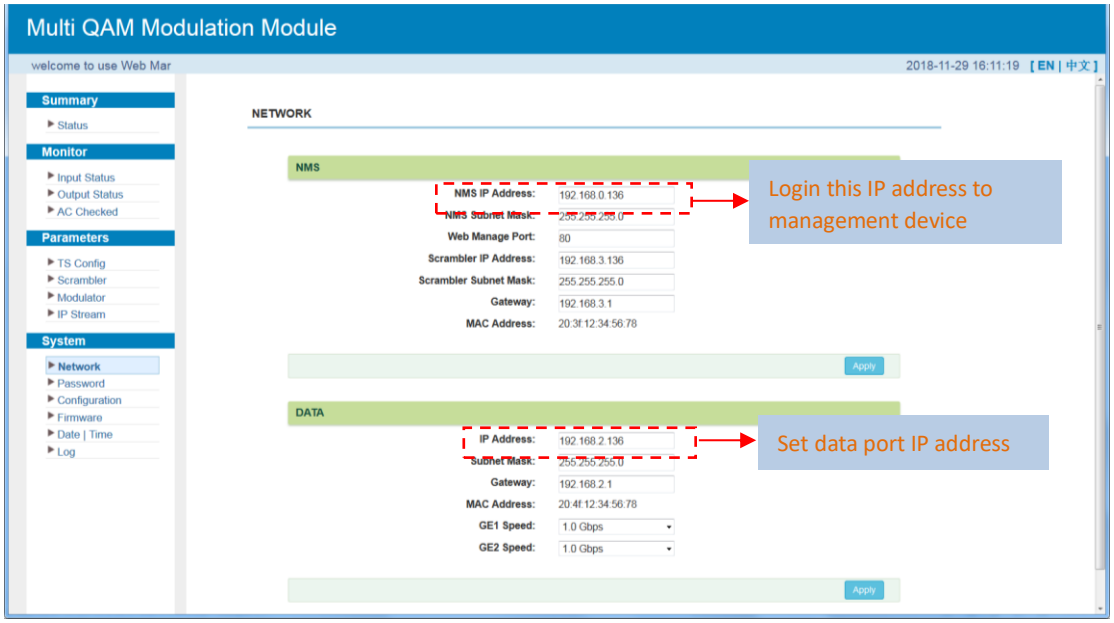


Figure-14

System → Password:

Clicking “Password”, it will display the screen as Figure-15 where to set the login account and password for the web NMS.

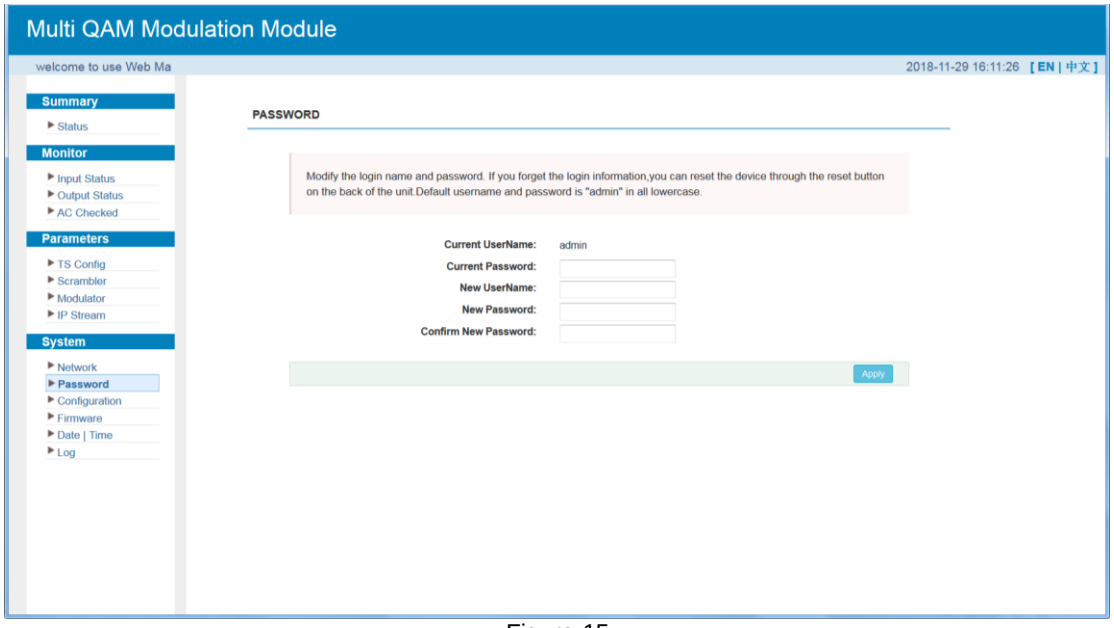


Figure-15

System → Configuration:

Clicking “Configuration”, it will display the screen as Figure-16 where to set your configurations for the device.

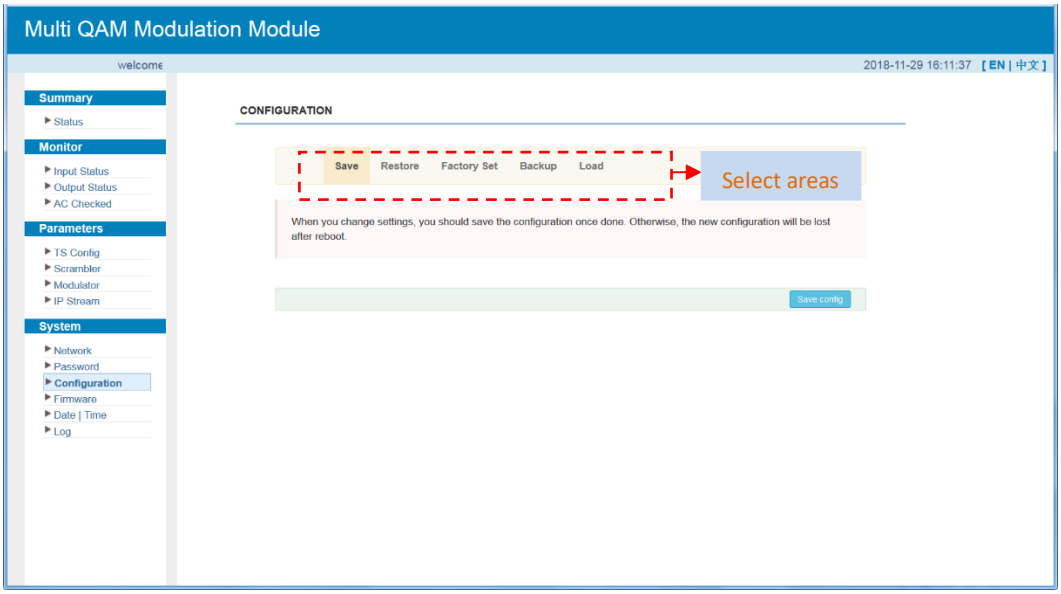


Figure-16

System → Firmware:

Clicking “Firmware”, it will display the screen as Figure-17 where to update firmware for the device.

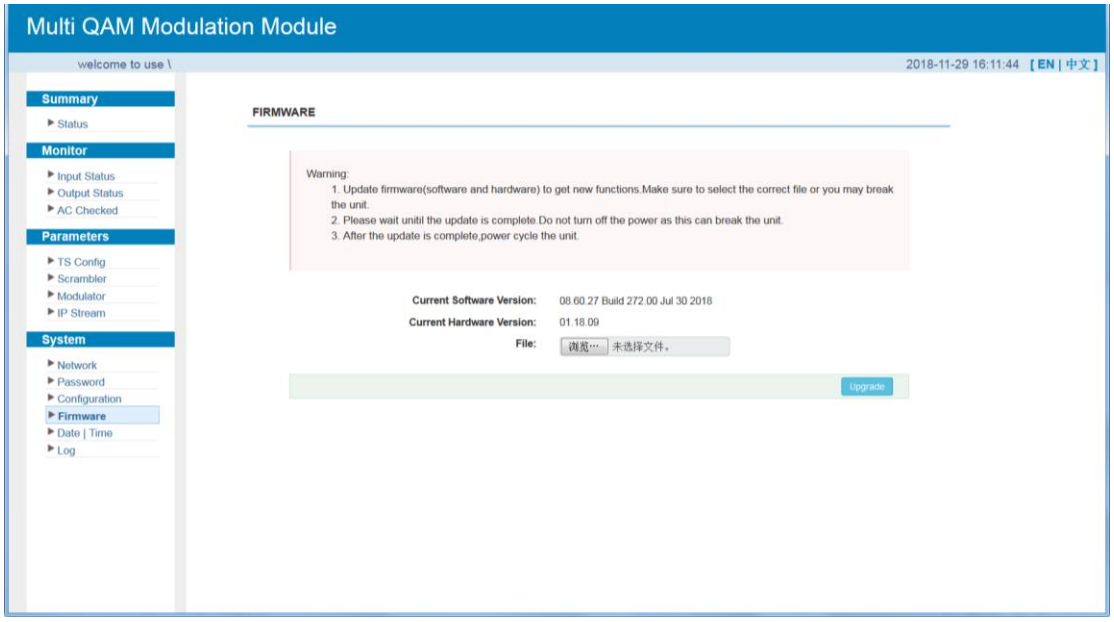


Figure-17

System → Date/Time:

Clicking “Date/Time”, it will display the interface as Figure-18 where users can set date/time for this device.

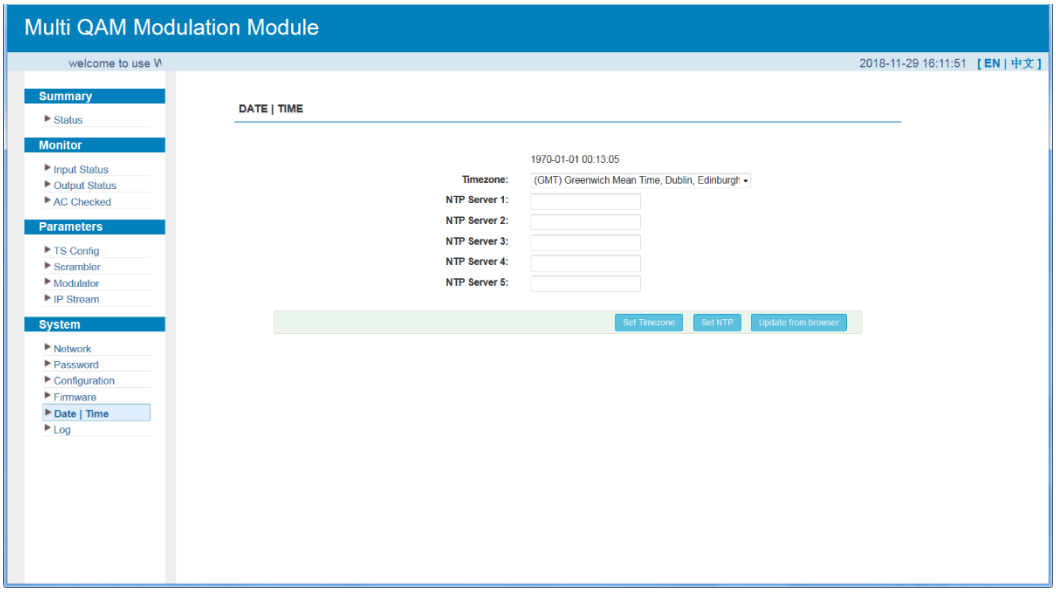


Figure-18

System → Log:

Clicking “Log”, it will display the screen as Figure-19 where to check the “Log”.

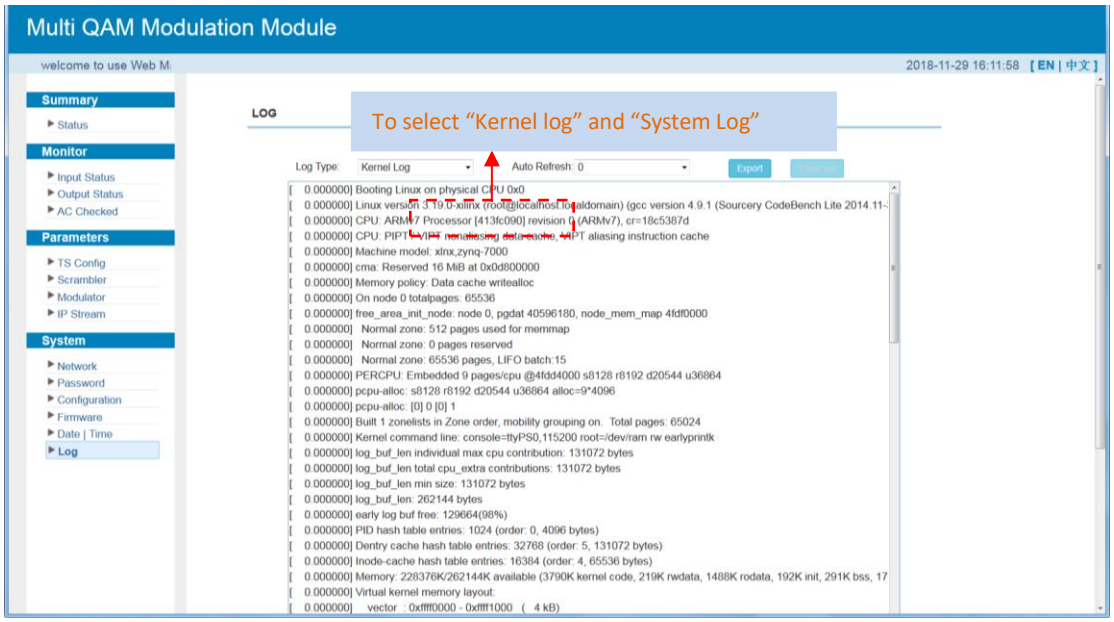


Figure-19

CHAPTER 4

TROUBLESHOOTING

All TRANSLITE products have been passed the testing and inspection before shipping out from the factory. The testing and inspection scheme already covers all the Optical, Electronic and Mechanical criteria which have been published by TRANSLITE. 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 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 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

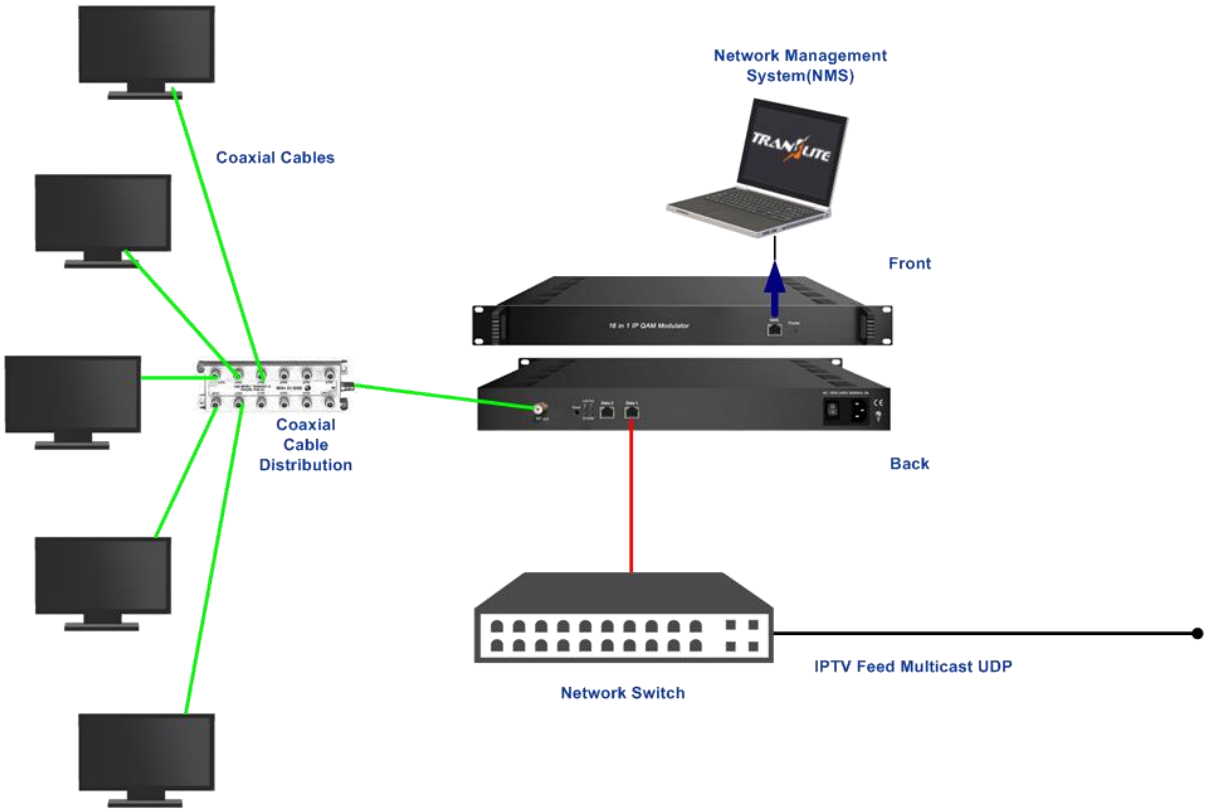
CHAPTER 5

PACKING LIST

TL-9932 32 in 1 IP QAM Modulator	1PC
User's Manual	1PC
Power Cord	1PC

CHAPTER 6

APPLICATIONS



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