TimeServer Module

Web Operation Manual

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KYLAND

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1. Perface

This manual mainly introduces the access methods and software features of TimeServer Module, and details Web configuration methods.

Content Structure

The manual contains the following contents:

Main Content	Explanation
1. Introduction	
2.TimeServer Module configuration	➢ Login ➢ Logout ➢ Languages ➢ Status ➢ Configuration ➢ System ➢ Management

Conventions in the manual

1. Text format conventions

Format	Explanation
< >	The content in < > is a button name. For example, click <Apply> button.
[ ]	The content in [ ] is a window name or a menu name. For example, click [File] menu item.
{ }	The content in { } is a portfolio. For example, {IP address, MAC address} means IP address and MAC address is a portfolio and they can be configured and displayed together.
→	Multi-level menus are separated by "→". For example, Start → All Programs → Accessories. Click [Start] menu, click the sub menu [All programs], then click

	the submenu [Accessories].
/	Select one option from two or more options that are separated by “/”. For example “Addition/Deduction” means addition or deduction.
~	It means a range. For example, “1~255” means the range from 1 to 255.

2. Symbol conventions

Symbol	Explanation
Caution	The matters need attention during the operation and configuration, and they are supplement to the operation description.
Note	Necessary explanations to the operation description.
Warning	The matters call for special attention. Incorrect operation might cause data loss or damage to devices.

2. Introduction

Figure 1 TimeServer Module

TimeServer Module is designed for the SICOM3028GPT switch to support time synchronization inside. It can make switch have master clock function inside to service for whole network and applications.

TimeServer Module supports high precision reference clock, which can be synchronized to absolute time such as GPS, BDS, and GLONASS etc. Built-in OXCO help to provide stable reference frequency source. System supports multiple sources time sync auto selection algorithm which can perform stable switch between GPS, BDS, GLONASS, IRIG-B, PTP and local clock, and sky/ground and master/slave clock backup.

TimeServer Module provides flexible time output channels and signals. The output timing signals include PPS, IRIG-B (Demodulated) etc. Plus, TimeServer Module supports network sync time protocols NTP/SNTP and PTP (IEEE1588 v2) that can works in several modes by the software configuration including grandmaster clock, slave clock and boundary clock.

TimeServer Module supports TMS function inside to send time status and clock status to control center by IEC61850 MMS, IEC60870-5-104, DNP3.0 over TCP, Modbus TCP etc. Meanwhile, it also provides GOOSE subscriber and

GOOSE publisher function inside to implement time management function.

TimeServer Module supports SNMP and WEB management. Any web browser can access TimeServer Module.

3. Switch Management

TimeServer Module is designed for SICOM3028GPT switch. Via configuration management software of switch, it can manage all IP address information of TimeServer Module.

3.1. Switch Configuration

Switch can automatically identify TimeServer Module as ‘EGPS’ node at switch WEB configuration system. It is easy to view IP information by clicking sub-node of ‘EGPS’ node. The configuration screen will be shown as:

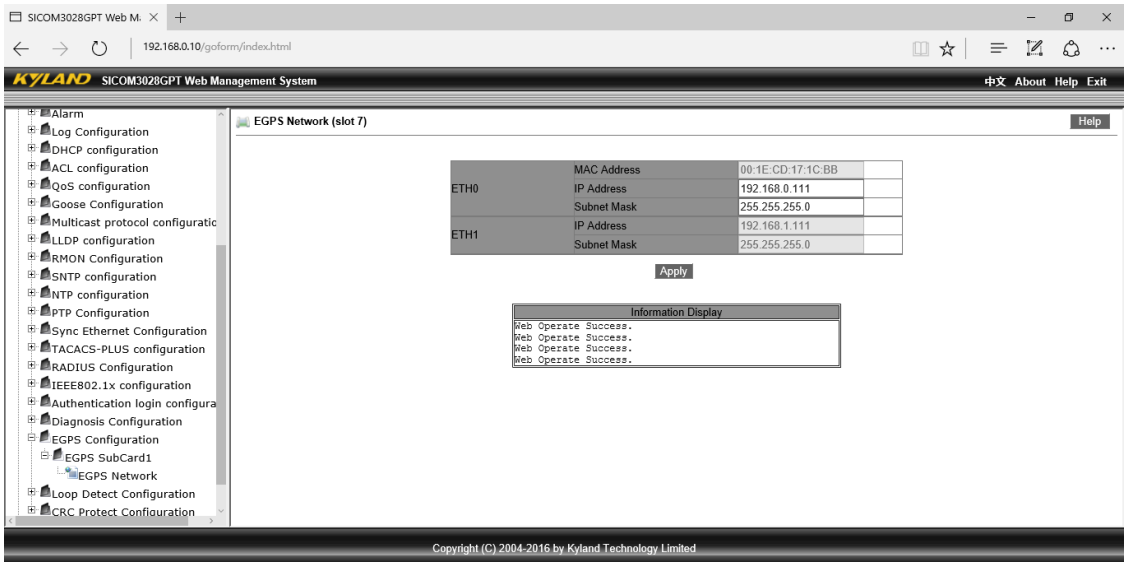

Figure 2 Switch WEB Configuration Screen

Caution:

Switch might query each port and show IP address information in WEB page, but only modify ETH0 because it is an internal port. The ETH1 is outside port, it can be managed by user from WEB system of TimeServer Module.

4. TimeServer Module Access

You can access the TimeServer Module by Web browser.

4.1. Access by Web

The precondition for accessing a switch by Web is the normal communication between the PC and the TimeServer Module.

Note:

IE8.0 or a later version is recommended for the best Web display results.

1.You can input TimeServer Module "IP address" in the browser address bar(The default IP address is 192.168.1.111). The login interface is displayed, as shown in Figure 1. Input the default user name "admin", password "admin", and the Verification. Click <Submit>. You can also input other created users and password.

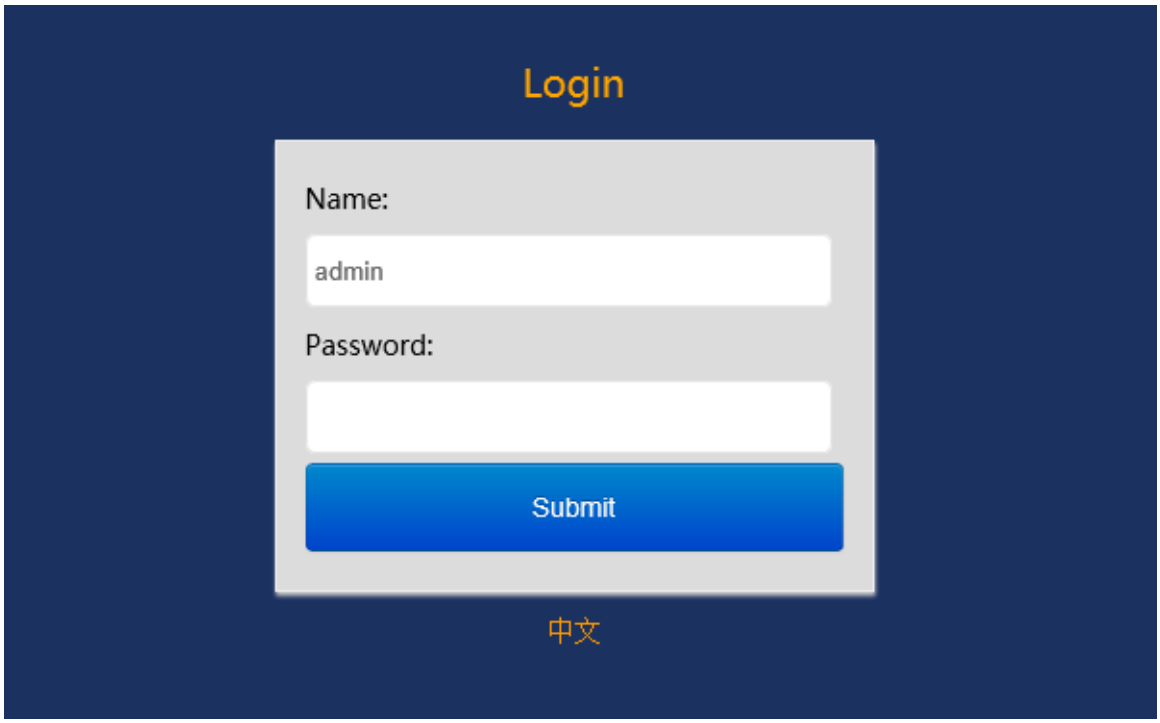

Figure 3 Login Screen

2.After you log in successfully, there is a navigation tree on the left of the interface, as shown in fallow figure.

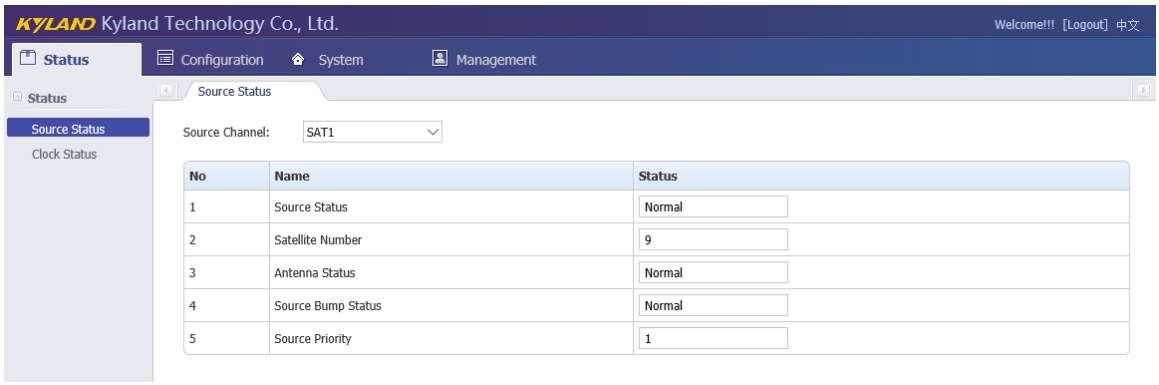

Figure 4 Default Login Screen

you can click <中文>in the top,right corner to switch to the Chinese interface.

5. WEB Management

TimeServer Module has a set of independent WEB management system.

5.1. Login

Please connect ETH1 of TimeServer Module and PC by network cable. Open any WEB Browser of PC and input http://192.168.1.111 and press enter, the login WEB screen of TimeServer Module will be shown on your screen.

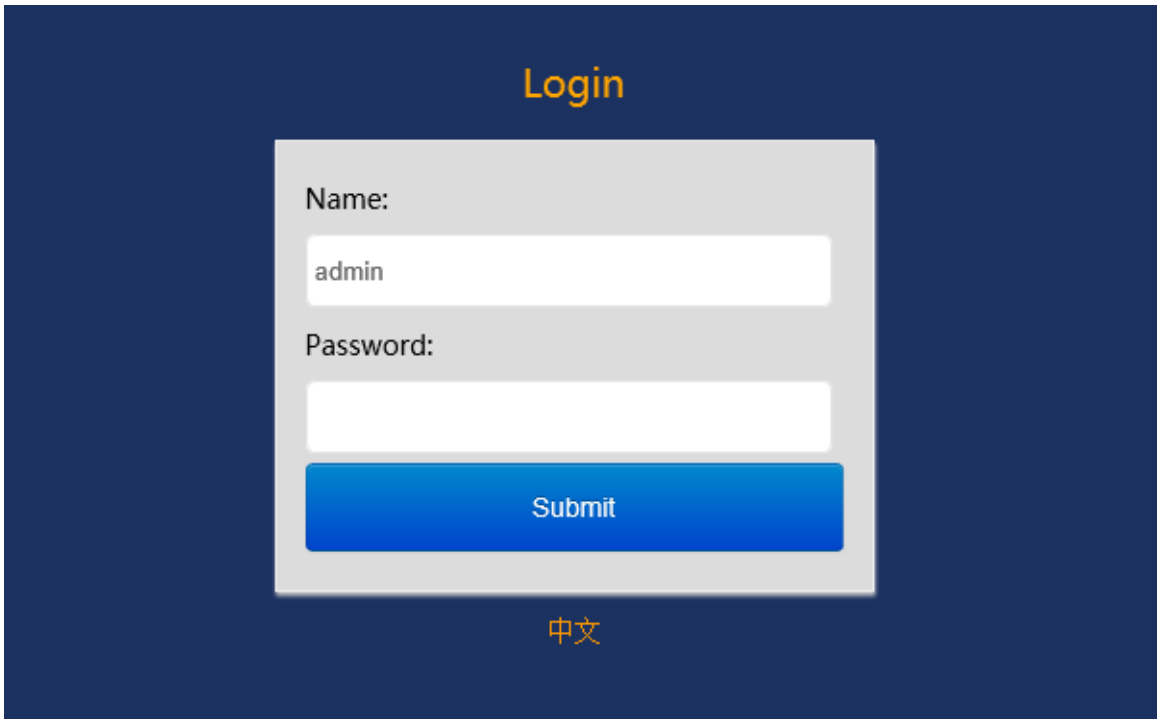

Figure 5 Login Screen

The default user name is ‘admin’, the default password also is ‘admin’. TimeServer Module supports user to modify the password of ‘admin’ after you login WEB management system.

Caution:

Before you access WEB management system of TimeServer Module, please confirm you might access this Ethernet port, if find any problems you should check the network whether or not is ready, maybe connection cable has some broken or

something else.

5.2. Logout

After you submit your correct user name and password, the default screen of WEB management system will be shown as:

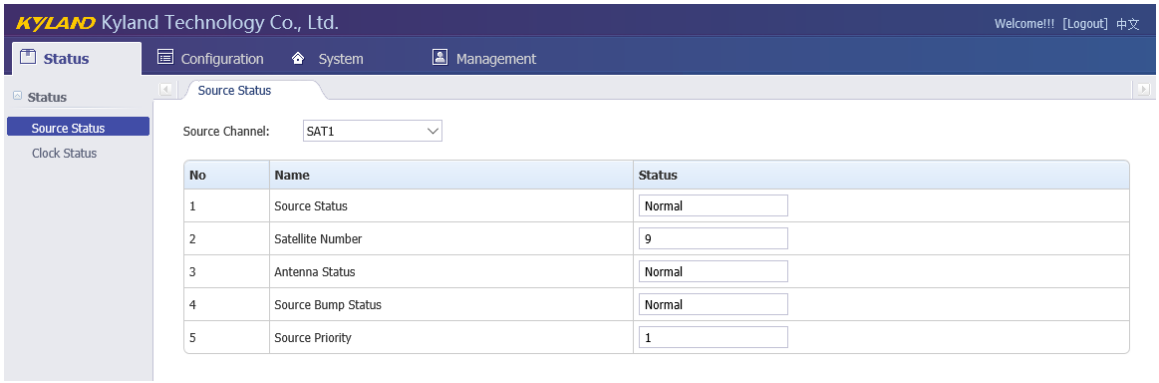

Figure 6 Default Login Screen

On the top right corner, system has a [Logout] option, if you want to logout system, you might directly click this and then system will go to original login screen and wait user to input login information again.

5.3. Languages

The default language is English, the WEB management system of TimeServer Module supports English and Chinese. System can switch language to Chinese language by [中文] option on login screen and default screen.

5.4. Status

The WEB management system supports to view time status by WEB. The status information can help user to easy know the current status and help them to analyze problems as soon as possible.

Press ‘Status’ to go to the status screen on the top of navigation bar. The status screen will be shown as:

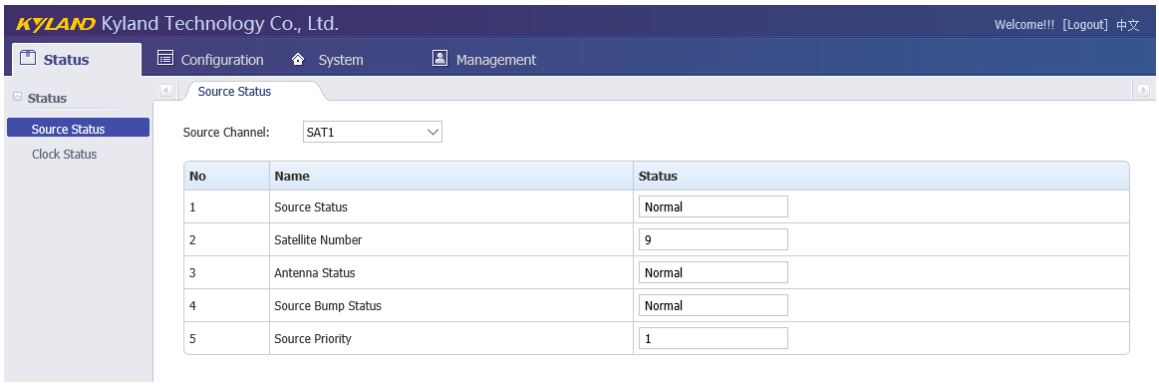

Figure 7 Status Screen

5.4.1. Source Status

Press ‘Source Status’ on the left navigation bar to show time status screen. The source status screen will be shown as:

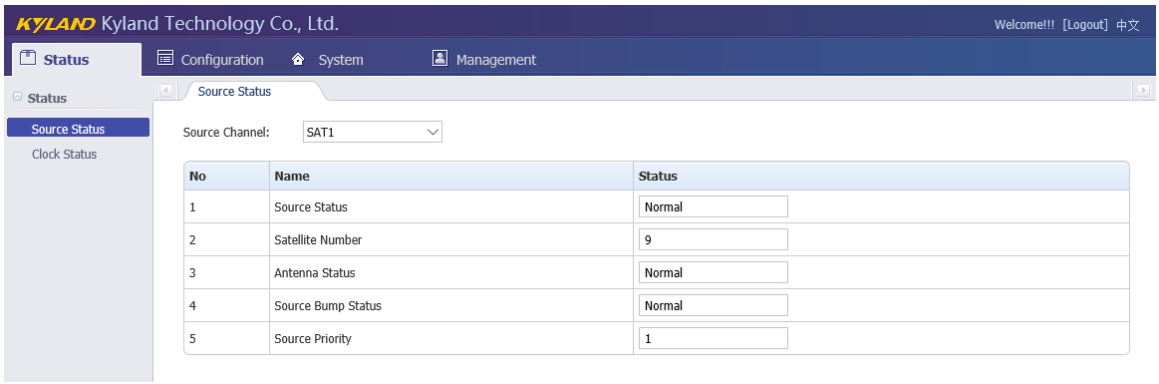

Figure 8 Source Status Screen

The time source status shows the work status of any time source. The TimeServer Module supports 3 source channels including SAT1/IRIG-B1/PTP. Select different time source channel by manual and the time status of this source will be shown on this screen. For example, if you select SAT1, you might see source status, satellite number, antenna status, and source bump status and source priority. The ‘Normal’ means this status is OK, if it has some problems, maybe it will show ‘Alarm’ information.

5.4.2. Clock Status

Press ‘Clock Status’ on the left navigation bar to show clock status screen. The

clock status screen will be shown as:

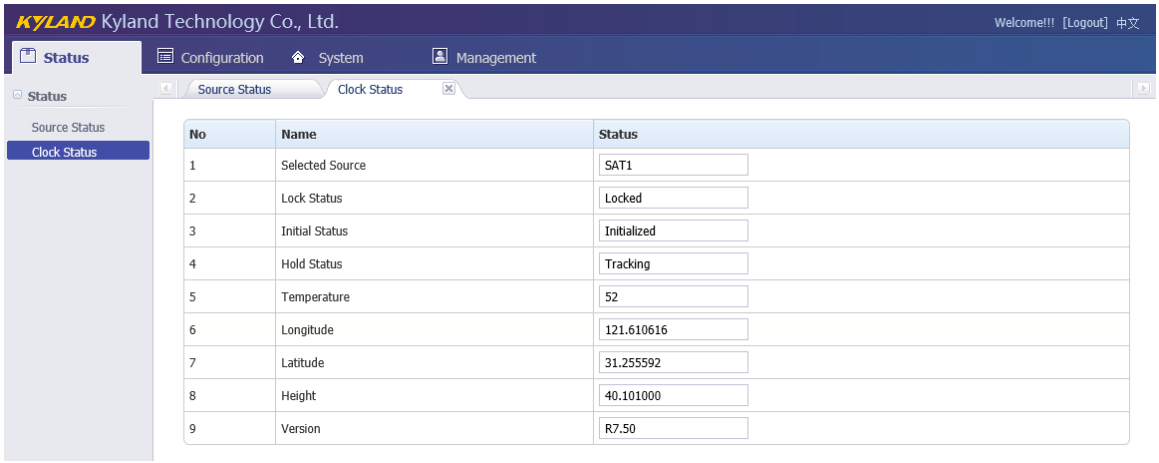

Figure 9 Clock Status Screen

To show the current selected source, inside temperature and the current work status including initial, lock, hold status, position information and version information of TimeServer Module.

5.5. Configuration

The WEB management system supports to set configuration parameter by WEB. The user does not need go to local place to set parameter when time server supports this configuration interface. It is a good option for user to easy manage time server.

Press ‘Configuration’ to go to the configuration screen on the top of navigation bar. The screen will be shown as:

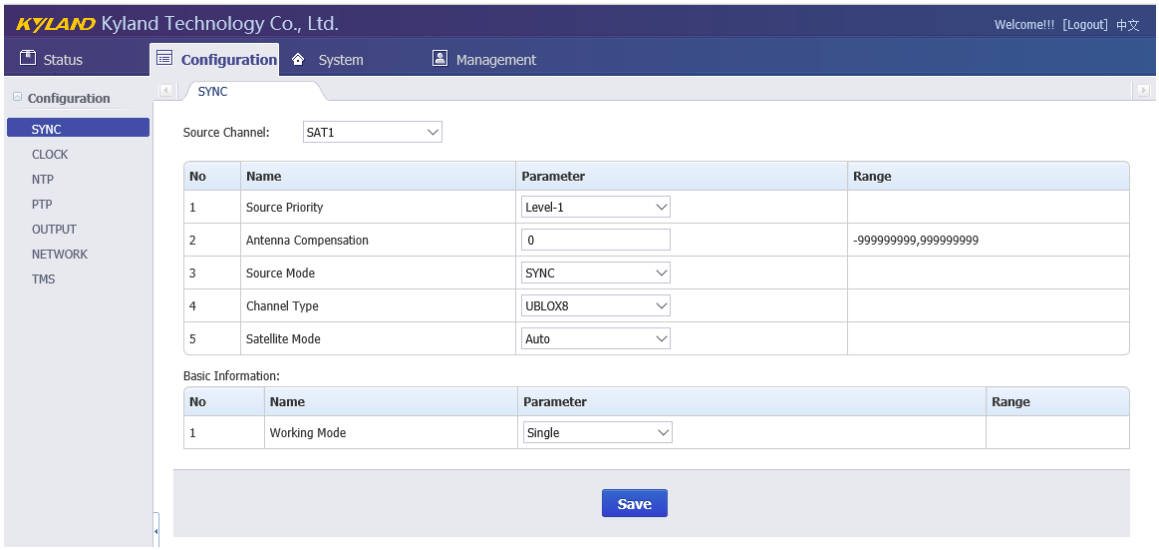

Figure 10 Configuration Screen

5.5.1. Sync Source Settings

Press ‘SYNC’ on the left navigation bar to show synchronization source setting screen. The sync source setting screen will be shown as:

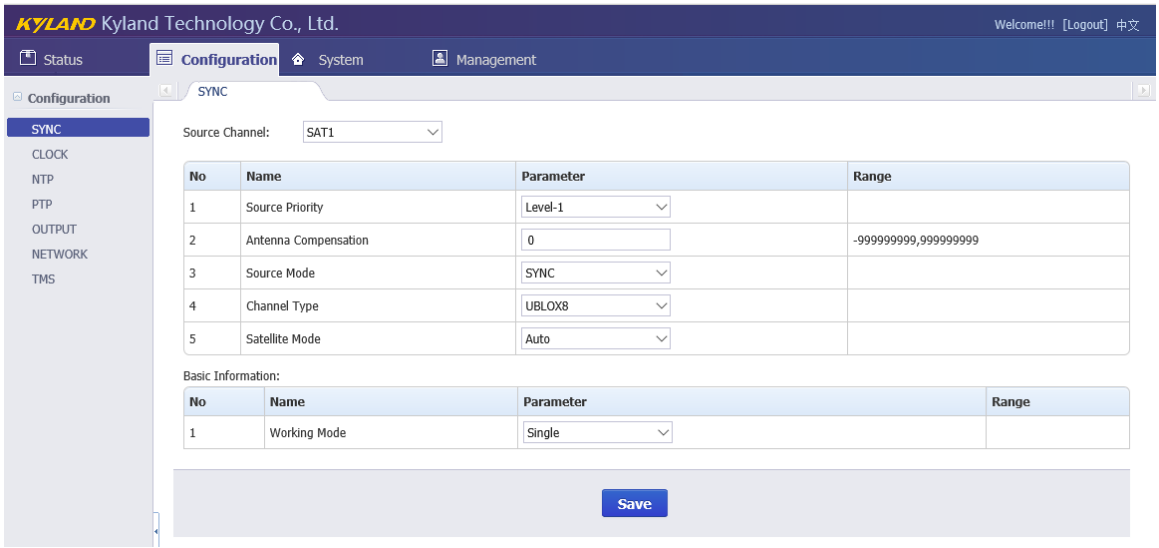

Figure 11 Sync Source Setting Screen

Table 1 Sync Source Setting

Item	Valid	Parameter	Description
Channel Type	SAT1	UBLOX8	Select different module for each satellite channel to receive satellite signal from sky.
Satellite Mode	SAT1	Auto/A-BDS/A-GPS/A-GLN/F-BDS/F-GPS/F-GLN	When you select a multiple mode receiver for each satellite channel, you might use this parameter to make it work at right mode.
Antenna Compensation	SAT1	0ns	According to different antenna types and lengths, system implements time delay compensation for each satellite channel.
Source Priority	SAT1 IRIG-B1 PTP	1~10	Set the priority for external signal source. 1 is highest source and 10 is lowest source.
Source Mode	SAT1 IRIG-B1 PTP	SYNC/PEER/NONE	To set source working mode. SYNC is individual sync source, PEER is redundancy sync source and NONE is anything to do.
Input Channel	IRIG-B1	FI	To set IRIG-B1input time signal.
Time Format	IRIG-B1	DC+/DC-	To set IRIG-B1input format, including DC+ (positive polarity DC), DC-(negative polarity DC) IRIG-B signal.

Item	Valid	Parameter	Description
UTC Offset	IRIG-B1	0.00H	Set time offset between IRIG-B and UTC.
Working Mode	--	Single/Multiple	Single source enabled(only one good external source can make clock to work)/Multiple source enabled(compare with multiple good time sources in order to select best one as the reference source)

Press ‘Save’ button to save the current setting when you change setting.

5.5.2. Clock Settings

Press ‘CLOCK’ on the left navigation bar to show clock setting screen. The clock setting screen will be shown as:

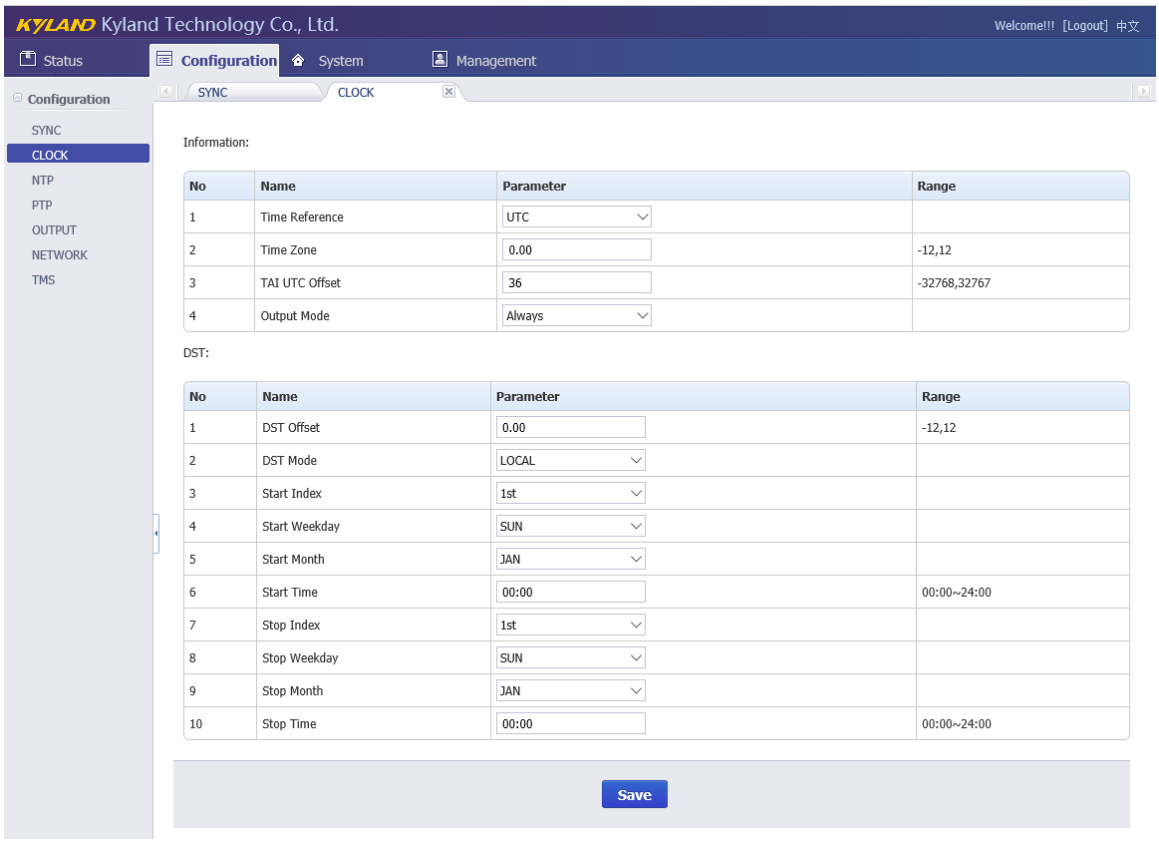

Figure 12 Clock Setting Screen

Table 2 Clock Setting

Items	Parameters	Description
Time Reference	UTC / TAI	Set UTC time or TAI time as required
Time Zone	0.00H	Set time zone offset to ensure required time zone display.
TAI UTC Offset	35s	Set time zone offset between TAI and UTC.
Output Mode	Always/Lock	Always means time server has output signals in any status. Lock means time server only has output signals after timer server is locked by external time source.
DST Offset	0.00H	Set how many hours need to adjust at DST period.
DST Mode	UTC/LOCAL	Set use which reference time to convert DST time.
Start Index	1st/2nd/3rd/4th/5th/Last	Set start date of DST.
Start Weekday	MON/TUE/WEN/THU /FRI/SAT/SUN	
Start Month	JAN/FEB/MAR/APR/MAY/JUN/JUL/AUG/SEP/OCT/NOV/DEC	
Start Time	00:00~24:00	
Stop Index	1st/2nd/3rd/4th/5th/Last	Set stop date of DST.

Items	Parameters	Description
Stop Weekday	MON/TUE/WEN/THU /FRI/SAT/SUN	
Stop Month	JAN/FEB/MAR/APR/MAY/JUN/JUL/AUG/SEP/OCT/NOV/DEC	
Stop Time	00:00~24:00	

Press ‘Save’ button to save the current setting when you change setting.

5.5.3. NTP Settings

Press ‘NTP’ on the left navigation bar to show NTP setting screen. The NTP setting screen will be shown as:

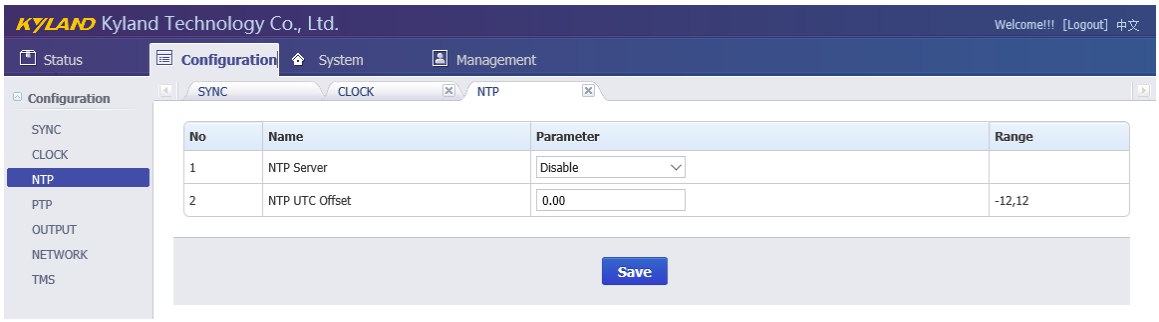

Figure 13 NTP Setting Screen

Table 3 NTP Setting

Items	Parameters	Description
NTP Server	Enable/Disable	To enable or disable NTP server of time server.
NTP UTC Offset	0.00H	Set time offset between NTP and UTC.

Press ‘Save’ button to save the current setting when you change setting.

5.5.4. PTP Settings (Optional)

Press ‘PTP’ on the left navigation bar to show PTP setting screen. The PTP setting screen will be shown as:

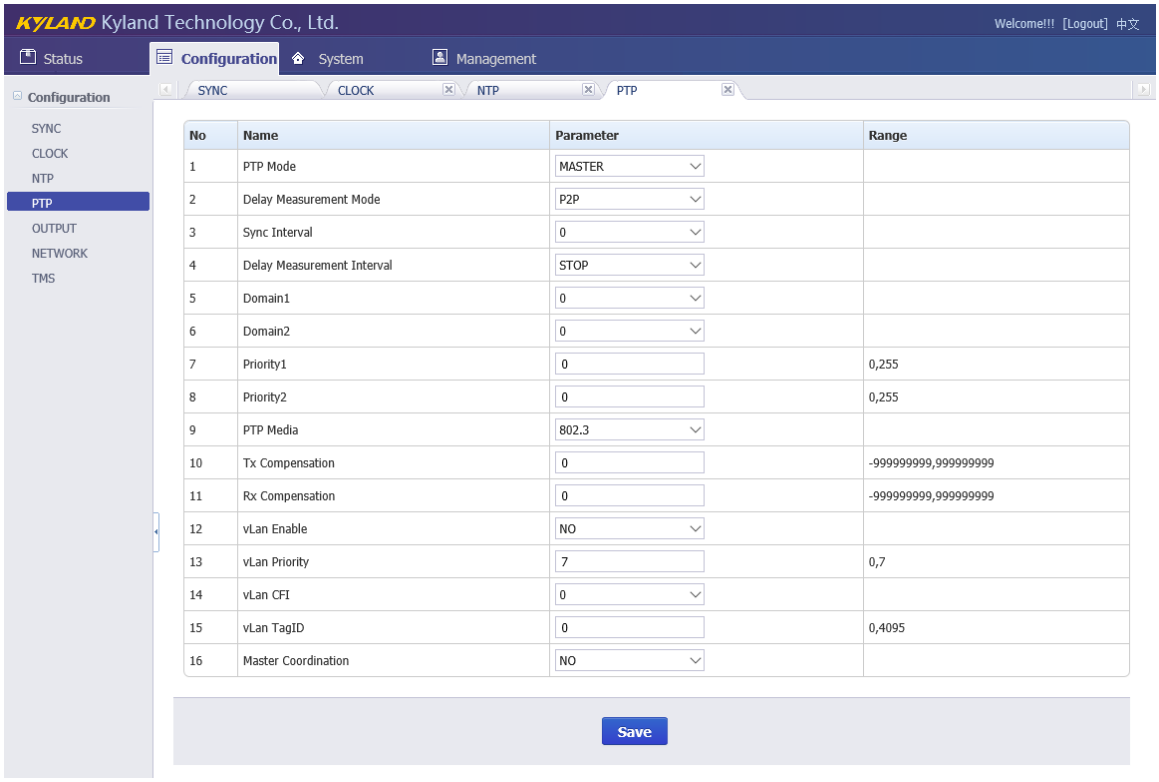

Figure 14 PTP Setting Screen

Table 4 PTP Setting

Items	Parameters	Description
PTP Mode	Master/Slave /Boundary	Set PTP working mode.
Delay Measurement Mode	E2E / P2P / Disable	Set clock delay measurement mode or disable this function.
Sync Interval	-8~4 / Stop	Set the PTP sync message rate of PTP master clock. Setting value is n, actual interval is 2^n seconds. Valid range is from -8 to 4 and Stop. Default value is Stop.

Items	Parameters	Description
Delay Measurement Interval	-8~4 / Stop	Set delay measurement rate. Setting value is n, actual interval is 2^n seconds. Valid range is from -8 to 4 and Stop. Default value is Stop.
Domain1/2	0~3	Set the working domain name for PTP message.
Priority1/2	0~255	Set working priority for PTP message.
PTP Media	802.3 / IPv4	Set the transmission protocol for PTP.IEEE802.3 and Ipv4 are supported.
Rx Compensation	0ns	Set the time delay for receiving PTP message.
Tx Compensation	0ns	Set the time delay for sending PTP message.
vLan Enable	Yes / No	Set whether to send vLan information.
vLan Priority	0~7	Set vLan priority.
VLan CFI	0	Set vLan CFI information.
vLan TagID	0~4095	Set vLan ID information.
Master Coordination	YES/NO	Set master coordination function with BMC.

Press ‘Save’ button to save the current setting when you change setting.

5.5.5. Output Settings

Press ‘OUTPUT’ on the left navigation bar to show output setting screen. The default output setting screen will be shown as:

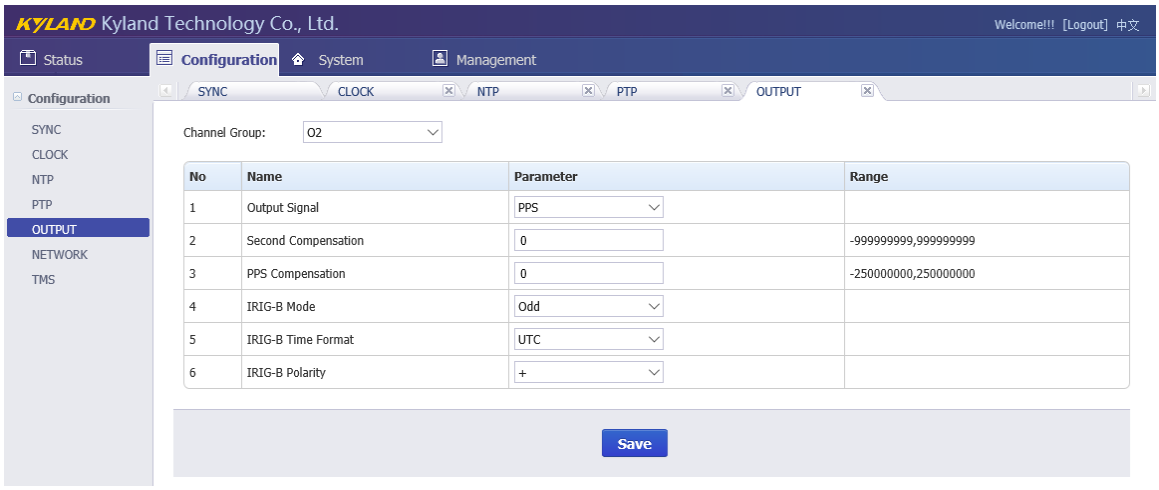

Figure 15 Output Setting Screen (O2/O3/O4)

Table 5 Output Setting

Items	Parameters	Description
Output Signal	PPS,IRIG-B	Set the output signal type for O2/O3/O4.
Second Compensation	0s	Set second compensation offset.
PPS Compensation	0ns	Set PPS compensation offset.
Time Format	UTC / TAI / Local	Set output time format which can be set to UTC/TAI/Local time.
Mode	Even /Odd	Set IRIG-B check code: even, odd check.
Polarity	+/-	Set IRIG-B output signal polarity.

Press ‘Save’ button to save the current setting when you change setting.

5.5.6. Network Settings

Press ‘NETWORK’ on the left navigation bar to show network setting screen.

The network setting screen will be shown as:

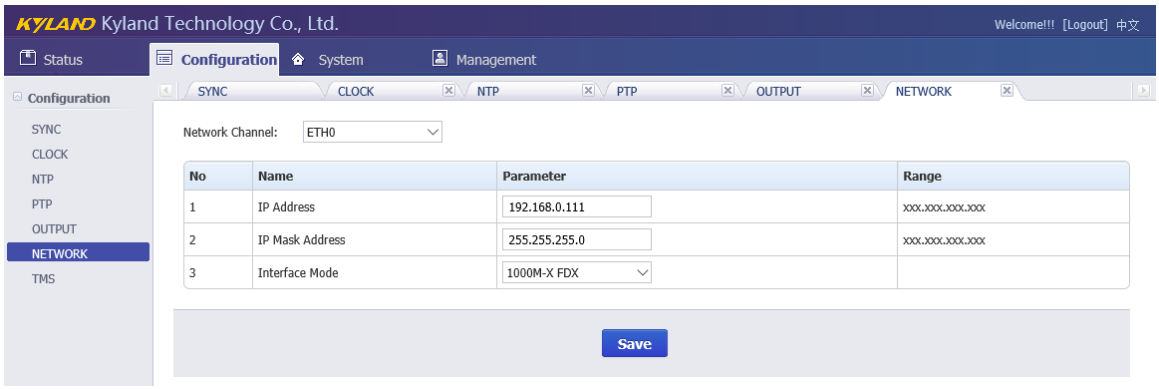

Figure 16 Network Setting Screen

Press ‘Network Group’ to select different network port including ETH0/1/2/3.

Table 6 Network Setting

Items	Parameters	Description
IP Address	ETH0:192.168.0.111 ETH1:192.168.1.111	Set ETH0/1 IP address.
IP Mask Address	ETH0:255.255.255.0 ETH1:255.255.255.0	Set ETH0/1 Subnet mask address.
Interface Mode (ETH0)	1000M-X FDX	ETH0 is internal network to connect switch inside. Only use 1000M-X FDX mode to set this port.
Interface Mode ETH1)	100M-FX FDX/1000M-FX FDX/COPPER	ETH1 is independent network on the front panel. It is a combo network. It supports SFP or RJ45.

Press ‘Save’ button to save the current setting when you change setting.

5.5.7. TMS Settings(Optional)

Press ‘TMS’ on the left navigation bar to show time management system setting screen. The TMS setting screen will be shown as:

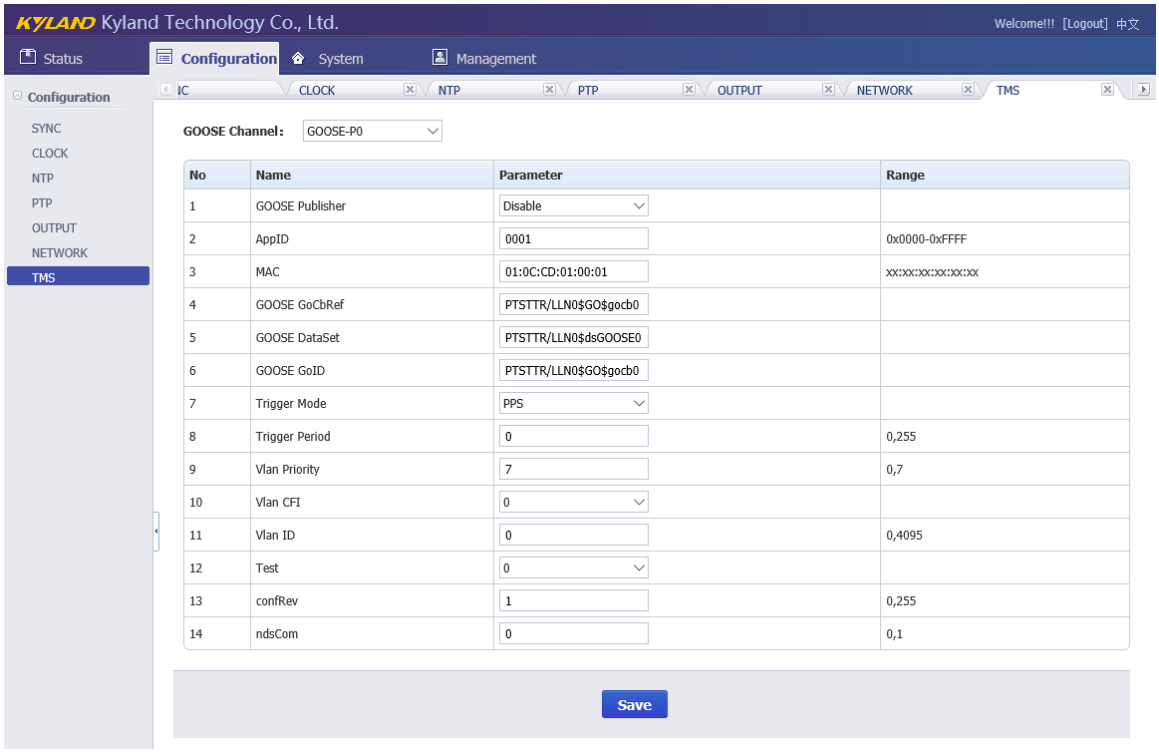

Figure 17 TMS Setting Screen

Press ‘GOOSE channel’ to select GOOSE publisher and subscriber channel.

The GOOSE publisher (GOOSE-P0/1) settings include the following parameters:

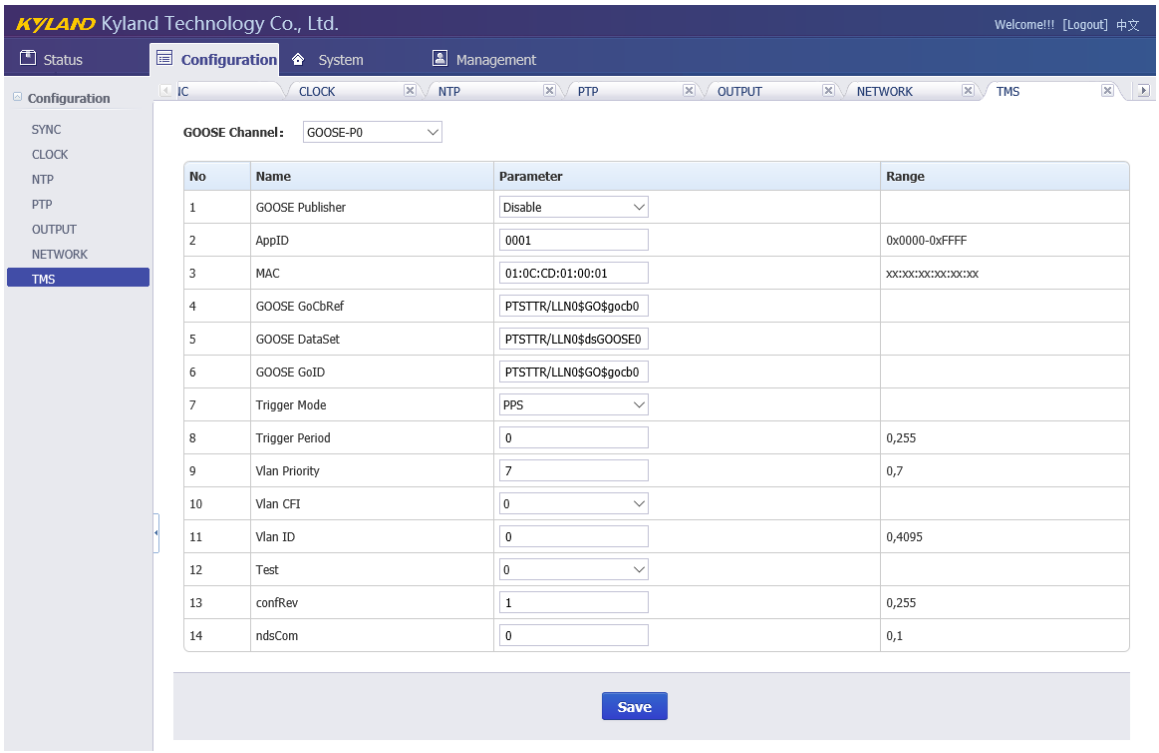

Figure 18 TMS Publisher Screen

Table 7 TMS Publisher Setting

Items	Parameters	Description
GOOSE Publisher	Enable/Disable	Enable or Disable GOOSE publisher
MAC	01.0C.CD.01.00.01	Set GOOSE MAC address
GOOSE GoID	PTSTTR/LLN0GOgocb0	Set GOOSE ID
GOOSE GoCBRef	PTSTTR/LLN0GOgocb0	Set GOOSE reference
GOOSE Dataset	PTSTTR/LLN0$dsGOOSE 0	Set GOOSE dataset
APPID	0x0001	Set APPID of GOOSE message
Trigger Mode	PPS/PPM/PPH	Set trigger signal to send out GOOSE message
Trigger Period	0~255	Set period to send out GOOSE message, 0 means every trigger signal coming, it always generate GOOSE message, and the others means system will send a new GOOSE after time period.
Test	0/1	Set Test flag of GOOSE message
confRev	0~255	Set confRev of GOOSE message
ndsCom	0~255	Set ndsCom of GOOSE message
vLan Priority	0~7	Set vLan priority
vLan CFI	0/1	Set vLan CFI information
vLan ID	0~4095	Set vLan ID information

Press ‘Save’ button to save the current setting when you change setting.

The GOOSE subscriber (GOOSE-S0/1) settings include the following parameters:

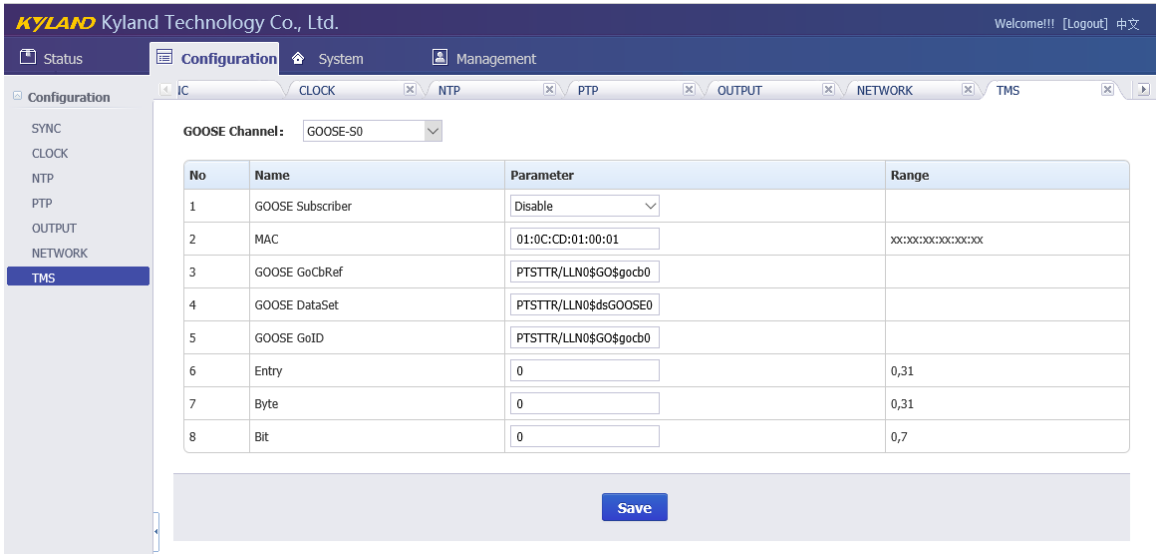

Figure 19 TMS Subscriber Screen

Table 8 TMS Subscriber Setting

Items	Parameters	Description
GOOSE Subscriber	Enable/Disable	Enable or Disable GOOSE publisher
MAC	01.0C.CD.01.00.01	Set GOOSE MAC address
GOOSE GoID	PTSTTR/LLN0GOgocb0	Set GOOSE ID
GOOSE GoCBRef	PTSTTR/LLN0GOgocb0	Set GOOSE reference
GOOSE Dataset	PTSTTR/LLN0$dsGOOSE 0	Set GOOSE dataset
Entry	0~31	Set the entry index of GOOSE message.
Byte	0~31	Set the byte position of entry item
Bit	0~7	Set the bit position of byte item.

Press ‘Save’ button to save the current setting when you change setting.

5.6. System

The WEB management system supports to manage Gateway, Route information and to backup and restore configuration file, in the same time it

also supports firmware management of TimeServer Module by WEB. Normally, if TimeServer Module has SNMP features, the SNMP management node will be shown in the left navigation bar.

Press ‘System’ to go to the system screen on the top of navigation bar. The screen will be shown as:

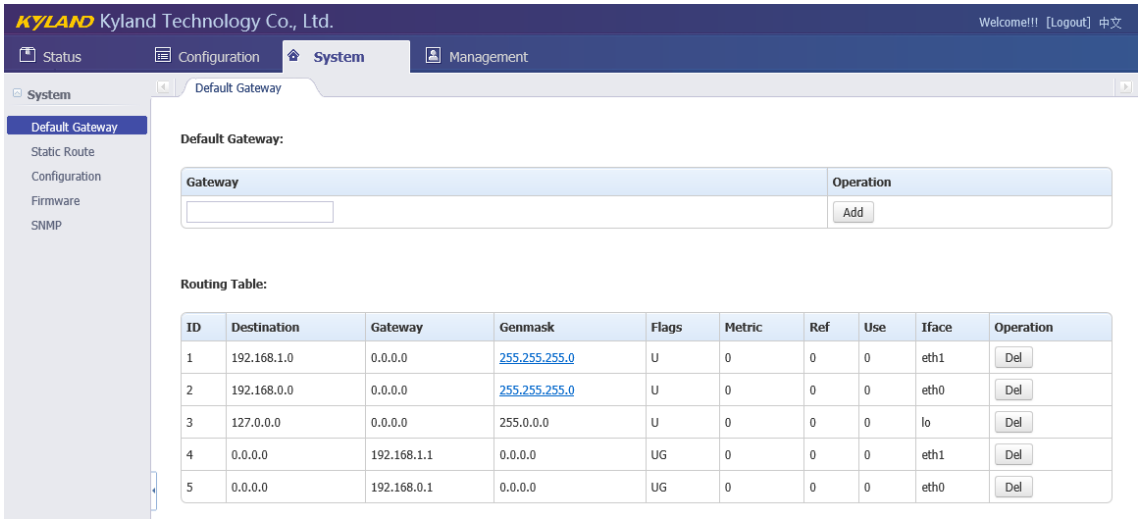

Figure 20 System Screen

5.6.1. Gateway

Press ‘Default Gateway’ on the left navigation bar to manage Gateway information. The gateway screen will be shown as:

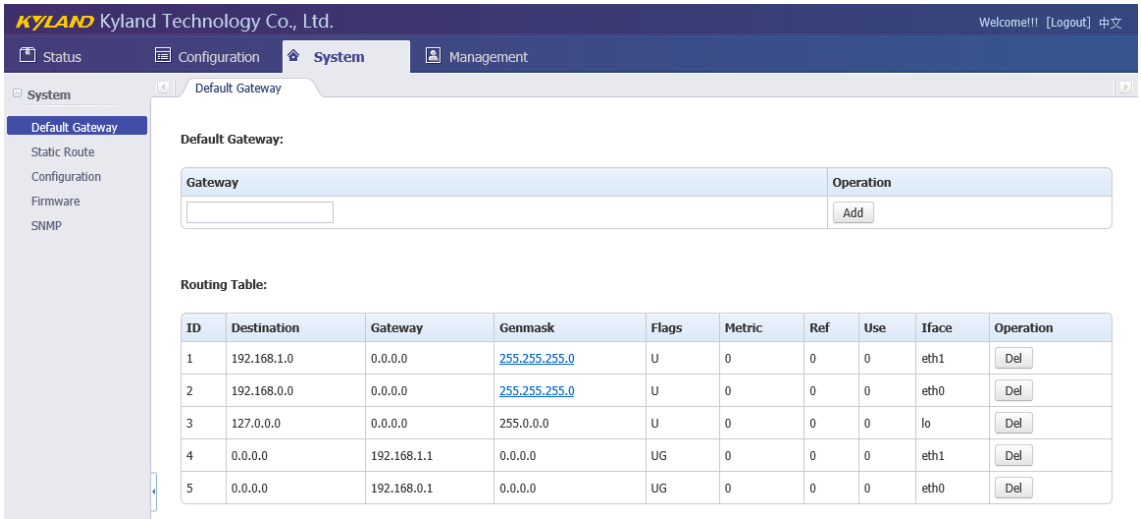

Figure 21 System Screen

The current routing table will be listed on the bottom of screen.

Press ‘Add’ to add a new gateway for TimeServer Module.

Press ‘Del’ to delete the selected route information.

5.6.2. Route

Press ‘Route’ on the left navigation bar to manage Route information. The route screen will be shown as:

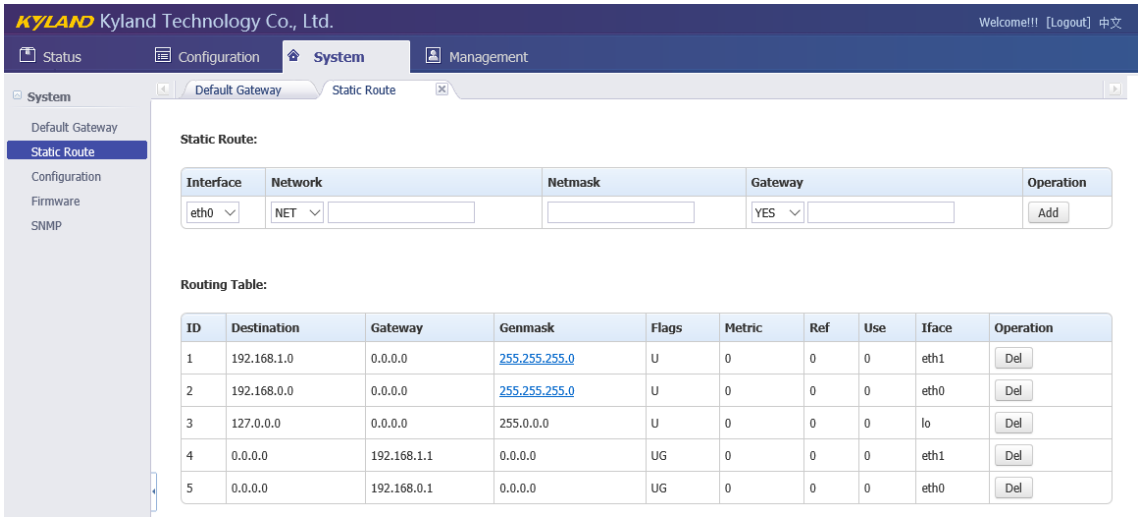

Figure 22 Route Screen

The current routing table will be listed on the bottom of screen.

Press ‘Add’ to add a static route for TimeServer Module.

Press ‘Del’ to delete the selected route information.

5.6.3. Configuration

Press ‘Configuration’ on the left navigation bar to backup and restore configuration file. The configuration screen will be shown as:

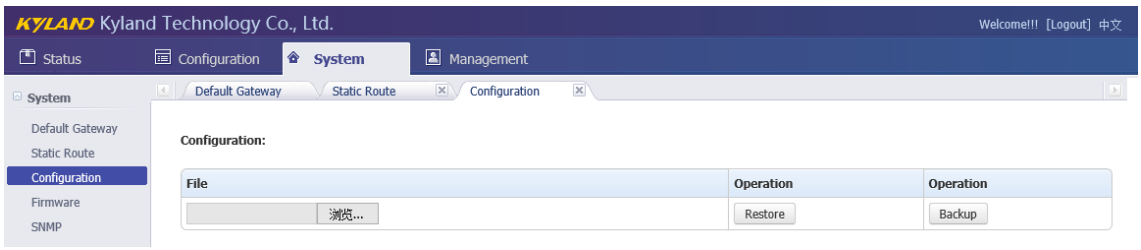

Figure 23 Configuration Screen

Press ‘Backup’ and system will pop-up a tip window, let user to select a

directory to save configuration file. The name of configuration file is named by MAC address.

Press ‘Restore’ to restore a configuration by WEB. Before do it, please select a file. After press ‘Restore’, the system will active your selected configuration file.

5.6.4. Firmware

Press ‘Firmware’ on the left navigation bar to upgrade firmware. The firmware screen will be shown as:

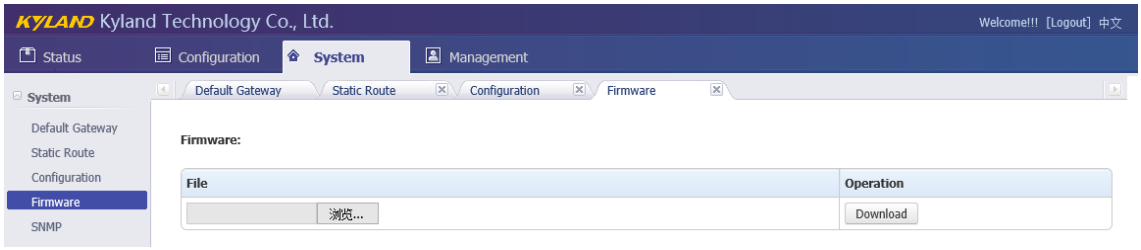

Figure 24 Firmware Screen

Press ‘Download’ to update the new firmware of TimeServer Module. Before do it, please select upgrade file. After finish this action, you should reboot device and make the new firmware active. There are 2 types to reboot device. One is turn off power and then turn on; another is controlled by WEB management system.

Note:

The firmware should be published by Official.

5.6.5. SNMP (Optional)

Press ‘SNMP’ on the left navigation bar to manage SNMP feature. The SNMP screen will be shown as:

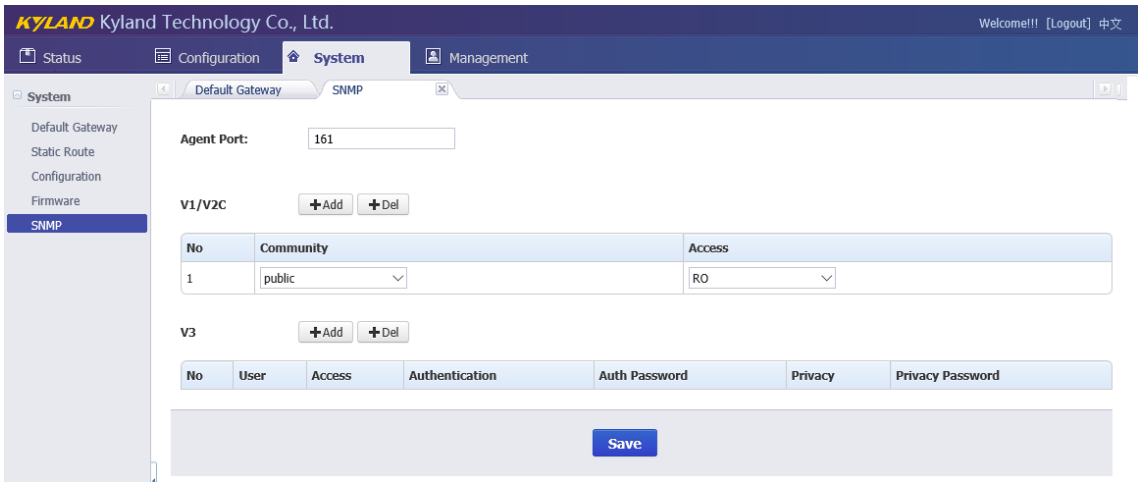

Figure 25 SNMP Screen

SNMP management supports to modify agent port and to add or delete V1/V2C and V3 access parameters. The default agent port of SNMP is 161. The default access parameter of V1/V2C named ‘public’, it only has read-only permissions. V3 does not have default value.

Note:

Any modifications about SNMP should reboot module to activate it.

5.7. Management

The WEB management system supports to change user password and reboot device by WEB.

Press ‘Management’ to go to the management screen on the top of navigation bar. The screen will be shown as:

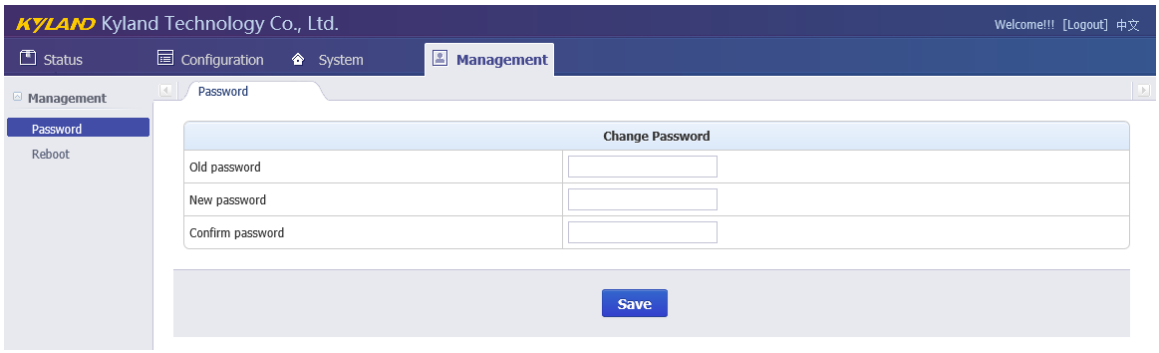

Figure 26 Management Screen

5.7.1. Change Password

Press ‘Change Password’ on the left navigation bar to change password. The change password screen will be shown as::

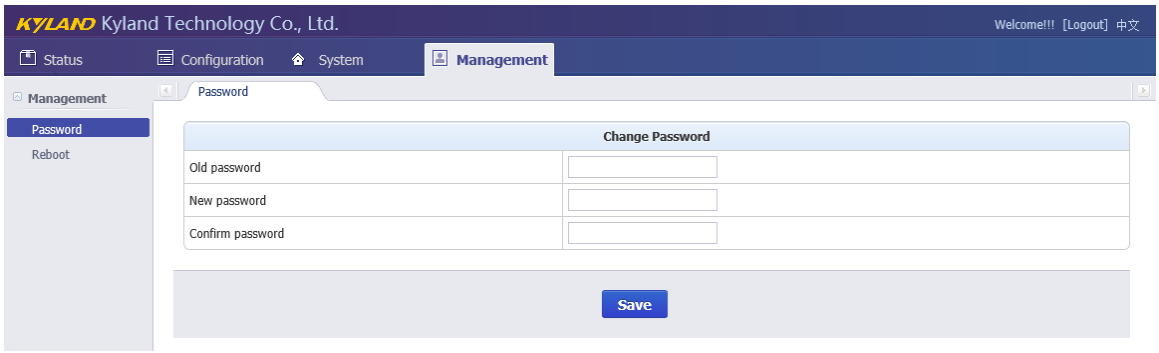

Figure 27 Change Password Screen

Please ‘Save’ to confirm the new password.

5.7.2. Reboot

Press ‘Reboot’ on the left navigation bar to reboot device. The reboot screen will be shown as:

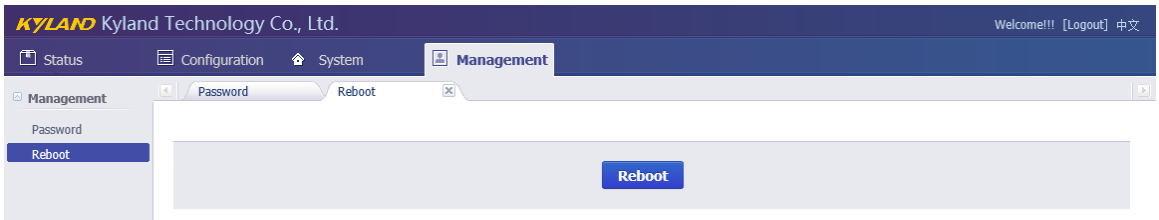

Figure 28 Reboot Screen