SAPLING
IP-POE SYSTEM

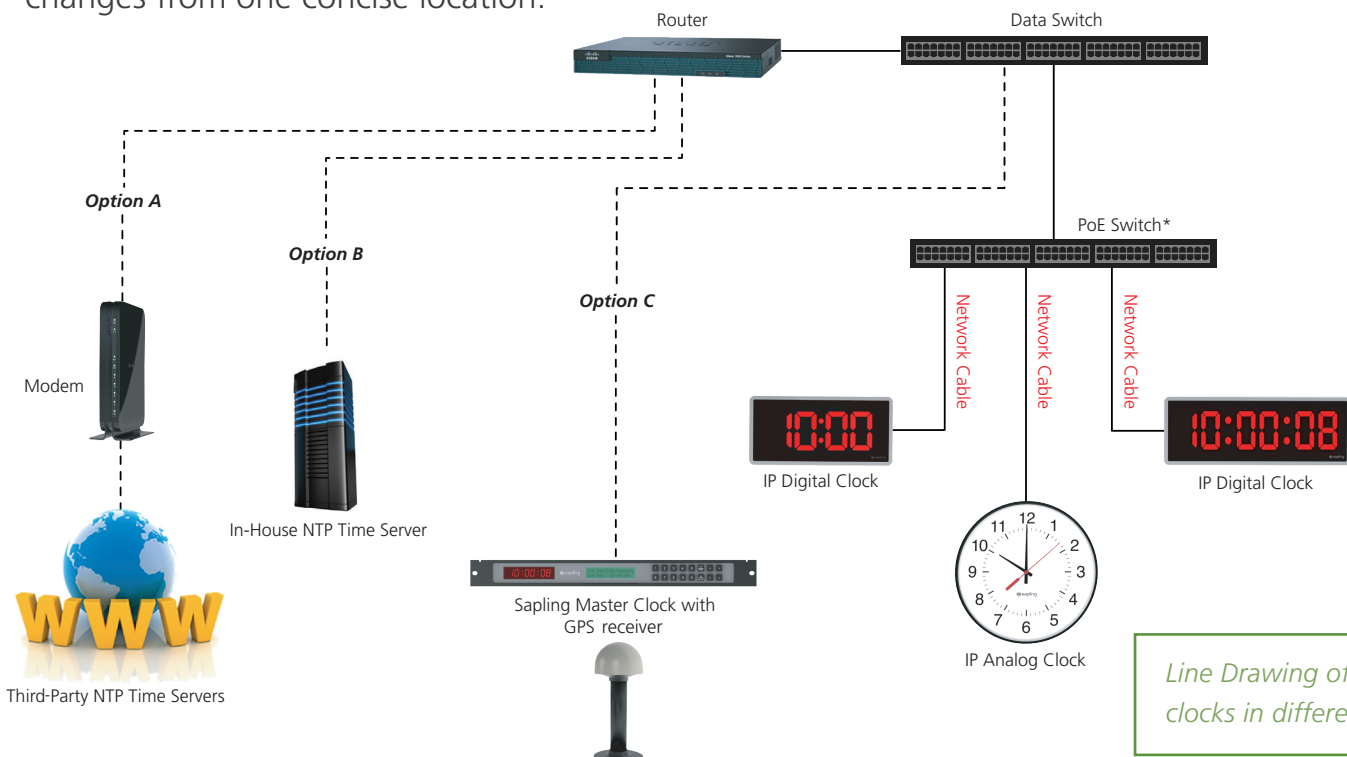# Sapling IP-PoE System

DESCRIPTION

The Sapling IP-PoE Clock System is an advanced, network-based solution that allows complete control over the clocks utilizing the Sapling Network Clock Monitoring Software. Each IP-PoE clock is connected to the facility's network via a standard network cable and receives both PoE power (Power over Ethernet) and time data over a single network cable.

A standard feature offered with the Sapling IP-PoE Clocks is the ability to take accurate time data from the default, pre-programmed ten (10) third-party NTP timer servers (user changeable) accessed via the internet. Receiving the time data from ten (10) different sources provides an additional layer of reliability and redundancy. Alternatively, the Sapling IP-PoE Clocks can be programmed to receive time data from an in-house NTP time server or a Sapling Master Clock.

Since each IP-PoE clock can take the time from any NTP time server, as such, a master clock is only optional with the IP-PoE clock system, making it a cost-effective solution especially for small applications.

Each of the Sapling IP-PoE clocks has a built-in web interface, allowing easy access to the clocks for configuration, viewing diagnostic information, setting email alerts, monitoring, and much more.

Sapling offers added value with the Network Clock Monitoring Software, standard with the IP-PoE System, allowing the software to detect all Sapling Clocks on the network. This software enables easy supervision of the clocks, or modifying of the settings, and making system-wide changes from one concise location.

Router   Data Switch

Option A

Option B

Option C

PoE Switch*

Network Cable   Network Cable   Network Cable

Modem

IP Digital Clock   IP Digital Clock

In-House NTP Time Server

Sapling Master Clock with GPS receiver

IP Analog Clock

Line Drawing of IP-PoE clocks in different scenarios

Third-Party NTP Time Servers

Sapling IP-PoE System Advantages

Built-In Web Interface - Each IP-PoE 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 power restarts, major time changes, NTP/SNTP server synchronization issues, or rare hand errors – all conveniently 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.

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 is needed to relay both power and data to the clock.

Safety Standard - The Sapling Master Clocks and Secondary Clocks are designed to meet strict safety standards.

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

SAP Analog

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

FEATURES

- Available in Round or Square Shape
  - Round Clocks are available in: 9.0" (22.86 cm), 12.0"(30.48 cm), and 16.0" (40.64 cm) dial sizes
  - Square Clocks are available in: 9.0" (22.86 cm) and 12.0" (30.48 cm) 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 a Sapling Master Clock
- Built-in self-diagnostics and email alerts for:
  - NTP synchronization timeouts
  - Power resets
  - Hand position errors
- 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
- Dial Style – 12-hour or 24-hour dials as standard or specialty dials and custom logo dials
- Hand Style - Standard or specialty hands to choose from
- Designed and Produced by Sapling Inc. in Pennsylvania, United States of America

Shown on the 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-PoE 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 (00:00) or 6 digit display (00:00:00)
- *IP-PoE digital clocks are also available in larger sizes for indoor or outdoor applications (SLD clock model)
- 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 available to choose from: 3100, 3200, and 3300. The higher the model number, the higher the feature-set and capabilities
- 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 a 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
- 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

*IP-PoE digital clocks are also available in larger 6.0" (15.24 cm) or 9.0" (22.86 cm) sizes for indoor or outdoor applications - the Sapling SLD clock model. The SLD clock model is also available at 12.0" (30.48 cm) size with a network cable interface for data while locally powered. More information on SLD clocks is available on our website at: **https://sapling-inc.com/products/sapling-premium-large-clocks/**

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 function
- Can interface with a Sapling Buzzer accessory (A-BUZZ-3300-1) to alert users 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, command real-time countdowns, and more!

Rolling out system-wide changes to your clocks is simple with Sapling's Network Clock Monitoring software. This PC software 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.

Clock(s) can be configured to send an email alert if a clock disappears from the network. The Network Clock Monitoring software also includes a simple messaging feature that lets a user send numeric messages to all or select digital clocks. The software also offers a simple method to identify and control any specific clock in the system. Once a clock has been identified on the software, the user can double click to open its own web interface and view or change its settings.
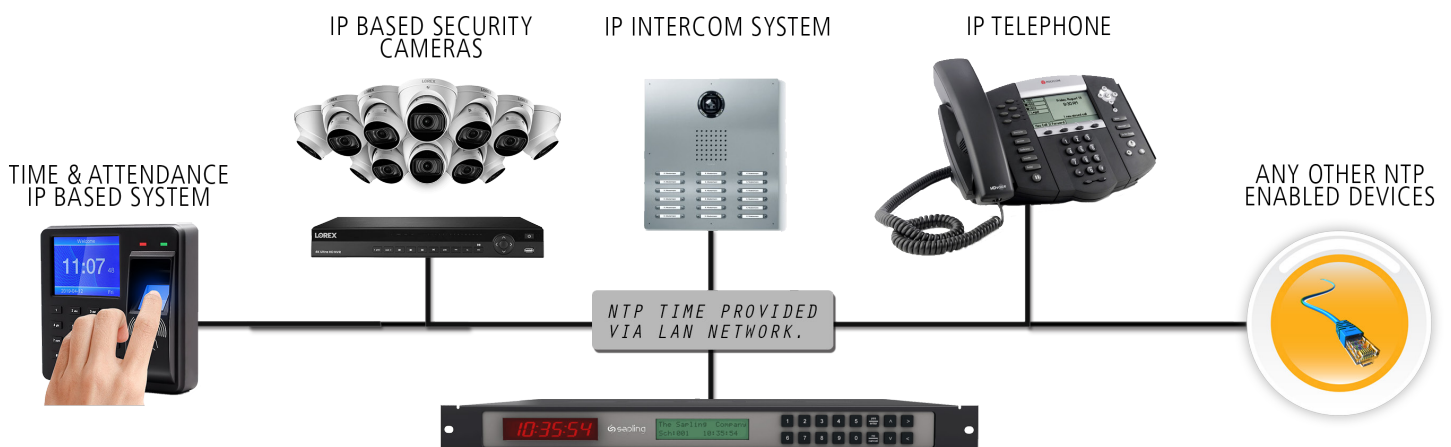

Sapling Network Clock Monitoring Software allows the user to oversee their whole system from one

Using a Master Clock with an IP-PoE System

One of the benefits of the Sapling IP-PoE System is that a master clock is only an optional addition. By default, each Sapling IP-PoE Clock receives 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-PoE System.

There are three (3) primary reasons to use a master clock with the Sapling IP-PoE System:

1. **Master Clock with a GPS Receiver:** For facilities that require an additional layer of redundancy or do not have access to reliable internet or to an 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.

2. **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.

3. **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 trigger third-party systems, such as school bell systems, lights, heating/cooling, and more.

IP BASED SECURITY CAMERAS

IP INTERCOM SYSTEM

IP TELEPHONE

TIME & ATTENDANCE IP BASED SYSTEM

ANY OTHER NTP ENABLED DEVICES

NTP TIME PROVIDED VIA LAN NETWORK.

SMA Series Master Clock

Sapling IP-PoE Clocks can receive 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 programming. The SMA 3000 model consists of a full front keypad and 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 of 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

- Microprocessor based

- Ten-year battery backup for keeping the master clock internal real-time clock in the event of a power outage

OPTIONAL FEATURES

- GPS input for accurate time synchronization

- NTP server upgrade (allowing the master clock to act as an NTP time server)

- 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 for Sapling Wireless Clock System

Accessories

Sapling offers different optional 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

- Digital flush-mounted clocks and analog 12" square clocks are compatible with the Sapling Patient Safety Standards (PSS) Accessory

Shown on the 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*

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