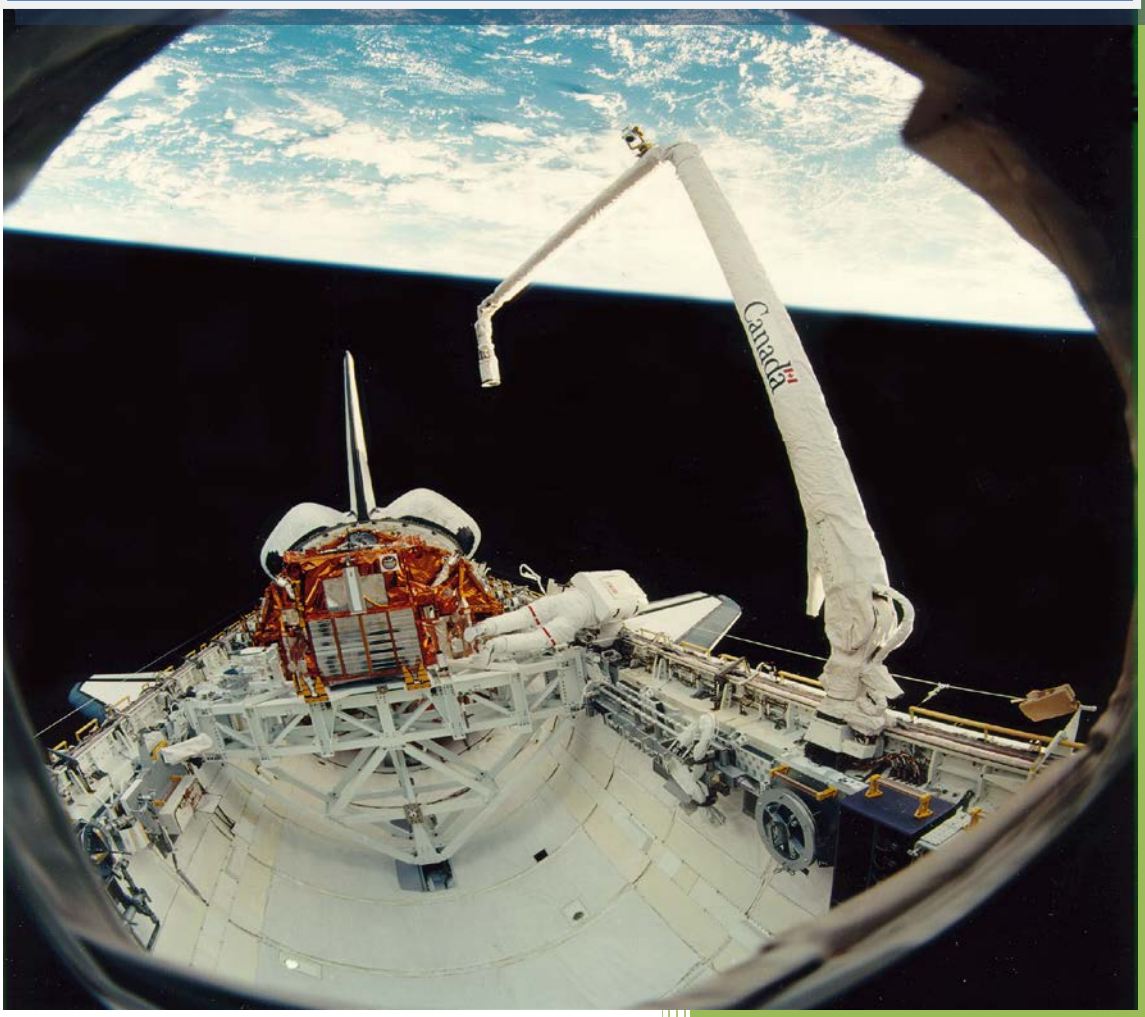
PTS-10
Time Server
WEB Manual



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Contents

1. Basic Features

1.1. Introduction

[Figure 1-1] PTS-10 Time Server

The PTS-10 Time Server is a standard time server. It supports high precision reference clock, which can be synchronized to absolute time such as GPS, BDS, and GLONASS etc. Built-in TCXO, OCXO helps 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. PTS-10 time server provides flexible time output channels and signals. The output timing signals include PPS, PPM, PPH, IRIG-B (Demodulated), IRIG-B (Modulated), Serial Time Signal (TOD etc.) etc. Plus, PTS-10 supports network sync time protocols NTP/SNTP and PTP (IEEE1588 v2). IEEE1588 can works in several modes by the software configuration including grandmaster clock, slave clock and boundary clock. PTS-10 has LCD to show any status and do configuration by keyboard. Meanwhile, PTS-10 is designed to send timing source status and clock status to control center by IEC61850 MMS, IEC60870-T104, DNP3.0, Modbus etc. PTS-10 also supports WEB and SNMP to manage system.

2. Operations

2.1. Login

Please connect PTS time server and PC by network cable. Open any WEB Browser of PC and input http://192.168.0.111 and press enter, the login WEB screen of PTS will be shown on your screen.

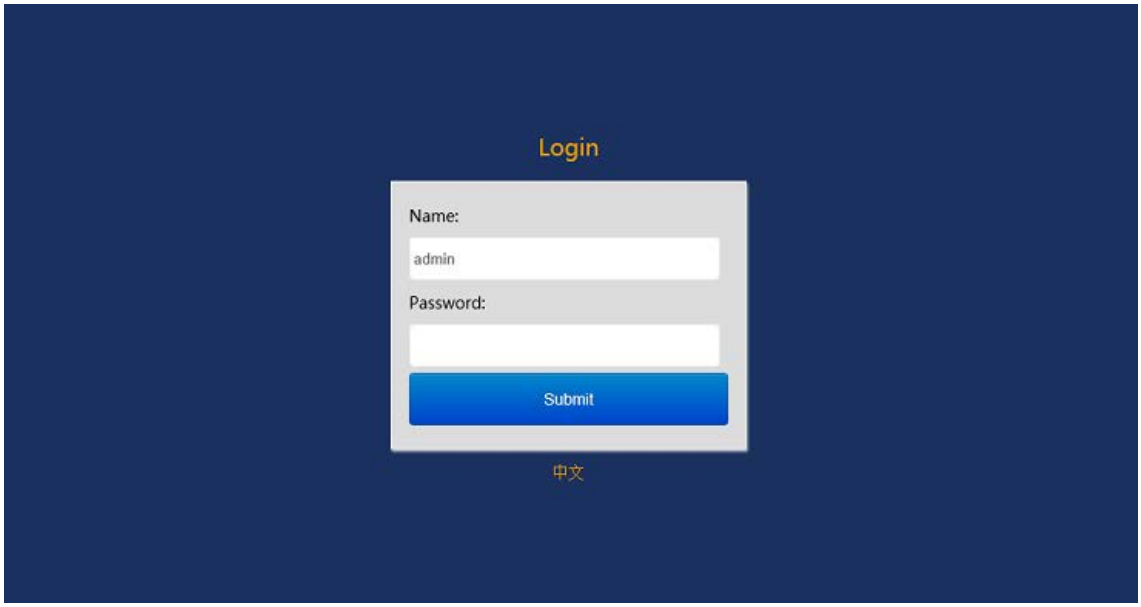

Figure 1 – Login Screen

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

Before you access WEB management system of PTS time server, 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.

Notes: The IP address is default IP address of eth0 of PTS time server, if you change Ethernet port or Ethernet IP address, you might input the correct IP address again and then go into the WEB management system of PTS time server.

2.2. Logout

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

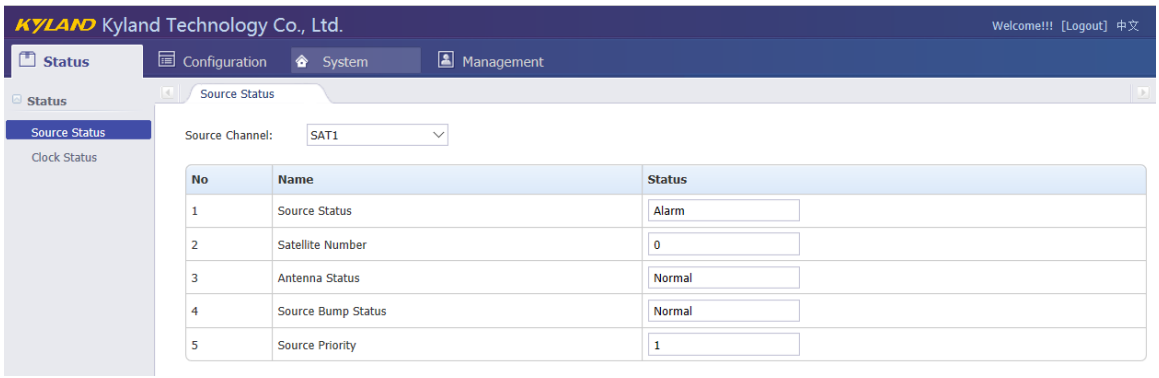

Figure 2 – Default Screen

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.

2.3. Languages

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

3. Applications

3.1. 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:

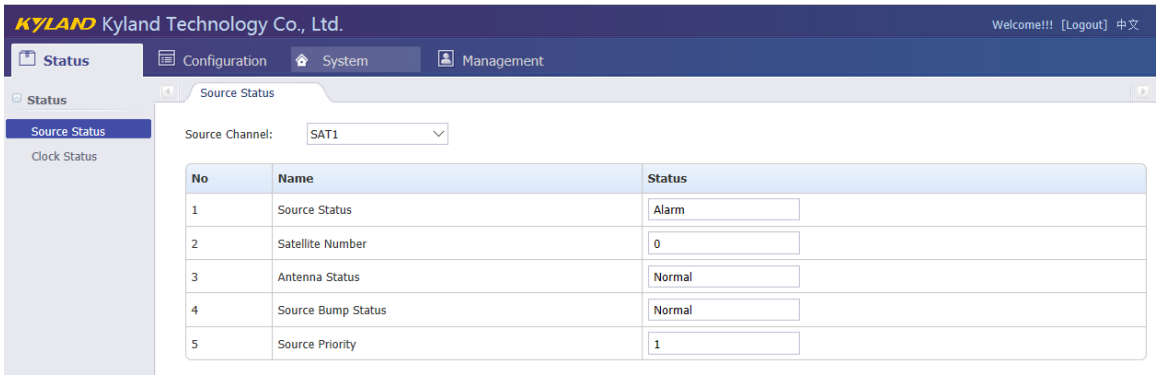

Figure 3 – Status Screen

3.1.1. Source Status

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

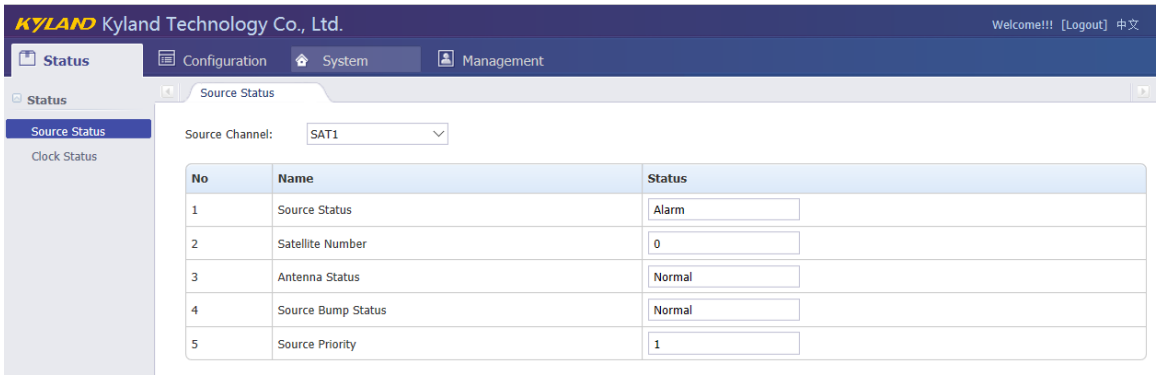

Figure 4 – Source Status Screen

The time source status shows the work status of any time source. The PTS time server supports 5 source channels including SAT1/SAT2/IRIG-B1/IRIG-B2/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.

3.1.2. Clock Status

Press 'Clock Status' on the left navigation bar to show clock status screen. The clock status screen will be shown as:

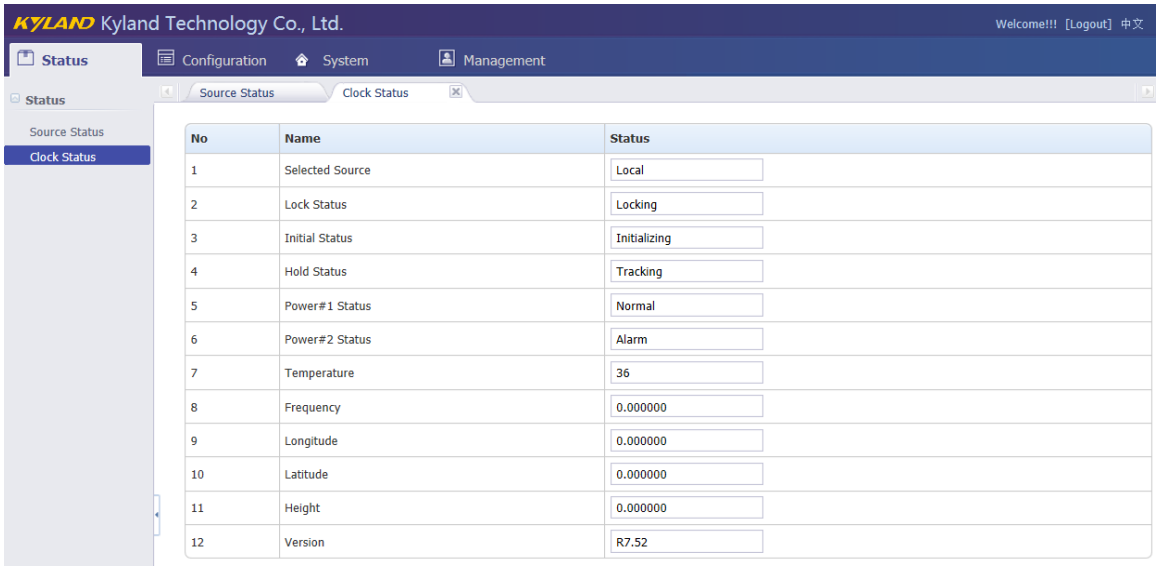

Figure 5 – Clock Status Screen

To show the current selected source, inside temperature, power grid measurement frequency and the current work status including initial, lock, hold status, position information and version information of PTS-10 time server.

3.2. 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:

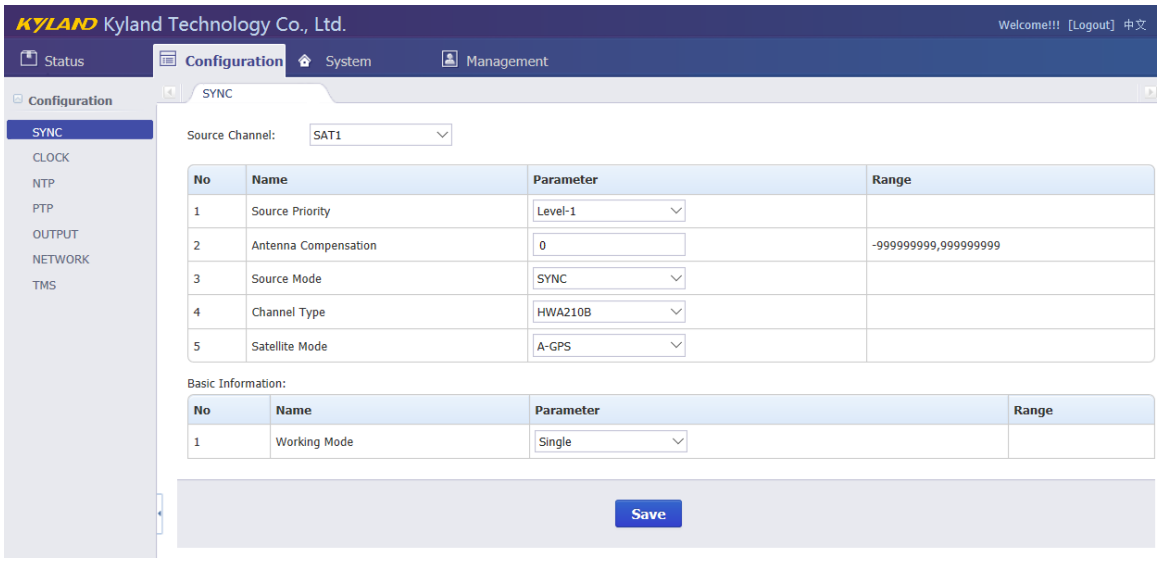

Figure 6 – Configuration Screen

3.2.1. 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:

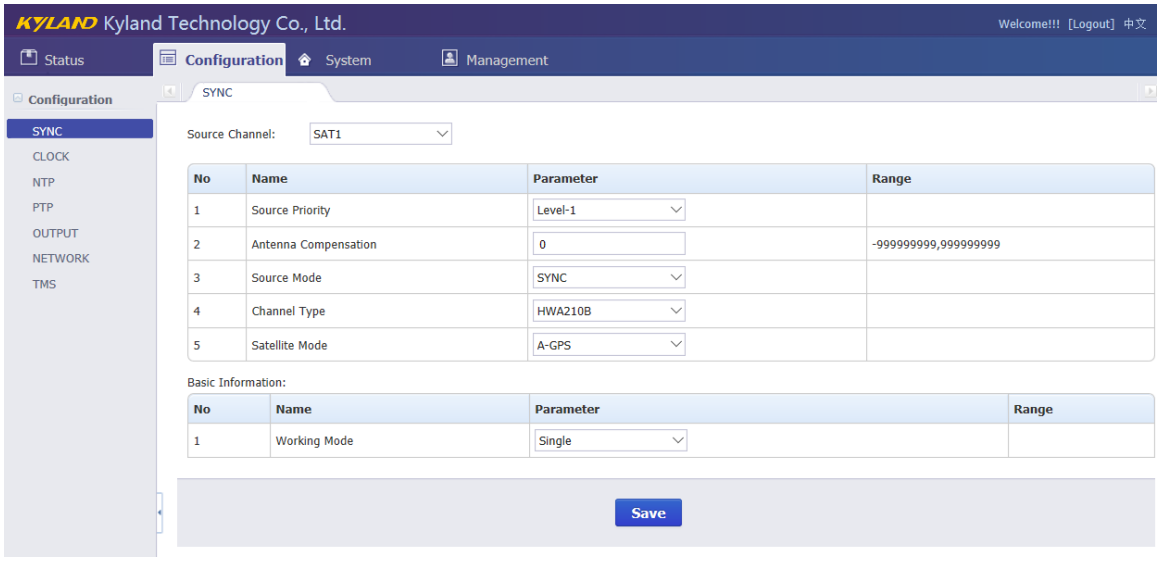

Figure 7 – Sync Source Setting Screen

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

Items	Parameters	Description
Channel Type	UBLOX5/UBLOX8/AT3340/HWA210B/HWA210L	Select different module for each satellite channel to receive satellite signal from sky.
Satellite Mode	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

Items	Parameters	Description
		this parameter to make it work at right mode.
Antenna Compensation	0ns	According to different antenna types and lengths, system implements time delay compensation for each satellite channel.
Source Priority	1~10	Set the priority for external signal source. 1 is highest source and 10 is lowest source.
Source Mode	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	FI1/FI2	To set IRIG-B1/B2 input time signal.
Time Format	DC+/DC-	To set IRIG-B1/B2 input format, including DC+ (positive polarity DC), DC-(negative polarity DC) IRIG-B signal.
UTC Offset	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 works)/Multiple source enabled(compare with multiple good time sources in order to select best one as the reference source)

3.2.2. Clock Settings

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

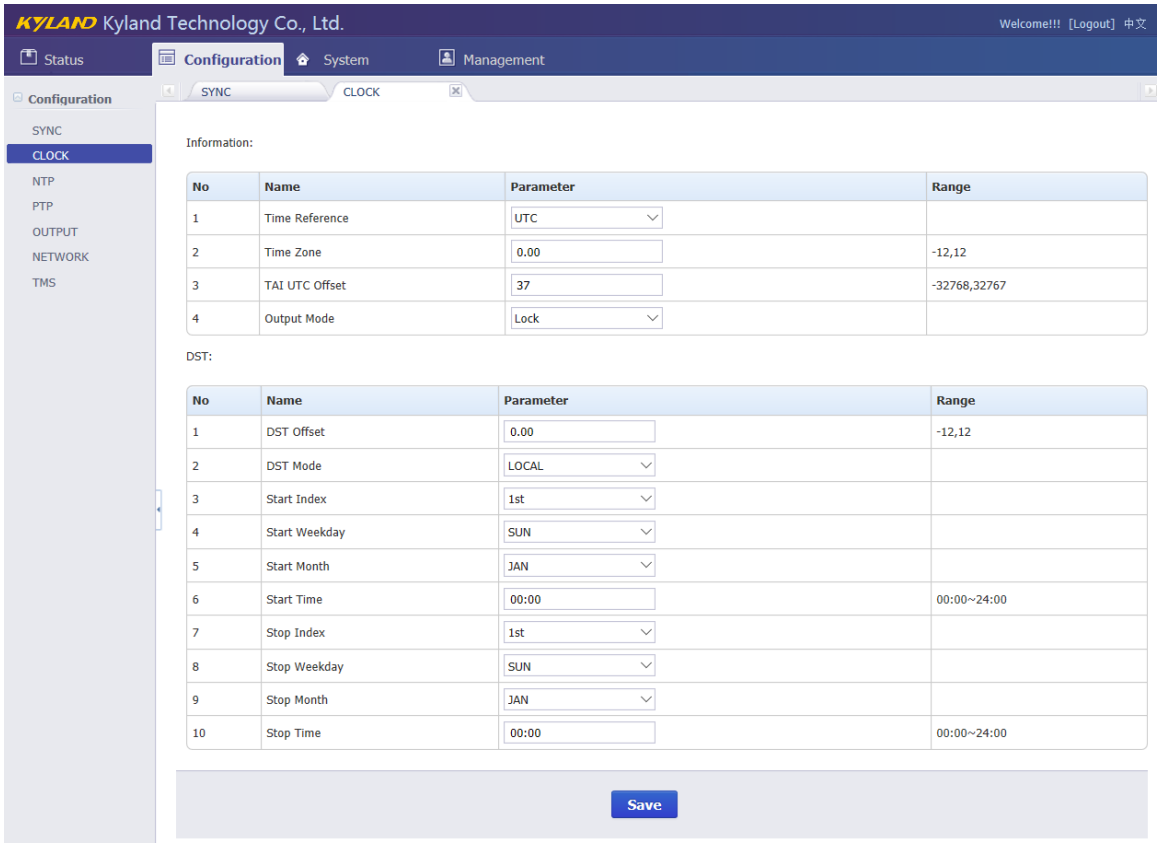

Figure 8 – Clock Setting Screen

Press 'Save' button to save the current setting when you change 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	$1^{st}/2^{nd}/3^{rd}/4^{th}/5^{th}$/Last	Set start date of DST.
Start Weekday	MON/TUE/WEN/THU /FRI/SAT/SUN	

Items	Parameters	Description
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.
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	

3.2.3. NTP Settings

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

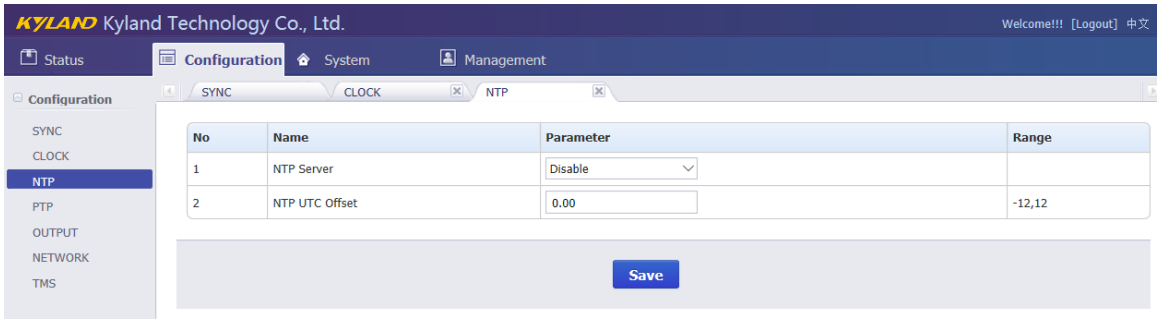

Figure 9 – NTP Setting Screen

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

3.2.4. PTP Settings (Optional)

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

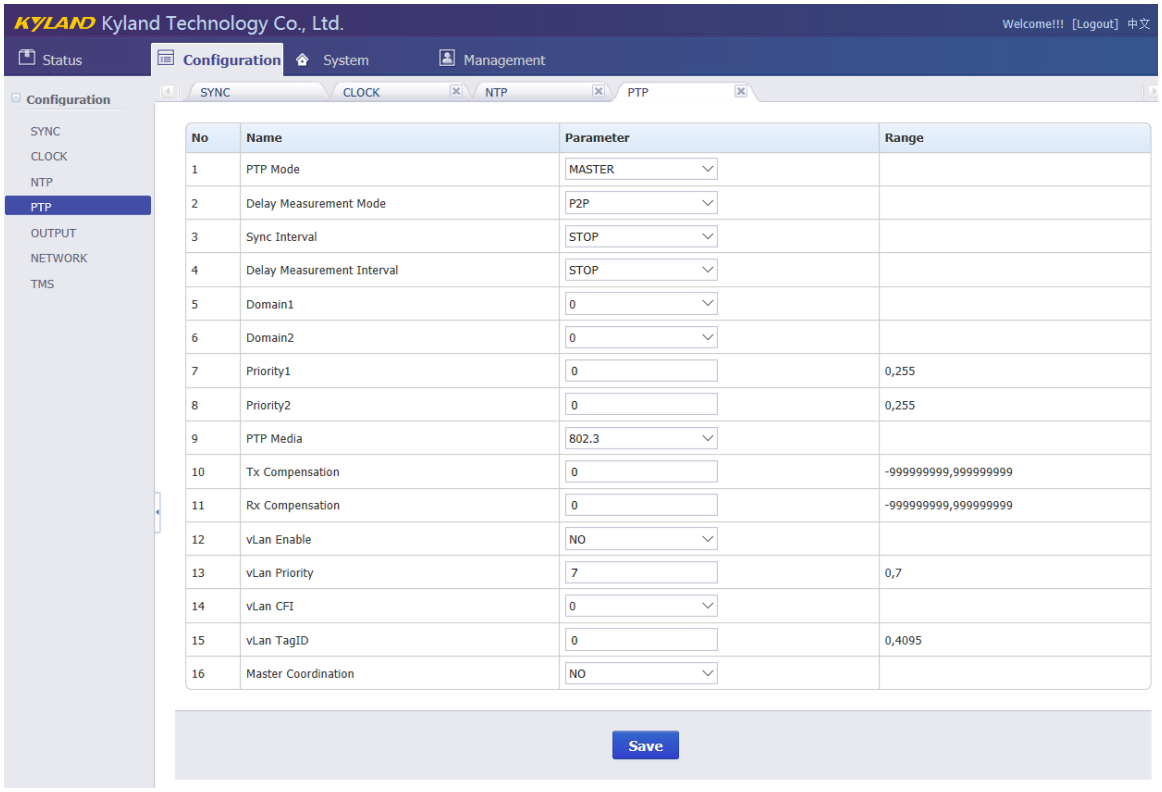

Figure 10 – PTP Setting Screen

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

Items	Parameters	Description
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.

3.2.5. Output Settings

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

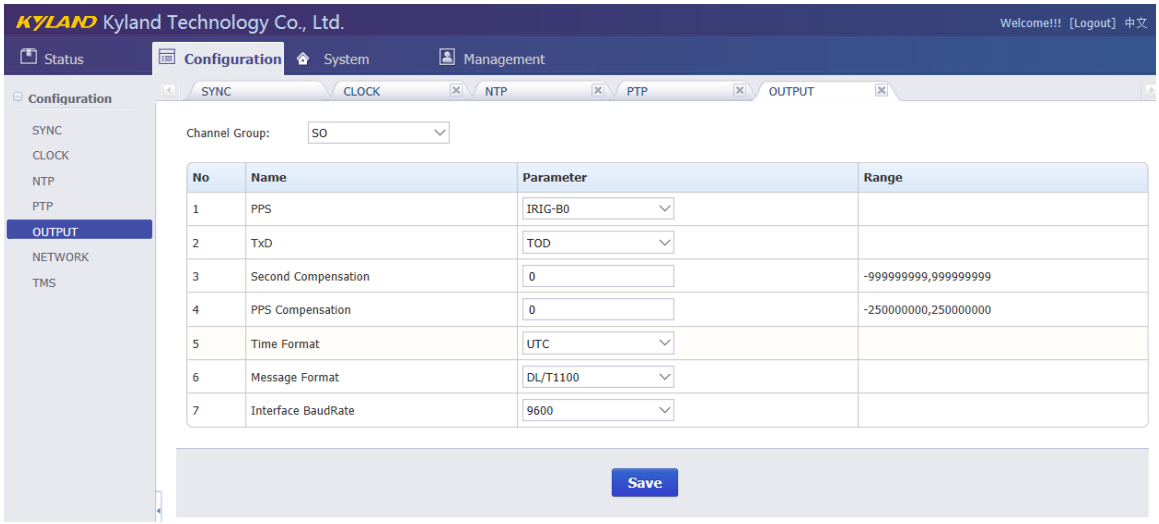

Figure 11 – Output Setting Screen

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

Press 'Channel Group' to select different output channel.

Channel Group has the following options: SO/O1/O2/O3/O4/O5/AC.

If select SO, the output setting screen will be shown as:

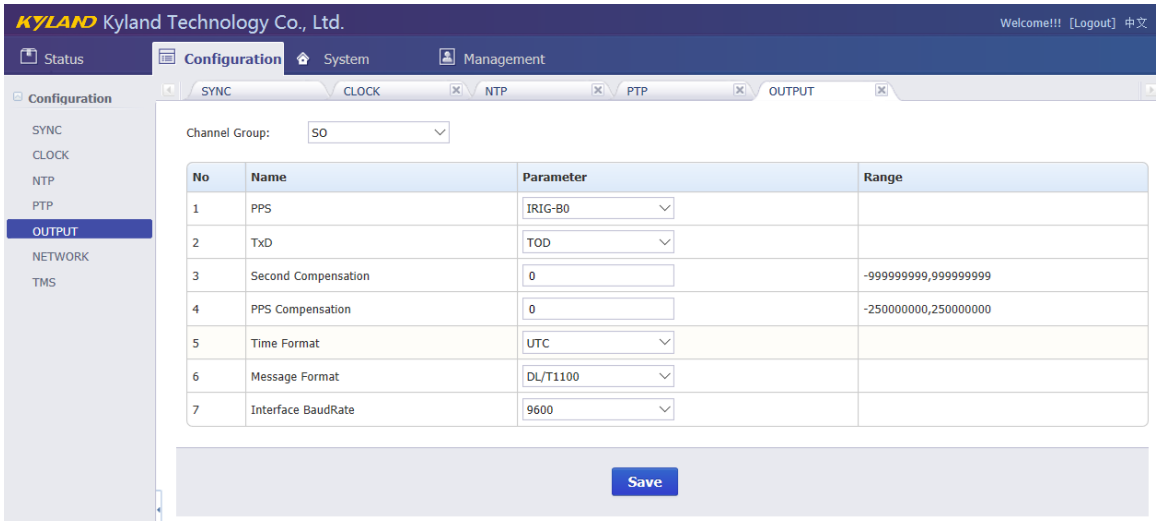

Figure 12 – Output Setting Screen (SO)

Items	Parameters	Description
PPS	PPS,IRIG-B,PPM,PPH	Set the signal type for serial port PPS signal.
TxD	TOD	Set the signal type for serial port TxD signal.
Message Format	DLT1100/CM-TOD/CMBB	Set the coding format for serial message.
Interface BaudRate	300~115200	Set the working baud rate for serial port, ranging from 300 to 115200.
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.

If select O1/O2/O3/O4/O5, the output setting screen will be shown as:

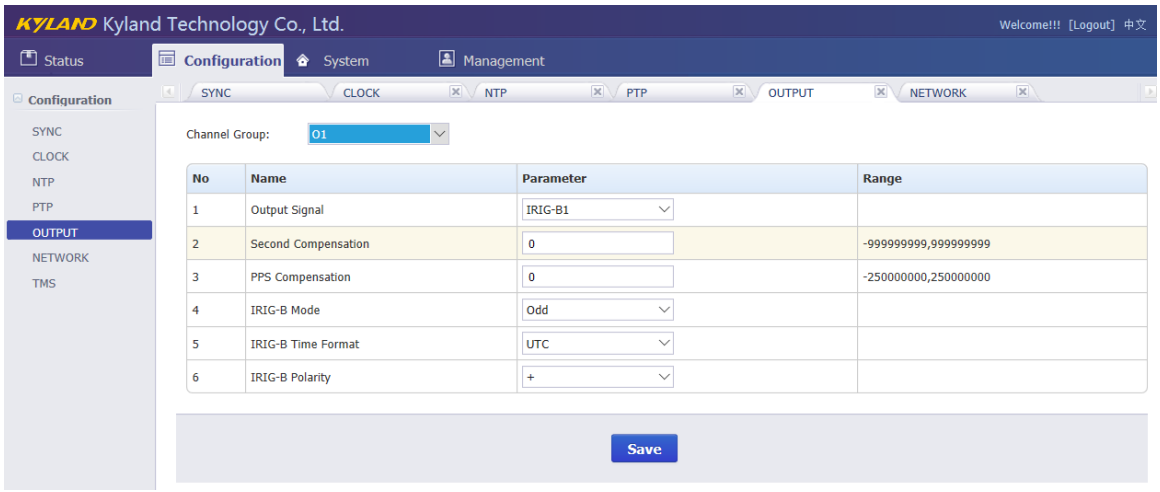

Figure 13 – Output Setting Screen (O1/O2/O3/O4/O5)

Items	Parameters	Description

Items	Parameters	Description
Output Signal	PPS,IRIG-B,PPM,PPH	Set the output signal type for 01~05.
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.

If select AC, the output setting screen will be shown as:

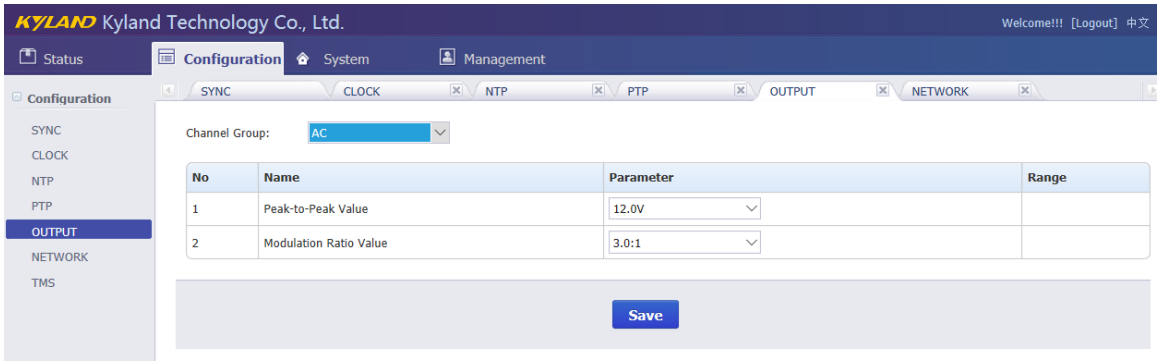

Figure 14 – Output Setting Screen (AC)

Items	Parameters	Description
Peak-to-Peak	3.0V~12.0V	Set the peak-to-peak value for IRIG-B modulated, ranging from 3.0V to 12.0V, adjusting step length is 0.5V, default value is 12.0V.
Modulation Ratio	3.0:1~6.0:1	Set the modulation ratio for IRIG-B modulated, ranging from 3.0:1~6.0:1, adjusting step length is 0.5:1; default value is 3.0:1.

3.2.6. Network Settings

Press 'NETWORK' on the left navigation bar to show network setting screen. The network setting screen will be shown as:

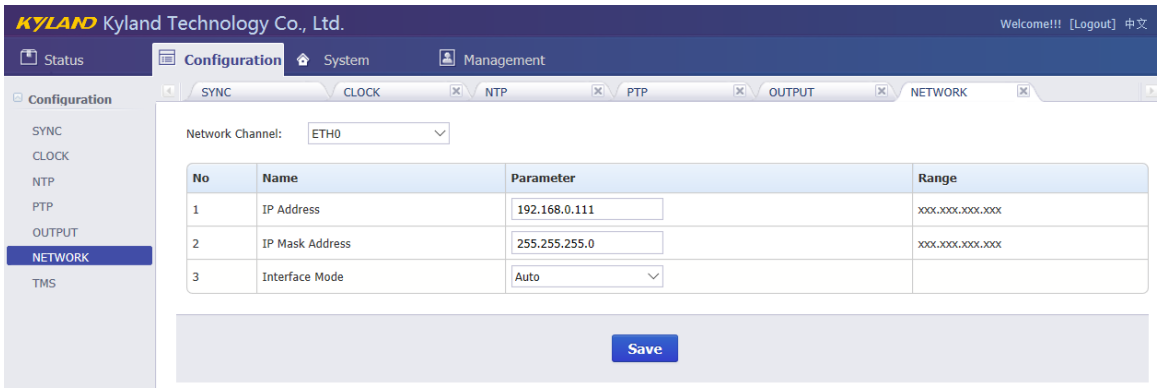

Figure 15 – Network Setting Screen

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

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

Items	Parameters	Description
IP Address	ETH0:192.168.0.111 ETH1:192.168.1.111 ETH2: 192.168.2.111 ETH3: 192.168.3.111	Set ETH0/1/2/3 IP address.
IP Mask Address	ETH0:255.255.255.0 ETH1:255.255.255.0 ETH2:255.255.255.0 ETH3:255.255.255.0	Set ETH0/1/2/3 Subnet mask address.
Interface Mode	Auto/Force	PTS-10 can provide more network type. One of them can set ETH0/ETH1 mode work with Auto or Force.
	Auto, 100M-FX FDX, 100M-FX-HDX, 1000M-X FDX, 1000M-X HDX	PTS-10 can provide more network types. One of them can set ETH0/ETH1 mode work with Auto or work with 100M and 1000M fiber.

3.2.7. 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:

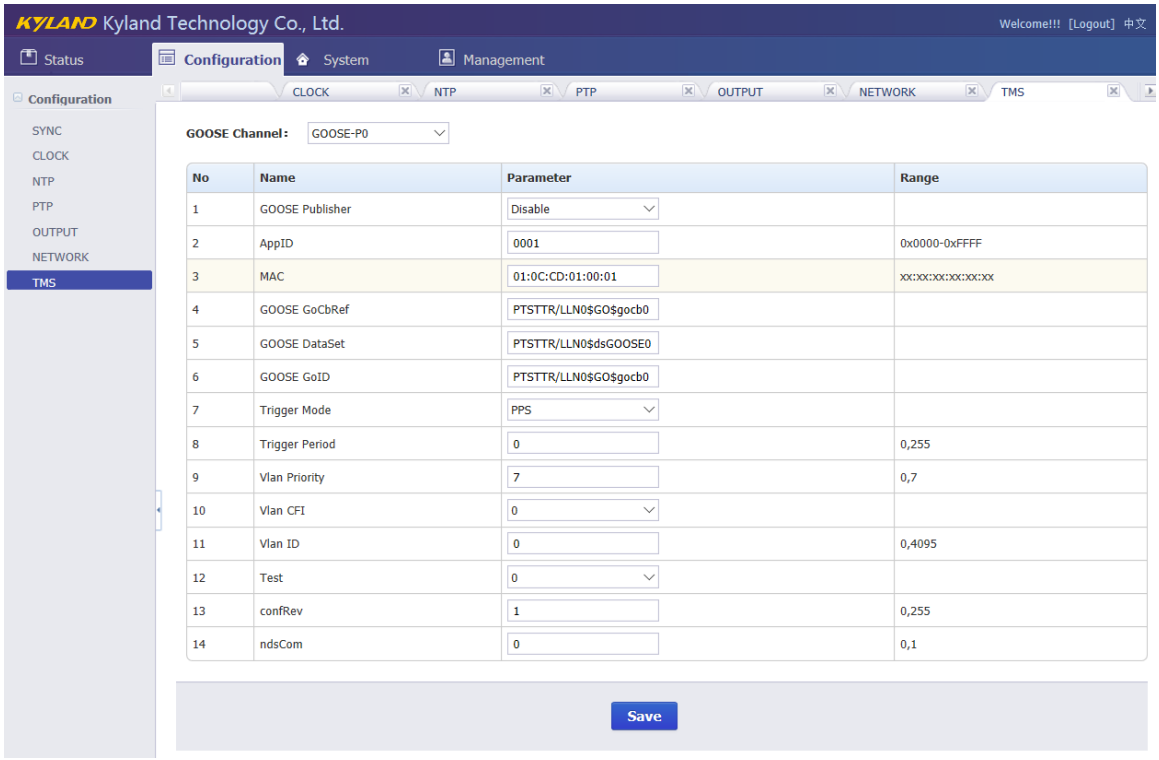

Figure 16 – TMS Setting Screen

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

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

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

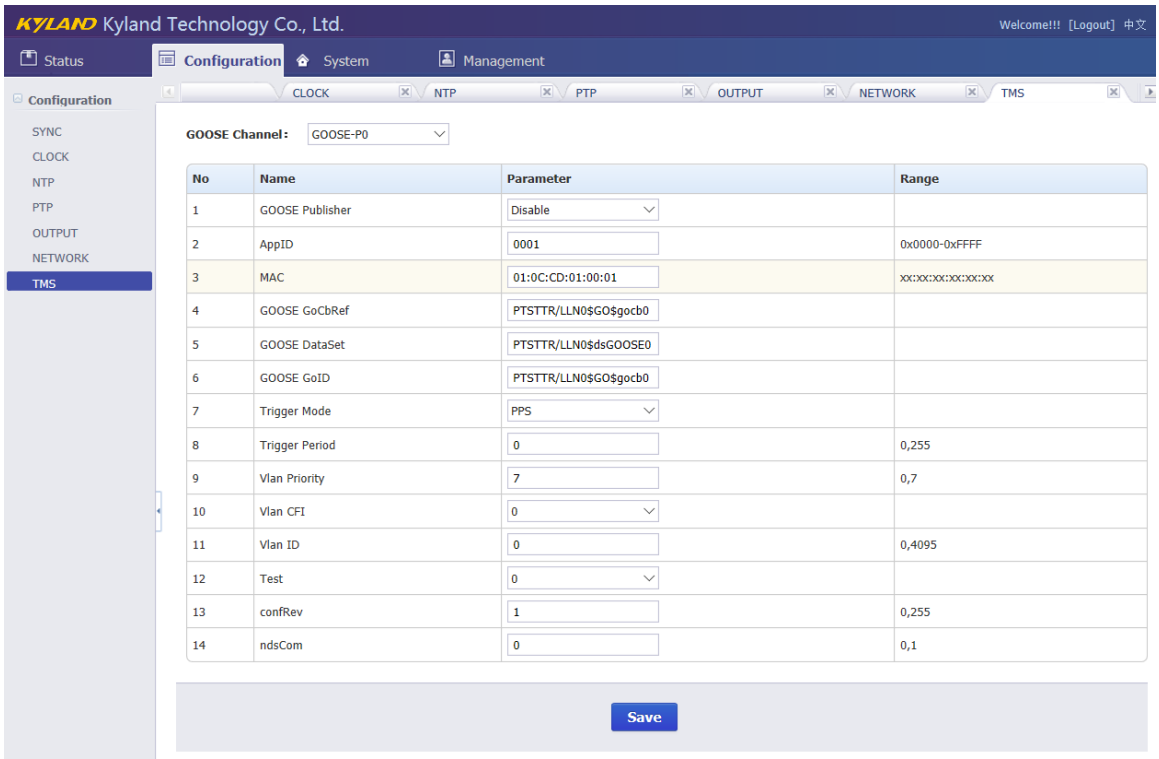

Figure 17 – TMS Publisher Screen

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$dsGOOSE0	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, the 0 means no data change and the non-zero means system will send a new GOOSE when the current time at PPS, PPM or PPH can be divisible by trigger 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

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

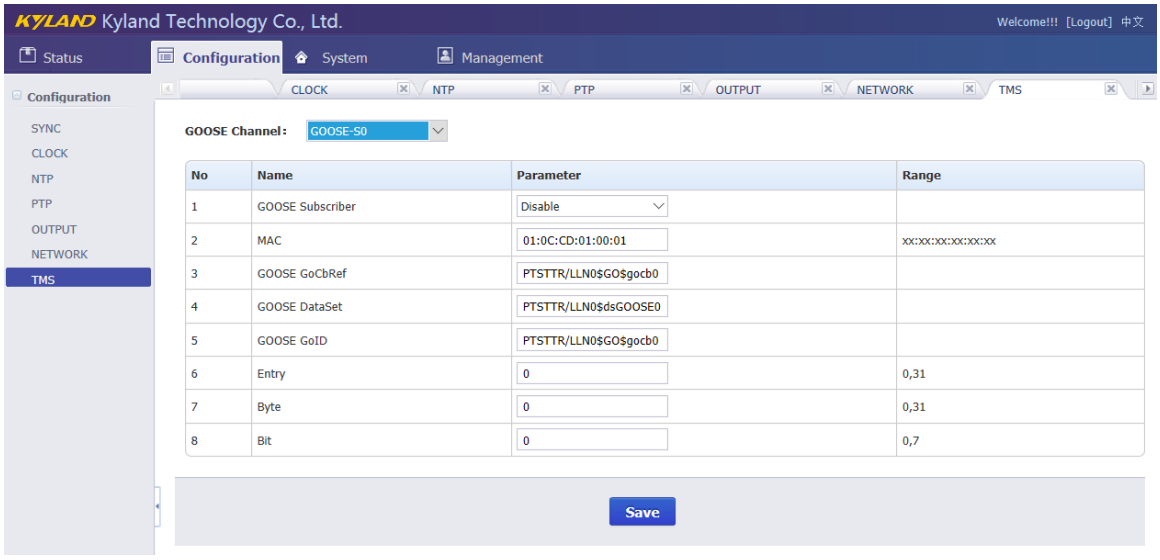

Figure 18 – TMS Subscriber Screen

Items	Parameters	Description
GOOSE Subscriber	Enable/Disable	Enable or Disable GOOSE publisher

Items	Parameters	Description
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$dsGOOSE0	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.

3.3. 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 PTS time server by WEB. Normally, if PTS 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:

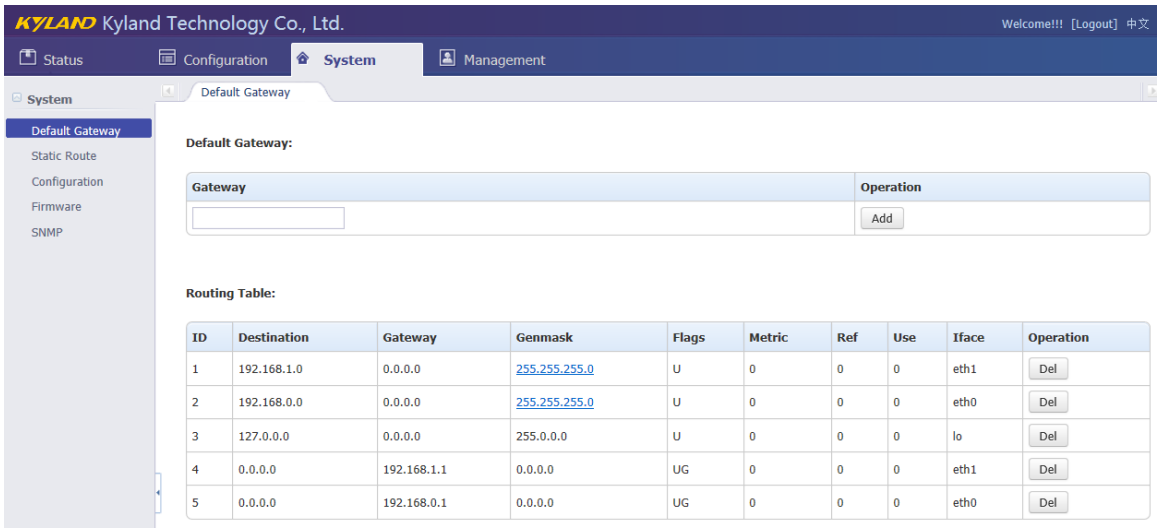

Figure 19 – System Screen

3.3.1. Gateway

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

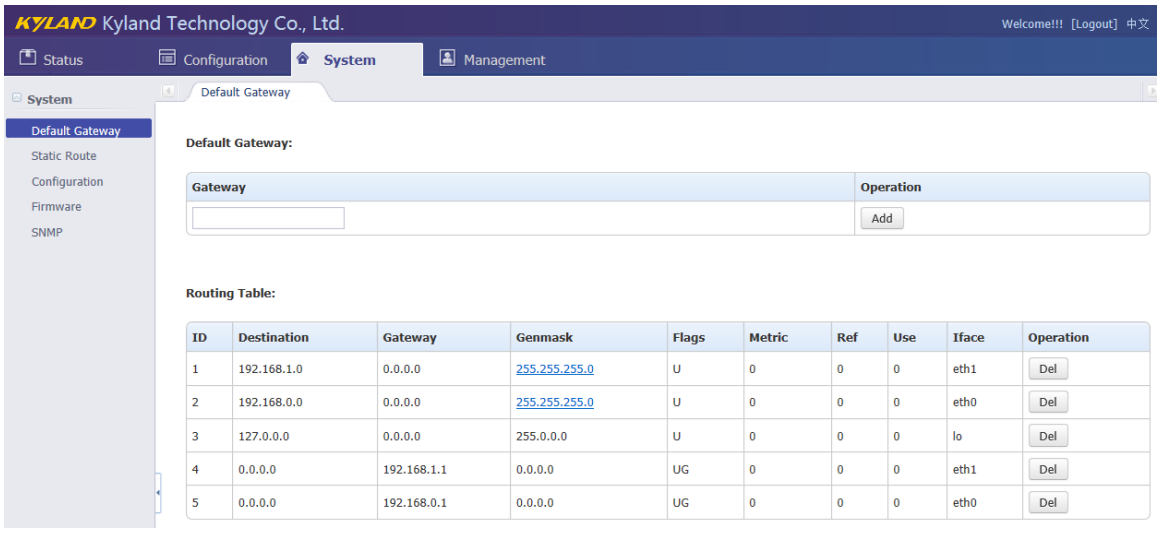

Figure 20 – Gateway Screen

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

Press 'Add' to add a new gateway for PTS time server.

Press 'Del' to delete the selected route information.

3.3.2. Route

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

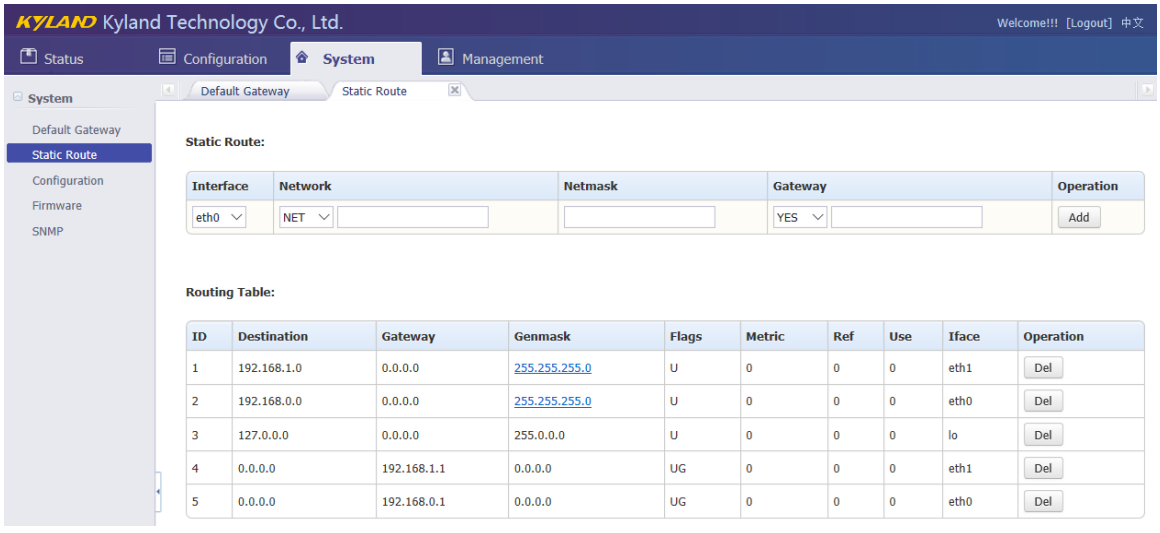

Figure 21 – Route Screen

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

Press 'Add' to add a static route for PTS time server.

Press 'Del' to delete the selected route information.

3.3.3. Configuration

Press 'Configuration' on the left navigation bar to backup and restore configuration

file. The configuration screen will be shown as:

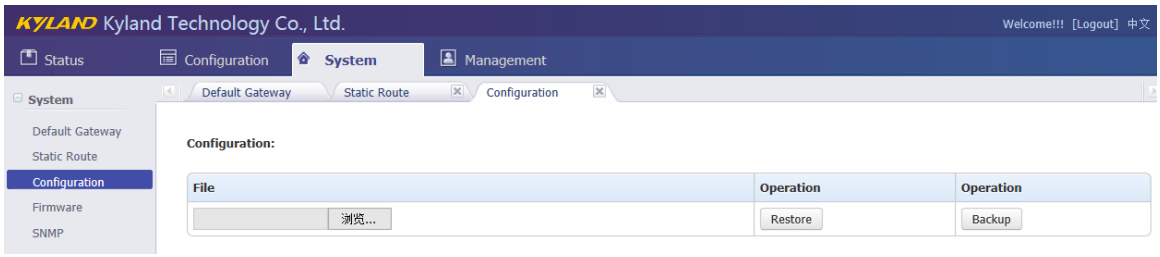

Figure 22 – Configuration Screen

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.

3.3.4. Firmware

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

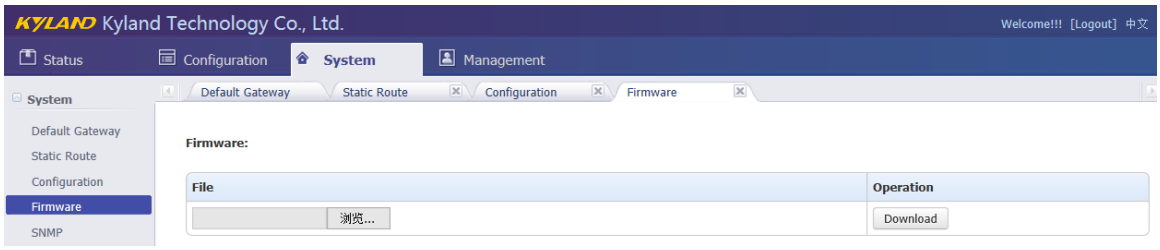

Figure 23 – Firmware Screen

Press ‘Download’ to update the new firmware of PTS time server. 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.

Notes: The firmware should be published by Official.

3.3.5. SNMP (Optional)

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

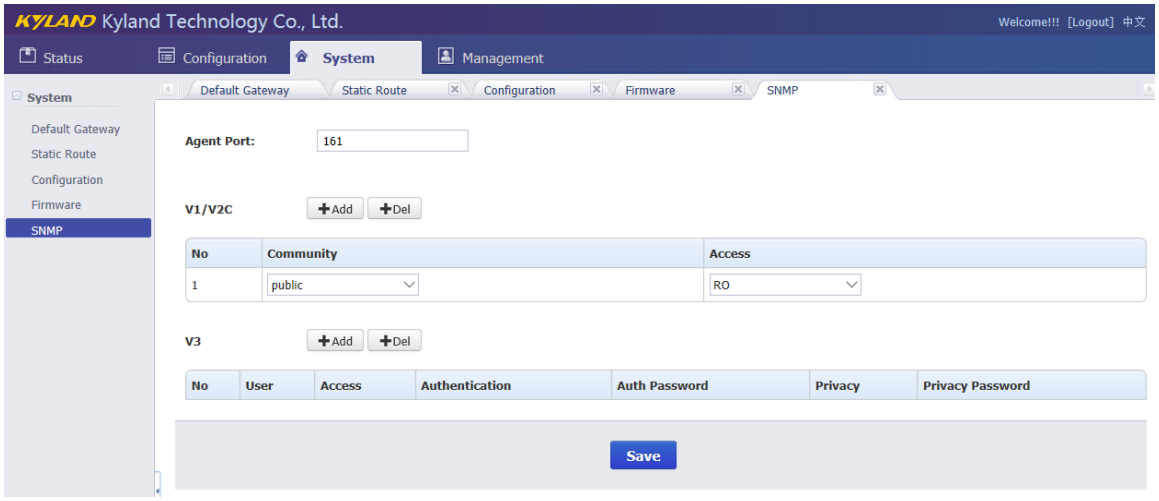

Figure 24 – Firmware Screen

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.

Notes: Any modifications about SNMP should reboot PTS-10 to activate it.

3.4. 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:

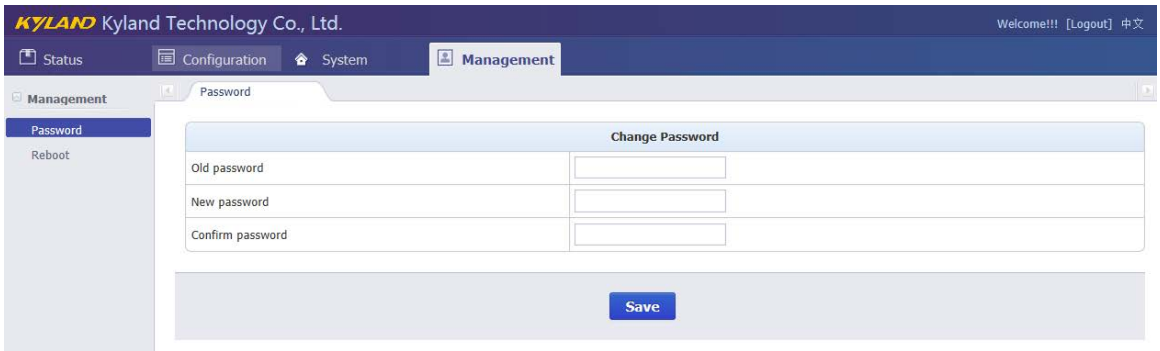

Figure 25 – Management Screen

3.4.1. Change Password

Press 'Change Password' on the left navigation bar to change password. The change

password screen will be shown as:

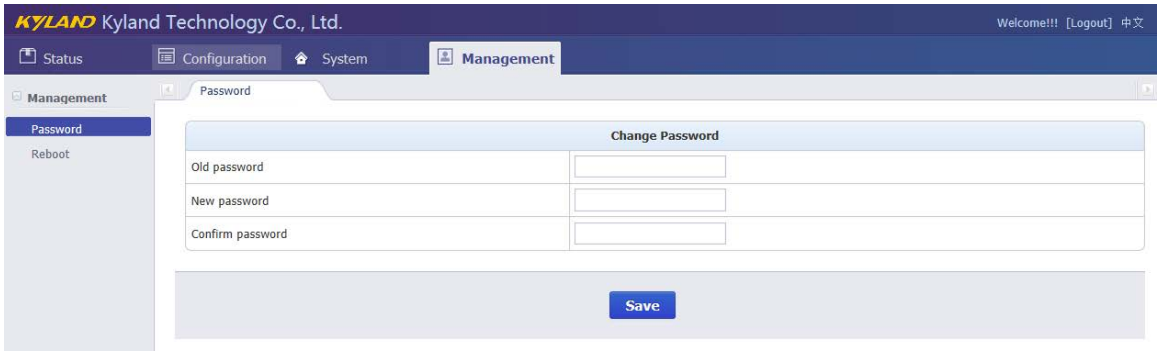

Figure 26 – Change Password Screen

Please 'Save' to confirm the new password.

3.4.2. Reboot

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

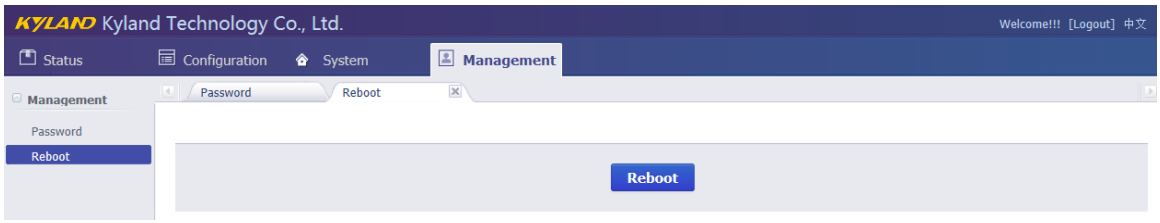

Figure 27 – Reboot Screen

Press 'Reboot' to reboot device, but it need user to confirm again according to pop-up dialog.

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