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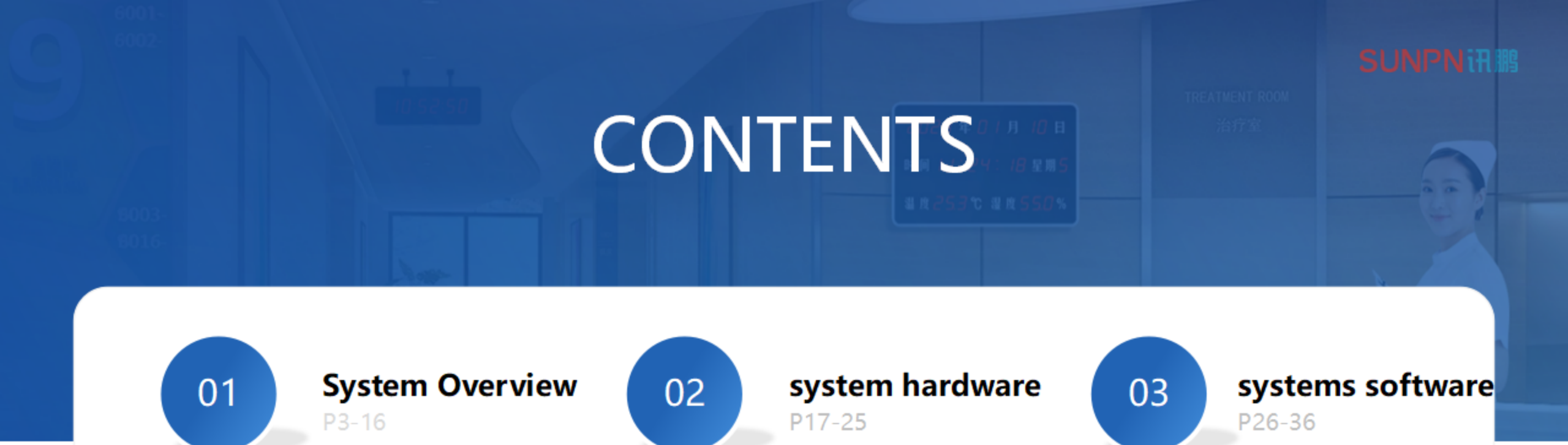
SUNPN Synchronous Clock System Solution

Multiple timing methods such as satellite GPS, Beidou, NTP, 4G, WiFi, etc. are available for selection, combined with clock software for centralized management

Complete software and hardware, one-stop supply





CONTENTS

01 **System Overview** P3-16

02 **system hardware** P17-25

03 **systems software** P26-36

04 **Application Cases** P37-42

05 **About SUNPN** P43-47

06 **contact us** P48

1 System Overview

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01 Application background.....P4

02 System Overview.....P5

03 Certificate Information.....P6

04 System advantages.....P7

05 system composition.....P8

06 system architecture P9-15

07 application area P16

Application background

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Clock system Application background

Ensure the accuracy of time

In many places, such as hospital operating rooms, research laboratories, pharmaceutical factories, transportation hubs, even small time errors can lead to serious consequences. The synchronous clock system can provide high-precision unified time, avoiding errors and confusion caused by inconsistent time

Meet regulatory and industry standard requirements

Some specific industries, such as power, communication, healthcare, etc., have strict regulations and standards that require the use of synchronous clock systems to ensure the accuracy and reliability of system operation

Ensure the normal operation of the system

In some systems that rely on timestamps for data recording and processing, such as monitoring systems, billing systems, etc., synchronized time can ensure the accuracy and completeness of data, thereby ensuring the normal and stable operation of the system

Improve work efficiency and collaboration

In schools, the curriculum arrangement of different teaching buildings and classrooms needs to be based on consistent time to ensure the orderly progress of teaching activities

Enhance security and traceability

Accurate time recording helps to effectively trace and investigate security incidents or abnormal situations, clarify the chronological order of events and related operations

Improve service quality

In the service industry, such as airports, stations, etc., providing accurate and consistent time information to passengers can improve service quality and user experience

System Overview

Easy management

SUNPN NTP server and mother child clock synchronization system can ensure highly accurate and consistent time for devices such as clocks, broadcasts, monitors, computers, servers, etc. within the local area network; We have created a complete clock product line for different application fields and locations, with hardware and software collaboration, centralized control, and easy management.

Multiple timing methods

The clock has multiple timing options such as GPS, Beidou, NTP, 4G, WiFi, etc., to meet the needs of different places. It has energy-saving management function, can turn on and off the machine at regular intervals, and can automatically adjust the brightness according to the ambient light, saving energy and protecting the eyes.



We have been committed to providing customers with system solutions that fit the on-site implementation conditions and can customize development according to project requirements. The selection of 5000 integrators every year makes one-stop service more worry free.

Certificate Information

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Certificate Number:
WST20N060134-1SR

Clock Quality Inspection Report





Certification Report of National Time Service Center

Certificate Number:
N603202006290016

Certificate Number
609-24-QC-07206-R0-S

IS9001
Certificate of quality





Time Server
Software Copyright

Certificate Number:
2023SR0837185



High tech enterprises

Certificate Number:
GR202344207017



Certification Report of National Satellite Inspection Center

Certificate Number:
2019111303141

System advantages



Borderless design

Aluminum alloy frosted borderless frame, paired with black organic glass panel, the appearance is never boring



Uniform luminescence

Resin encapsulated digital tube, with no light decay after ten years of use, and the "screen" does not flicker during photography and video recording



Energy saving management

Capable of timed power on and off, automatically adjusting brightness according to ambient light levels, saving energy and protecting eyes



Multiple networking options

According to the usage scenario, NTP, GPS, Beidou, 4G, WiFi and other timing methods can be selected



Support customization

Style and size support customization. (such as non-standard, large-sized clocks, astronomical time screens, world clocks, outdoor clocks), etc



Software Management

Combined with clock management software for centralized control, it is easy and convenient to manage



Alarm clock reminder

36 sets of alarm reminders can be set and distributed through software settings



Positive/countdown timer

Clock support for forward/countdown can be set through software (such as exam countdown, etc.)

system composition

Clock display section

The clock style and size can be customized, and there are several common techniques: standard clock, LED module clock, digital tube clock,



Standard clock



LED module clock



Digital tube clock



LCD clock

Transmission control section

Transmission control includes switches (POE), TCP/IP signal converters, client computers, NTP timing servers, and clock software, etc



Switch



Signal converter



Client computer



Time Service Server

On site network section

The communication methods for conventional equipment networking include satellite GPS/Beidou, NTP, Ethernet cables, WiFi, 4G, RS485, LORA/RF signals, etc



RS485



Network cable



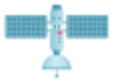
4G



LORA/RF signal



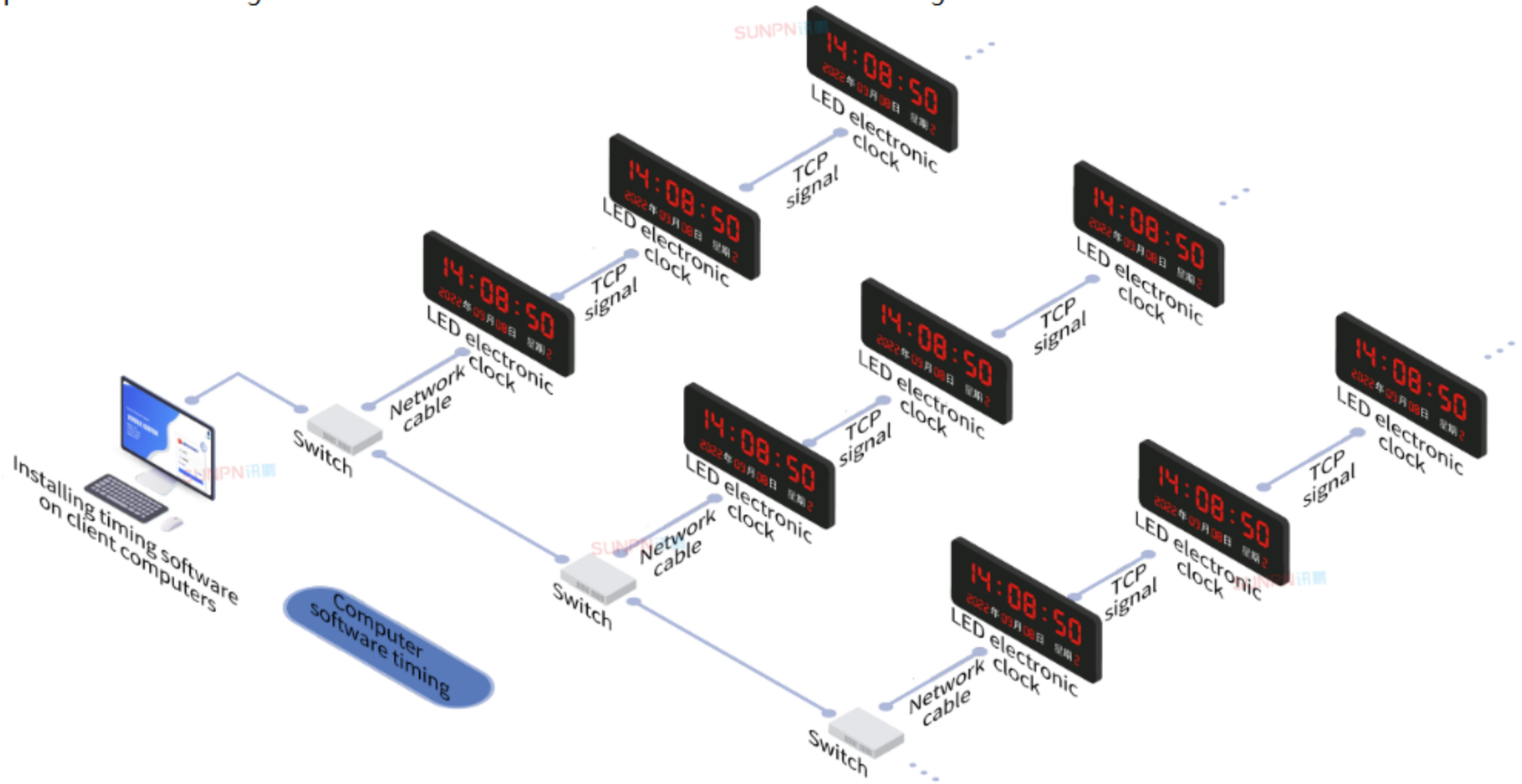
WiFi



GPS/Beidou

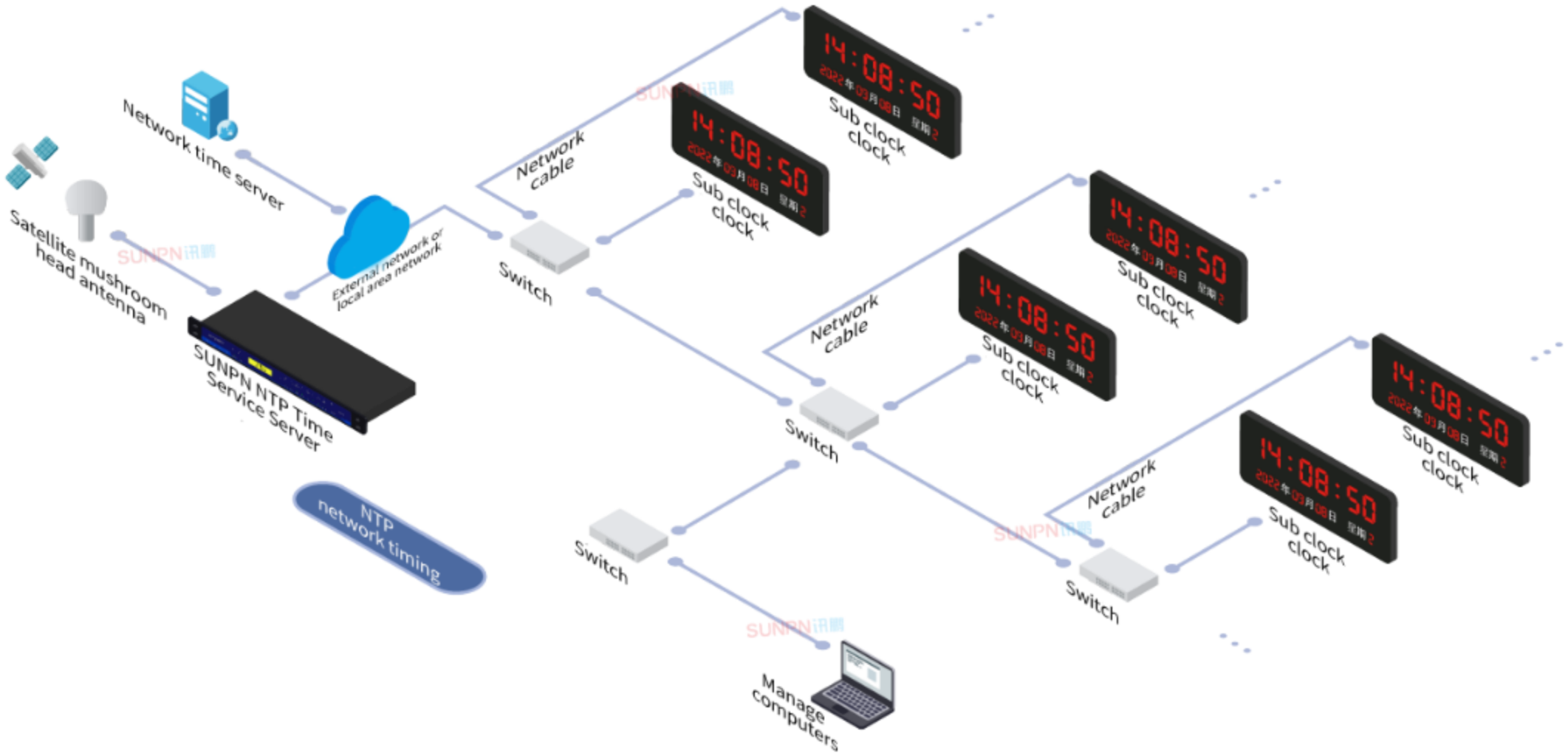
Computer software timing system architecture

- One computer workstation is required to install clock management software, and the remaining sub clocks can access the time of the computer software through the local area network. This software can set and manage clocks online



NTP Network Timing System Architecture

- If there are external network conditions on site, the sub clock can directly obtain the correct time from the external network server
- Under local area network conditions, one master clock NTP server is required to obtain satellite time, and the remaining slave clocks access the master clock time through the local area network. Meanwhile, equipped with clock software, clocks can be managed through a computer



Architecture of 4G network timing system

- The clock is equipped with an IoT network card and comes with 8 years of data usage from the factory. After the clock is turned on, it will automatically obtain and synchronize the network time



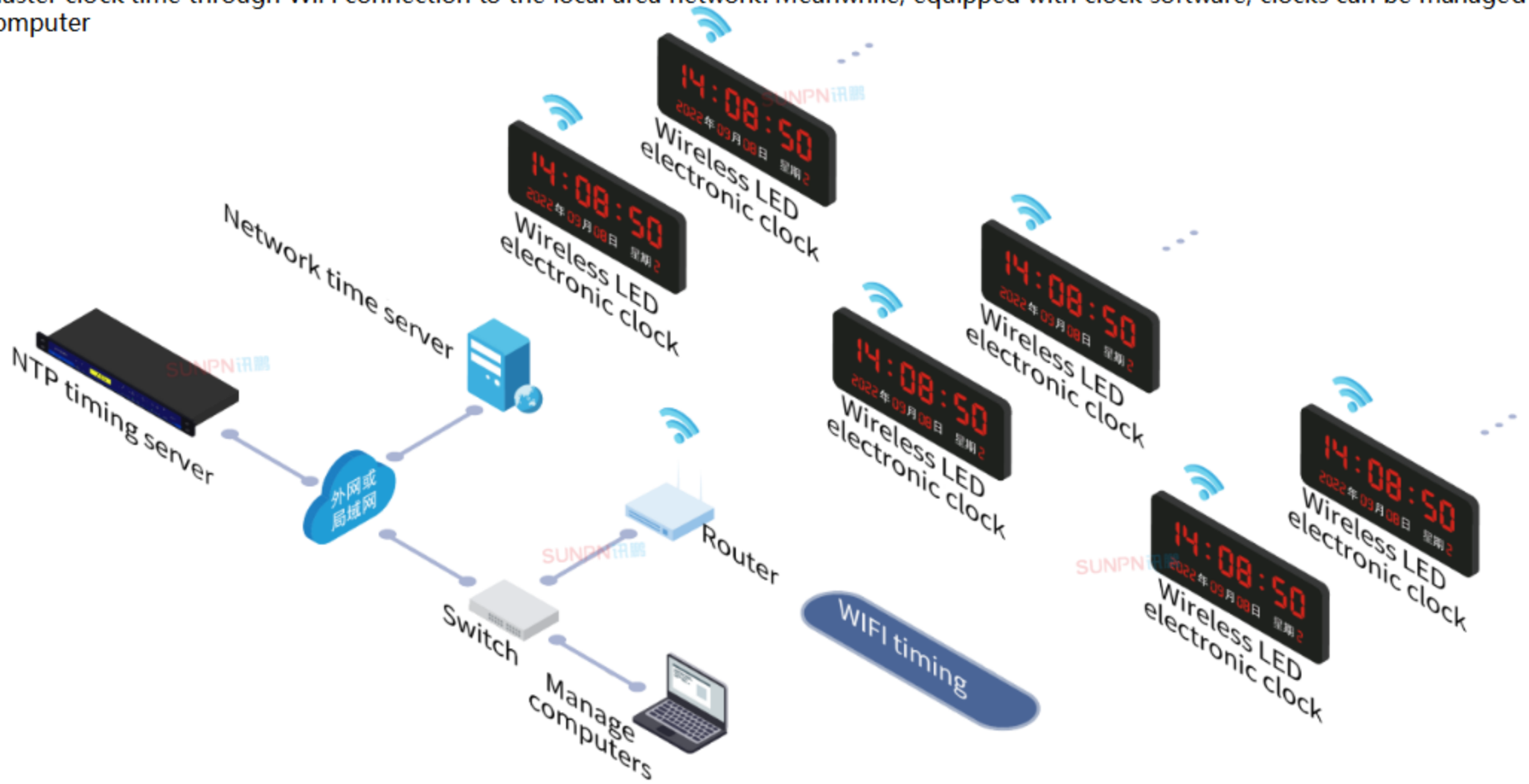
Architecture of Satellite GPS/Beidou Timing System

- The satellite antenna for the clock needs to be placed outdoors or by a window. Indoor GPS/Beidou signal weak, unable to search for satellites



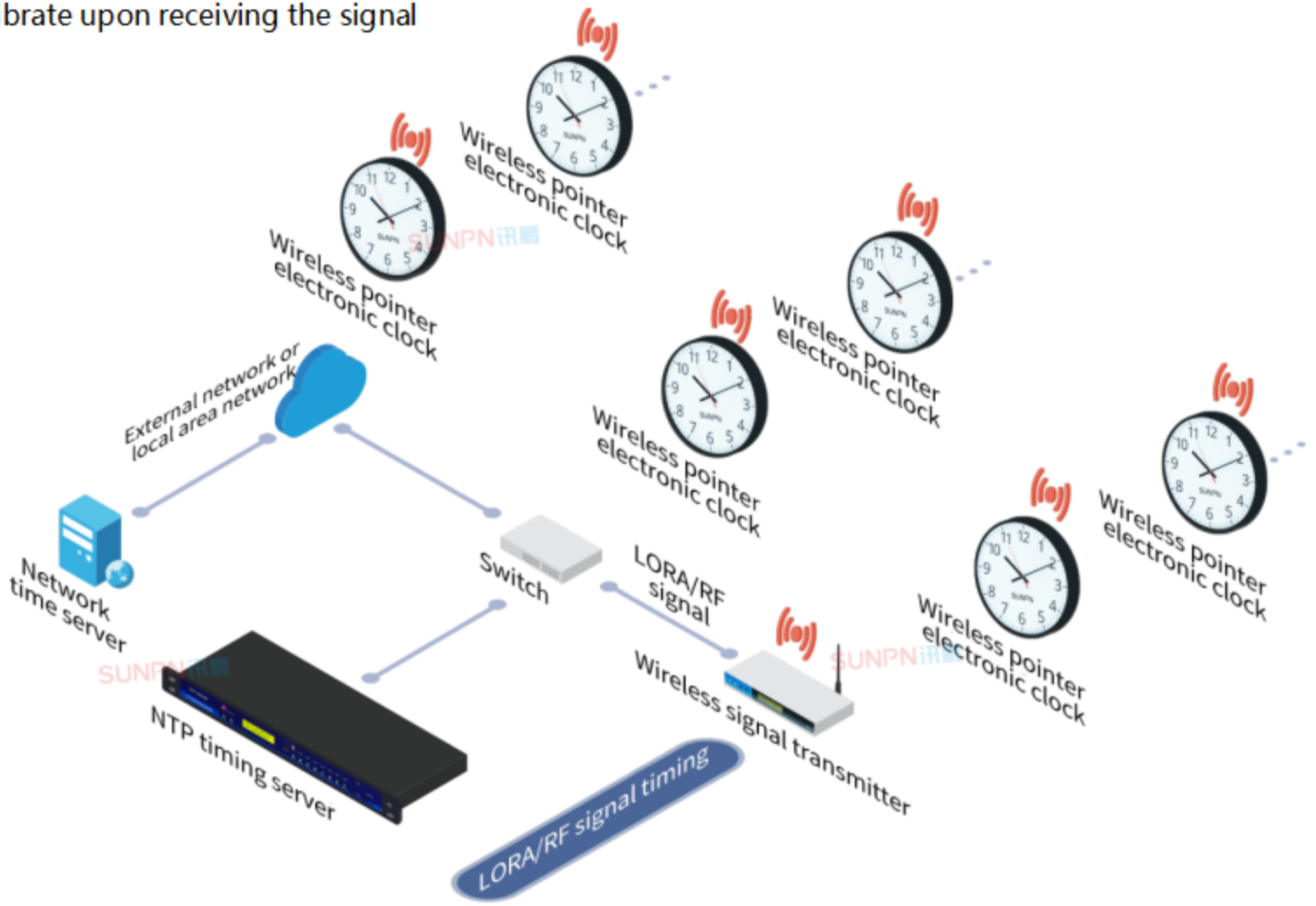
WiFi timing system architecture

- If there are external network conditions on site, the sub clock can directly obtain the correct time from the external network server
- Under local area network conditions, one master clock NTP server is required to obtain satellite time, and the remaining slave clocks access the master clock time through WiFi connection to the local area network. Meanwhile, equipped with clock software, clocks can be managed through a computer



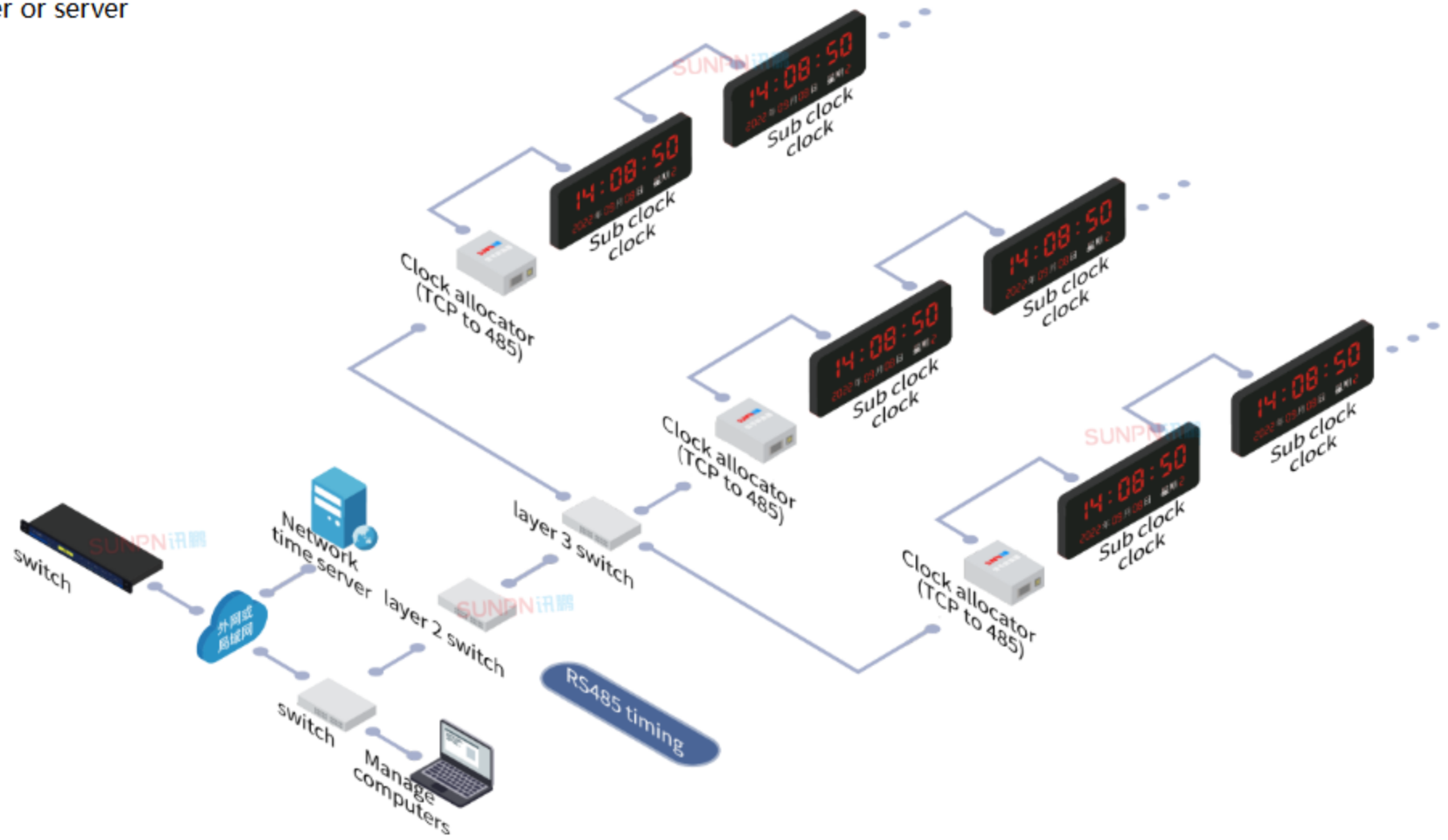
LORA/RF signal timing system architecture

- Schools or hospitals need to be equipped with one wireless signal transmitter for the master clock (to obtain network or NTP server time). This wireless signal transmitter will broadcast timing signals in the frequency range of 400-475MHz at regular intervals, and the clock will automatically synchronize and calibrate upon receiving the signal



RS485 timing system architecture

- For RS485 clocks, clocks need to be connected in series through Ethernet cables and connected to a clock distributor (i.e. TCP to 485 converter). A clock distributor is usually installed on a floor or in an area, and after being connected to a local area network, the clock is uniformly timed by a computer or server



application area



School

Mainly used in examination rooms, office buildings, conference halls, libraries, etc., it provides accurate time information for faculty, students, and staff, and achieves precise synchronization of examination room time through Beidou/NTP communication.



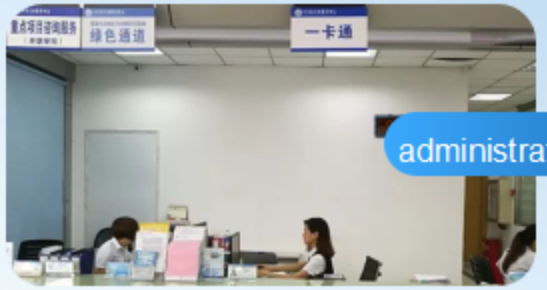
Hospital

Mainly used in nursing stations, operating rooms, corridors, various departments, computer networks, etc. to provide secure, standardized, and unified time sources for hospital staff, automation equipment, intelligent networks, and office systems. NTP is the preferred timing method for this scenario.



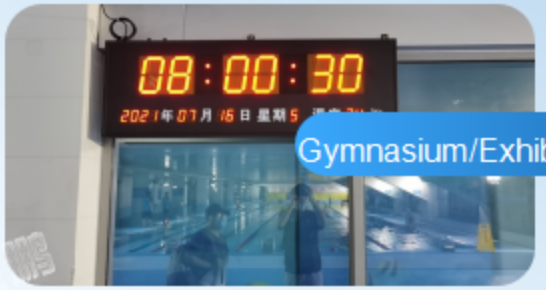
Pharmaceutical Factory

Mainly used in production workshops, laboratories, and clean areas, the clock system provides accurate time information for pharmaceutical factories, making the work of each department orderly and coordinated. It can customize small-sized LED electronic clocks with 4G, NTP, RS485 and other timing schemes.



administrative units

The clock system is mainly used in administrative units for government halls, public security, military, and other places, providing accurate time services for unit staff. Usually, timing is mainly done through satellite Beidou.



Gymnasium/Exhibition Hall

Mainly used in tourist centers, corridors, hallways, swimming pools, etc., to provide accurate and unified time sources for management and audiences. Due to the large space, wiring is difficult, and satellite GPS, Beidou, and 4G timing are generally used.



Monitoring Center

Using GPS/Beidou NTP time server (master clock) as the time source, provide accurate time for monitoring and other equipment in the computer room and local area network, and maintain uniformity

2 system hardware

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01 NTP timing server.....P18

02 Standard synchronous clock.....P19-20

03 Customized electronic clock.....P21-23

04 Outdoor electronic clock.....P24-25

NTP timing server





Hot selling NTP time server

Product model: SP-SS06BExterior dimensions: 482 * 180 * 44mm
Power supply mode: AC 110-220

Time source: GPS+Beidou
Timing method: NTP, TCP/IP protocolTime accuracy:<1ms





Professional NTP Time Server

Product model: SP-NTP-GB
Exterior dimensions: 480 * 180 * 44mm
Power supply mode: AC 110-220
(customizable redundant power supply)

Time source: GPS, Beidou, 4G, superior NTP
Timing method: NTP/GLONASS/GALILEO
Time accuracy:<1ms
Support hot backup and optional constant temperature crystal oscillator

Standard synchronous clock



3-inch standard calendar model

Product model: SP-XKDZZ
Digital size: 3 inches+1 inches
Power supply mode: 220V/POE

Appearance size:
490 * 200 * 35mm (single)
490 * 200 * 50mm (double)
Timing method: NTP



3-inch Chinese Weekly Edition

Product model: SP-XKDZZ
Digital size: 3 inches+ 1 inches
Power supply mode: 220VIPOE

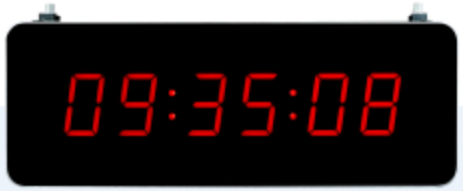
Appearance size:
490 * 200 * 35mm (single)
490 * 200 * 70mm (double)
Timing method: NTP



3-inch calendar temperature and humidity model

Product model: SP-LEDSZ-3056
Digital size: 3 inches+0.56 inches
Power supply mode: 220V/POE

Appearance size:
550 * 230 * 40mm (single)
550 * 230 * 75mm (double)
Timing method: NTP



3-inch hour minute second version

Product model: SP-DZZHMS3
Digital size: 3 inches
Power supply mode: 220VIPOE

Appearance size:
560 * 200 * 35mm (single)
560 * 200 * 70mm (double)
Timing method: NTP



4-inch hour minute second version

Product model: SP-LEDSZ-40
Digital size: 4 inches
Power supply mode: 220VIPOE

Appearance size:
680 * 210 * 40mm (single)
680 * 210 * 75mm (double)
Timing method: NTP



5.0 Dot Matrix Clock

Product model: SP-DZZHMS5A
Appearance size: 560 * 200 * 35
Display Material: 5.0 Unit Board

Power supply mode: 220V/POE
Timing method: NTP

Standard synchronous clock

Temperature and humidity perpetual calendar



Product model: SP-XKWNL
Appearance size: 600 * 400 * 35
Digital size: 1.8 inches
Power supply mode: 220VIPOE
Timing method: NTP (optional 4G, WiFi, RS485)

Operating room clock



Product Model: SP-CXKSS6040-1.5
Appearance size: 600 * 400 * 35
Digital size: 1.5 inches
Power supply mode: 220V/POE
Timing method: NTP (optional 4G, wifi)

Pointer based NTP clock



Product model: SP-ZZS-40
Appearance dimensions: diameter p40cm, thickness 7cm
Display height: 16 inches (optional 13 inches)
Power supply mode: POE
Time synchronization method: NTP (optional WiFi, wireless, GPS)

LCD synchronous clock



Product Model: SP-YJSZ01
Product size: 476 * 171 * 26mm
Power supply mode: DC12V/POE
Timing method: NTP

Customized electronic clock



Explosion proof clock (small size)

Product model: SP-FBDZZ
Power supply mode: 220VIPOE
Exterior dimensions:
372 * 164 * 64mm
Timing method: NTP
Digital size: 1.8 inches+0.56 inches



Explosion proof clock (large size)

Product model:SP-XKDZZ-FB
Power supply mode: 220VIPOE
Exterior dimensions:
600*350*70mm
Timing method: NTP
Digital size: 3 inches+1 inch



Customized Public Security Products

Product model:SP-GA4060
Power supply mode: 220VIPOE
Exterior dimensions:
600*400*50mm
Timing method: NTP
Digital size: 1.8 inches



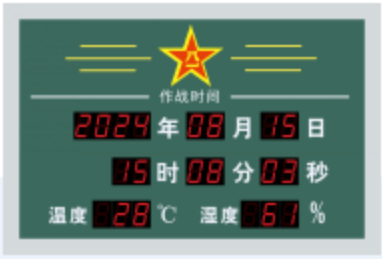
Hot selling items in the military

Product model: HZC01702
Power supply mode: 220V/POE
Appearance dimensions:
600 * 400 * 50mm
Timing method: Beidou satellite
Digital size: 0.8 inches



Customized military products

Product model: LS006092
Power supply mode: 220V/POE
Appearance dimensions:
800*500*70mm
Timing method: Beidou satellite
Digital size:4 inches+1.5 inches



Army Classic Style

Product model: ZC001407
Power supply mode: 220V/POE
Appearance dimensions:
600*400*70mm
Timing method: Beidou satellite
Digital size:1.5 inches

Customized electronic clock



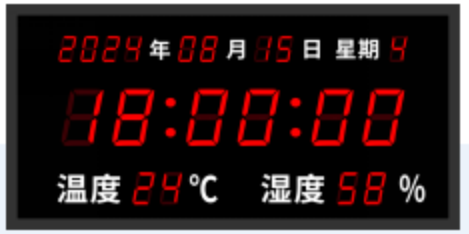
Competition handheld clock

Product model: GTY06750
Timing method: Beidou
Exterior dimensions:600*200*90mm
Digital size: 2.3 inches
Power supply mode: 12V lithium battery



Pharmaceutical POE Clock

Product model: GYW00617
Power supply mode: 220V/POE
Exterior dimensions:
360 * 160 * 50mm
Timing method: NTP (optional 4G, WiFi)
Digital size: 1.8 inches+1.5 inches



Temperature and humidity perpetual calendar model

Product model: LXT00122
Power supply mode: 220V/POE
Exterior dimensions:
800*400*50mm
Timing method: NTP (optional 4G, WiFi)
Digital size:1.8 inches+2.3 inches+4 inches



World Clock Regular Edition

Product model: LXY00107
Timing method: Beidou
Exterior dimensions:
2400*800*70mm
Digital size: 2.3 inches
Digital size:3 inches



Airport World Clock

Product model: WRW01582
Power supply mode: 220V/POE
Exterior dimensions:
3000*1400*70mm
Timing method: NTP (optional 4G, WiFi)
Digital size:4 inches



Operating room timer clock

Product model: SP-SS220309
Power supply mode: 220V/POE
Exterior dimensions:
900*750*70mm
Timing method: NTP (optional 4G, WiFi)
Digital size:4 inches+1.8 inches

Customized electronic clock



2.3-inch measuring clock

Product model: WR000162
Exterior dimensions: 530*140*70mm
Digital size: 2.3 inches
Power supply mode: 220V/12V
Timing method: RS485 (optional NTP, 4G, WiFi))



4-inch calendar clock

Product model: TDQ03441
Exterior dimensions: 680*260*50mm
Digital size: 4 inches+1.8 inches
Power supply mode: 220V/POE
Timing method: NTP (optional 4G, WiFi)



5-inch calendar clock

Product model: GTY07496
Exterior dimensions: 1000*400*70mm
Digital size：5 inches+1.5 inches
Power supply mode: 220V/POE
Timing method: NTP (optional 4G, WiFi)



5-inch hour minute second version

Product model:SPTDQ240711
Exterior dimensions: 770*180*50mm
Digital size: 5 inches
Power supply mode: 220V/POE
Timing method: NTP (optional 4G, WiFi)



8-inch time-lapse model

Product model:LHJ00274
Exterior dimensions: 820*290*50mm
Digital size: 8 inches
Power supply mode: 220V/POE
Timing method: NTP (optional 4G, WiFi)



8-inch hour minute second model

Product model:LXY04274
Exterior dimensions: 1160*300*70mm
Digital size: 8 inches
Power supply mode: 220V/POE
Timing method: NTP (optional 4G, WiFi)

Outdoor electronic clock



Outdoor perpetual calendar clock

Product model: ZHD00069
Exterior dimensions:
750 * 500 * 90mm
Outer frame material:
Waterproof baked paint iron box
Digital size: 2.3 inches
Power supply mode: 220V
Timing method: GPS/Beidou



Semi outdoor calendar clock

Product model: ZZY00238
Exterior dimensions:
700 * 300 * 70mm
Outer frame material:
Aluminum alloy outer frame
Digital dimensions:
2.3 inches+3 inches
Power supply mode: 220V
Timing method: GPS/Beidou



Outdoor calendar clock

Product model:TYH01190
Exterior dimensions:
960*360*80mm
Outer frame material:
Waterproof baked paint iron box
Digital size: 5 inches+2.3 inches
Power supply mode: 220V
Timing method: GPS/Beidou



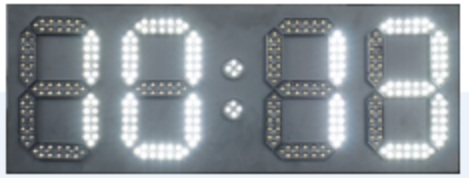
Outdoor Beidou Calendar Clock

Product model: TYH00912
Appearance size:
1160 * 730 * 110mm
Outer frame material:
Waterproof baked paint iron box
Digital size: P10 unit board
Power supply mode: 220V
Timing method: Beidou



8-inch outdoor hours, minutes, and seconds

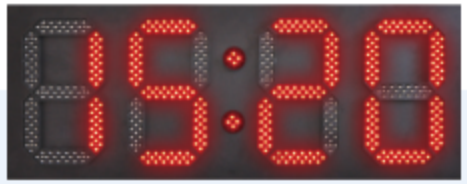
Product model: SP-HWSFM8
Exterior dimensions:
1030 * 280 * 80mm
Outer frame material:
Waterproof baked paint iron box
Digital size: 8 inches
Power supply mode: 220V
Timing method: GPS/Beidou



8-inch outdoor time clock

Product Model: SP-08HG
Exterior dimensions:
660 * 250 * 80mm
Outer frame material:
Waterproof baked paint iron box
Digital size: 8 inches
Power supply mode: 220V
Timing method: GPS/Beidou

Outdoor electronic clock



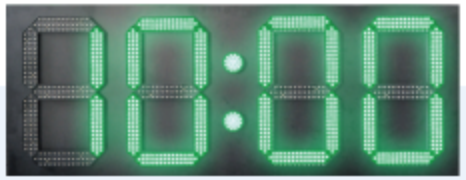
10 inch outdoor time clock

Product model: SP-10HG
Digital size: 10 inches
Exterior dimensions:
Power supply mode: 220V
820 * 310 * 80mm
Timing method: GPS/Beidou
Outer frame material:
Waterproof baked paint iron box



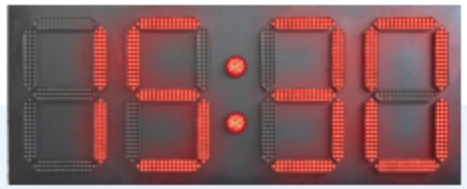
12 inch outdoor time clock

Product model: SP-12HG
Digital size: 12 inches
Exterior dimensions:
Power supply mode: 220V
960*360*80mm
Timing method: GPS/Beidou
Outer frame material:
Waterproof baked paint iron box



15 inch outdoor time clock

Product model: SP-15HG
Digital size:15 inches
Exterior dimensions:
Power supply mode: 220V
1200*450*80mm
Timing method: GPS/Beidou
Outer frame material:
Waterproof baked paint iron box



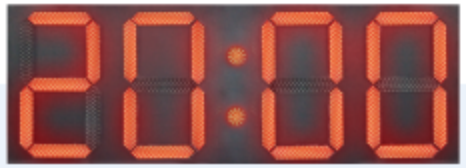
20 inch outdoor time clock

Product model:SP-20HG
Digital size: 20 inches
Exterior dimensions:
Power supply mode: 220V
1500*600*80mm
Timing method: GPS/Beidou
Outer frame material:
Waterproof baked paint iron box



24 inch outdoor time clock

Product model:SP-24HG
Digital size:24 inches
Exterior dimensions:
Power supply mode: 220V
1850*700*80mm
Timing method: GPS/Beidou
Outer frame material:
Waterproof baked paint iron box



32 inch outdoor time clock

Product model:SP-32HG
Digital size:32 inches
Exterior dimensions:
Power supply mode: 220V
2400*900*80mm
Timing method: GPS/Beidou
Outer frame material:
Waterproof baked paint iron box

3 systems software

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01 Function Descri.....P27

02 Software interface.....P28-36

1 Function Description

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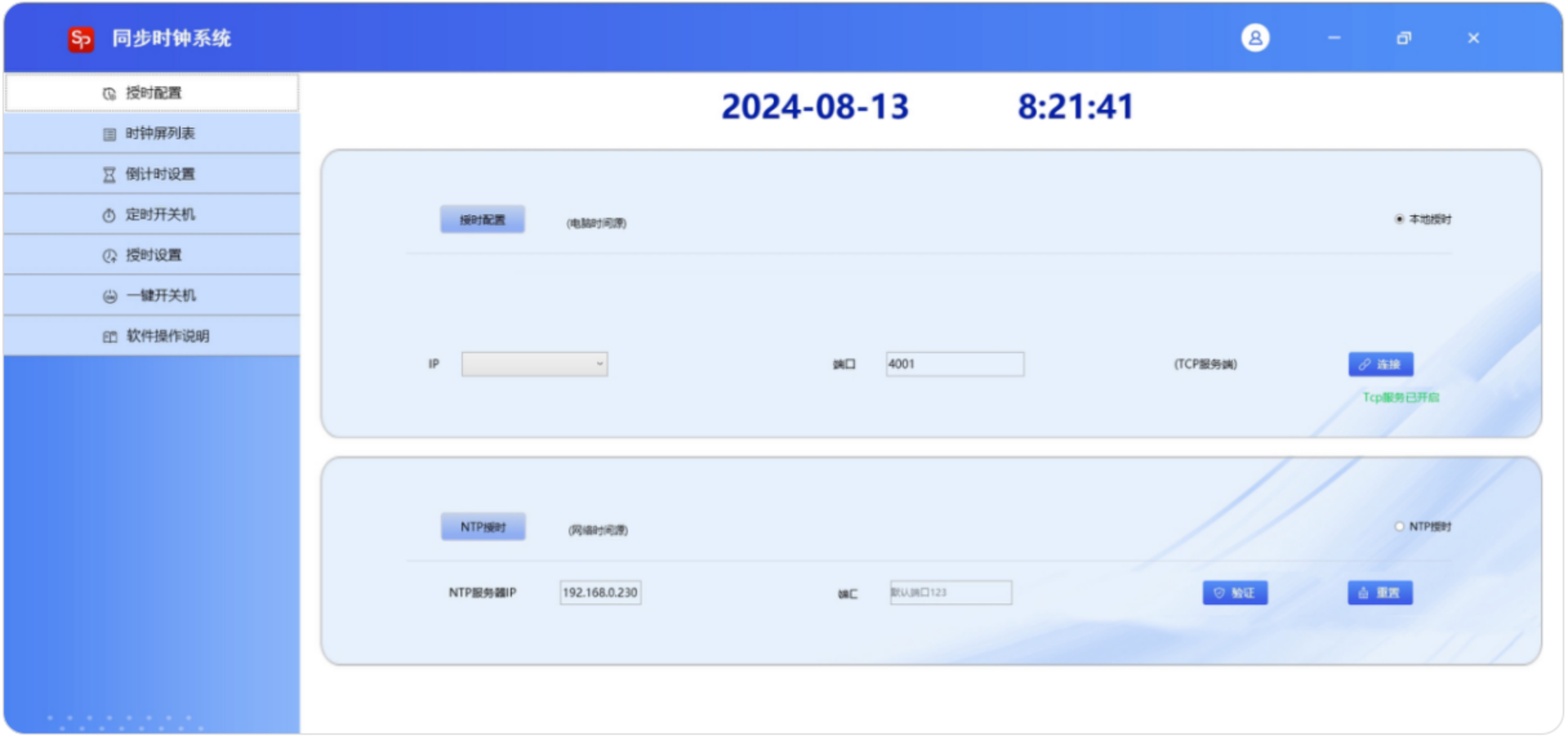
Backend management software

- Can manage all clocks, current status, used to determine if clock connection is normal, can perform point-to-point control on clocks, set alarms
- Power on/off, can be controlled individually or uniformly, and can also set the time to automatically turn on or off
- Countdown, you can freely choose the clock you need to use, set it, or set it uniformly, start, reset
- Can send slogans and notifications to the clock, can be sent at regular intervals, switch display of time text, and freely choose the display mode

- Optional time source
- Countdown can be set
- Can send notifications to the clock
- Can set alarm clock


同步时钟系统
授时配置
时钟屏列表
倒计时设置
定时开关机
授时设置
一键开关机
软件操作说明
2024-08-13
8:21:41
授时配置
(电脑时间源)
本地授时
IP
端口
4001
(TCP服务端)
连接
Tcp服务已开启
NTP授时
(网络时间源)
NTP授时
NTP服务器IP
192.168.0.230
端口
默认端口123
验证
重置

software interface

Clock screen list

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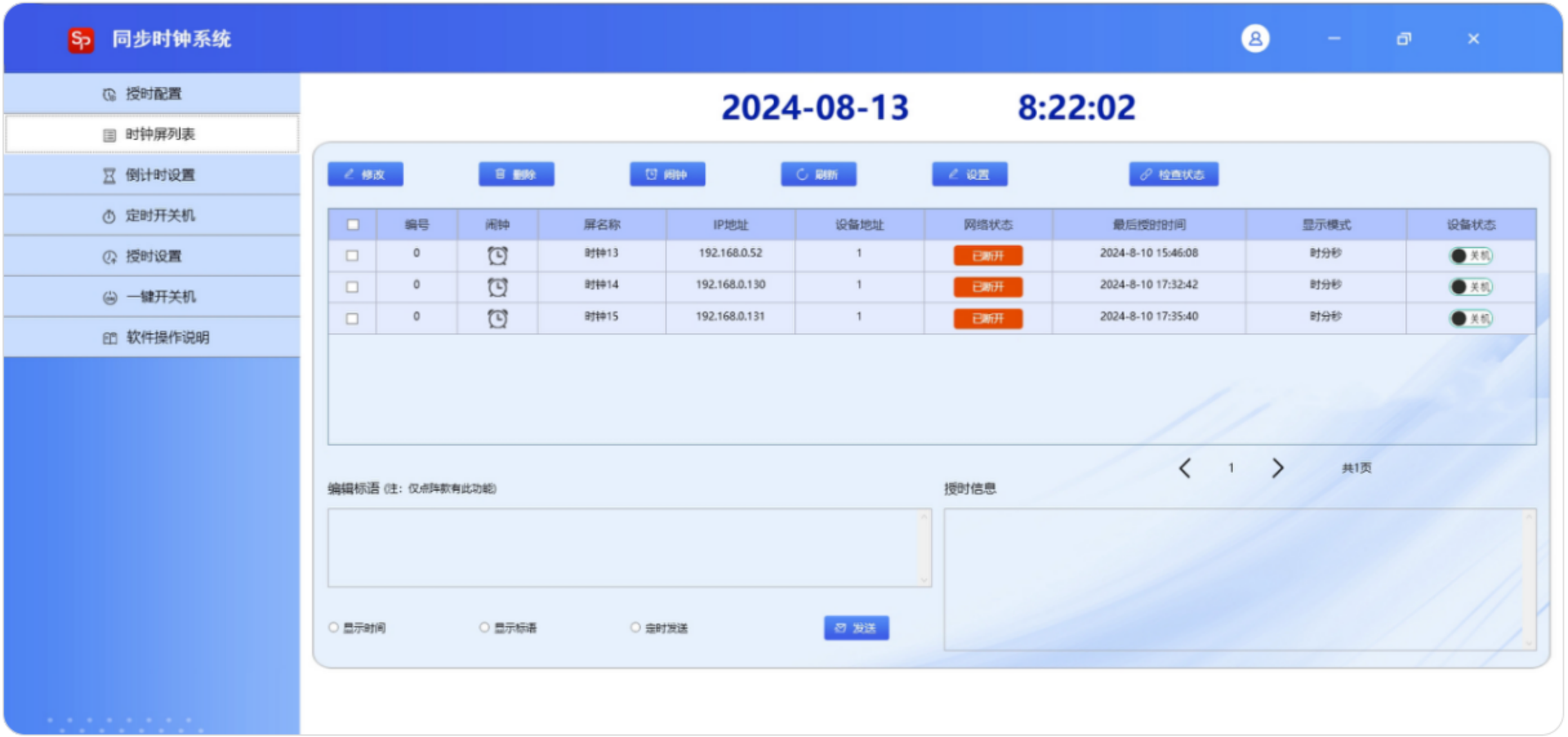
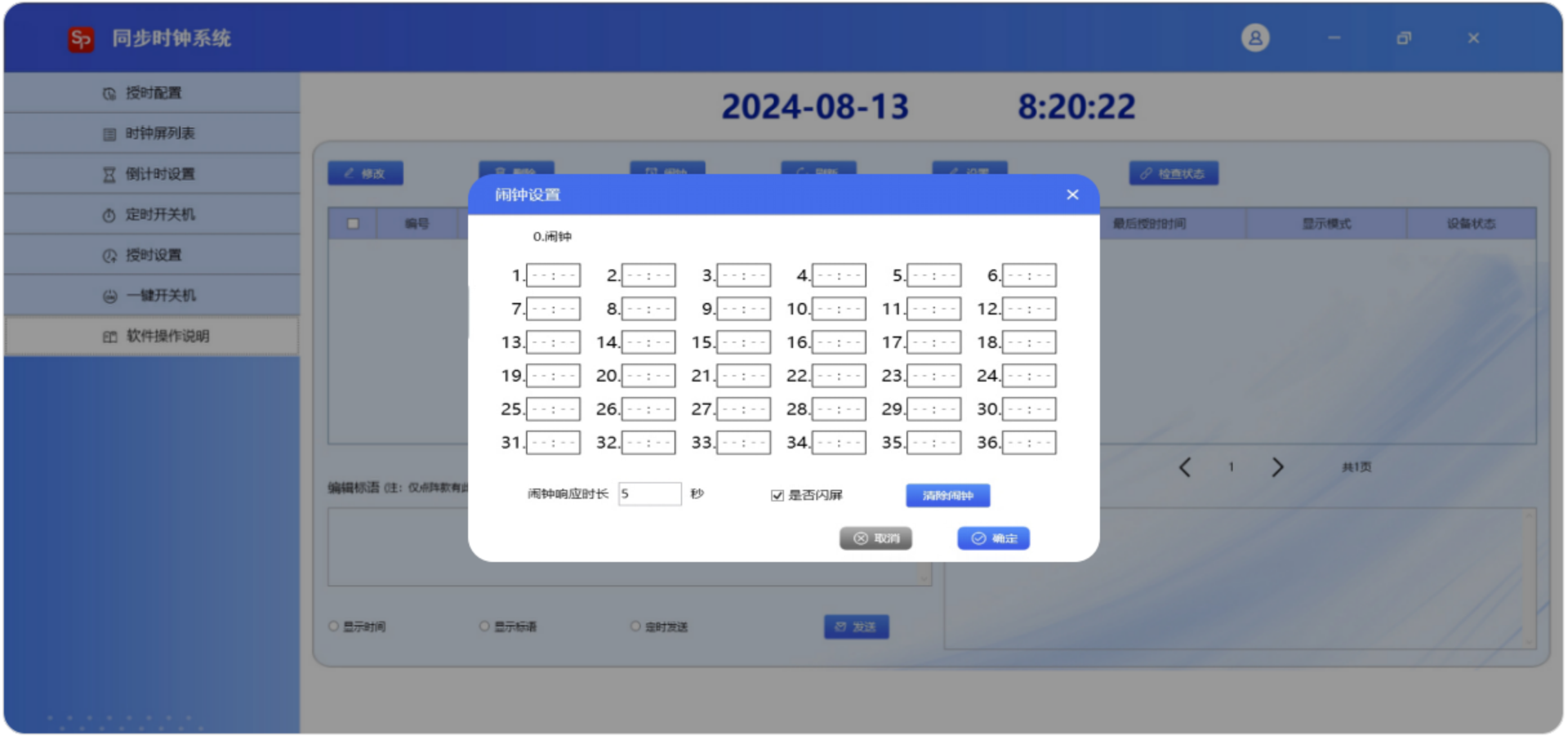



同步时钟系统
授时配置
时钟屏列表
倒计时设置
定时开关机
授时设置
一键开关机
软件操作说明
2024-08-13
8:22:23
倒计时
--
时
--
分
--
秒
开始
复位
刷新
自动0.5
(min)
手动
发送
编号
屏名称
设备地址
设备地址
网络状态
显示模式
0
时钟13
192.168.0.52
1
已断开
时分秒
0
时钟14
192.168.0.130
1
已断开
时分秒
0
时钟15
192.168.0.131
1
已断开
时分秒
1
共1页


同步时钟系统
授时配置
时钟屏列表
倒计时设置
定时开关机
授时设置
一键开关机
软件操作说明
2024-08-13
8:22:23
倒计时
时
分
秒
开始
复位
刷新
自动0.5 (min) 手动
发送
网络状态
显示模式
已断开
时分秒
定时开关机
开机时间
17:17
定时开关功能
开
关机时间
17:16
星期一 星期二 星期三 星期四 星期五 星期六 星期天
(注：需要指定时间定时开关时钟请勾选)
取消定时
(注：若打开定时开关，时钟开关机仅在工作时间段内有效)
取消
确定
1
共1页


同步时钟系统
授时配置
时钟屏列表
倒计时设置
定时开关机
授时设置
一键开关机
软件操作说明
2024-08-13
8:22:23
倒计时
时
分
秒
开始
复位
刷新
自动0.5 (min) 手动
发送
网络状态
显示模式
已断开
时分秒
授时设置
默认授时间隔（5min）
授时间隔
0.3
min
授时
不授时
取消
确定
1
共1页


同步时钟系统
授时配置
时钟屏列表
倒计时设置
定时开关机
授时设置
一键开关机
软件操作说明
2024-08-13
8:20:22
修改
删除
闹钟
刷新
设置
检查状态
编号
闹钟
屏名称
IP地址
设备地址
网络状态
最后授时时间
显示模式
设备状态
1
共1页
编辑标语 (注：仅点阵款有此功能)
授时信息
显示时间
显示标语
定时发送
发送


同步时钟系统
授时配置
时钟屏列表
倒计时设置
定时开关机
授时设置
一键开关机
软件操作说明
2024-08-13
8:20:22
修改
检查状态
编号
最后授时时间
显示模式
设备状态
闹钟设置
0.闹钟
1. - - : - -
2. - - : - -
3. - - : - -
4. - - : - -
5. - - : - -
6. - - : - -
7. - - : - -
8. - - : - -
9. - - : - -
10. - - : - -
11. - - : - -
12. - - : - -
13. - - : - -
14. - - : - -
15. - - : - -
16. - - : - -
17. - - : - -
18. - - : - -
19. - - : - -
20. - - : - -
21. - - : - -
22. - - : - -
23. - - : - -
24. - - : - -
25. - - : - -
26. - - : - -
27. - - : - -
28. - - : - -
29. - - : - -
30. - - : - -
31. - - : - -
32. - - : - -
33. - - : - -
34. - - : - -
35. - - : - -
36. - - : - -
闹钟响应时长
5
秒
是否闪屏
清除闹钟
取消
确定
1
共1页
编辑标语
显示时间
显示标语
定时发送
发送


同步时钟系统
授时配置
时钟屏列表
倒计时设置
定时开关机
授时设置
一键开关机
软件操作说明
2024-08-13
8:20:22
显示设置
闪烁
不闪烁 (注：选择哪个模式,表示时钟授时成功后按照选择模式工作)
时分秒 (18:00:25)
文字信息时分秒 文字(18:00:25)
年月日/星期/时分秒 (2021-08-31 星期二 08:00:25)
文字滚动速度设置 很快 (当时钟或标语超出显示框才触发文字滚动显示)
调节时钟亮度 8 (亮度1~8，逐次变亮)
取消
确定


同步时钟系统
授时配置
时钟屏列表
倒计时设置
定时开关机
授时设置
一键开关机
软件操作说明
2024-08-13
8:20:22
修改
检查状态
编号
最后授时时间
显示模式
设备状态
用户设置
开机自动开启软件
本机地址: 1
中文(简体) 中文(繁體) English
定时重启软件时间 - - : - -
取消
确定
共1页
显示时间
显示标语
定时发送
发送

5 Application Cases

SUNPN讯鹏

01 ● Application Cases.....P38-42

Application Cases

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1 Application Cases

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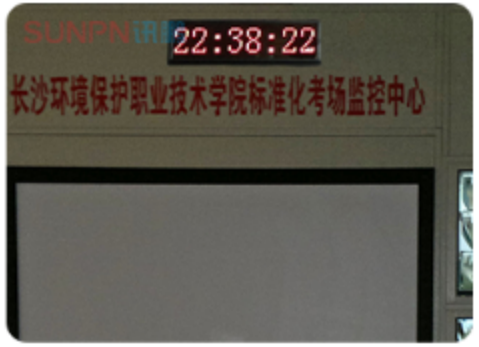







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