



SAPLING IP SYSTEM

[Sapling IP System]

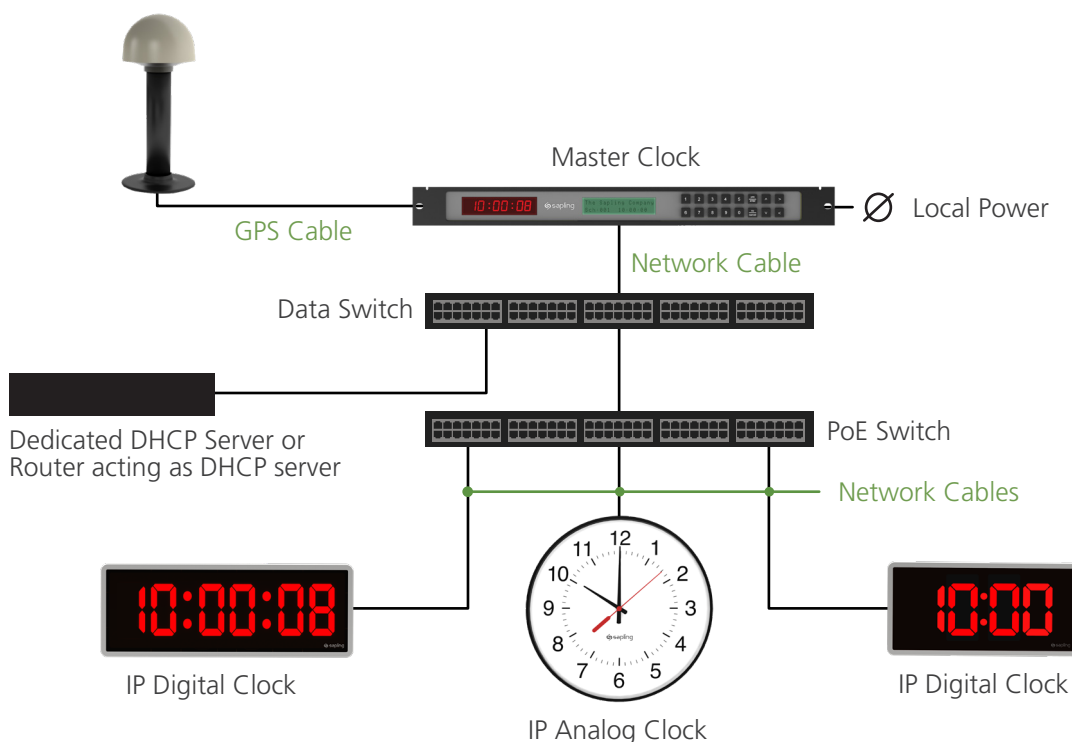
DESCRIPTION

The Sapling IP Clock System is an advanced solution that allows complete control over the clocks. Each IP clock utilizes Power over Ethernet (PoE) and receives both power and time data over the same standard network cable (CAT 5/CAT 6). Sapling IP Clocks have the accurate time redundancy of multiple NTP servers for supreme reliability, and can also obtain the time from any Sapling Master Clock. Since each IP clock can take the time from any NTP server, a master clock is only optional with the IP System.

Featuring a built-in web interface in each IP clock, total control of the clocks is at your fingertips. Any user on the same network as the clocks may log into one clock and take advantage of a wide variety of functionality and convenience features. The user-friendly interface allows the user to set the clock, view diagnostic information, configure email alerts, and much more.

The Sapling Network Clock Monitoring Software comes standard with the IP System and detects all Sapling Clocks on the network. This easy-to-use tool allows the user to supervise the clocks, modify the settings on individual clocks, and make system-wide changes from one screen.

GPS Time Input (optional)



The line drawing on the left depicts the setup of an IP System.

Sapling IP System Advantages



Built-In Web Interface - Each IP clock has a web interface built right in, allowing the user to easily configure features such as 12/24 hour mode (digital clocks only), time zone offset, domestic and international Daylight Saving Time, etc. without any prior setup.



Self-Diagnostics - Each clock can perform self-diagnostics to keep the user informed about the clock's status.



Email Alerts - Stay informed with notifications of any power restarts, major time changes, NTP/SNTP server synchronization issues, display faults, or mechanical failures all through email.



Server Synchronization Redundancy - Each Sapling IP Clock stores up to 10 internal or external NTP/SNTP server addresses to ensure synchronization even if one or more servers fails to communicate.



Master Clock Optional - As long as internet is reliable or an in-house NTP/SNTP server is available, a master clock is optional since each clock can receive the time data directly from the NTP/SNTP time source.



Network Clock Monitoring Software - View, supervise, and send various commands to the entire IP clock system with this simple PC program. In addition, the Sapling Network Clock Monitoring Software will allow you to set one clock and deploy these settings to all other clocks in the system.



Easy Installation - Only one standard network cable (CAT 5/6) is needed to relay both power and data to the clock.



Safety Standard Compliance - The Sapling Master Clocks, Repeaters, and Secondary Clocks

SAP Analog

Sapling's state-of-the-art SAP Series IP Analog Clocks are available in various sizes, shapes, styles, and finishes. Designed with careful aesthetic consideration and built for reliability, Sapling Analog IP Clocks set a new standard for quality.

FEATURES

- Available in Round or Square Shape
 - Round Clocks are available in: 9", 12", and 16" dial sizes
 - Square Clocks are available in: 9" and 12" dial sizes
- Offered in a low-profile metal case or SlimLine ABS case
 - Optional Cherry Wood finish or Brushed Aluminum finish for round clocks
- Power over Ethernet (802.3af standard)
 - Power and data are provided through one standard network cable
- Provided with mounting hardware for easy installation
- Hour, minute, and second hands
- Quick correction for time change (max. 5 min)
- Microprocessor based movement
- Side molded, polycarbonate crystal

HIGHLIGHTS

- Built-in web interface – each clock has a built-in web interface allowing the user to set, control, and monitor the IP clock
 - Settings include: Network settings, NTP server selection, UTC/GMT offset selection, automatic Daylight Saving Time adjustments, and much more!
- Receives time data from up to ten preprogrammed third party NTP servers (user changeable) for added reliability and redundancy or from any Sapling Master Clock
- Built-in self-diagnostics and email alerts for:
 - NTP synchronization timeouts
 - Power resets
 - Hand position errors and corrections
- Interfaces with Sapling's Network Clock Monitoring Software, which will allow the user to view, monitor, and send various commands to all IP clocks in the system
- Custom Color Cases available (minimum ordering quantity 25)
- Designed and Produced by Sapling Inc. in Pennsylvania, United States of America

The screenshot displays the 'Clock Settings' page for an 'IP Analog' clock. The interface has a black header with navigation links: 'Home | Clock Settings | Network Settings | Network Servers | Clock Status | DST | Log Out'. Below the header, the page title is 'Clock Settings' and 'IP Analog'. The settings form includes fields for 'User Password', 'Confirm Password', 'Technician Password', and 'Confirm Technician Password'. It also features a 'Clock Name' field with 'IP Analog' entered, a 'Clock Number' field with '14730' entered, a 'Network Sync Every' dropdown set to '15 Seconds', a 'Bias Seconds' field set to '+0', a 'GMT Offset' field set to '-5', and a 'Dial State' dropdown set to 'Find Hands'. A 'Submit' button is located at the bottom of the form.

Shown left is a screen capture of an SAP's built-in web interface.

[SBP Digital]

Among the most technically advanced clocks in the industry, Sapling's SBP Series IP Digital Clocks are available with a bright red, white, green, or amber display. All clocks feature an elegant and stylish design and are offered in different sizes with four (00:00) or six (00:00:00) digits.

FEATURES

- Available with 2.5" (6.35 cm) digits or 4.0" (10.16 cm) digits; 4 digit display or 6 digit display
- Red display standard; optional White, Green, or Amber displays
- Adjustable bright LED display (high, medium, low, off)
- 12 or 24 hour display
- Power over Ethernet (802.3af standard)
 - Power and data are provided through one standard network cable
- Provided with mounting hardware for easy installation
- Immediate correction for time change
- Microprocessor based clock
- Three models (3100, 3200, and 3300) with additional capabilities for higher models
- Automatic Daylight Saving Time change (if applicable)

HIGHLIGHTS

- Built-in web interface - Allows the user to set, control, and monitor the IP clocks
 - Settings include: Network settings, NTP server selection, UTC/GMT offset selection, automatic Daylight Saving Time adjustments, and much more!
- Receives time data from up to ten preprogrammed third party NTP servers (user changeable) for added reliability and redundancy or from and Sapling Master Clock
- Built-in self-diagnostics & email alerts for NTP Synchronization Timeouts, Power Resets, & more!
- Interfaces with Sapling's Network Clock Monitoring Software which will allow the user to view, monitor, and send various commands to all IP clocks in the system
 - Capable of receiving messages
 - Capable of receiving real time countdowns
- Ability to alternate between time and date in U.S. (MM:DD:YY) and international (DD:MM:YY) format at user-changeable rates
- Brightness scheduling capabilities
- Ten year battery backup for internal real time clock and clock settings
- The clock features time loss notification by flashing the colon
- Designed and Produced by Sapling Inc. in Pennsylvania, United States of America

ADDITIONAL 3200 MODEL HIGHLIGHTS

- Includes all of the SBP 3100 model's capabilities
- Capable of interfacing with:
 - Sapling's Elapsed Timer Control Panel (SBD-ELT-001-0)
 - Temperature Sensor (SBD-TEMP-000-0)

ADDITIONAL 3300 MODEL HIGHLIGHTS

- Includes all of the SBP 3100 and 3200 models' capabilities
- Can interface with a third party system via a contact closure such as a nurse call system that can automatically trigger the elapsed timer
- Can interface with a Sapling Buzzer accessory (A-BUZZ-3300-1) when the Sapling Elapsed Timer reaches 00:00:00

NETWORK CLOCK MONITORING SOFTWARE

With Sapling's Network Clock Monitoring Software, the entire IP system can be controlled from one location enabling the user to make system-wide changes, control countdowns, and more!

Rolling out system-wide changes to your clocks is simple with Sapling's Network Clock Monitoring program. This PC program will display all of the Sapling Clocks configured to the network and will give you the ability to send out a preset configuration to the entire system, saving you from setting each clock individually.

The can be configured to send an email alert if a clock disappears from the network. It also includes a simple messaging feature that lets a user send numeric messages to all or select digital clocks. The IP digital clocks can also be manually set to count down from any time entered into the program. The software also offers a simple method to control any specific clock in the system. Need to adjust a specific IP clock's settings? No problem. Just locate the clock in the Network Clock Monitoring program and double click on it to open its own web interface.

| Name | Serial Number | Type | IP Address | Last Update | Runtime | MAC | Status |
|---------------------|---------------|--------------|----------------|-------------|--------------|-------------------|--------------------------------|
| Main Master Clock | 16512 | Master Clock | 192.168.100.10 | 10:00:38 | 2:03:24:45 | 60:36:96:00:19:70 | NTP SYNCH:09-27-19 09:59:17 |
| AI - Digital WiFi 2 | 1871 | IP Digital | 192.168.0.76 | 10:00:41 | 20:22:50:25 | 60:36:96:0a:03:67 | NTP SYNCH:09-27-19 10:00:18 |
| 12" Production SLD | 244 | IP Digital | 192.168.100.51 | 10:00:45 | 2:03:28:46 | 60:36:96:2e:00:2c | NTP SYNCH:09-27-19 09:59:05 |
| Cogsworth | 150 | IP Analog | 192.168.0.99 | 10:00:50 | 49:00:54:37 | 60:36:96:08:00:32 | NTP SYNCH:09-27-19 9:58:50; PS |
| Office 15 | 160 | IP Analog | 192.168.100.47 | 10:00:30 | 2:00:30:45 | 60:36:96:11:00:35 | NTP SYNCH:09-27-19 10:00:00 |
| Philadelphia-Cubes | 23603 | IP Analog | 192.168.100.44 | 09:48:05 | 169:22:23:50 | 60:36:96:28:0e:13 | NTP SYNCH:09-27-19 9:48:05 |
| Classroom 1 | 240 | IP Digital | 192.168.100.84 | 10:00:02 | 3:04:10:42 | 60:36:96:13:00:15 | NTP SYNCH:09-27-19 10:01:00 |
| Office 6 | 2604 | IP Analog | 192.168.100.05 | 10:00:23 | 3:04:10:42 | 60:36:96:33:00:21 | NTP SYNCH:09-27-19 10:10:00 |
| Cafeteria | 130 | IP Analog | 192.168.100.23 | 10:00:59 | 20:00:30:41 | 60:36:96:43:00:62 | NTP SYNCH:09-27-19 10:19:00 |
| Warehouse | 120 | IP Digital | 192.168.100.48 | 10:00:32 | 20:00:30:41 | 60:36:96:51:00:12 | NTP SYNCH:09-27-19 10:20:00 |

Send Message to Digital Clocks Send Countdown to Digital Clocks Download Configuration to Clocks ☐ Show Priority Only 6

Sapling Network Clock Monitoring Software allows the user to oversee their whole system from one

Using a Master Clock with an IP System

One of the benefits of the Sapling IP System is that a master clock is only an optional addition. By default, each Sapling IP Clock receives the time data via the internet from multiple NTP servers. As long as a reliable internet connection or an in-house NTP server is available, a master clock is not required with the Sapling IP System.

There are three primary reasons to use a master clock with the Sapling IP System: When a master clock with a GPS receiver is needed, when there is a need to control other systems using programmable relays, or when the facility requires an NTP/SNTP server to provide accurate time data to IP devices other than Sapling IP Clocks.

Master Clock with a GPS Receiver: For facilities that require an additional layer of redundancy or do not have access to in-house or online NTP/SNTP servers, a Sapling Master Clock with a GPS receiver ensures that accurate time is received. In this case, the first accurate time source for the master clock would be the GPS, while NTP servers would act as a backup accurate time source as long as an internet connection is available.

Master Clock with Programmable Relays: Some facilities require a means of controlling other systems through the use of programmable relays. Sapling offers its SMA 3000 Master Clock Family, which is offered with either 4 or 8 relays. These relays can be programmed to control a variety of systems by switching them on and off at predetermined times. A master clock with relays may include school bell systems, lights, heating/cooling, and more.

NTP Master Clock: For facilities that would like to provide synchronized time to IP devices other than the IP clocks, Sapling offers an optional master clock NTP server upgrade. The Sapling NTP Master Clock acts as an NTP server to provide the time to IP devices such as IP security cameras, IP phones, IP intercoms, or any other IP device capable of receiving (S)NTP time via LAN.



[SMA Series Master Clock]

Sapling IP Clocks are capable of taking the accurate time from any Sapling Master Clock model via LAN. The SMA 2000 Series is our standard master clock model with a front LED display and two push buttons for basic system programming. The SMA 3000 Series comes with a front LED and LCD display as well as a keypad to allow for advanced programming. The SMA 3000 model may also be offered with four or eight programmable relays (zones) for controlling third party systems, such as a school bell system, with a contact closure.

All of Sapling's Master Clocks come with a built-in web interface to allow for easy setup and programming from any computer in the facility via LAN. By default, the master clock receives the time data from third party NTP servers over the internet. The master clock is also offered with an optional GPS receiver as an additional source for receiving accurate time. Other features include a built-in real-time clock and the ability to send an email alert when communication with the accurate time source(s) is lost.

STANDARD FEATURES

- Available in rack or wall mount housing
- LED display for a clear, accurate read out
- Backlit LCD display (3000 model only)
- Two buttons for programming (2000 model) or 2 x 8 rubber button keyboard for easy programming (3000 model only)
- Intuitive built-in web interface allows the system administrator to configure all the settings of the SMA Series Master Clock easily from the convenience of any computer on the same network
- RJ45 input for web interface access and synchronization to any SNTP/NTP server
- Ability to store up to 10 different NTP server IP addresses or domain names for continuous accurate time and redundancy
- Automatically switches from one accurate time source to another in case of a communication failure
- Blinking LED on master clock front panel to visually indicate a communication failure with the NTP server or GPS time source
- The master clock can be programmed to send an email alert when communication with the accurate time source has failed, when the master clock has been rebooted, when the fire alarm in the facility has been activated (if applicable), and more
- Can control wired clock systems, wireless clock systems (when equipped with transmitter), and provide the time to IP clocks simultaneously
- 12 or 24 hour display
- Automatic, fully customizable Daylight Saving Time updates, if applicable

- Selectable UTC/GMT offset
- Bias seconds option – offsetting the master clock to adjust the time plus or minus a few seconds or minutes to fit the application, while it is still receiving accurate time input
- DHCP Capable
- Proprietary RS485 input and output for time synchronization
- Microprocessor based
- Ten year battery backup for keeping time and master clock settings in the event of a power outage

OPTIONAL FEATURES

- GPS input for accurate time synchronization
- NTP server upgrade
- Four or eight configurable auxiliary relays which control other systems by closing a relay at predetermined times (3000 model only)
 - 255 schedule (group of events) and 800 event capabilities (such as triggering bells)
 - Two programmable closure durations per relay
- Transmitter to provide time correction to a Wireless or TalkBack Wireless System



[Accessories]

Sapling offers different accessories to accommodate various project needs. These include:

- ⌘ Elapsed Timer Control Panel (can interface with 3200 and 3300 digital clock models)
- ⌘ Buzzer Accessory (can interface with 3300 digital clock model)
- ⌘ Temperature Sensor (can interface with 3200 and 3300 digital clock models)
- ⌘ Wire Guards
- ⌘ Clear Protective Covers
- ⌘ Flag Mount and Double Mount Housing
- ⌘ PoE Injector



Shown left is a Sapling four-digit digital clock, double mounted from the ceiling featuring Green LEDs. Shown above is a Sapling PoE Injector.

[About Us]

The Sapling Company is a global leader in engineering and manufacturing advanced synchronized clock systems. We have earned a reputation both in the USA and international markets for our superior technology, quality, and reliability. For more information about Sapling Synchronized Clock Systems and the Time Zone Clock, please visit our website: www.sapling-inc.com



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Sapling

*a global leader in engineering & manufacturing
quality synchronized clock systems since 1993*