



Installation Manual V7.5

SBP Series IP Clock



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SBP Series IP Clocks - Table of Contents

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□ Available with 3200 and 3300 models

■ Available with 3300 model only

Important Safety Information

DANGER

SHOCK HAZARD

- Keep the electricity to this device turned OFF until the clock installation is complete.
- Do not expose the clock circuits to water, or install the clock in a location where it may be exposed to water.

NOTICE

- Do not install the clock outdoors. Damage to the clock if placed outdoors voids the warranty.
- Do not hang objects from the clock or clock mounting parts. The clocks are not designed to support the weight of other objects.
- The clock face and housing may be cleaned with a damp cloth or disinfectant. Test other cleaning products on a small part of the clock housing before attempting to use on the rest of the clock. Avoid bleach and chemicals known to dissolve plastics.

WARNING

FIRE HAZARD

- Always follow your national and regional electrical codes or ordinances.
- The AC power circuit for the clock must be attached to a circuit breaker that can be reset by the user.



PHYSICAL INJURY HAZARD

- If you are standing on an object while installing your clock, make sure that the object can support your weight, and will not sway or move as you stand on it.
- Take precautions to avoid injury by potential safety hazards near the point of installation including (but not limited to) heavy machinery, sharp objects, hot surfaces, or exposed cables carrying an electric current.
- Follow all mounting instructions exactly as stated in this manual. Failure to do so may result in the device falling off the point of installation.
- Packaging materials and mounting items include plastic bags and small pieces, which pose a suffocation hazard to young children.

Identify Your Clock

A label containing the part number of your clock is attached to the clock packaging

If your part number begins with SBP-31, it is a 3100 Series clock

If your part number begins with SBP-32, it is a 3200 Series clock

If your part number begins with SBP-33, it is a 3300 Series clock

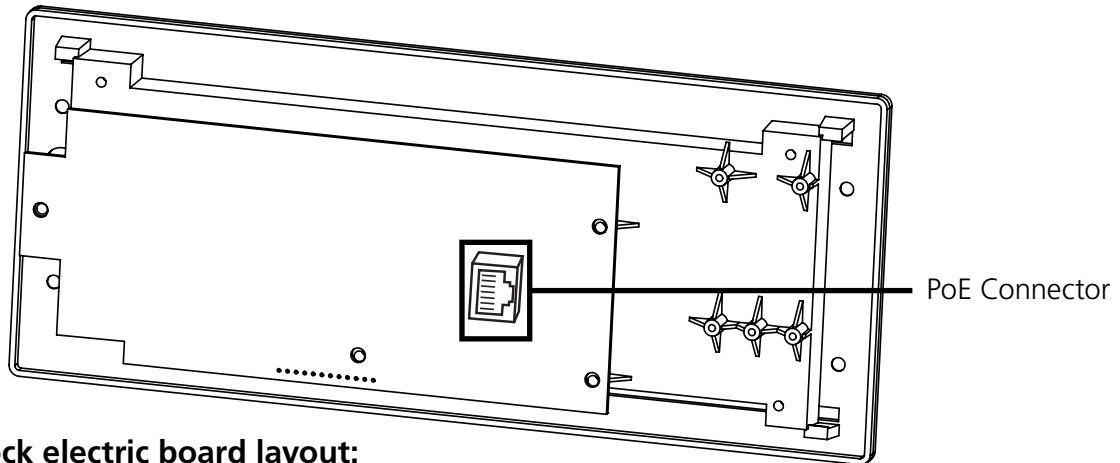
If the second group in your part number ends in S (31S, 32S, 33S), it is a Surface Mount Clock, which can be attached to a pole as a Flag Mount or a Double Mount.

If the second group in your part number ends in F (31F, 32F, 33F), it is a Flush Mount Clock, which can only be used in a flush mount configuration.

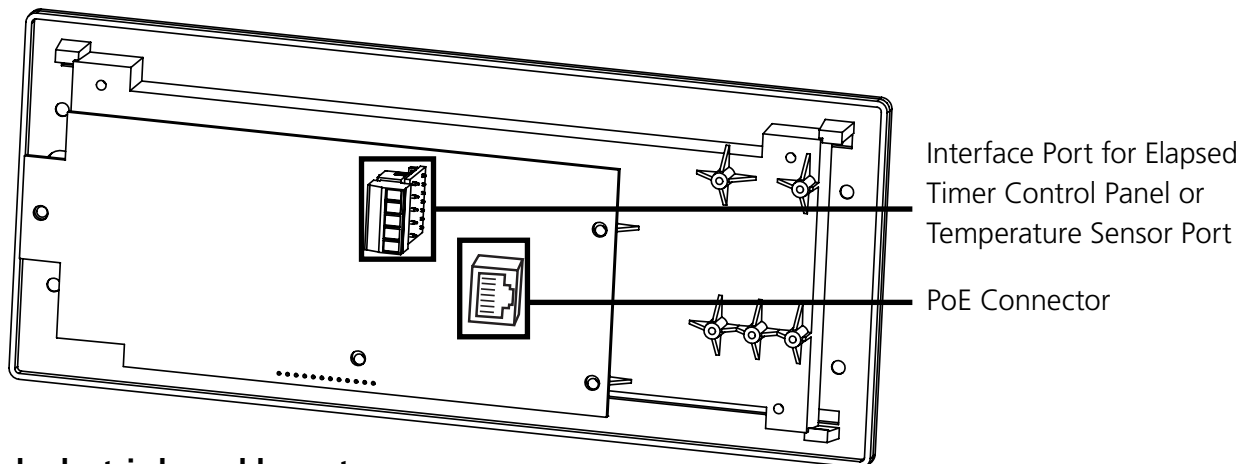
Identify Your Clock

The digital clocks are offered at either 3100, 3200, or 3300 Series number. The higher the series number indicates that the clock has higher feature set and capabilities.

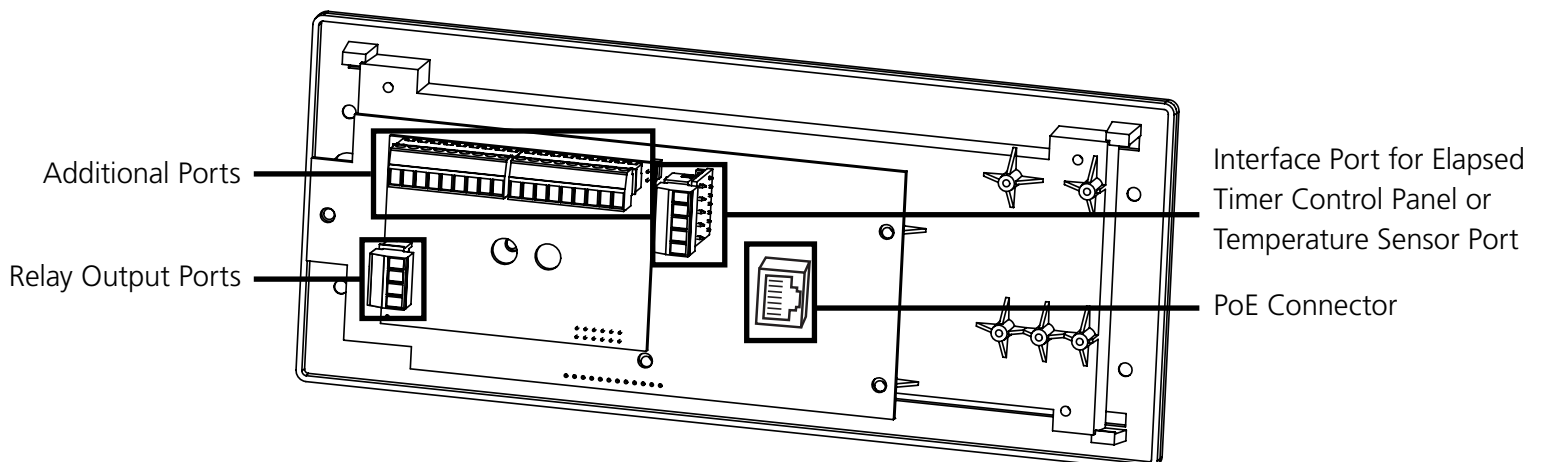
3100 Series clock electric board layout:



3200 Series clock electric board layout:



3300 Series clock electric board layout:



Before Installation - System/Network Requirements

You will need the following items to set up an IP-based synchronized clock network:

- This manual
- A Local Area Network (LAN) that either has access to at least one of the following:
 - An in-house NTP server
 - The Internet
- A local firewall that is open on Ports 80 (TCP), 123 (UDP), and 1777 (UDP)
 - Port 123 is to allow the clock to get time data from NTP Time Server(s)
 - Port 80 is to allow access to the clock's built-in web interface (HTTP)
 - Port 1777 is to allow the NET-MON-SOFT to identify our clocks that are on the network and present them on the network monitoring software
- At least one laptop or desktop computer with access to this LAN and a web browser
- A copy of the Monitor.exe program
- Security access to all of the above items
- A crossover cable and PoE injector or for programming the clocks. (Optional - A clock can also be programmed over a network.)
- We also recommend keeping a record of the clock serial numbers, locations, and IP addresses by creating a table like the one shown below:

LINE #	SERIAL #	CLOCK NAME / LOCATION	IP ADDRESS	MAC ADDRESS
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Before Installation - Power over Ethernet (PoE)

The IP PoE Clock requires a Class III (class three) Power Classification PoE switch or a PoE injector.

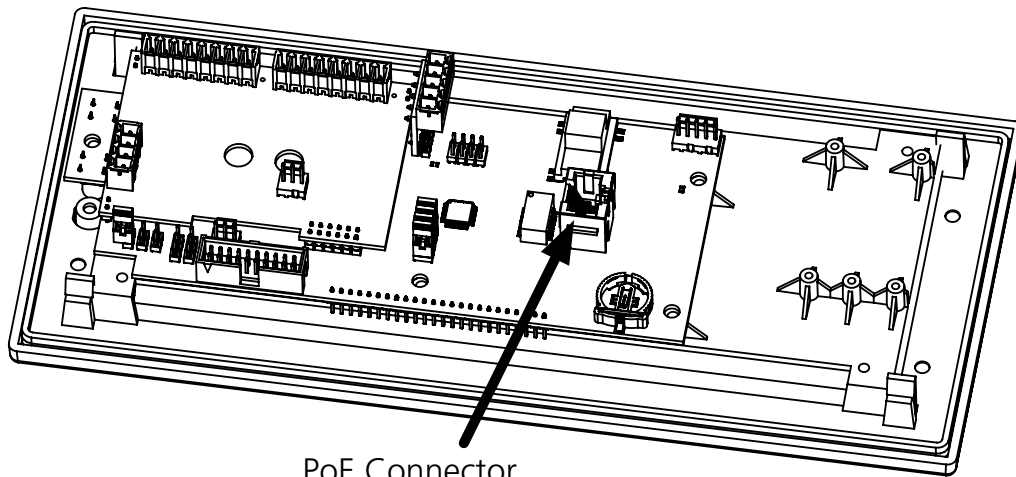
Connecting the clock to a PoE Switch:



1. Plug in the PoE switch to a power outlet.
2. Using a network cable, connect one end to the switch/router on the network, and the other end to the IP clock.

Connecting the clock to a PoE Injector:

1. Plug in the power injector to a power outlet.
2. Using a network cable, connect one end to the switch/router on the network, and the other end to the IN port on the injector.
3. Using another network cable, connect one end to the OUT port on the injector, and the other end to the IP clock.



PoE Connector

Before Installation - Network Monitoring Software

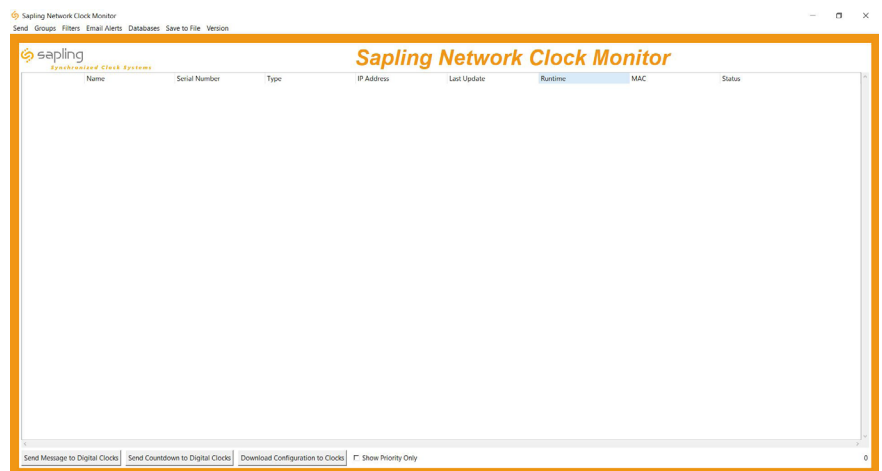
The clock is provided with a Network Monitoring Software, allowing the user to view, program, and monitor the clocks (displays). The Network Monitoring Software will be used once the clock(s) has been powered and connected to the network. Therefore, at this stage, the software should be ready and available, and will require downloading the software on a computer.

In addition to the CD, the Network Monitoring Software is also available to be downloaded from our website as per the below link. Please also note that the Network Monitoring Software is available in two different versions: One version is meant for the hard-wired network clocks, while the second version is meant for the Wi-Fi network clocks. Make sure that you download the correct software version depending on the type of clock you have.

<https://sapling-inc.com/software/>

Instructions for downloading and installing the Network Monitoring Software:

1. Create a folder on your computer called *Network Monitor*
2. If you have the Network Monitor on a CD:
 - a. Load the CD into your computer's CD Drive
 - b. Open the file on the CD and select the file ending in extension ".exe"
 - c. Copy the file to your Network Monitor folder.
3. If you downloaded the Network Monitor from our website: <https://sapling-inc.com/software/>
 - a. Locate the Network Monitor file in your computer's Downloads folder.
 - b. Select the file and copy all of its contents to your Network Monitor folder.
4. If you received the Network Monitor as an email attachment, refer to your email provider's instructions for downloading email attachments.
5. In order to use the Network Monitoring Software, port 1777 must be open in the facility's firewall.
6. If your computer has a security software in use, please make sure that it is not blocking the network monitoring software (if it is, you need to allow it to run by having it "whitelisted" on your computer).
7. Once the software is running on your computer, you can proceed with the next steps of the installation instructions. At this stage, no clocks (displays) will appear in the network monitoring software until additional steps are taken, as described later on in this manual.



Before Installation - DHCP

The IP-PoE clock can be set to DHCP or Static IP address.

The clock is shipped in DHCP mode as default. This means that once the clock is connected to the network it is assigned the next available IP address by a DHCP server. It is user changeable, meaning that the clock can be set with a static IP address and that these settings can be changed in the clock built-in web interface (as explained in this manual).

If you wish to be able to access the web interface from a computer, Port 80 must be open.

If you wish to access your clock using a known, unchanging Static IP address, see the next page.

If a user wishes to access the web interface while the clock is in DHCP mode, then there are two ways to find the IP address. The first is to press and hold both buttons on the front of the clock simultaneously, and release them after two seconds. This will cause the IP address to appear on the clock display. The second method is to use the Network Monitoring Software and double click on the clock.

Send Groups Filters Email Alerts Databases Save to File Version								
Network Clock Monitor								
Name	Serial Number	Type	IP Address	Last Update	Runtime	MAC	Status	
Big Ben	2140	IP Digital	192.168.2.67	09:25:15	0:22:16:51	60:36:96:24:00:8C	NTP SYNCH:03-26-19 09:11:48	
Cogsworth	150	WIFI Analog	192.168.2.71	09:28:50	10:16:58:48	60:36:96:08:00:32	NTP SYNCH:03-26-19 9:25:45; P	
Digital-1130	1130	WIFI Digital	192.168.2.55	09:28:55	10:16:57:01	60:36:96:0a:00:82	NTP SYNCH:03-26-19 09:28:51	
GPS	11241	Master Clock	192.168.2.50	09:29:00	5:16:47:56	60:36:96:00:04:D9	NTP SYNCH:03-26-19 13:22:19	
House of QA	1154	IP Analog	192.168.2.65	09:28:05	0:00:02:07	60:36:96:02:00:9A	NTP SYNCH:03-26-19 09:27:12	
Large Digital-1126	1126	Large Digital	192.168.2.54	09:28:37	6:21:42:53	60:36:96:0e:00:7e	NTP SYNCH:03-26-19 09:26:12	
site name	12	Master Clock	192.168.2.63	09:28:27	4:00:12:44	60:36:96:00:00:02	NTP SYNCH:03-26-19 09:21:55	
TAI	12149	Master Clock	192.168.2.48	09:28:20	5:16:47:11	60:36:96:00:08:65	NTP SYNCH:03-26-19 13:22:34	
UTC	12178	Master Clock	192.168.2.3	09:28:48	5:16:47:44	60:36:96:00:08:82	NTP SYNCH:03-26-19 13:21:49	
Bat Clock	14726	Master Clock	192.168.2.74	09:28:29	10:16:42:12	60:36:96:00:12:76	NTP SYNCH:03-26-19 09:23:30	
Send Message to Digital Clocks Send Countdown to Digital Clocks Download Configuration to Clocks <input type="checkbox"/> Show Priority Only 13								

Before Installation - Static IP

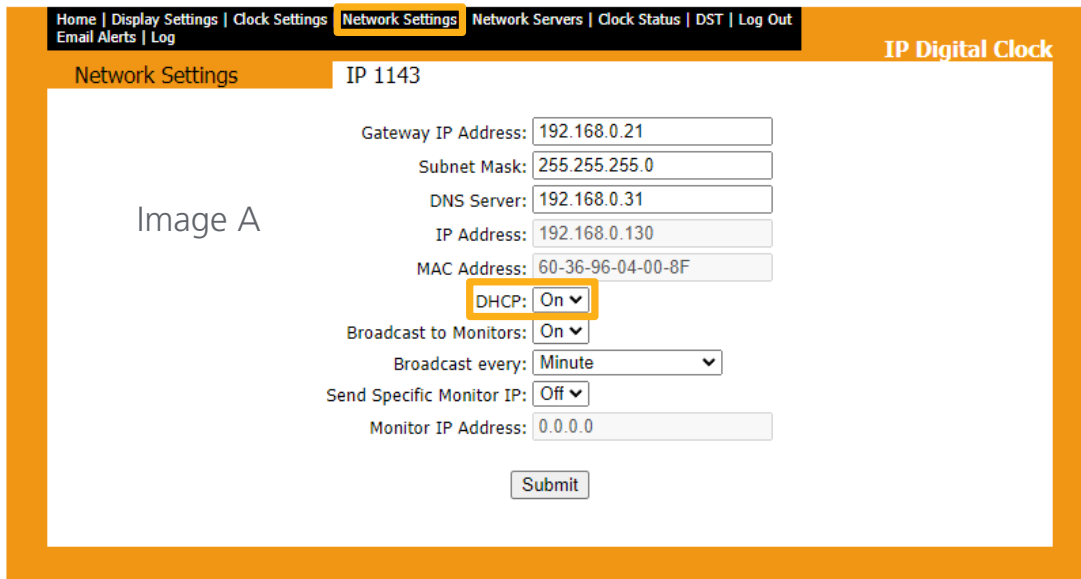
The IP-PoE clock can be set to DHCP or Static IP address.

The clock is shipped in DHCP mode as default. This means that once the clock is connected to the network it is assigned the next available IP address by a DHCP server. It is user changeable, meaning that the clock can be set with a static IP address and changing these settings in the clock built-in web interface (as explained in this manual).

For setting your IP-PoE clock to a static IP address, there are two options for doing so.

Option 1: If the facility where clock(s) will be installed into has a DHCP server, please follow these steps:

1. Connect and power the clock to the network via a network cable. (Note: in order to have clock be powered, network cable must be receiving power through a PoE Switch or PoE Injector)
2. Once clock is powered, press the two buttons on the front of the clock and write down the IP address that displays. (or, double click on the clock when using the Network Clock Monitoring Software)
3. Go onto a web browser that is connected to the same LAN (Local Area Network) as the clock and type the IP address of the clock into the address bar.
4. This should bring you to the web interface of the clock and you will be prompted to log in. The default password is **6063**.
5. Once logged in, select "Network Settings" on the top of the page. Refer to image A shown below.
6. In "Network Settings" note the DHCP option. Toggle DHCP from "ON" to "OFF". This will make the current IP address of the clock static. Refer to image A shown below.
7. Enter the Gateway IP Address, Subnet Mask, DNS Router, and Static IP Address as provided by your network administrator.
8. After DHCP is switched to off, power cycle the clock by unplugging the network cable from the clock's RJ-45 receptacle, waiting 10 seconds, and then plugging it back in. Press the two buttons on the front display of the clock and, if all was done correctly, the clock will display its new Static IP Address.

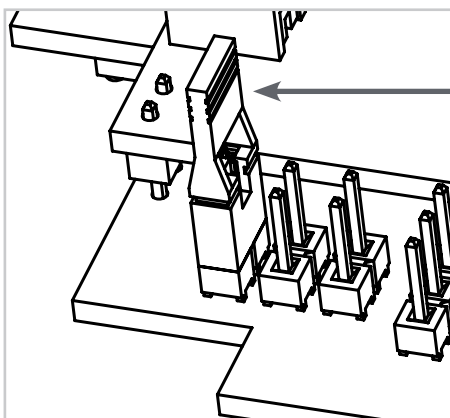
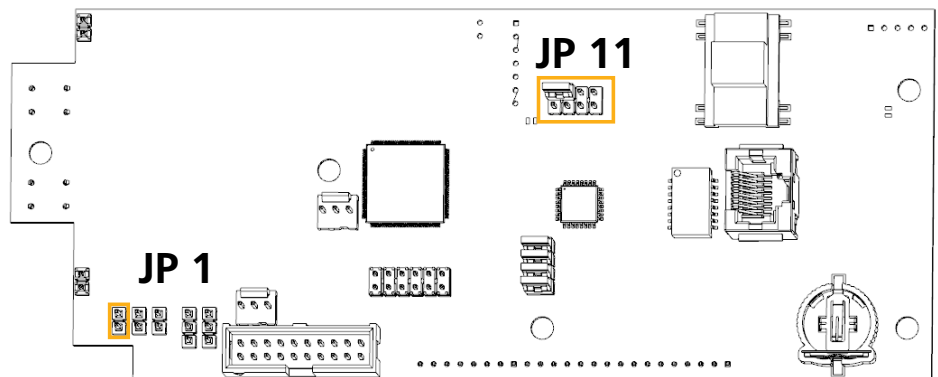


The screenshot shows the 'Network Settings' page of the IP Digital Clock web interface. The page has a navigation bar at the top with links: Home, Display Settings, Clock Settings, Network Settings (highlighted), Network Servers, Clock Status, DST, and Log Out. Below the navigation bar, the page title is 'IP Digital Clock'. The main content area is titled 'Network Settings' and 'IP 1143'. It contains several input fields for network configuration: Gateway IP Address (192.168.0.21), Subnet Mask (255.255.255.0), DNS Server (192.168.0.31), IP Address (192.168.0.130), and MAC Address (60-36-96-04-00-8F). The DHCP option is set to 'On' and is highlighted with a red box. Other options include Broadcast to Monitors (On), Broadcast every (Minute), Send Specific Monitor IP (Off), and Monitor IP Address (0.0.0.0). A 'Submit' button is at the bottom.

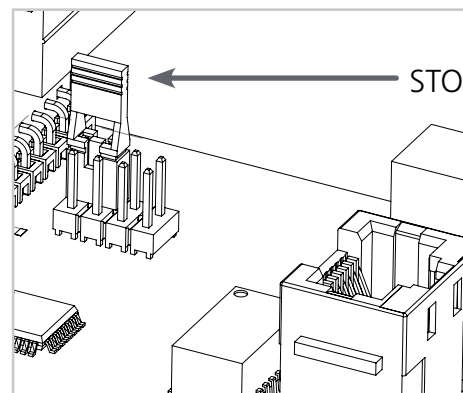
Before Installation - Static IP (ctd.)

Option 2: Another way to set the clock with a designated static IP address without the use of a DHCP server would be by using crossover cable.

1. Locate the jumper on the circuit board. Move the jumper from the STORAGE POSITION to the SETUP POSITION, as shown in the diagrams below. Power the clock. You should now be able to access the clock through a web browser at IP address 192.168.0.123.
2. Use a crossover cable to attach the clock to a PoE injector, and the injector to your computer.
 - a. If you are connecting from the clock to the computer using a PoE switch, the injector is not needed.
3. Access the web interface using the default password **6063**, then click on the "Network Settings" tab. Refer to image A shown in the previous page.
4. Confirm that DHCP is set to OFF. Refer to image A shown in the previous page.
5. Enter the following parameters provided by your network administrator: Gateway IP Address, Subnet Mask, DNS Router, and the designated Static IP Address of the clock. After entering these settings, click on the "submit" button.
6. Write the Clock Number, IP Address, MAC Address, and intended installation location in your personal record.
7. Click the "submit" button.
8. Exit the Web interface.
9. Detach the data cable.
10. Move the jumper back to STORAGE POSITION.
11. Reattach the data cable and log in to the clock by using the new Static IP.



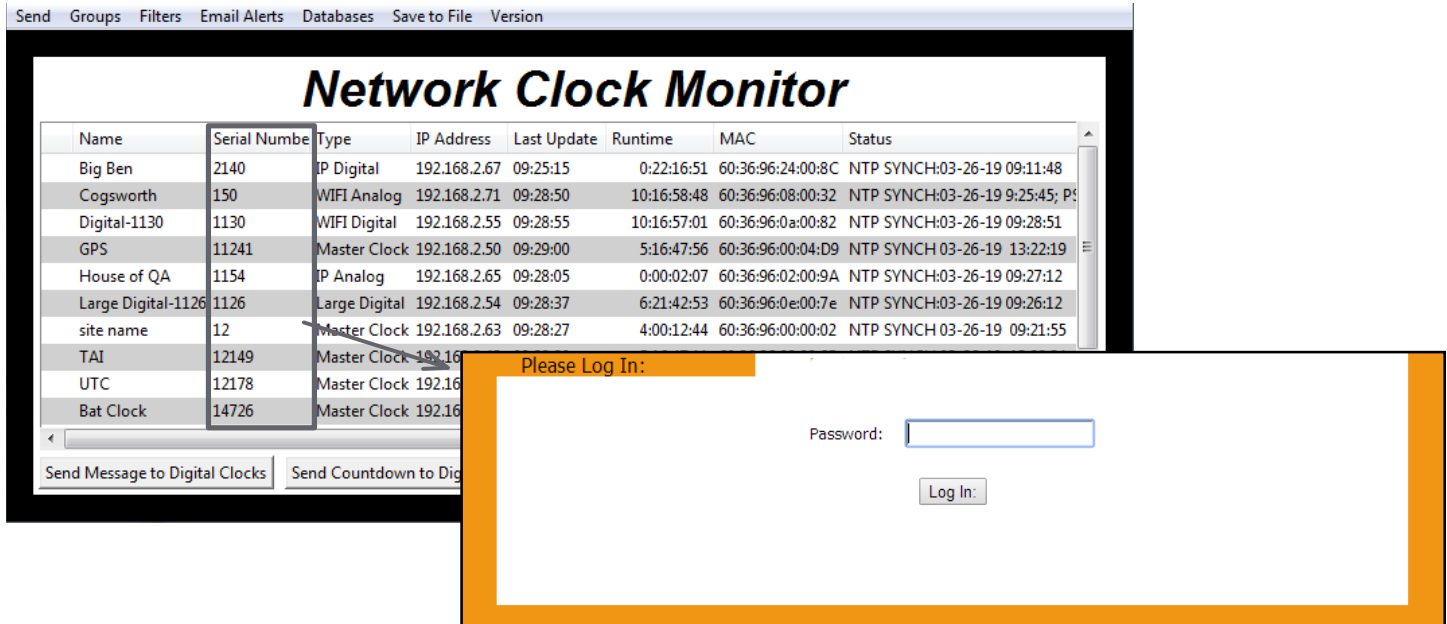
SETUP POSITION
JP 1
Position
1 & 2



STORAGE POSITION
JP 11
Position
2

Before Installation - Clock Setup - GMT/UTC Offset

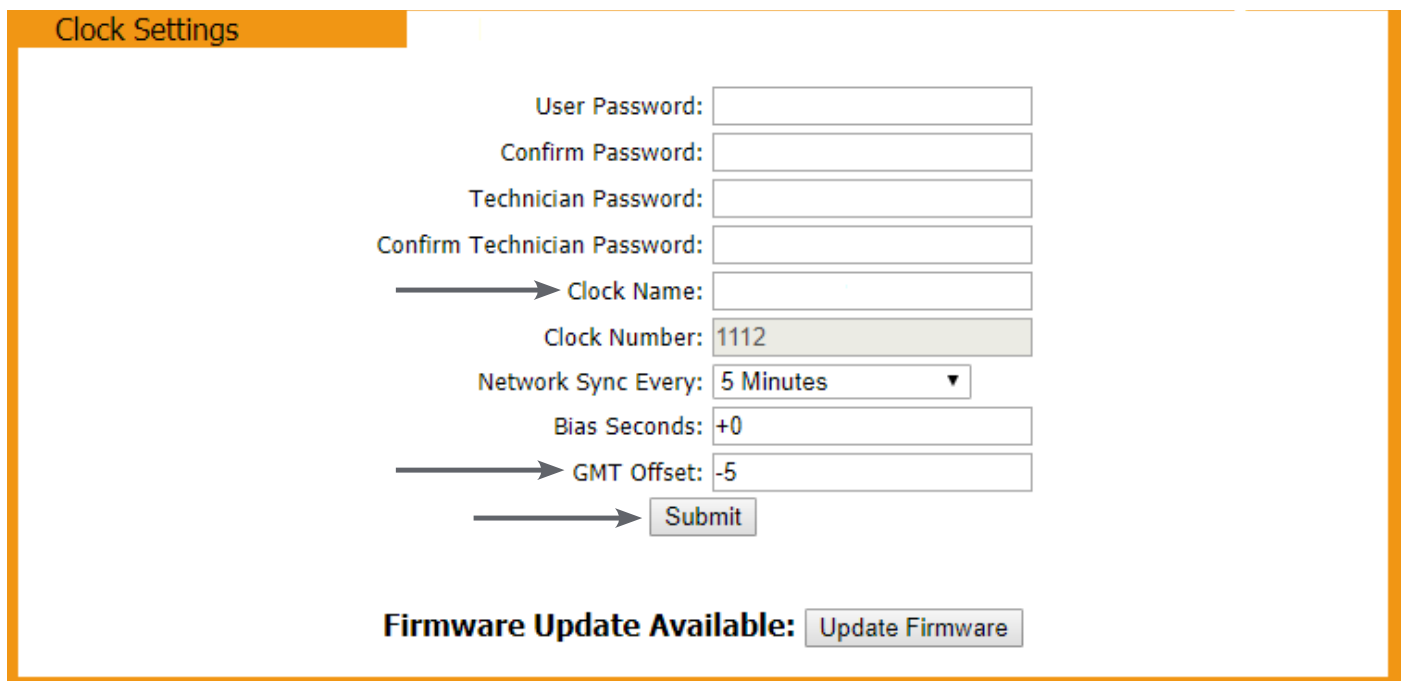
1) Double click on the serial number for the clock being installed. This should take you to the web interface for that clock. Use the default password **6063** to enter.



The screenshot shows the 'Network Clock Monitor' web interface. At the top, there's a navigation bar with links: Send, Groups, Filters, Email Alerts, Databases, Save to File, and Version. Below this is a table with the following columns: Name, Serial Number, Type, IP Address, Last Update, Runtime, MAC, and Status. The table lists several clocks, including 'Big Ben', 'Cogsworth', 'Digital-1130', 'GPS', 'House of QA', 'Large Digital-1126', 'site name', 'TAI', 'UTC', and 'Bat Clock'. The 'Serial Number' column is highlighted, and the value '14726' is selected. An orange-bordered login overlay is positioned in the foreground, featuring the text 'Please Log In:' and a 'Password:' label next to an input field. A 'Log In:' button is located below the password field.

Name	Serial Number	Type	IP Address	Last Update	Runtime	MAC	Status
Big Ben	2140	IP Digital	192.168.2.67	09:25:15	0:22:16:51	60:36:96:24:00:8C	NTP SYNCH:03-26-19 09:11:48
Cogsworth	150	WIFI Analog	192.168.2.71	09:28:50	10:16:58:48	60:36:96:08:00:32	NTP SYNCH:03-26-19 9:25:45; P
Digital-1130	1130	WIFI Digital	192.168.2.55	09:28:55	10:16:57:01	60:36:96:0a:00:82	NTP SYNCH:03-26-19 09:28:51
GPS	11241	Master Clock	192.168.2.50	09:29:00	5:16:47:56	60:36:96:00:04:D9	NTP SYNCH:03-26-19 13:22:19
House of QA	1154	IP Analog	192.168.2.65	09:28:05	0:00:02:07	60:36:96:02:00:9A	NTP SYNCH:03-26-19 09:27:12
Large Digital-1126	1126	Large Digital	192.168.2.54	09:28:37	6:21:42:53	60:36:96:0e:00:7e	NTP SYNCH:03-26-19 09:26:12
site name	12	Master Clock	192.168.2.63	09:28:27	4:00:12:44	60:36:96:00:00:02	NTP SYNCH:03-26-19 09:21:55
TAI	12149	Master Clock	192.168.2.63	09:28:27	4:00:12:44	60:36:96:00:00:02	NTP SYNCH:03-26-19 09:21:55
UTC	12178	Master Clock	192.168.2.63	09:28:27	4:00:12:44	60:36:96:00:00:02	NTP SYNCH:03-26-19 09:21:55
Bat Clock	14726	Master Clock	192.168.2.63	09:28:27	4:00:12:44	60:36:96:00:00:02	NTP SYNCH:03-26-19 09:21:55

2) Select the Clock Settings tab, enter an easy-to-identify name for the clock (like the clock's location), select the GMT/UTC offset for your time zone (for example, New York is -5), and press the submit button.



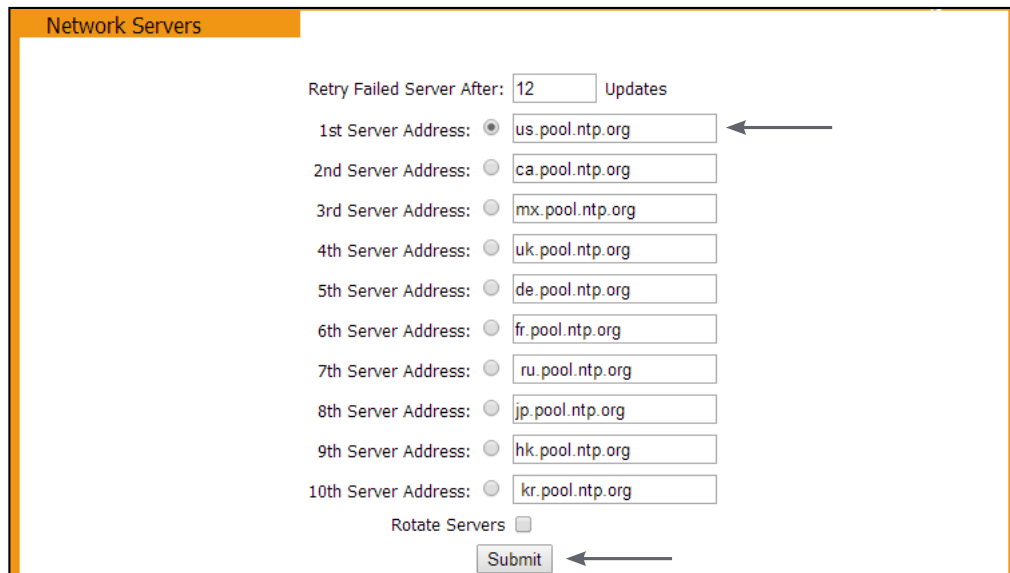
The screenshot shows the 'Clock Settings' web interface. It features several input fields for configuration: 'User Password:', 'Confirm Password:', 'Technician Password:', and 'Confirm Technician Password:'. Below these are fields for 'Clock Name:', 'Clock Number:' (with the value '1112' entered), 'Network Sync Every:' (set to '5 Minutes'), 'Bias Seconds:' (set to '+0'), and 'GMT Offset:' (set to '-5'). A 'Submit' button is located at the bottom of the form. At the very bottom, there is a 'Firmware Update Available:' section with an 'Update Firmware' button.

Before Installation - Clock Setup - Network Servers

3) Time Input – From Third-Party NTP Time Servers:

The clock comes pre-programmed with third-party NTP Time Servers accessible via the facility network and internet. These pre-programmed Time Servers can be viewed or changed in the “Network Servers” tab of the clock built-in web interface (as shown in the below image). In order to allow the clock to access the third-party NTP Time Servers, port number 123 must be open in the facility network firewall.

The time server address text boxes in the clock’s web interface are changeable, allowing the user to delete the default third-party NTP Time Servers and program the clock to receive time data from different third-party NTP Time Servers by typing their IP addresses or URLs into the text boxes.



Network Servers

Retry Failed Server After: Updates

1st Server Address: ☒

2nd Server Address: ☐

3rd Server Address: ☐

4th Server Address: ☐

5th Server Address: ☐

6th Server Address: ☐

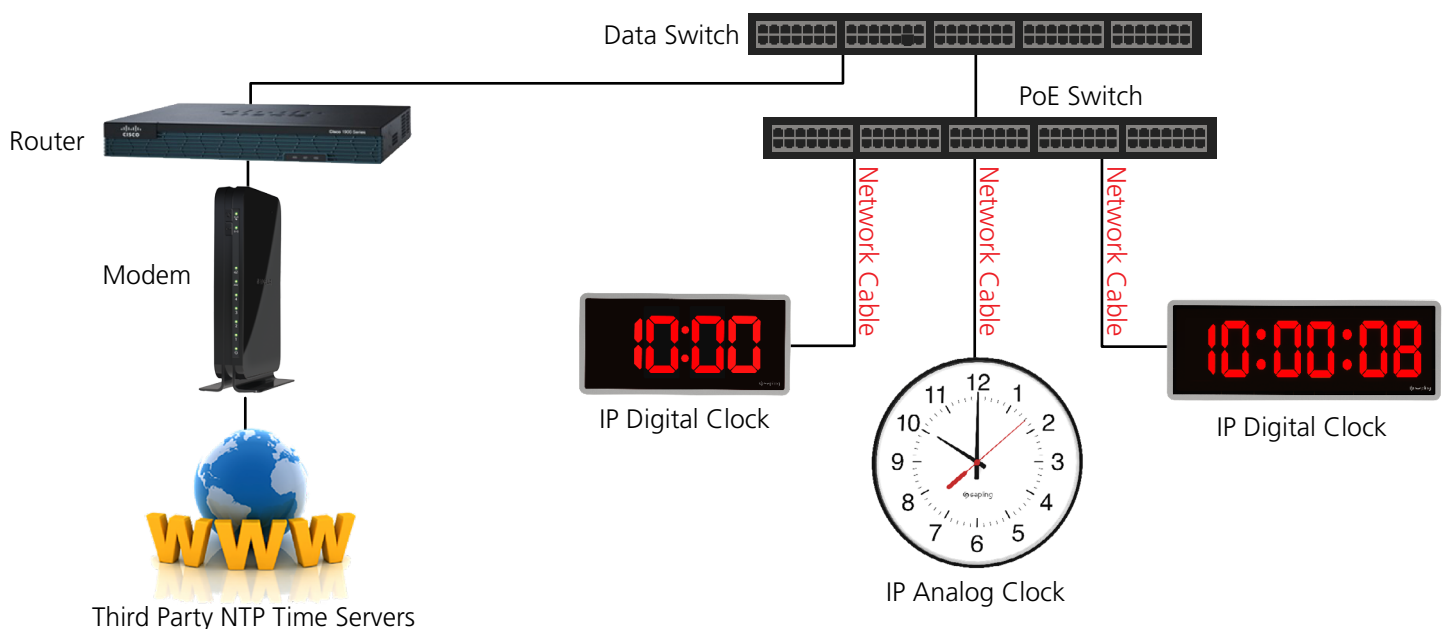
7th Server Address: ☐

8th Server Address: ☐

9th Server Address: ☐

10th Server Address: ☐

Rotate Servers ☐

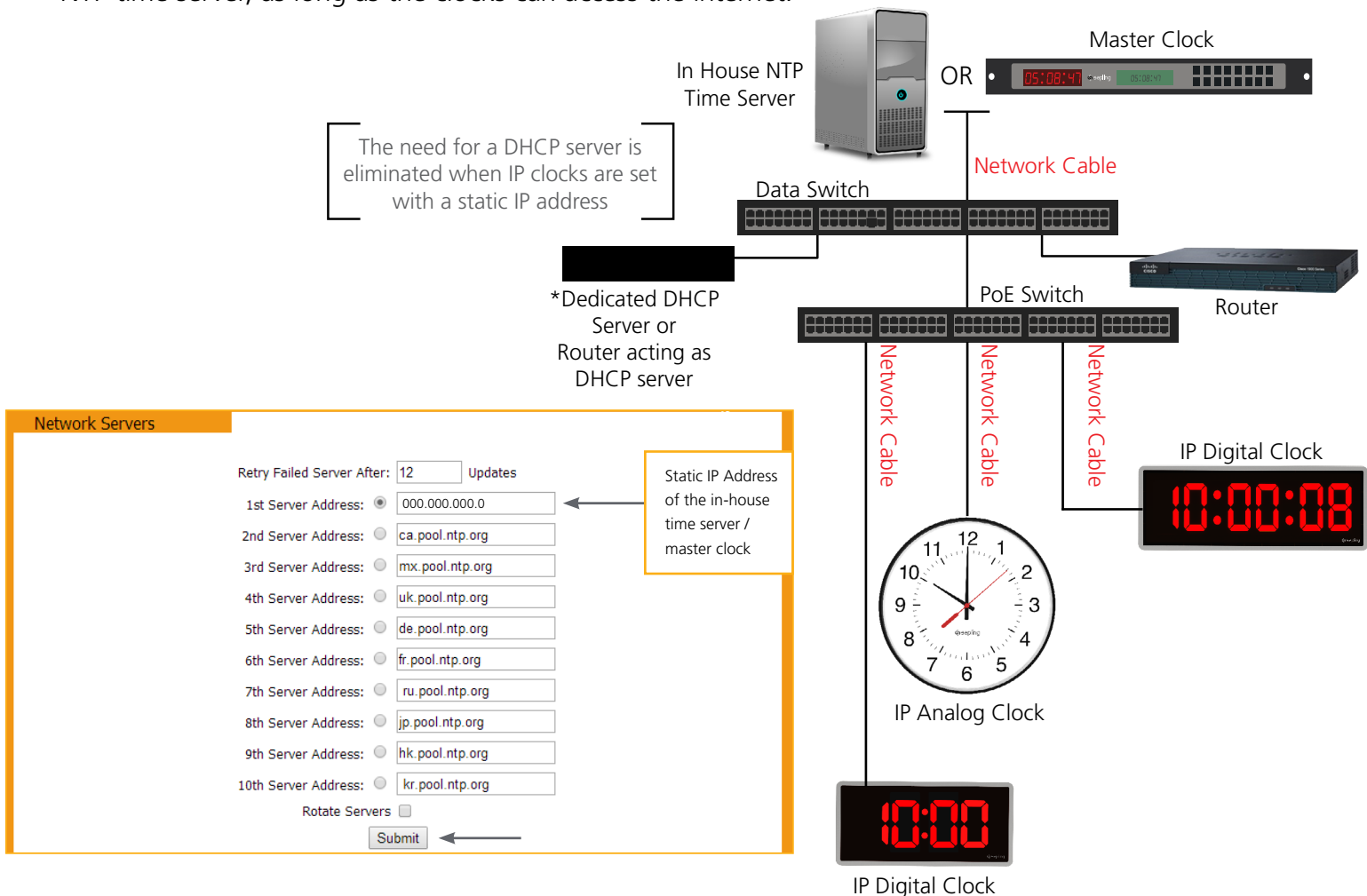


Before Installation - Clock Setup - Network Servers

Time Input – From an In-House NTP Time Server or from a Master Clock

If the facility has their own in-house NTP Time Server or a master clock capable of providing time data to the IP clocks, the IP clocks should be programmed accordingly. To set the clocks to receive the time data from the in-house time source, please follow the below steps:

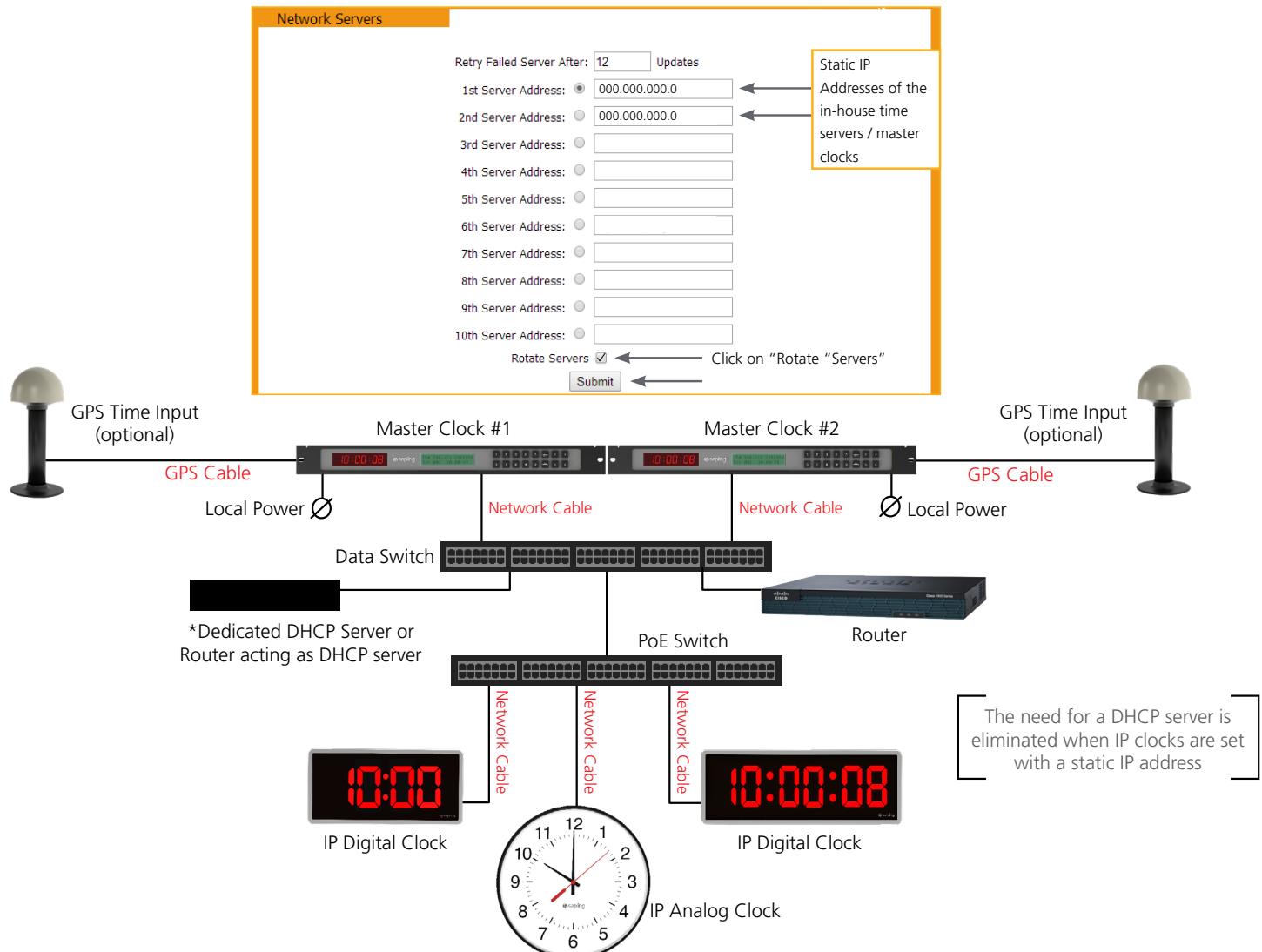
- Set the in-house NTP Time Server or master clock (capable of providing time data to the IP clocks) with a static IP address.
- Once the IP address of the in-house time source has been identified, program it in the clock "1st Server Address" text box in the "Network Servers" tab of the clock built-in web interface.
- Make sure to click the circle next to the "1st Server Address" text box, which will command the clock to take time data from this selected time source.
- Make sure that the option "Rotate Servers" is **not** selected, which commands the clock to receive time data from the "1st Server Address" as long as it is active.
- Regardless of what server or master clock you are using as a time source, all IP clocks must still be set with the UTC/GMT Offset and DST separately, as explained in this manual.
- If you only want the clocks to receive time data from the in-house NTP time server or from the in-house master clock, you can delete all other pre-loaded server addresses (2nd Server Address – 10th Server Address). If you leave these third-party time servers listed, they can be used as a backup to the in-house NTP time server, as long as the clocks can access the internet.



Before Installation - Clock Setup - Network Servers

Time Input – From two In-House NTP Time Servers or from two Master Clocks

- Set the in-house NTP Time Servers or master clocks (capable of providing time data to the IP clocks) with a static IP address.
- Once the IP addresses of the in-house time sources have been identified, program these two static IP addresses into the clock's "1st Server Address" and "2nd Server Address" text boxes in the "Network Servers" tab of the clock's built-in web interface.
- Delete all other Server Addresses that came pre-programmed in the clock and make sure to leave only the two IP addresses of the in-house time sources that you have programmed into the clock.
- Make sure that the option "Rotate Servers" is selected, which commands the clock to rotate between the two time sources.
- Regardless of what server or master clock you are using as a time source, all IP clocks must still be set with the UTC/GMT Offset and DST separately, as explained in this manual.



4) Close the web interface and IP monitor. The clock should now be able to accurately display time when connected to your network. More information on selectable IP clock settings are provided later on in this manual.

Preparing for the Installation

Consideration should be made for various factors such as their location, type of mounting (flush, surface, dual-faced or flag mounted), and more. Please read the manual including all relevant sections for your specific installation configuration to understand the steps, how to wire, and how to install the clock. In addition, please note what hardware you may need to supply.

The clock can be **Flush Mounted** (for inside the wall installation), **Surface (wall) Mounted**, **Dual-Faced** or **Flag Mounted**.

Mounting the clock housing for these different configurations is different from one another; however, clock display installation and wiring is similar. Therefore, each mounting will have its own initial installation instructions section followed by a “**Uniform Stage Installation**” section.

For installing the clocks, the installer will need to have the below items which are not provided with the clocks:

- A #2 Phillips-head screwdriver
- A Network Cable
- A drill and a drill bit (size depending on wall anchor)
- A flat-head screwdriver

In Addition:

For a Flush Mounted Clock:

- There are multiple holes in the clock metal back box that would accommodate (up to) size #10 screws for fixating it to the wall. Hardware to fixate the clock's metal back box to the wall, depending on the type of wall, is to be provided by the installer.

For a Surface (wall) Mounted Clock:

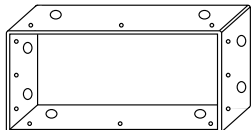
- A double gang (utility) box

For a Dual-Faced or a Flag Mounted Clock:

- A double gang (utility) box
- There are 4 holes in the pole base plate that would accommodate size #8 screws for fixating it to the ceiling or to the wall. Hardware to fixate the pole base plate to the ceiling or to the wall depending on the type of wall is to be provided by the installer.

Flush Mounted Clock Mechanical Installation

Included in Package

Description	Quantity	Picture
SBP Digital Clock	1	
Digital Clock Flush Mount Housing (for inside the wall installation)	1	

Included with the Clock Wiring Kit

#6-32x1/2 Phillips flat head black machine screw (these screws are for screwing the display to the housing)

4



The flush mount housing includes a grounding kit allowing to ground the flush mount housing to the facility main ground bus (depending on local codes, grounding may not be required for PoE):

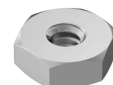
Grounding wire

1



#6 Internal-tooth lock washer

1



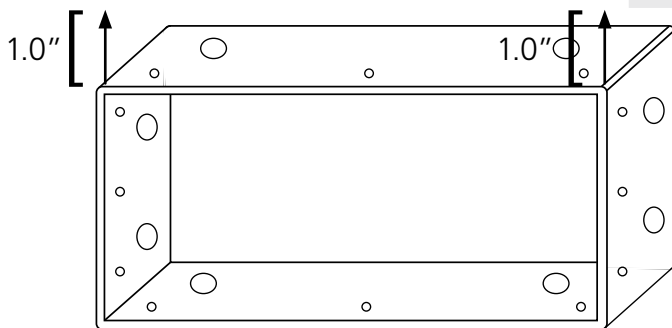
Hex nut 6-32

1

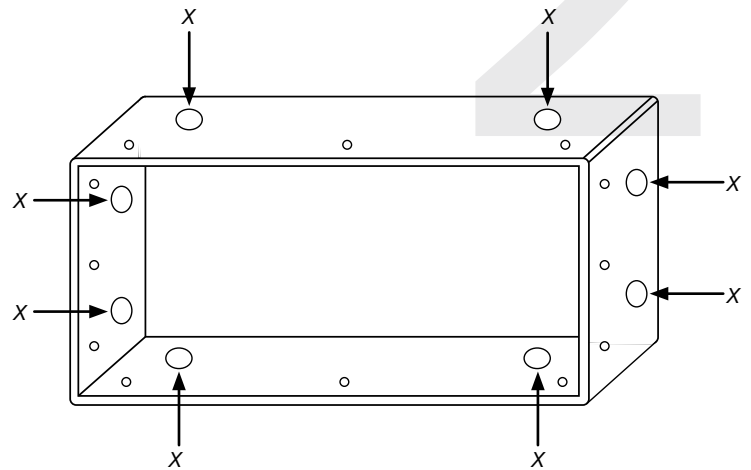


Flush Mounted Clock Mechanical Installation

1) This clock is offered at different sizes and based on its size, its metal back gang box will be compatible with its display size. Once you have the flush mounted housing (dimensions are available in the specifications), cut a hole in the wall, making sure to leave at least 1.0" (2.54 cm) between the top of the clock gang box and the ceiling.

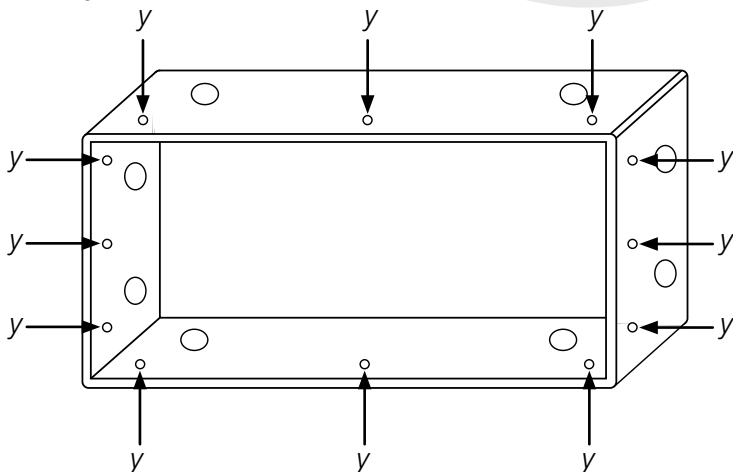


2) Plan where the network cable is going to be run into the clock and knockout the semi pre-punched designated wiring holes on the clock gang box. The clock gang box comes with semi pre-punched wiring holes in all sides.



x = knockout holes for wiring

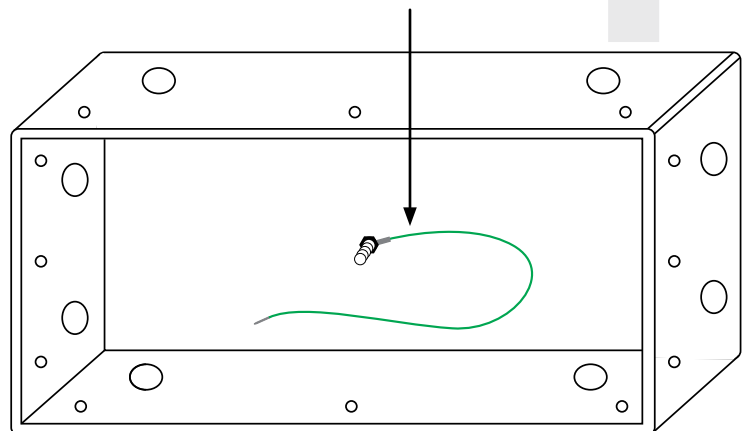
3) Once a hole in the wall is cut, place the clock gang box in the wall and make sure that it is leveled with the floor. You may need to make a fixture to secure the gang box in between the studs in the wall, nail it to the cinderblock, or take needed actions to secure it to the wall depending on the type of wall. The gang box has pre-punched holes on all sides, allowing to secure the gang box to the wall.



y = nailing holes for securing the gang box to the wall

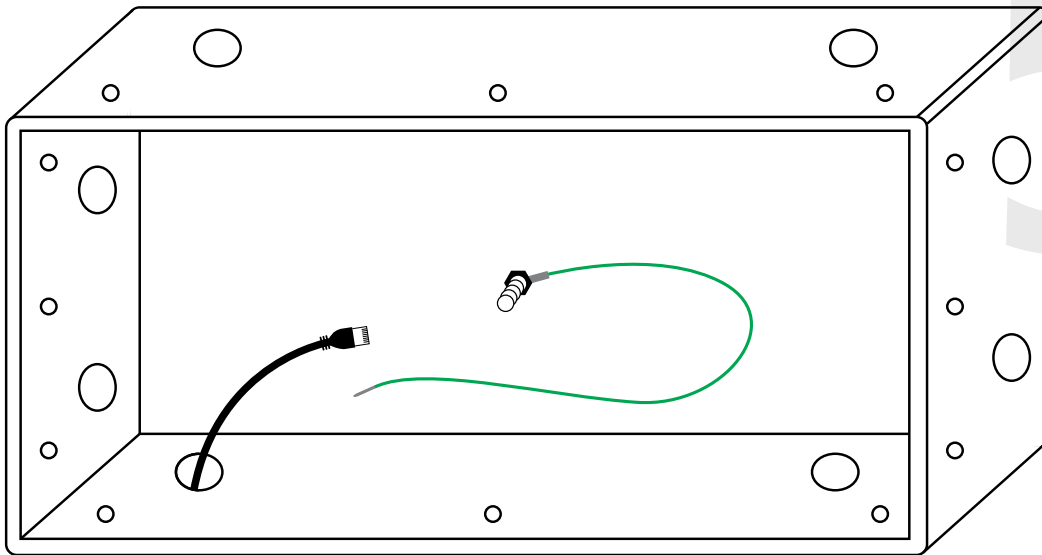
4) Since the flush mounted digital clocks are offered at different voltages and are made out of metal, depending on the local codes and regulations, you may also need to ground the clock gang box to the facility grounding bus using the provided hex nut and internal-tooth lock washer.

grounding wire included in wiring kit



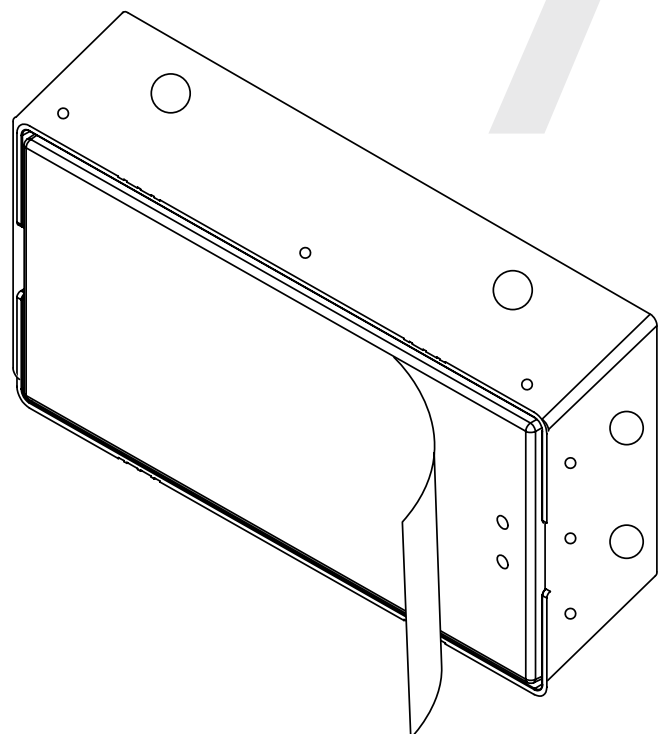
Flush Mounted Clock Mechanical Installation

5) Run the network cable from the wall into the clock gang box through one of the knockout holes as shown in the below image.



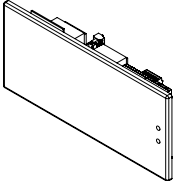
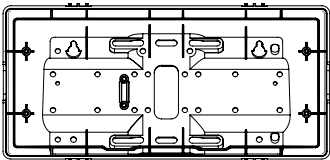


6) To proceed with the installation instructions, please follow the “**Uniform Stage Installation**” section in this manual. Once done, to complete the flush mounted clock installation, follow step 7.

7) With the clock powered and properly functioning, the last step would be to remove the adhesive clear protective film from the clock filter, as shown in the below image.



Wall Mounted Clock Mechanical Installation

Included in Package

Description	Quantity	Picture
SBP Digital Clock	1	
Digital Clock Wall Housing	1	
#6-19x1/2 screw	4	
#6-32x1 screw	4	

If not mounting the clock to a double gang box, the installer needs to provide:

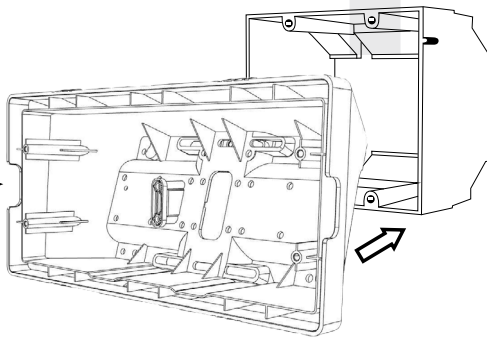
#8 self-tapping screws	4	
Wall anchors	4	

Wall Mounted Clock Mechanical Installation

1) The digital clock surface (wall) mount housing is designed with numerous holes for the purpose of fixating it to the wall. There are two ways to mount the clock housing to the wall. Option one (the most common way) is to screw the digital clock housing to a double gang box, while the second option is to utilize its keyhole mounting holes.

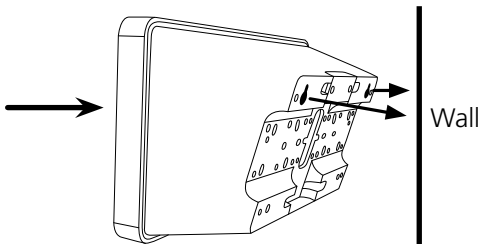
Option 1:

Installing to a double gang box
(go to step 2)

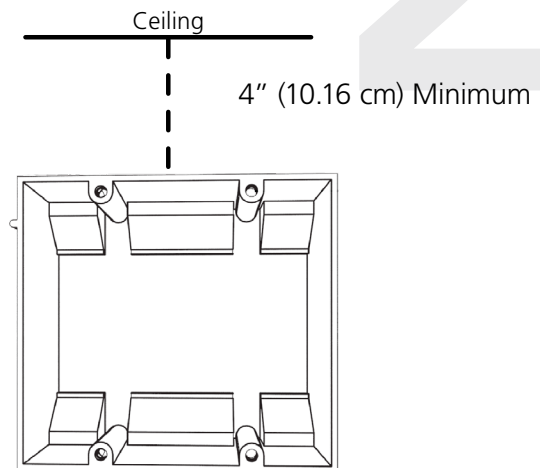


Option 2:

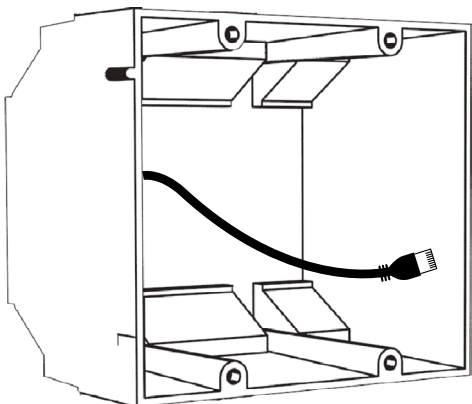
Installing using keyholes
(go to step 5A)



2) When installing the clock housing to a double gang box, leave at least 4 inches between the top of the gang box and ceiling. Confirm that the bottom of the gang box is level with the floor.



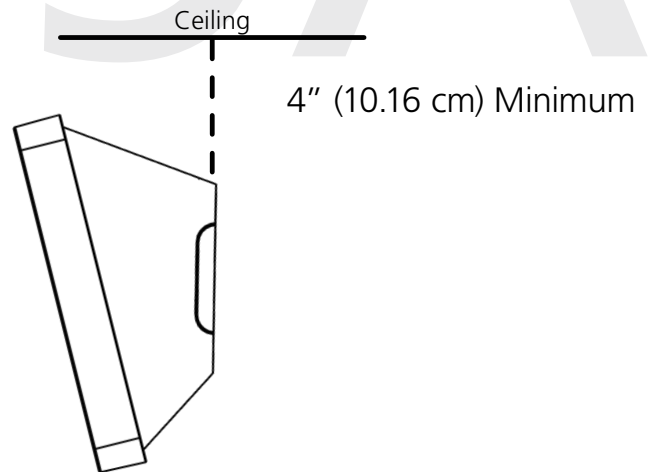
3) Run the network cable to the gang box.



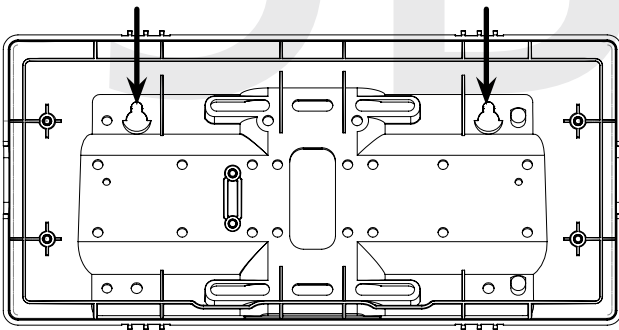
Wall Mounted Clock Mechanical Installation

4) If you do not wish to attach the housing to the gang box, proceed to step 6A. Otherwise, go to step 7.

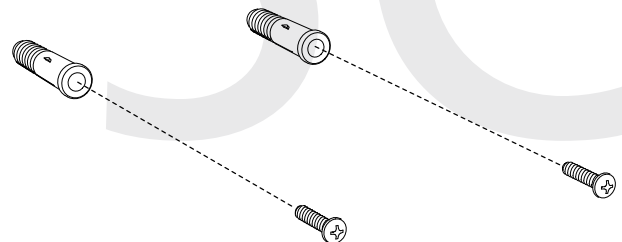
5A) If you do not wish to attach the housing to a gang box, place the clock housing on the wall. Leave at least 4 inches between the top rear edge of the housing and ceiling. Confirm that the bottom of the mounting piece is level.



5B) Identify the keyholes towards the top of the back of the clock housing. Use a pencil to mark the top of each keyhole onto the wall, then use the 1/4 inch drill bit to drill holes at the locations of the two marks.

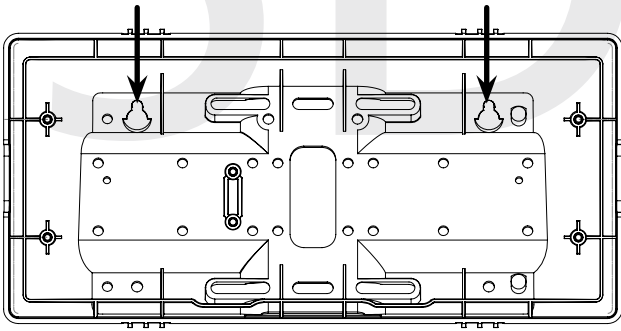


5C) Insert the wall anchors into the two holes, then place a #8 self-tapping screw into each wall anchor, leaving at least a 1/8" gap between the top of the screw and the wall.

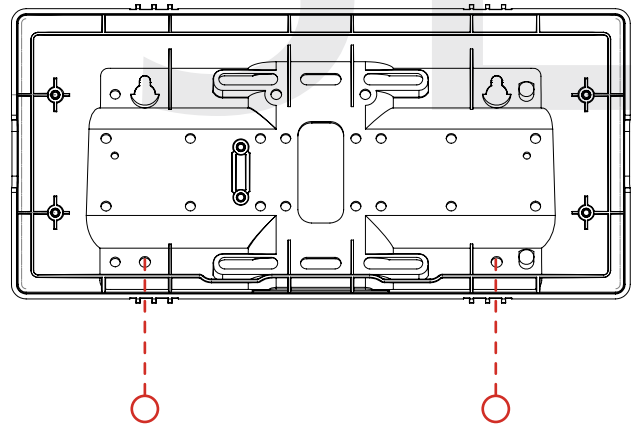


Wall Mounted Clock Mechanical Installation

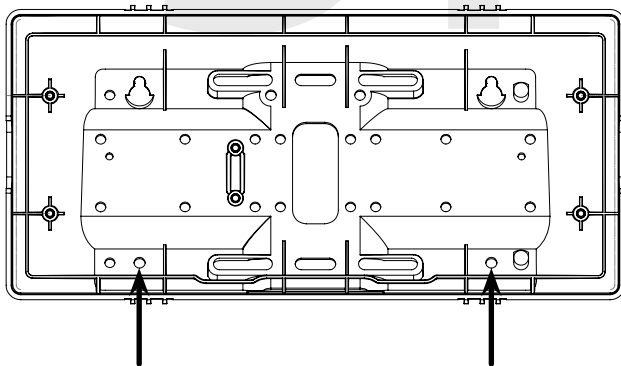
5D) Use the keyholes in the back of the housing to hang the clock onto the screws.



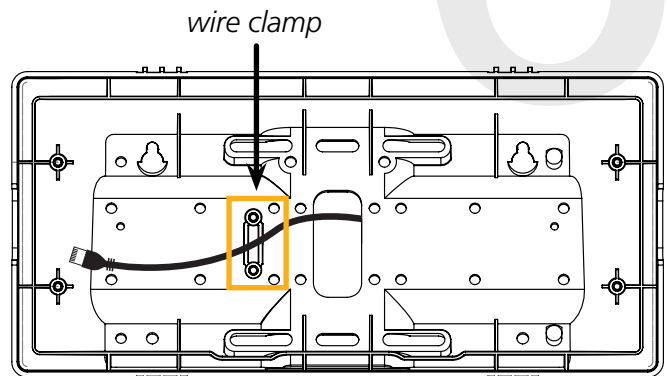
5E) Use a pencil to trace the holes beneath each keyhole onto the wall as shown in the below image. Take the clock housing off the wall, drill holes at the marked locations, and add another two wall anchors.



5F) Place the housing back on the wall in order to screw a second pair of #8 screws through the bottom holes and secure them in the remaining two wall anchors. This is to fixate the clock housing to the wall.

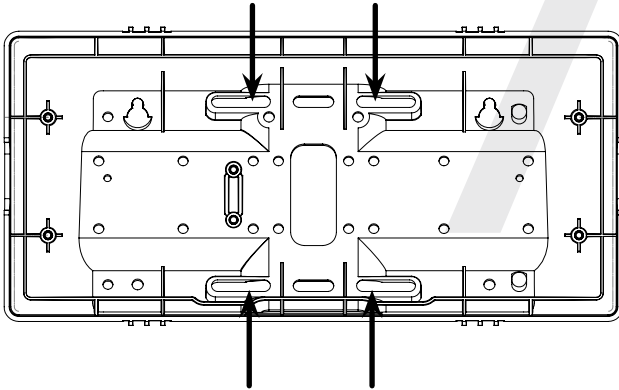


6) Run the network cable through the large hole in the back of the housing. Secure it by passing it through the wire clamp. The wire clamp is mounted in the clock housing and can be opened by using a Phillips head screwdriver.



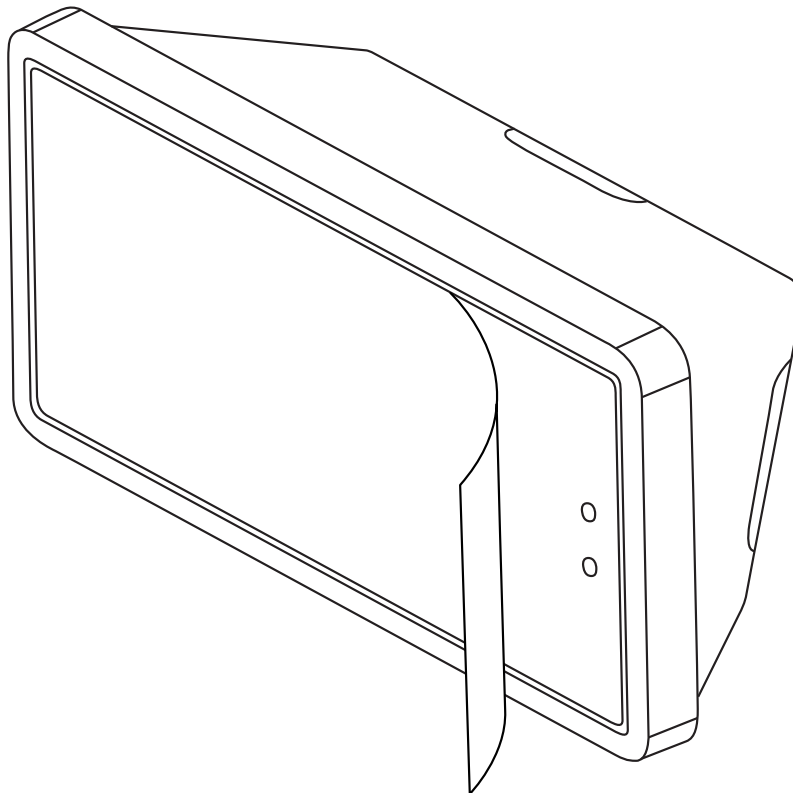
Wall Mounted Clock Mechanical Installation

7) Attach the housing to the gang box using the #6-32x1 screws.



8) To proceed with the installation instructions, please follow the “**Uniform Stage Installation**” section in this manual. Once done, to complete the wall mounted clock installation, follow the below additional steps.

9) With the clock powered and properly functioning, the next step would be to remove the adhesive clear protective film from the clock filter, as shown in the below image.



Dual-Faced / Flag Mounted Digital Clocks Overview

Dual-Faced Digital Clocks:

A dual-faced digital clock configuration will consist of one (1) pole and two (2) clocks suspended from the ceiling or from the wall. The mounting pole is available for the 2.5" or 4.0" digital clocks and is offered at two different lengths. The standard pole height allows ceiling or wall mounted configuration, while the short pole height is meant for ceiling mounting only and used at locations with low ceiling clearance. Part numbers and the heights for the standard or short pole can be found in their specifications.

Dual-faced Digital Clocks:

Mounted from the wall:



Mounted from the ceiling:



Flag Mounted Digital Clocks:

A flag mounted digital clock configuration will consist of one (1) pole and one (1) clock suspended from the ceiling or from the wall. Since the flag mounted clock utilizes the same mounting pole as the dual-faced clock, the installer should follow the installation instructions of the dual-faced clock. The following installation instructions will include two steps that are only relevant for flag mounted installation.

Flag Mounted Digital Clocks:

Mounted from the wall:

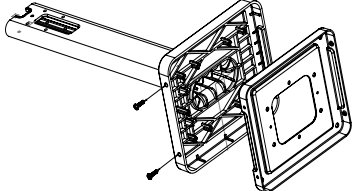









Mounted from the ceiling:



Dual-Faced / Flag Mounted Clock Mechanical Installation

Included in the Mounting Pole Package

Description	Quantity	Picture
Mounting Pole (including Mounting Base Plate)	1	
#10-32x3/8 green grounding screw (comes already screwed on the pole base plate)	1	
#6-32x1/2 Phillips round head black screw (comes already screwed on the pole base plate)	2	
#8-32x7/16 Phillips round head black screw	8	
#8 Internal-tooth lock washer	8	
#6-32x1 Phillips round head silver screw	4	
Flag Mount End Cap (only used in flag mount configuration)	1	
#6-32x1/4 Phillips round head silver screw (not used in this configuration)	2	

Continued on next page

If any of the items listed in the kit are missing, you may contact your dealer and order a replacement kit.

Dual-Faced / Flag Mounted Clock Mechanical Installation

#6-19x7/16 Phillips round head
black screw (not used in this
configuration)

10



#6-32x5/16 Phillips round head
silver screw (not used in this
configuration)

6



#6 Internal-tooth lock washer
(not used in this configuration)

6



If any of the items listed in the kit are missing, you may contact your dealer and order a replacement kit.

If not mounting the clock to a double gang box, the installer needs to provide:

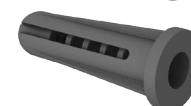
#8 self-tapping screws

4



Wall anchors

4

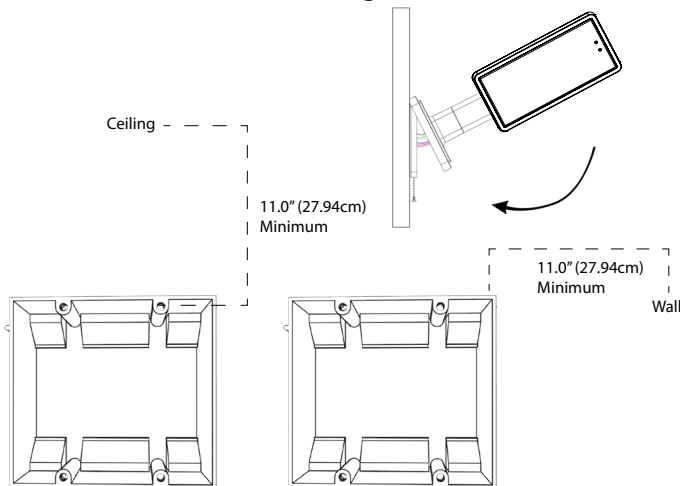


Preparing for the Dual-Faced Installation

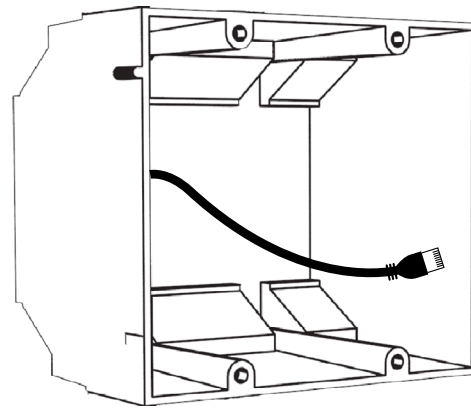
The mounting pole has been designed to be installed on a double gang box, which will hold the mounting pole and the dual-faced clocks. As such, to install a dual-faced clock, there is a need to have the double gang box fixated and secured to the ceiling and/or to the wall and have the network cable pre-wired and ready to be connected to the clock.

Dual-Faced / Flag Mounted Clock Mechanical Installation

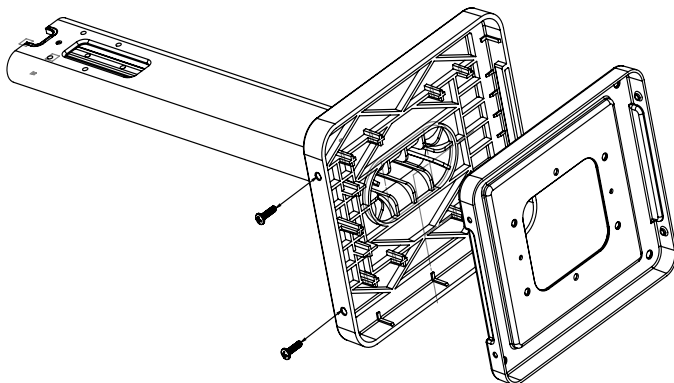
1) Install the double gang box in the wall or ceiling. If you are installing the gang box in the wall, leave at least eleven inches between the top of the gang box and the ceiling. If you are installing the gang box in the ceiling, leave at least eleven inches between the gang box and the wall. This space is needed to allow proper clearance when mounting the clock. The gang box should be installed level with the wall and ceiling.



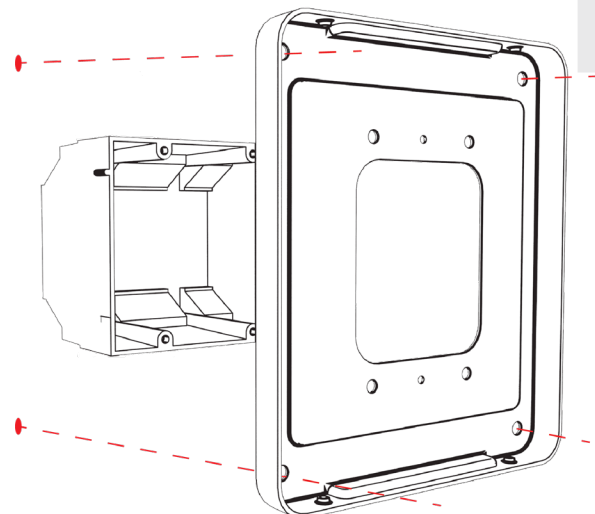
2) Run the network cable to the gang box.



3) The mounting pole consists of a detachable metal mounting plate. The mounting plate detaches from the mounting pole by unscrewing the two #6-32x1/2 Phillips round head black screws that come already screwed on the pole base plate. Set the screws and pole aside for later.

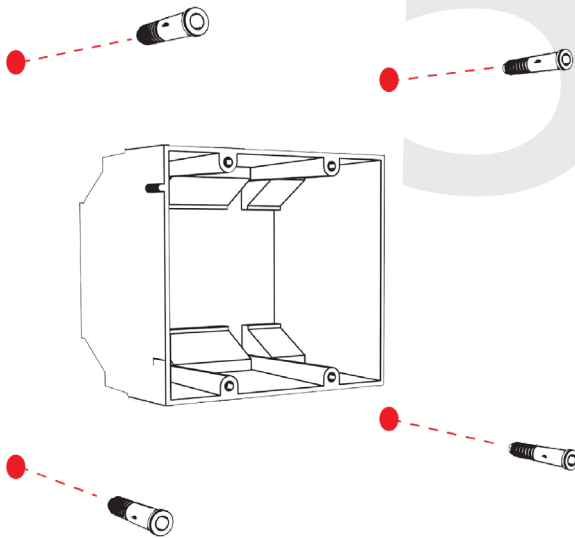


4) Attach the mounting plate to the gang box using only two of the four long, silver #6-32x1 screws. With the mounting plate as a guide, use the pencil to mark the locations of the four larger holes at the outer corners of the base plate as shown in the image below.

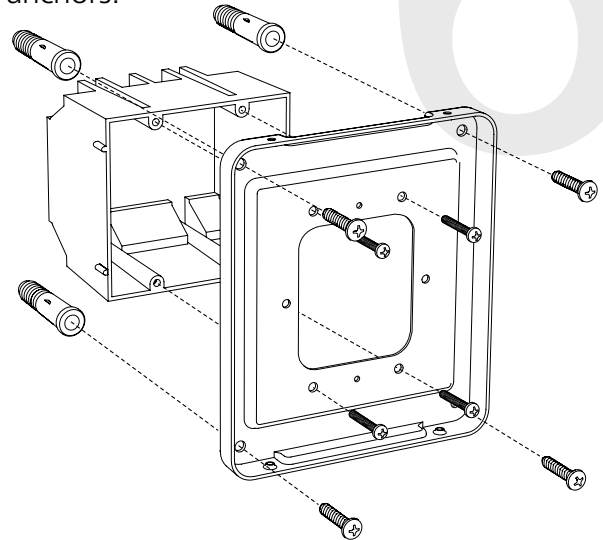


Dual-Faced / Flag Mounted Clock Mechanical Installation

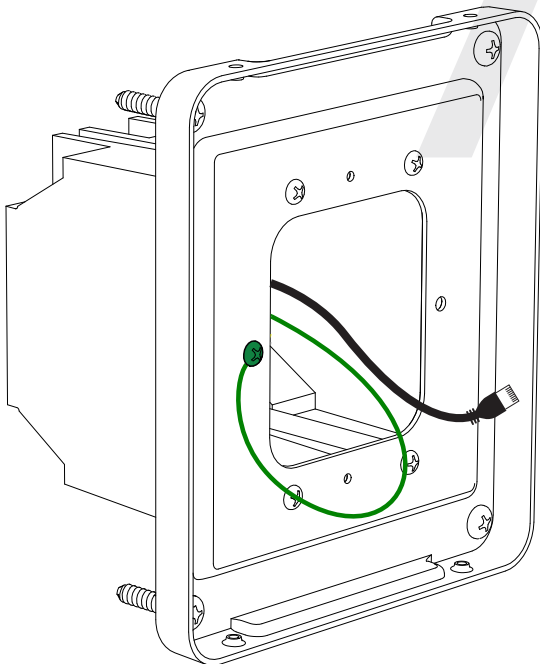
5) Remove the mounting plate and drill the four holes that were just marked in the previous step. Insert the four wall anchors into the holes.



6) Reattach the mounting plate to the double gang box, this time using all four long, silver #6-32x1 screws. Then insert the four #8 screws (provided by the installer) through the mounting plate and into the anchors.



7) Thread the network cable through the mounting plate, and attach a grounding wire to the mounting plate using one of the larger centered holes and the #10-32x3/8 green screw.



8) If the clock is to be mounted to the pole and suspended from the ceiling, then the top end cap is to be removed. If the clock is to be mounted to the pole and suspended from the wall, one of the side end caps is to be removed. For doing so, use a screwdriver to remove one of the end caps located on the back of the digital clock housing based on the orientation of the digital clock that will be attached to the pole. The end cap and screw that was used to secure it will not be needed again during this installation.



9) Removing the end cap from the clock housing will allow to place the pole flush with the back of the clock housing. Position the pole so its allocated mounting holes are aligned with the clock housing. Once in position, use the four #8-32x7/16 screws and the internal-tooth washers to mount the clock housing to the pole using a Philips screwdriver. For a dual-faced clock, repeat the same with the second clock housing so both back clock cases are mounted to the pole.



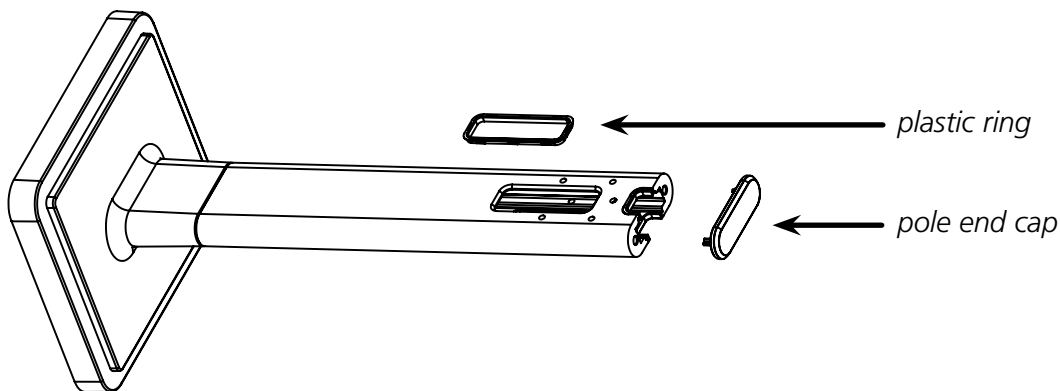
Dual-Faced / Flag Mounted Clock Mechanical Installation

10) **For Dual-Faced installation:** repeat step 9 for attaching a second clock to the other side.

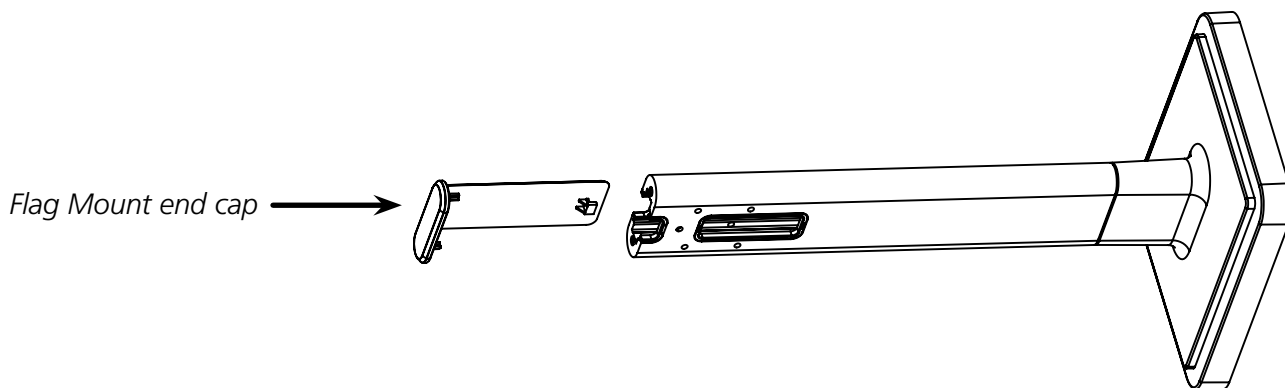
For Flag Mount installation: follow the below two steps.

- Instead of mounting and running two network cables for two clocks, there is a need to run one network cable to the clock and mount only one clock to the pole.
- The list of items which are included for a dual-faced clock configuration consists of a **Flag Mount End Cap**, which is not in use for a dual clock mounting configuration, but is needed for a Flag Mounted installation. After completion of the pole and clock installation, there is a need to install the **Flag Mount End Cap** by following the below additional steps:

1) Remove the mounting pole end cap and the plastic ring from one of the holes.

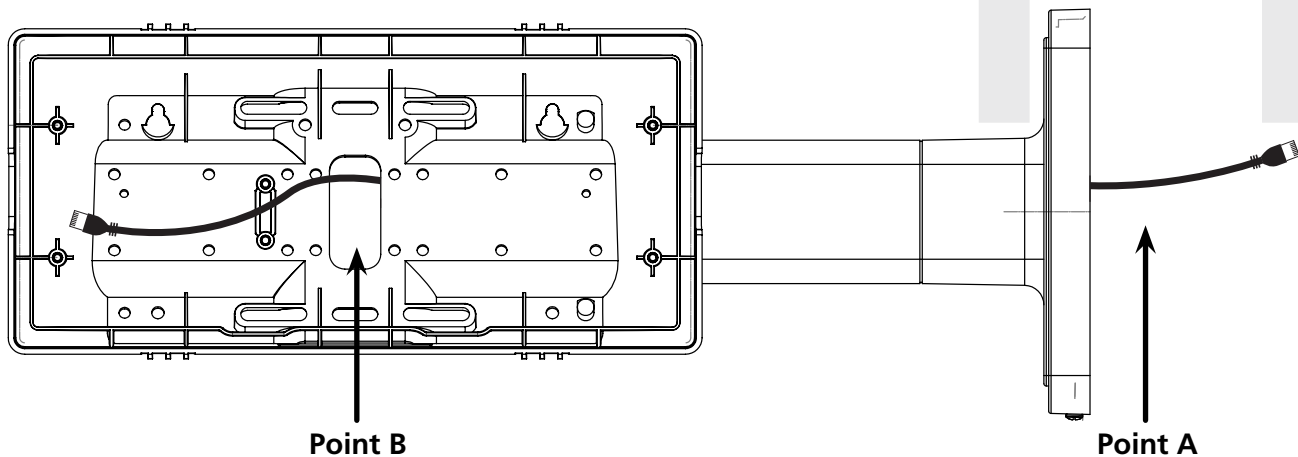


2) Attach the flag-mount end cap to the pole. Confirm that the covering flap is attached to the side where the plastic ring was removed.

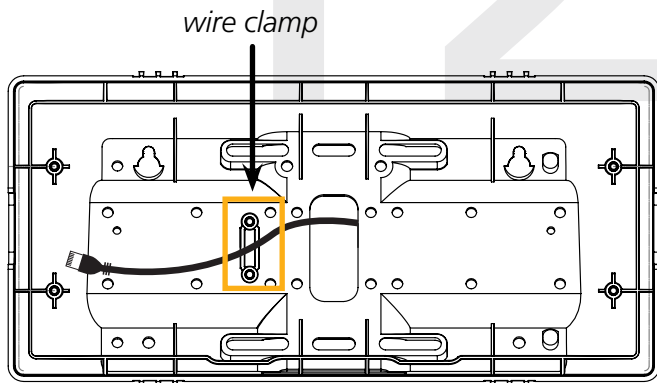


Dual-Faced / Flag Mounted Clock Mechanical Installation

11) The standard pole length is 13.7" (34.8 cm) and the short pole length is 7.75" (19.7cm). Make sure to run the network cable with the needed length from point A to point B, as shown in the below image. The network cable is to be threaded from the gang box (through the pole base plate) into the pole, and through the hole located towards the far side of the pole and into the clock.



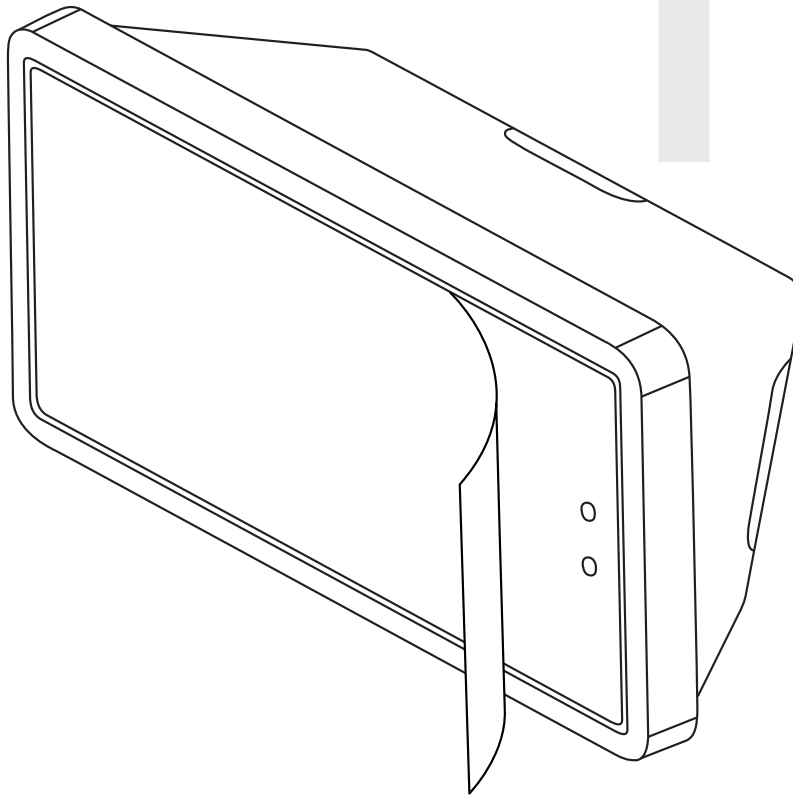
12) Once the network cable is threaded through the pole and into the clock housing, use the wire clamp to secure it. The wire clamp is mounted in the clock housing, and can be opened by using a Phillips head screwdriver.



13) To proceed with the installation instructions, please follow the "**Uniform Stage Installation**" section in this manual. Once done, to complete the dual-faced or flag mounted clock installation, follow the next additional step.

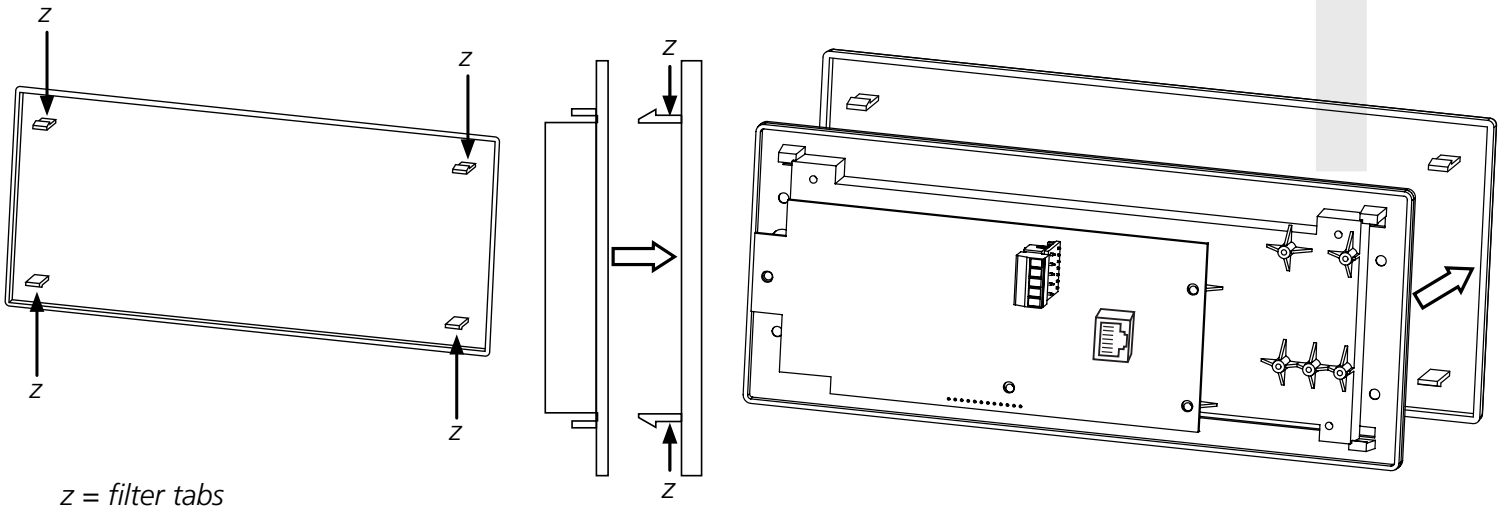
Dual-Faced / Flag Mounted Clock Mechanical Installation

14) With the clock powered and properly functioning, the next step would be to remove the adhesive clear protective film from the clock filter, as shown in the below image.



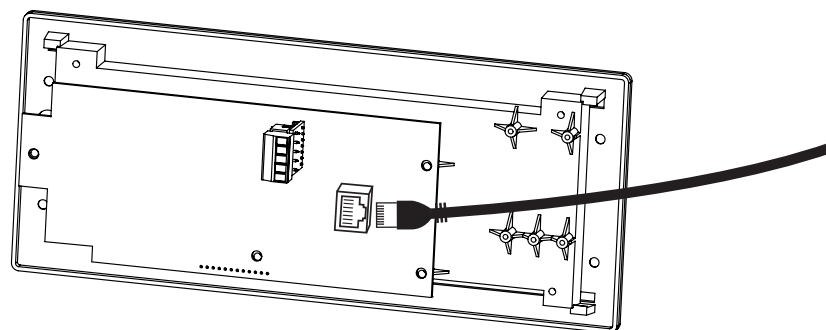
Uniform Stage Installation

1) The Digital Clock comes with a protective filter that snaps onto the clock display utilizing four flexible tabs. Detach the filter from the clock display board by pressing inward on the filter tabs. This will allow access for screwing the display to the clock housing, which will be required in one of the next steps.



2) Depending on the clock model and accessories that may have been purchased along with the clock, additional wiring might need to be run to the clock in order to interface with the accessory (elapsed timer control panel, temperature sensor, user input, etc.). For doing so, please review the installation instructions and the wiring diagram for your specific application (and/or accessory) which can be found in this manual.

3) The next step would be to plug the network cable into the clock electric board.

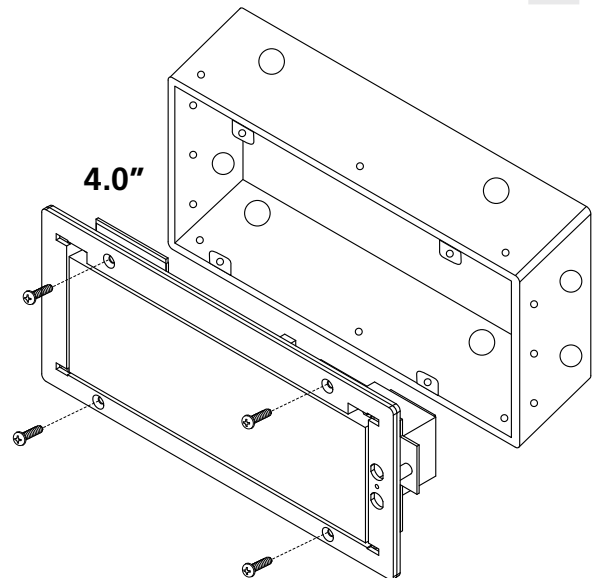
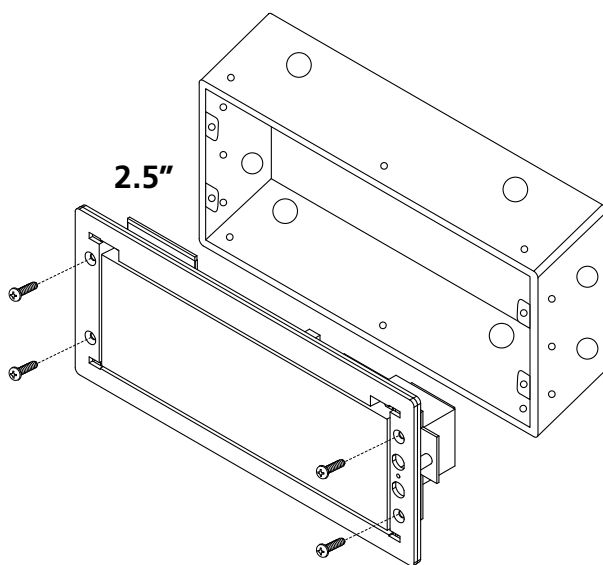


Uniform Stage Installation

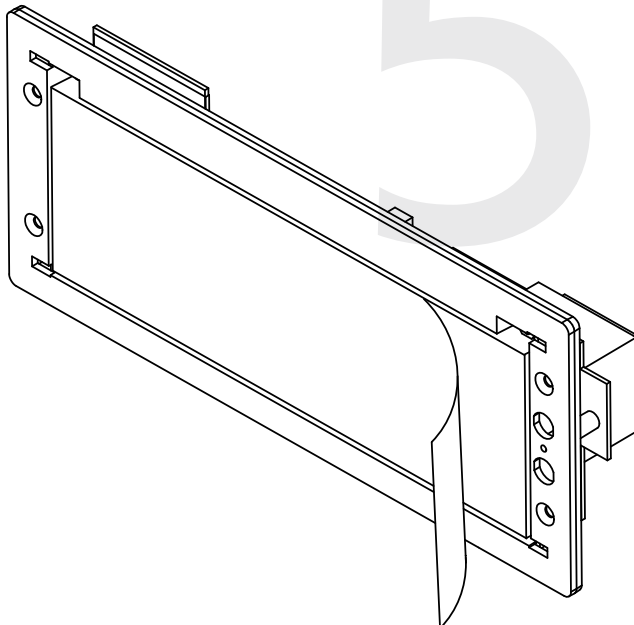
4) **For flush mount installation:** Use the four (4) #6-32x1/2 flat head machine screws that are provided with the clock to screw the display to the housing board.

For wall mount, double mount, or flag mount installation: Use the four (4) #6-19x3/8 black flat head thread-forming screws that are provided with the clock in order to screw the display board to the clock housing.

NOTE: For 2.5" Digital clocks, the holes for the screws will be on the left and right inner surfaces of the housing. For 4.0" Digital Clocks, the holes will be on the top and bottom surfaces.

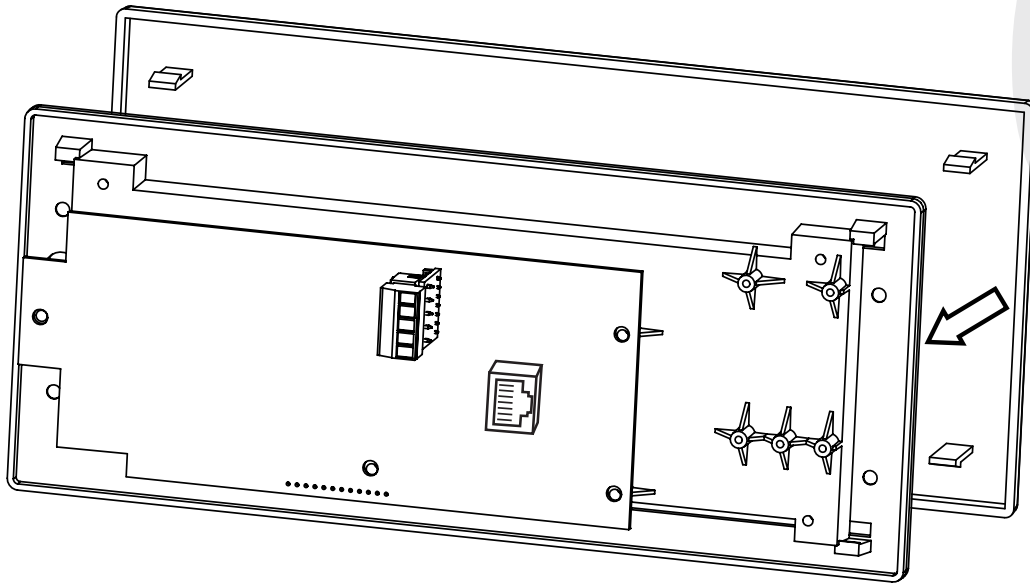


5) Remove the clear plastic protective film from the display board.



Uniform Stage Installation

7) Place the filter over the display board by lining up the tabs with the holes. You should hear a snapping noise as the filter flex tabs latch into place.

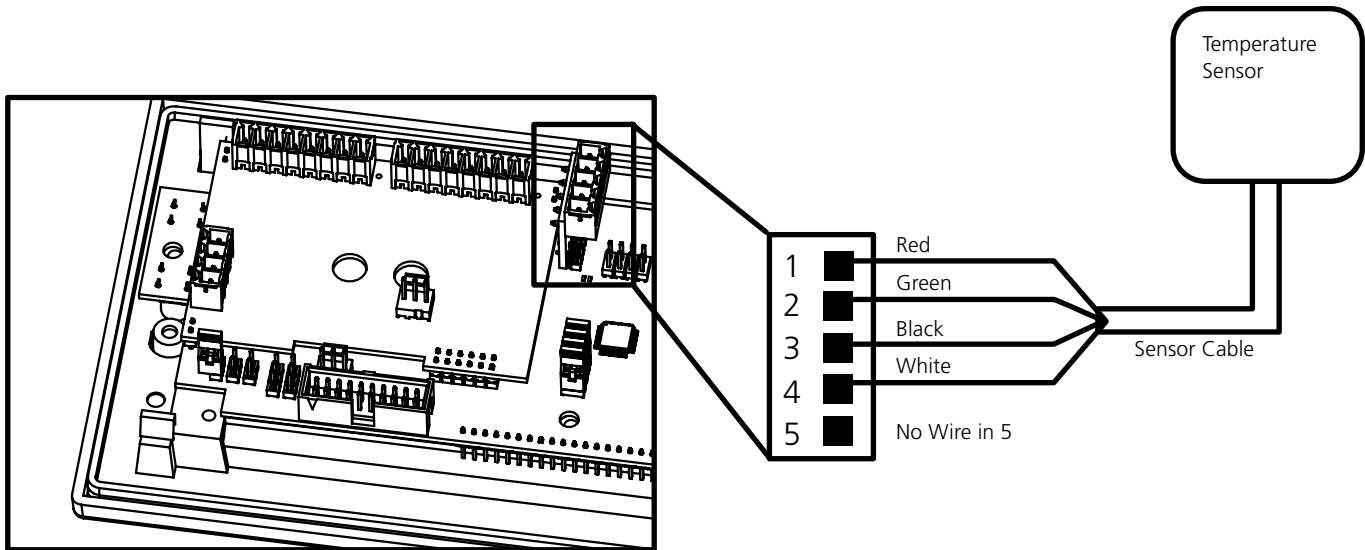


8) Once the clock receives power, it will display its software version followed by segments display testing. Once done, if the clock is receiving time data, it will present the time received. If the clock is not able to receive time data, its colons will blink and its time will be based of internal real time quartz oscillator.

Temperature Sensor Installation (3200/3300 Only)

(IMPORTANT: Detach clock from power source before installing new circuitry. DO NOT add new circuitry while the clock is operating)

Attach the end of the Temperature Sensor Wire to the circuit board in the following manner:



The Sensor Cable is 6 feet (1.83 meters) long, and so the sensor should be positioned within 6 feet of the clock. The cable is unshielded, 4 conductor, 22AWG (.33mm²). If longer than 6 feet is required, the wire would have to be terminated in an electrical box, and the longer wire would have to be provided by the customer.

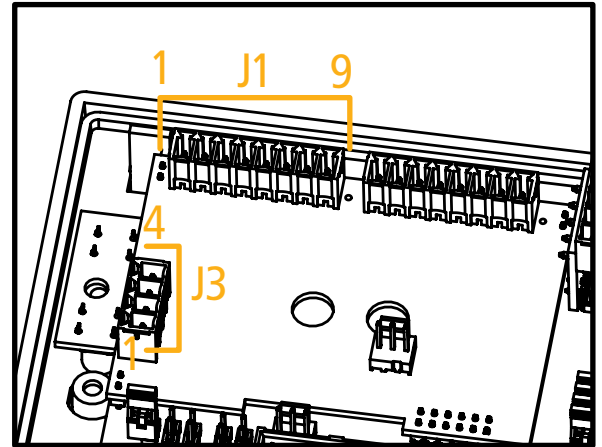
Data from the temperature sensor will be sent to your clock when the clock is powered on. For more information on how to make the digital clock display temperature, please see the section labeled "**Web Interface - Display Settings.**"

Buzzer Installation (3300 Only)

(IMPORTANT: Detach clock from power source before installing new circuitry. DO NOT add new circuitry while the clock is operating)

During installation, there are two port blocks mentioned. The block on the upper-left will be called J1, while the block on the bottom left will be called J3. Refer to the diagram for details. For J1, the ports in the block are listed as 1-9, starting with port 1 on the left, and ending with port 9 on the right. For J3, the ports in the block are listed as 1-4, starting with port 1 on the bottom and port 4 on the top.

The Buzzer can be installed on the clock circuit board with four easy steps:



1. Attach the long green connector to the J1 Sync Input ports.
2. Confirm that the wires are attached to holes 7 and 8. The red wire should be in hole 7. The black wire should be in hole 8.
3. Attach the short green connector to the J3 Relay Output ports.
4. Confirm that the wires are attached to holes 1 and 2. The yellow wire should be in hole 1. The black wire should be in hole 2.

To program the buzzer, use a web browser on the same network as the clock to connect to it, log onto web interface and perform the following actions:

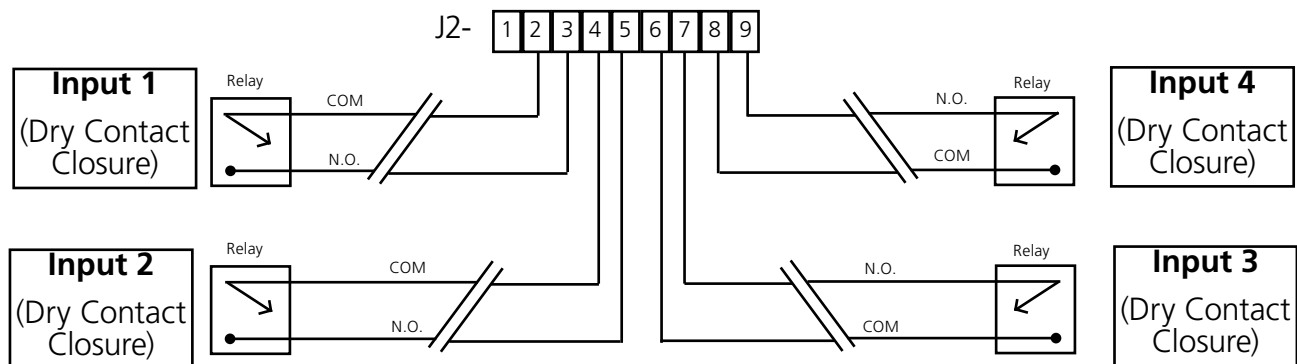
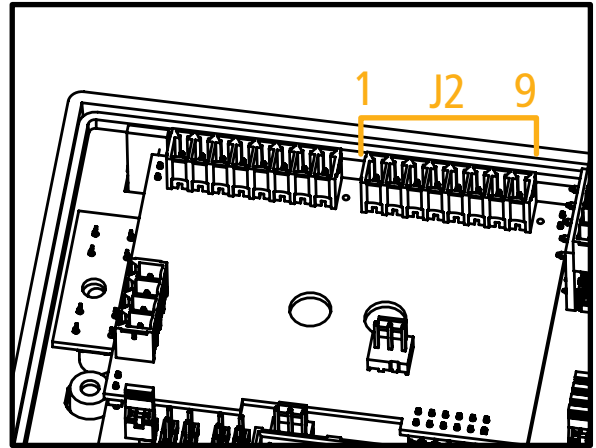
1. Click on the Elapsed Timer or Inputs tab.
2. Find the drop-down menu next to "On Countdown complete, close" and select "Relay 2"
3. In "for ____ seconds" set the amount of time that you wish the buzzer to sound when the countdown ends. The number must be a whole number from 1 to 60.
4. Press the Update Clock button.

For information on the Web Interface, refer to the sections labeled "**Web Interface - Elapsed Timer**" or "**Web Interface - Inputs.**"

User Input Installation (3300 Only)

(IMPORTANT: Detach clock from power source before installing new circuitry. DO NOT add new circuitry while the clock is operating)

During installation, there is one port blocks mentioned. The block on the upper-right will be called J2. Refer to the diagram on the right for details. The four available inputs are assigned per the diagram below.



Use a dry contact closure between any of the two lines shown above to activate one of the numbered user inputs. This input is a *dry contact closure*, which means that **the user should not be providing external power on either of the lines leading from the relay to the clock**. The dry contact closure only needs to complete the circuit when activated, and can be a simple switch or button.

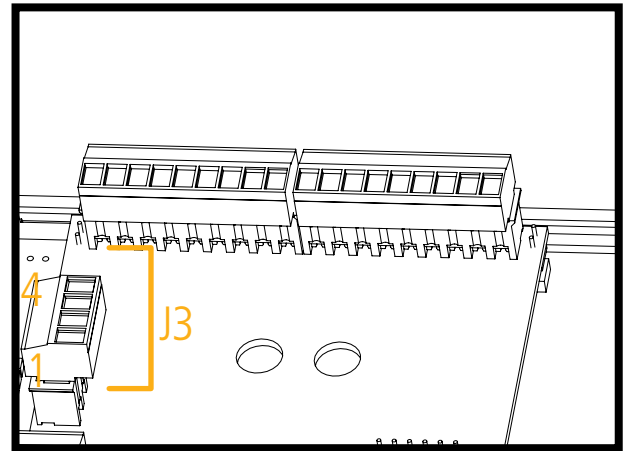
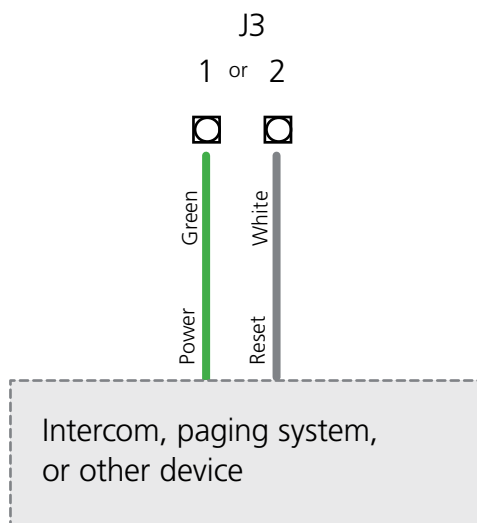
To configure what a given input does to the clock when activated, refer to the section of this manual labeled **"Web Interface - Inputs."**

Outputs (3300 Only)

Output Relays

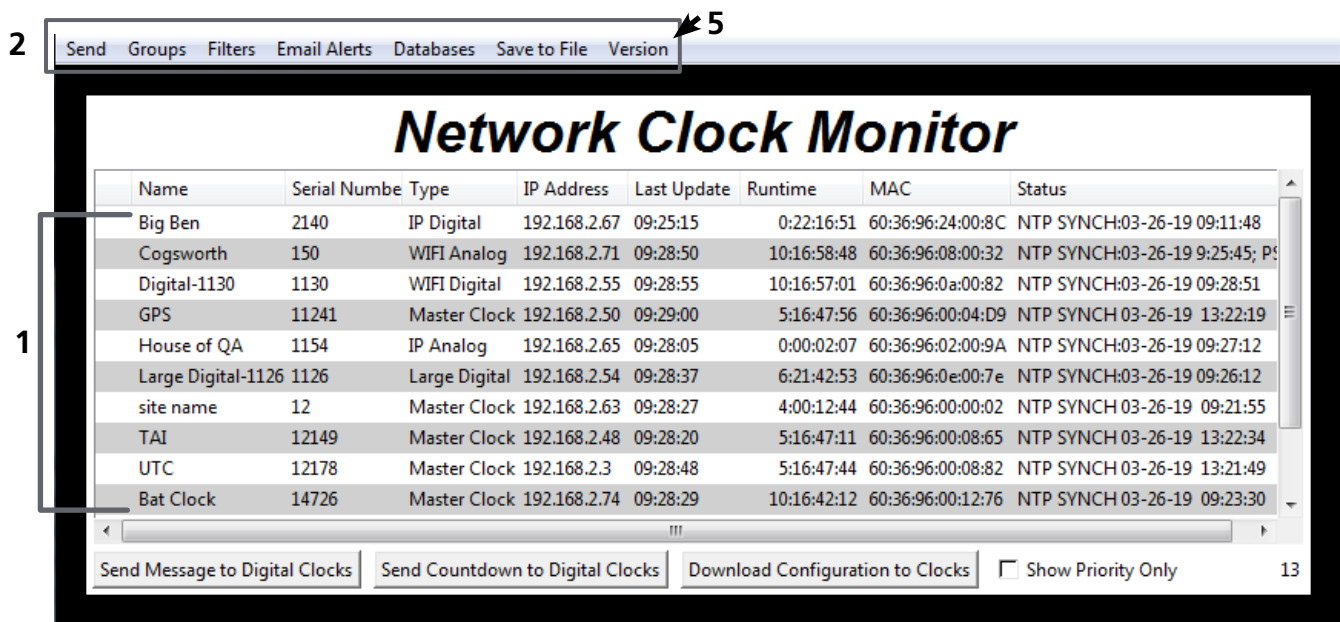
(IMPORTANT: Detach clock from power source before installing new circuitry. DO NOT add new circuitry while the clock is operating)

The port block on bottom left will be called J3. Refer to the diagram for details. For J3, the ports in the block are listed as 1-4, starting with port 1 on the bottom and port 4 on the top.



Network Monitor Software - Main Screen

YOUR COPY OF THE NETWORK MONITOR MAY HAVE ADDITIONAL COLORS OR BRANDING.
THE MONITOR SHOWN IN THIS MANUAL CONTAINS NO BRANDING OR COLORS.
ALL FEATURES REMAIN THE SAME.



1. **Device List** - Displays all of the relevant IP devices that are active on the system subnet. The monitor screen displays the name of the clock, serial number, type of clock, IP address, last updated time, how long the clock has been running, and the status of the clock. Double clicking on a device in the device list will open the web interface for that device.

Using a right-handed mouse to right-click on any row in the Device List will open the **Quick Access Menu**. See the section in this manual labeled "Network Monitor Software - Quick Access Menu" for more information.

2. **Task Bar** - See the section in this manual labeled "Network Monitor Software - Task Bar Options"

3. **Show Priority** - By selecting this option, the IP device(s) that the user previously "marked as priority" will be the only clocks shown in the program window.

4. **Device Count** - This number is the amount of IP devices that are displayed on the Network Monitor Software.

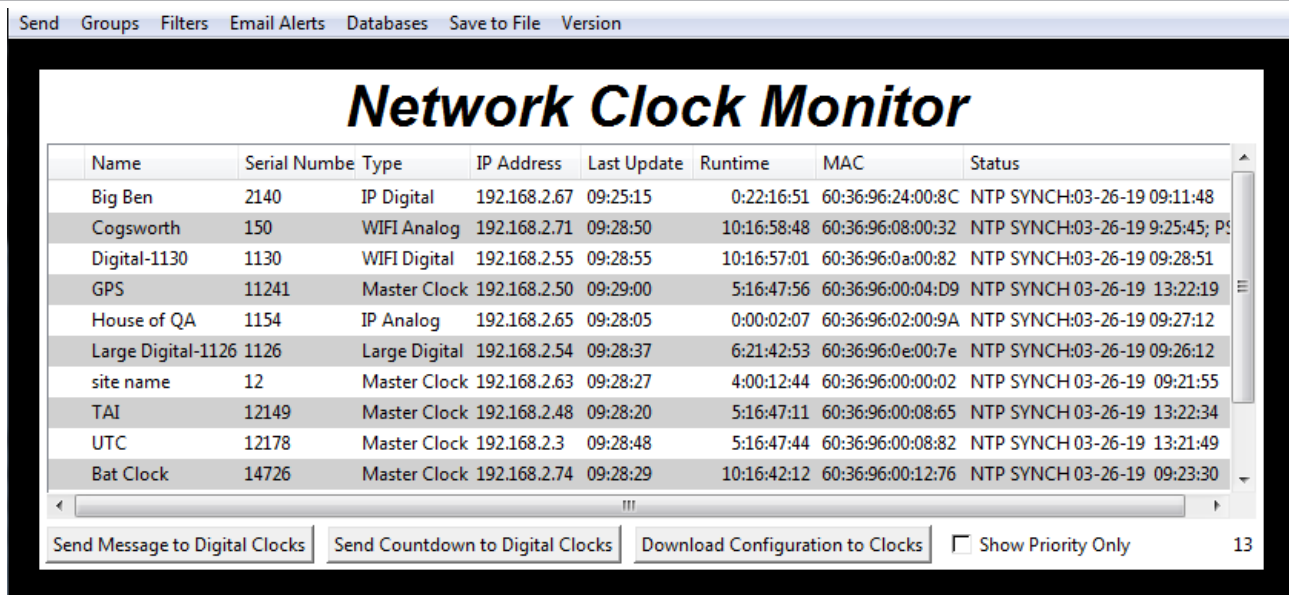
The Network Monitor has two subtypes:

CFA - Intended for use with Wi-Fi Clocks, Master Clocks, Network Repeaters, Wi-Fi Large Digital Clocks, IP-PoE Digital Clocks, and Network Repeaters.

CFL - Intended for use with Wired IP Large Digital Clocks and IP-PoE Analog Clocks.

You can check the type by clicking on "Version" (5) at the top of the Monitor window.

Network Monitor Software - Main Screen

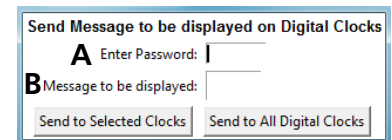


1

2

1. Send Message to Digital Clocks - Allows the user to generate a message that will be sent to digital clocks.

- Enter Password** - The default password is 6063
- Message to be displayed** - Lets the user enter a message to be displayed on digital clocks. Messages may consist of the digits 0-9 and the English letters A-Z. The message is generated in a font that matches its appearance on the clock, so you can preview the appearance of each message before sending it. The message will repeat ten times once sent.
- Send to Selected Clocks** - Applies the message to whichever clocks have been highlighted on the Device List.
- Send to All Digital Clocks** - Applies the message to all IP-PoE Digital, Wi-Fi Digital, and Large Digital Clocks.

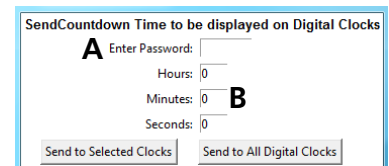


C

D

2. Send Countdown to Digital Clocks - Allows the user to generate a countdown that will be sent to digital clocks.

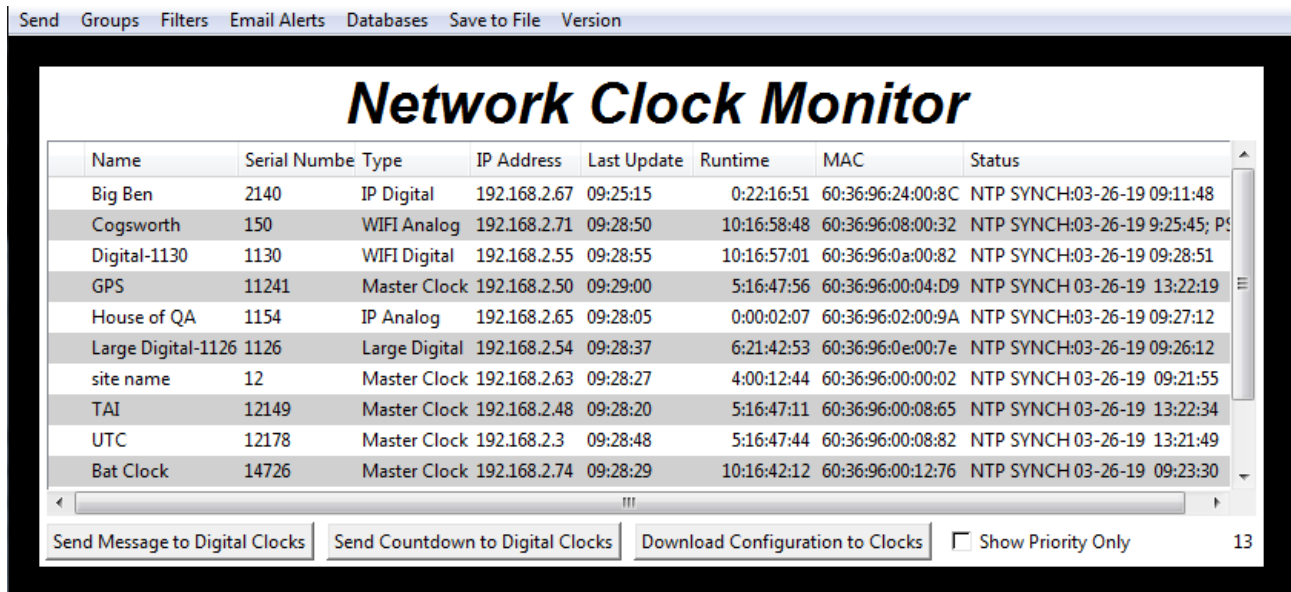
- Enter Password** - The default password is 6063
- Start values** - Enter the starting hour, minute, and second into the fields. For example, entering a 1 into each field will start a countdown from 1:01:01
- Send to Selected Clocks** - Applies the countdown to whichever clocks have been highlighted on the Device List.
- Send to All Digital Clocks** - Applies the countdown to all IP-PoE Digital, Wi-Fi Digital, and Large Digital Clocks.



C

D

Network Monitor Software - Main Screen



1

1. **Download Configuration to Clocks** - If a configuration file was created using "Upload and Save Configuration" on the Quick Access Menu, this option lets the user apply the configuration file to other clocks highlighted within the monitor. For more information, see the section of this manual labeled "Network Monitor Software - Quick Access Menu."

Pressing this button will cause the Download Configuration window to appear:

- a. **Enter Password** - The default password is 6063
- b. **Select Configuration** - Pressing the button allows the user to browse their computer for a previously-saved configuration file.
- c. **Send to Selected Clocks** - Applies the configuration file to whichever clocks have been highlighted on the Device List.
- d. **Send to All Valid Clocks** - Applies the configuration file to all applicable devices on the Device List. For instance, an Analog IP clock configuration file would be applied to every Analog IP clock on the Device List.

Download Clock Configuration

A Enter Password:

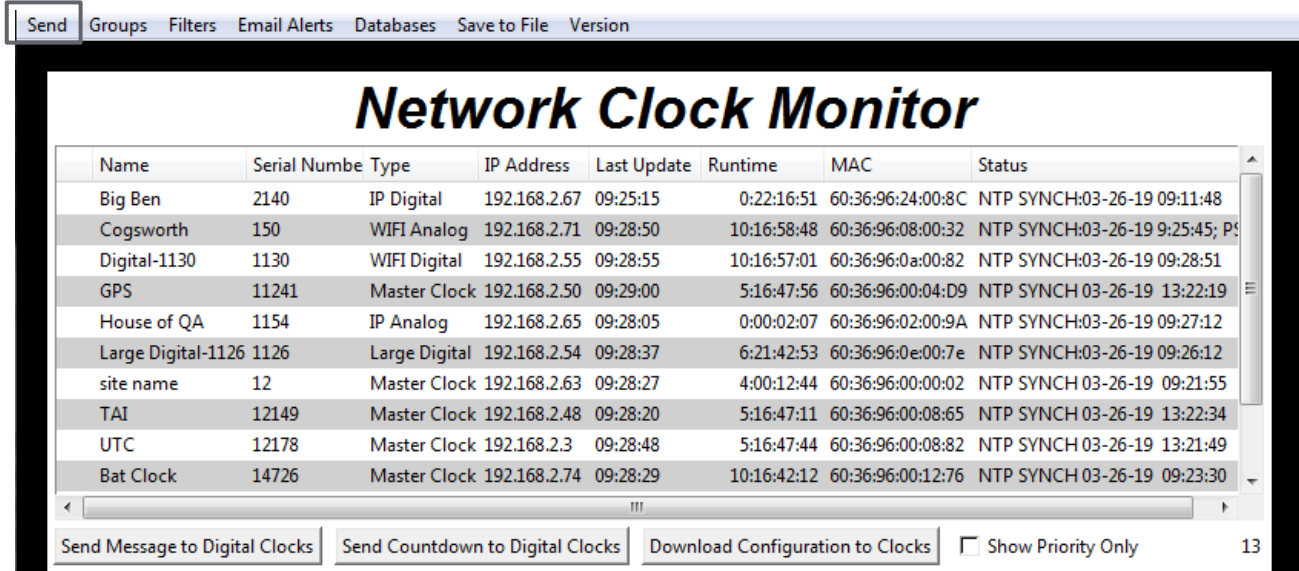
B Select Configuration:

C

D

Network Monitor Software - Task Bar Options

1



Name	Serial Number	Type	IP Address	Last Update	Runtime	MAC	Status
Big Ben	2140	IP Digital	192.168.2.67	09:25:15	0:22:16:51	60:36:96:24:00:8C	NTP SYNCH:03-26-19 09:11:48
Cogsworth	150	WIFI Analog	192.168.2.71	09:28:50	10:16:58:48	60:36:96:08:00:32	NTP SYNCH:03-26-19 9:25:45; P
Digital-1130	1130	WIFI Digital	192.168.2.55	09:28:55	10:16:57:01	60:36:96:0a:00:82	NTP SYNCH:03-26-19 09:28:51
GPS	11241	Master Clock	192.168.2.50	09:29:00	5:16:47:56	60:36:96:00:04:D9	NTP SYNCH 03-26-19 13:22:19
House of QA	1154	IP Analog	192.168.2.65	09:28:05	0:00:02:07	60:36:96:02:00:9A	NTP SYNCH:03-26-19 09:27:12
Large Digital-1126	1126	Large Digital	192.168.2.54	09:28:37	6:21:42:53	60:36:96:0e:00:7e	NTP SYNCH:03-26-19 09:26:12
site name	12	Master Clock	192.168.2.63	09:28:27	4:00:12:44	60:36:96:00:00:02	NTP SYNCH 03-26-19 09:21:55
TAI	12149	Master Clock	192.168.2.48	09:28:20	5:16:47:11	60:36:96:00:08:65	NTP SYNCH 03-26-19 13:22:34
UTC	12178	Master Clock	192.168.2.3	09:28:48	5:16:47:44	60:36:96:00:08:82	NTP SYNCH 03-26-19 13:21:49
Bat Clock	14726	Master Clock	192.168.2.74	09:28:29	10:16:42:12	60:36:96:00:12:76	NTP SYNCH 03-26-19 09:23:30

1. **Send** - When clicked, this button will display the following options:

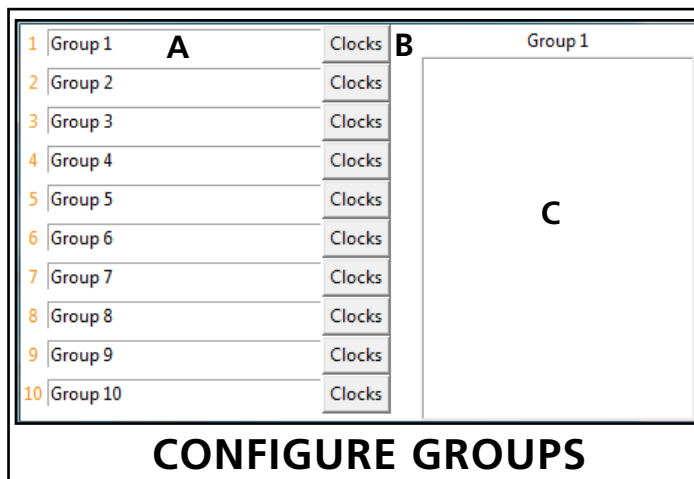
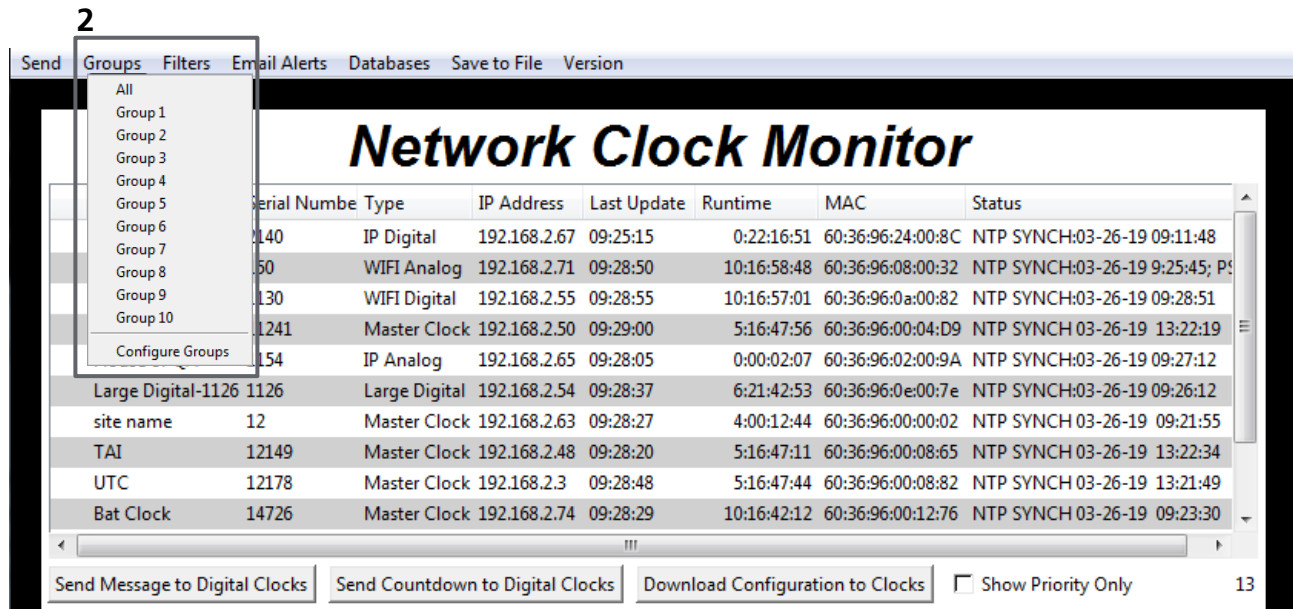
Send Message - Performs the same action as the Send Message to Digital Clocks button. Applies only to Digital Clocks.

Send Looping Message - Performs a similar action to the Send Message to Digital clocks, but allows the user to select the number of times that the message will repeat. It also provides a longer text box for sending longer messages.

Send Countdown - Performs the same action as the Send Countdown to Digital Clocks button. Applies only to Digital Clocks.

Find Hands - Commands Analog Clocks to resynchronize their hands. The user will be prompted to enter a password to authenticate their permissions. This command can be sent to one analog clock, a selected group of analog clocks, or all of the analog clocks in the system. Applies only to analog clocks.

Network Monitor Software - Task Bar Options



2. Groups - When clicked, this button will open the Groups drop-down menu.

All - Clicking on this option will cause the monitor to display all compatible IP devices on the network.

"Group Name" - Clicking on the name of a group will cause the monitor to display all of the IP devices in that group. Example: Clicking on "Group 1" will cause the monitor to show only the devices that have been added to Group 1 through the Configure Groups menu.

Configure Groups - Opens the group configuration menu (see left).

A. Text Boxes - Entering a name into the text box will change

the name of the group. For example, the first text box currently contains the name "Group 1". This will cause the first group to be shown as "Group 1" in the drop-down menu.

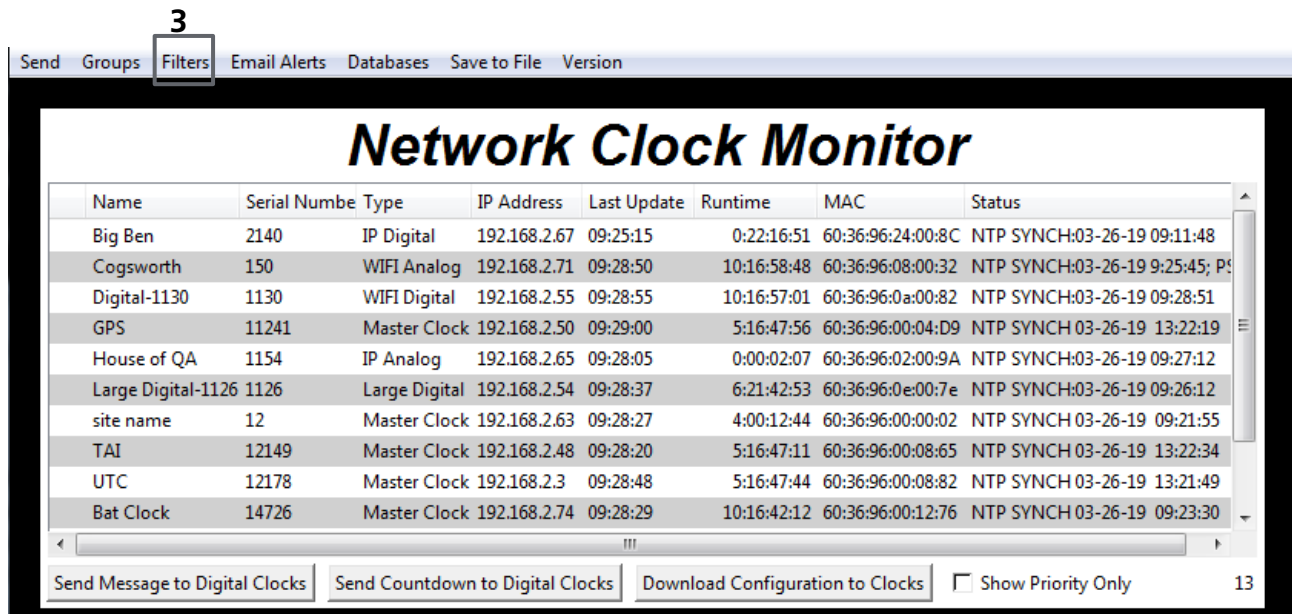
B. Clocks buttons - Clicking on a Clocks button will display each of the group's devices in the box to the right.

C. Device Box - Displays the devices for the selected group. The name of the selected group will appear above the device box.

To add a device to the group, click on a device on the Network Monitor. While holding down the button on the mouse, drag the name of the device over to the device box, then release the button on the mouse.

To remove a device from the group, click on a device in the device box. While holding down the button on the mouse, drag the name of the device outside of the device box, then release the button on the mouse.

Network Monitor Software - Task Bar Options

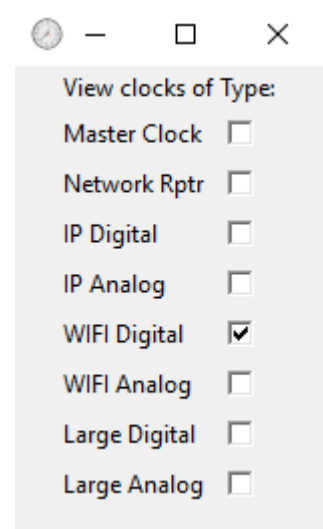


3. Filters - When clicked, this button will display the following options:

Filter By Clock Type - By selecting this option, the user is able to view specific clock types on the Monitor Screen. The clock types users can filter through are: Master Clocks, Network Repeaters, Wi-Fi Analog, Wi-Fi Digital, IP Analog, and/or IP Digital clocks. When the box next to the clock type is checked, the user will be able to view that clock type on the Monitor Screen.

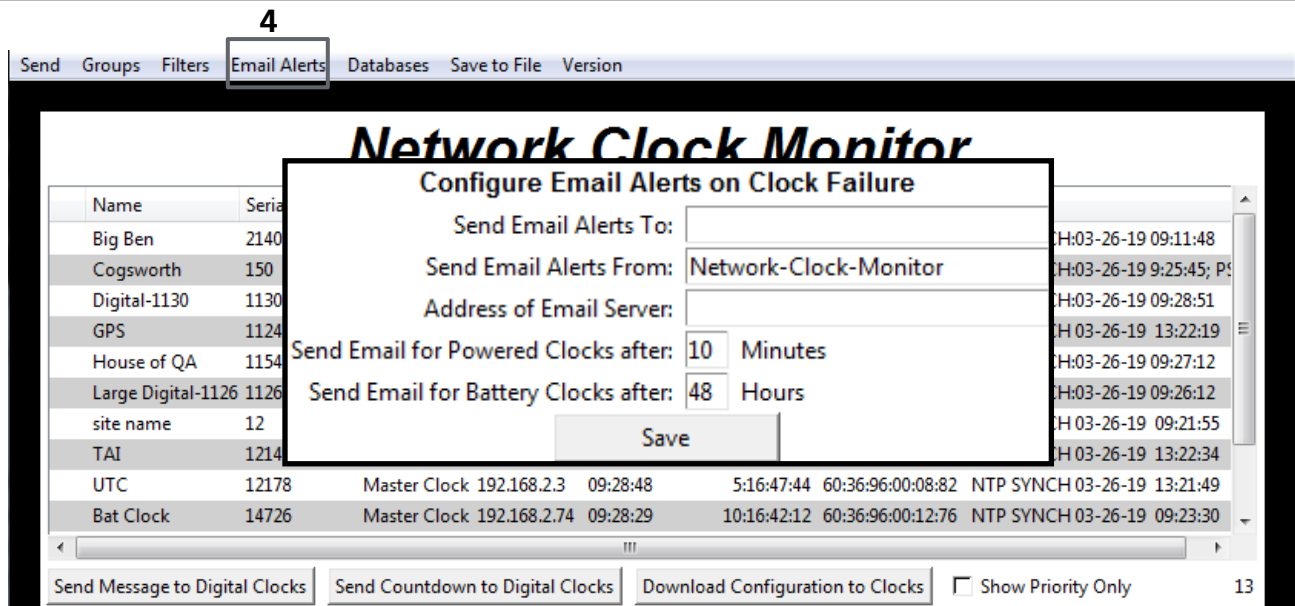
Filter By Name - By selecting this option, the user is able to search for specific clocks by name on the Monitor Screen. The user must type in the name of a clock and check the box next to the word Enable. Once checked, the clocks that match the name will appear.

Please Note: When using this option, the submitted name must be identical to the name of the clock in order to receive a match. There are a few special sequences/characters listed below that may be used when filtering by name:



*	Matches any sequence of 0 or more characters in the name
?	Matches any single character in the name
[chars]	Matches any character in the set given by chars. If a sequence of the form x-y appears in chars, then any character between x and y, inclusive, will match.
{[A-Za-z]}	Will match any alphabetical character.
\x	Matches the single character x. This provides a way of avoiding the special interpretation of the characters *?[]\ in pattern.

Network Monitor Software - Task Bar Options



4. **Email Alerts** - When clicked, this button will display the following options:

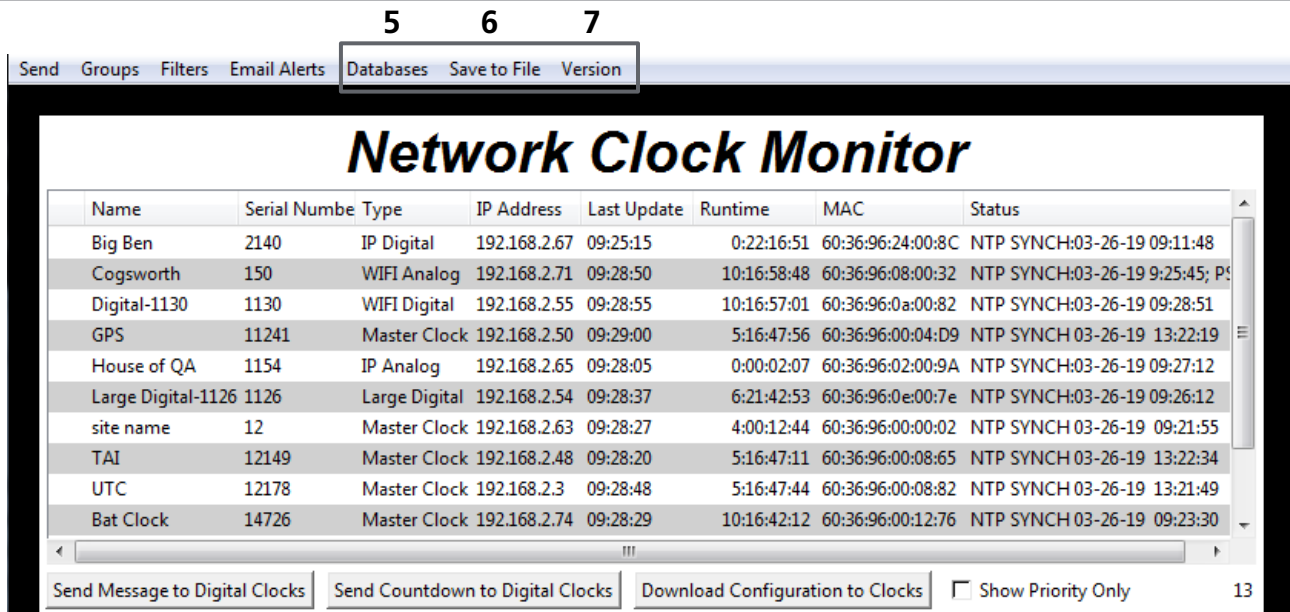
Enable Missing Clock Email Alerts - By selecting this option, the user will receive an email alert if the Network Monitor Software hasn't heard from a listed clock or other network device after a certain amount of time. This function will not work if the monitor is turned off. Does not apply to battery-powered clocks.

Enable Low Battery Email Alerts - By selecting this option, the user will receive an email alert if a battery-powered Wi-Fi Analog clock is synchronizing while low on batteries. This function will not work if the monitor is turned off. Applies only to battery-powered analog clocks. This option is not available with the CFL version of the monitor.

Configure Email Alerts - By selecting this option, the user is able to choose which email address the alerts are sent to, the email identity of the sender, the address of the email server, and the amount of time between an event and the email being sent. Once the information is filled in, click the save button. When pressed, this will save all of the settings that were entered.

Send Test Email - By selecting this option, the user is able to send a test email to the email address specified in the Configure Email Alerts option.

Network Monitor Software - Task Bar Options



5. Databases - When clicked, this button will display the following options:

Download Configuration - By selecting this option, the user can load a clock's setting from a PC to another clock of the same type.

Upload Configuration - By selecting this option, the user can load the settings from a network clock and save them to a PC.

Get Clock Firmware From Server - Updates software on the selected clock by downloading the latest version from the manufacturer's servers. This action requires Internet access.

Get Wi-Fi Clock Web Pages From Server - Updates software on the selected clock's network card and web interface by downloading the latest version from the manufacturer's servers. Applies only to Wi-Fi enabled clocks. This option is not available with the CFL version of the monitor.

6. Save to File - When clicked, allows the user to save the all of the information in the Network Monitor device list as a .CSV file, which can be printed from Microsoft Excel. If the monitor is showing devices from a specific Group, then the .CSV file will contain only the devices in that group.

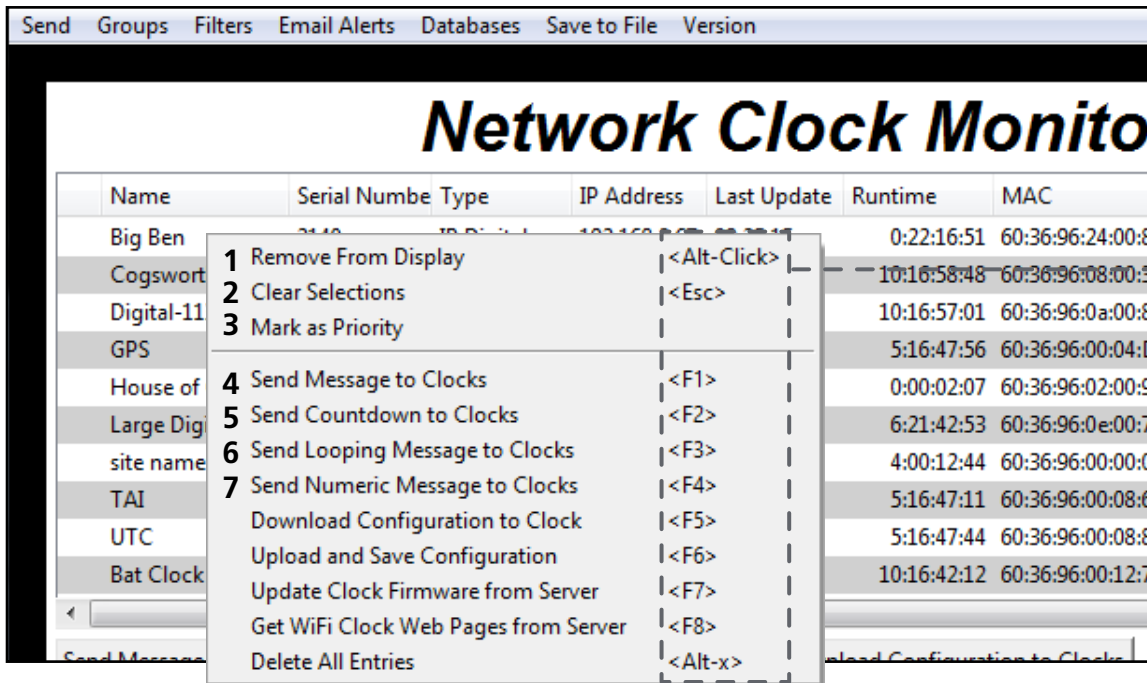
7. Version - When clicked, this button will display version number information of the Network Monitor Software and the Software Version Number (SVN). This information is needed only when contacting technical support and will not affect your usage of the Network Monitor Software. This button will also display the Monitor subtype.

The Network Monitor has two subtypes:

CFA - Intended for use with Wi-Fi Clocks, Master Clocks, Network Repeaters, Wi-Fi Large Digital Clocks, and Network Repeaters.

CFL - Intended for use with IP-PoE Digital, Wired IP Large Digital, and IP-PoE Analog Clocks.

Network Monitor Software - Quick Access Menu

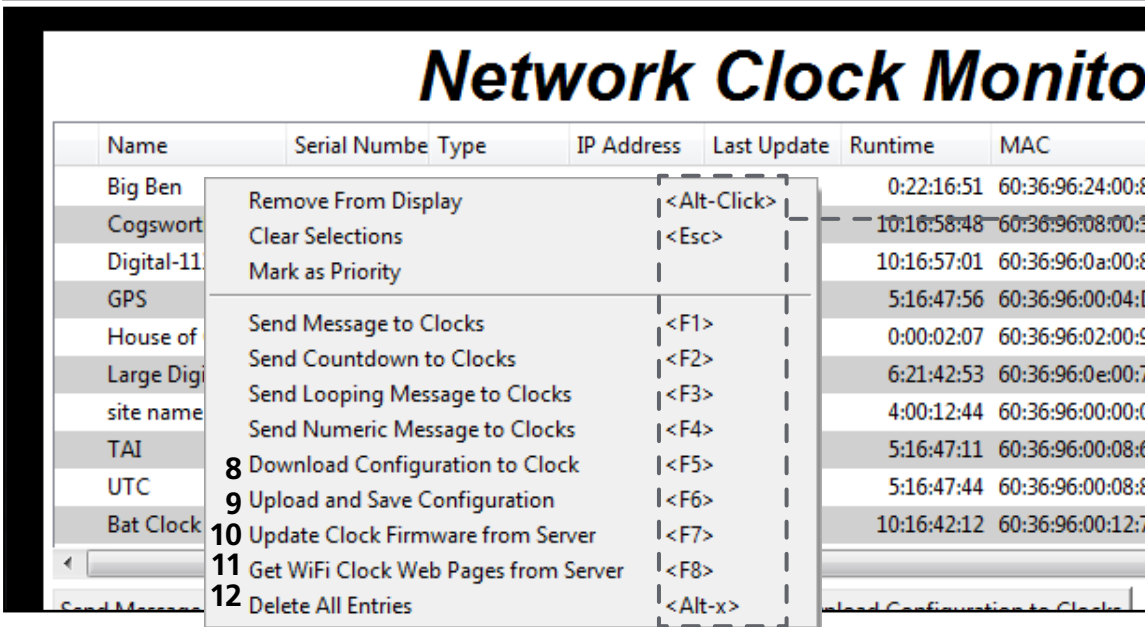


Please note: These options can also be accessed by using the keyboard shortcuts noted in the Quick Access Menu

Using a right-handed mouse to right-click on any row in the Device List will open the Quick Access Menu.

1. **Remove from Display** - When clicked, this option will remove the selected clock from the Device List.
2. **Clear Selections** - This option will deselect any highlighted items on the Device List.
3. **Mark as Priority** - Marking a clock(s) as priority is another filtering option for a user to segment the clocks. Once a clock is marked as priority, there will be an asterisk (*) next to the chosen clock.
4. **Send Message to Clocks** - Performs the same action as the Send Message to Digital Clocks button.
5. **Send Countdown to Clocks** - Performs the same action as the Send Countdown to Digital Clocks button.
6. **Send Looping Message to Clocks** - Performs a similar action to the Send Message to Digital clocks, but allows the user to select the number of times that the message will repeat. It also provides a longer text box for sending longer messages.
7. **Send Numeric Message to Clocks** - Performs the same action as the Send Message to Digital Clocks button, but messages are limited to four digits consisting of numbers 0-9.

Network Monitor Software - Quick Access Menu



Please note: These options can also be accessed by using the keyboard shortcuts noted in the Quick Access Menu

Using a right-handed mouse to right-click on any row in the Device List will open the Quick Access Menu.

8. Download Configuration to Clock - If a configuration file was created using "Upload and Save Configuration" on the Quick Access Menu, this option lets the user apply the configuration file to other clocks highlighted within the monitor. This function will not work with Wi-Fi enabled clocks in Direct Mode. Clicking on this item will cause the Download Configuration window to appear:

Download Clock Configuration

A Enter Password:

B Select Configuration:

A. Enter Password - The default password is 6063

B. Select Configuration - Pressing the button allows the user to browse their computer for a previously-saved configuration file.

C. Send to Selected Clocks - Applies the configuration file to whichever clocks have been highlighted on the Device List.

D. Send to All Valid Clocks - Applies the configuration file to all applicable devices on the Device List. For instance, a Digital IP clock configuration file would be applied to every Digital IP clock on the Device List.

9. Upload and Save Configuration - By selecting this option, the user can copy the settings from an IP device and save them to whichever computer is running the Network Monitor. Your computer will automatically prompt you for the location of the saved configuration file. This function will not work with Wi-Fi enabled clocks in direct mode.

10. Get Clock Firmware From Server - Updates software on the clock by downloading the latest version from the manufacturer's cloud server. This action requires Internet access.

11. Get Wi-Fi Clock Web Pages From Server - Updates software on the network card and web interface by downloading the latest version from the manufacturer's cloud server. Applies only to Wi-Fi enabled clocks. This option is not available with the CFL version of the monitor.

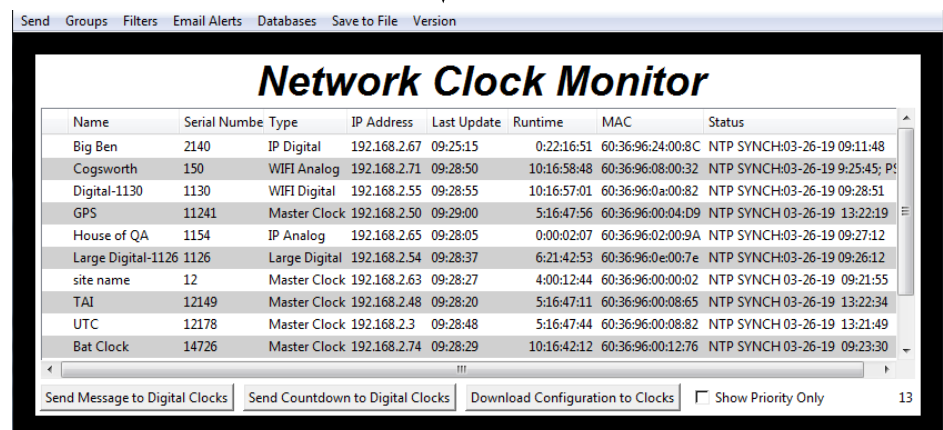
12. Delete All Entries - Clears all clocks from the Monitor. Clocks will be re-added to the monitor as they check in.

Network Monitor Software - Error messages

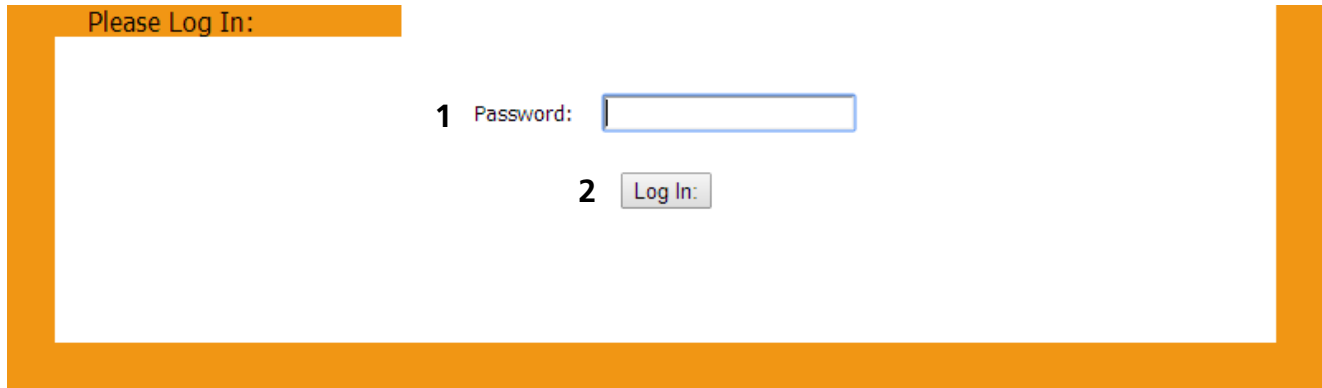
1. **Characters are Red** - When the characters of a clock have turned red, then the clock has not sent its status within the last 10 minutes.
2. **Characters are Gray** - When the characters of a clock have turned gray, then the clock was once displayed on the Network Monitor, but upon launching the Network Monitor program this most recent time, the clock cannot be found on the network.
3. **Characters are Black** - When the characters of a clock are black, this means that the clock is working normally.

The CFA and CFL versions of the Monitor cannot run at the same time. If managing Wi-Fi clocks and IP clocks at the same time, use the CFA Network Monitor instead of the CFL Network Monitor. Be aware, not all features on the CFA Monitor will function on IP-LAN clocks.

You can check if you have the CFA or CFL version by clicking on "Version" at the top of the monitor window.



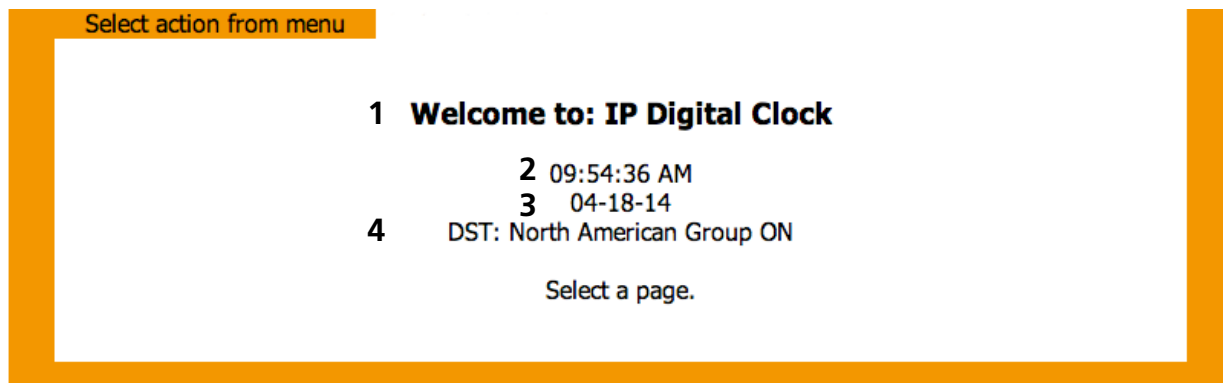
Web Interface - Log In



The screenshot shows a login interface within an orange-bordered frame. At the top left, a label reads "Please Log In:". Below this, there are two numbered steps: "1 Password:" followed by a text input field, and "2 Log In:" followed by a button labeled "Log In:".

1. **Password** - Location where the password is entered. The default password is 6063, but this can be changed within the settings.
2. **Log In** - When pressed, the program will check the password. If the password is correct, it will grant the user access to the Web Interface.

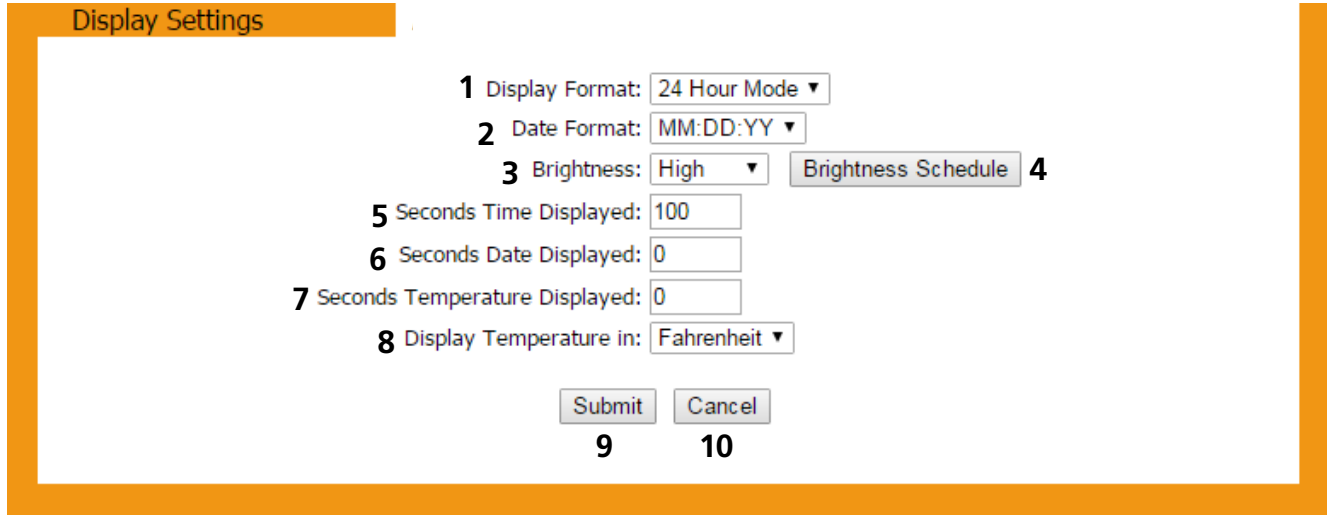
Web Interface - Date and Time



The screenshot shows a date and time interface within an orange-bordered frame. At the top left, a label reads "Select action from menu". Below this, there are four numbered items: "1 Welcome to: IP Digital Clock", "2 09:54:36 AM", "3 04-18-14", and "4 DST: North American Group ON". At the bottom, there is a text label "Select a page.".

1. **Welcome Sign** - Displays the Clock name.
2. **Time** - Displays the clock's time at the moment the web page was loaded. This information does not update unless the page is refreshed.
3. **Date** - Displays the clock's date at the moment the web page was loaded. This information does not update unless the page is refreshed.
4. **DST** - Displays the current Daylight Saving Time setting.

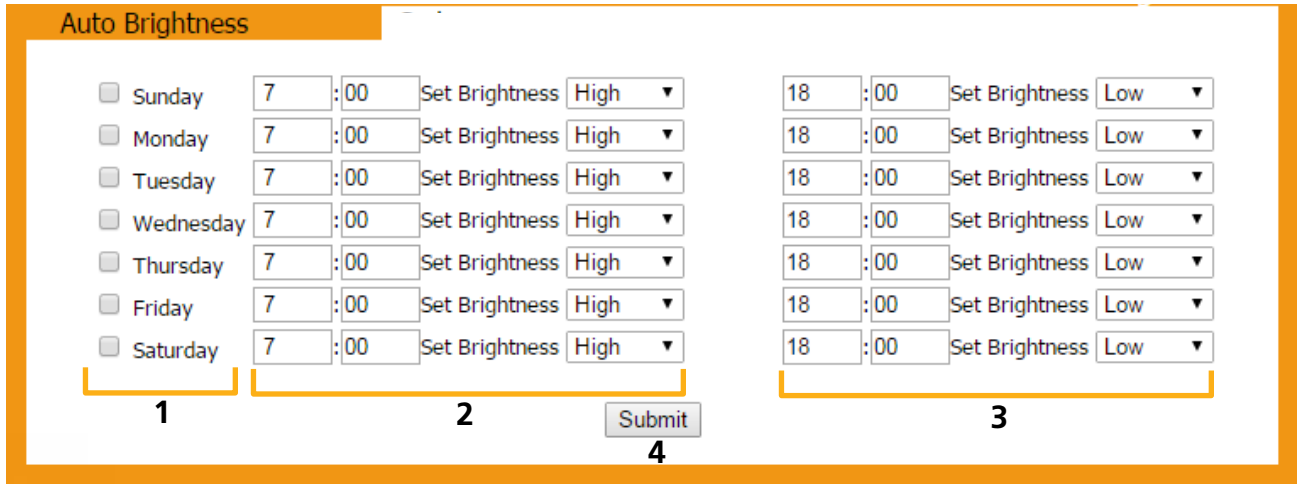
Web Interface - Display Settings



1. **Display Format** - Allows the user to select how the time is displayed on the clock. There are two options: 12 hour format (3:00AM/3:00PM) or 24 hour format (3:00/15:00).
2. **Date Format** - Sets the date to display in either American style: MM:DD:YY or European style: DD:MM:YY. For 4 digit clocks, the date will display in either American style: MM:DD or European style: DD:MM.
3. **Brightness** - Sets the brightness level that the clock will display. There are four levels to choose from: High, Medium, Low or Off.
4. **Brightness Schedule** - When the button is pressed, the user is taken to the Brightness Schedule Page. Refer to the section of this manual labeled "Web Interface - Brightness Schedule" for further instructions.
5. **Seconds Time Displayed*** - The clock will display the time for the number of seconds entered in the box. After the selected amount of time passes, the clock will change to show Date or Temperature. If a time of 0 is selected, the clock will not display the time. If Date and Temp Displayed are set to 0, the clock will only display the time.
6. **Seconds Date Displayed*** - The clock will display the date for the number of seconds entered in the box. After the selected amount of time passes, the clock will change to show the Time or Temperature. If a time of 0 is selected, the clock will not display the date. If Time and Temp Displayed are set to 0, the clock will only display the date.
7. **Seconds Temp Displayed*** - If a temperature sensor was installed on the clock, the clock will display the temperature for the number of seconds entered in the box. After the selected amount of time passes, the clock will change to show the Time or Date. If a time of 0 is selected, the clock will not display the temperature. If Time and Date Displayed are set to 0, the clock will only display the temperature.
8. **Display Temp In** - If a temperature sensor was installed on the clock, this option allows a user to select whether the temperature appears in Fahrenheit or Celsius.
9. **Submit** - Applies any changes to the previous options when pressed.
10. **Cancel** - Reverses any recent changes to the Display Settings tab without applying any changes to the clock.

***Note:** If the Time, Date, and Temp Displayed are ALL set to 0, the display will turn completely blank. It will turn on for count down/up, and off again once the counting has been cleared.

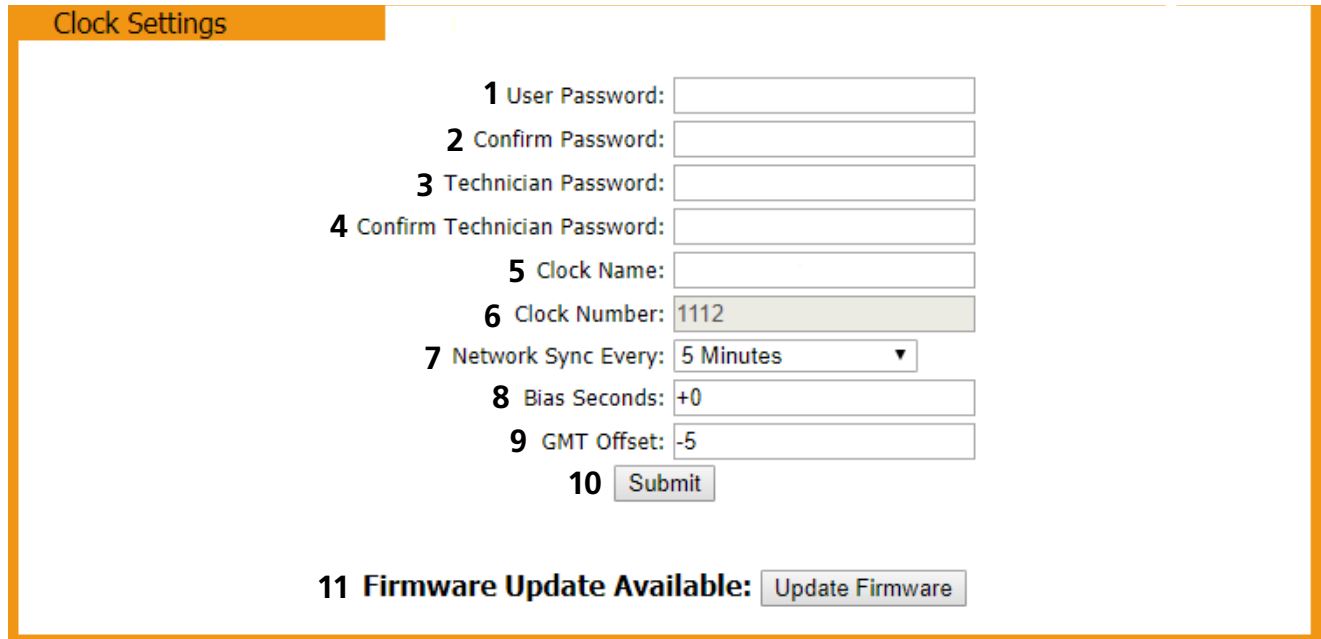
Web Interface - Brightness Schedule



Auto Brightness				
<input type="checkbox"/> Sunday	7 :00	Set Brightness High ▼	18 :00	Set Brightness Low ▼
<input type="checkbox"/> Monday	7 :00	Set Brightness High ▼	18 :00	Set Brightness Low ▼
<input type="checkbox"/> Tuesday	7 :00	Set Brightness High ▼	18 :00	Set Brightness Low ▼
<input type="checkbox"/> Wednesday	7 :00	Set Brightness High ▼	18 :00	Set Brightness Low ▼
<input type="checkbox"/> Thursday	7 :00	Set Brightness High ▼	18 :00	Set Brightness Low ▼
<input type="checkbox"/> Friday	7 :00	Set Brightness High ▼	18 :00	Set Brightness Low ▼
<input type="checkbox"/> Saturday	7 :00	Set Brightness High ▼	18 :00	Set Brightness Low ▼
1	2	4 Submit	3	

- Day Column** - Allows the user to select days where changes to the brightness schedule are active. If a day is not selected, the actions in the adjustment columns will not be applied to the clock.
- Adjustment 1** - Allows the user to select a new brightness level for the clock, and the time when the new brightness level will take effect. Times are entered in 24 hour mode. Brightness options are High, Medium, Low, and Off.
- Adjustment 2** - Allows the user to set a second time during a given day where the brightness level will change.
The time for Adjustment 2 may be set for any time before or after Adjustment 1 during the same day. For example, if Adjustment 1 is set to activate at 11:00 AM and Adjustment 2 is set to activate at 8:00 AM, Adjustment 2 will activate first at 8 AM, followed by Adjustment 1 at 11 AM.
If you wish for the brightness to only change once on a given day, set Adjustment 1 and Adjustment 2 to the same brightness level and time.
- Submit** - Applies any changes to the previous options when pressed.

Web Interface - Clock Settings



The screenshot shows a web interface titled "Clock Settings" with an orange header bar. The interface contains several numbered fields and a submit button. The fields are: 1. User Password: (empty text box), 2. Confirm Password: (empty text box), 3. Technician Password: (empty text box), 4. Confirm Technician Password: (empty text box), 5. Clock Name: (empty text box), 6. Clock Number: (text box containing "1112"), 7. Network Sync Every: (dropdown menu showing "5 Minutes"), 8. Bias Seconds: (text box containing "+0"), 9. GMT Offset: (text box containing "-5"), 10. Submit: (button), and 11. Firmware Update Available: (text with a button labeled "Update Firmware").

1. **User Password** - Allows the user to set up a new password to the web interface. Users may view all tabs, but cannot change settings. The default user password is 1111.
2. **Confirm Password** - The new User Password must also be entered here for a change to be made.
3. **Technician Password** - Allows the user to set up a new password to the web interface. Technicians may change any setting. The default technician password is 6063.
4. **Confirm Technician Password** - The new Technician Password must also be entered here for a change to be made.
5. **Clock Name** - Allows the user to set a unique name for the clock, so that it can be identified on the IP monitor. The name must be fewer than 20 characters.
6. **Clock Number** - Displays the serial number for the clock, so that it can be identified on the IP monitor. This number cannot be modified.
7. **Network Sync Every** - Allows the user to select how often the clock should attempt to synchronize with an NTP server.

Web Interface - Clock Settings (ctd.)

Clock Settings

1 User Password:

2 Confirm Password:

3 Technician Password:

4 Confirm Technician Password:

5 Clock Name:

6 Clock Number:

7 Network Sync Every:

8 Bias Seconds:

9 GMT Offset:

10

11 Firmware Update Available:

8. **Bias Seconds** - This setting has two applications:

The first application: is to allow the user to set a fraction of an hour for GMT/UTC offset when the clock is used as a time zone clock and required to present a time where the GMT offset is less than an hour. For example, the city of Adelaide in Australia has a +10:30 GMT/UTC offset. In this scenario, the clock would be configured with +10 hours in field number 9, while for adjusting the half hour difference, the value 1800 seconds should be entered, which reflects 30 minutes.

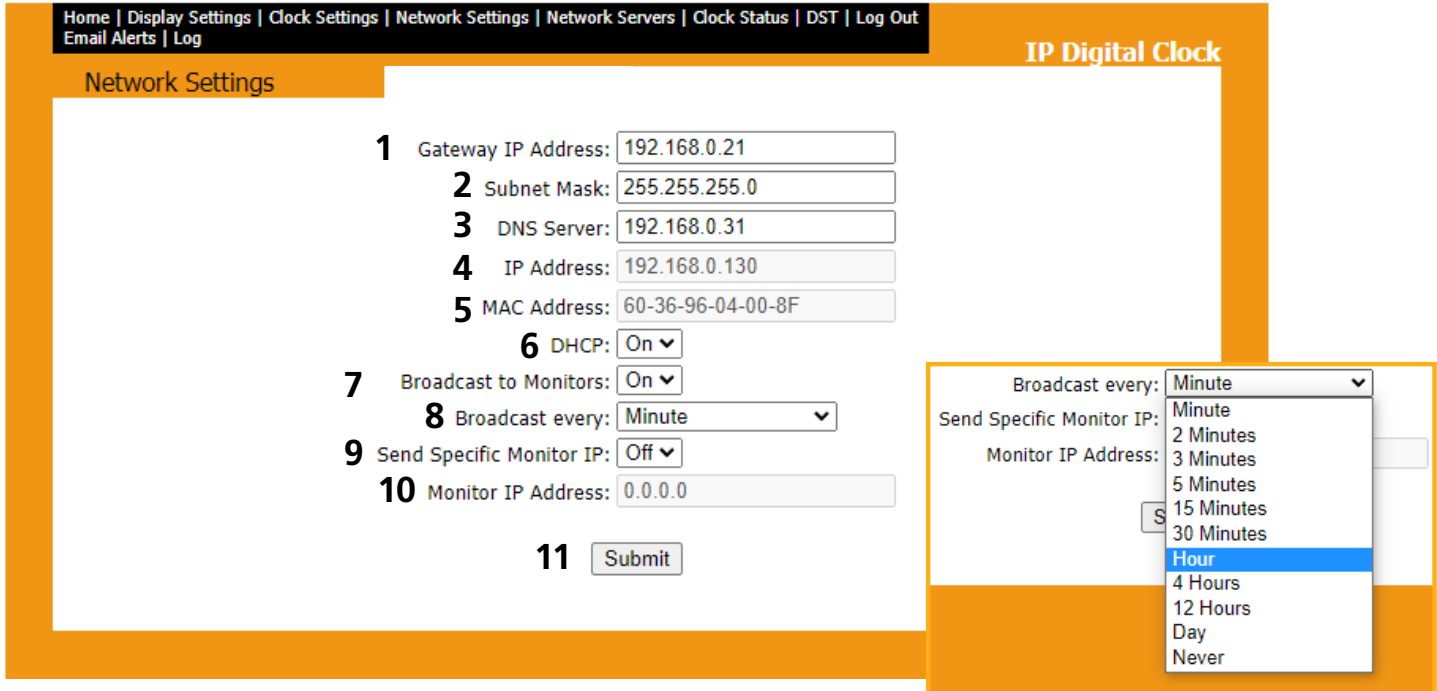
The second application: Some applications require the clock to display an offset time with a set value from the actual time. For example, if the time received is 12:00, offsetting the bias second + or – will cause the clock to display this offset time from the actual received time. This range permits -9999 seconds to +9999 seconds.

9. **GMT Offset** - This setting allows the user to set which time zone the clock will use when displaying the time. For instance, London is an offset of 0, New York is an offset of -5 and Hong Kong is an offset of +8. The clock may be configured to function as part of a Zone Clock through this option.

10. **Submit** - Applies any changes to the previous options when pressed.

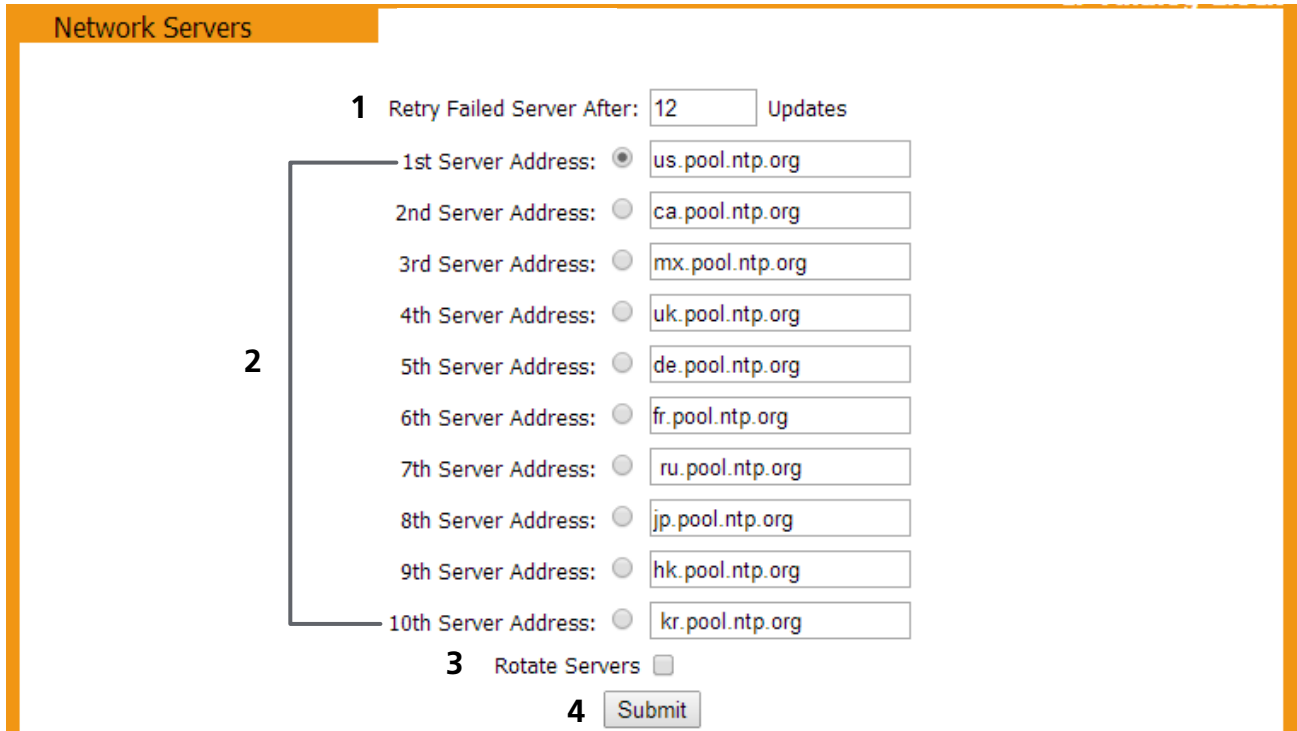
11. **Firmware Update** - If the clock is able to access the Internet, it will automatically check to see if a firmware update is available. If a firmware update is available and you wish to update your firmware, click on the Update Firmware button. Your web browser may prompt you for additional confirmation before performing the update. This line will appear only if the clock detects that a firmware update is available.

Web Interface - Network Settings



1. **Gateway IP Address** - This field allows the user to set the gateway IP address.
2. **Subnet Mask** - This field allows the user to set the subnet mask for their clock.
3. **DNS Router** - This field allows the user to set the DNS Router IP address.
4. **IP Address** - This field will display the clock's IP address. If DHCP is enabled, this address will be assigned by the DHCP server. If DHCP is disabled, then the user may set their own static IP address.
5. **MAC Address** - This field shows the clock's permanent machine address. It cannot be changed.
6. **DHCP** - Allows the user to set whether or not the clock will use a DHCP server to determine the IP address, the Gateway IP address, the Subnet Mask, and the DNS Router for the clock.
7. **Broadcast to Monitors** - Allows the user to set whether or not the clock may send data to the Network Monitor.
8. **Broadcast Every:** This field allows the user to set the rate at which the clock will broadcast its status to the Network Monitoring Software. The default is set to once every minute; however, for systems with 100+ clocks, the broadcast rate should be changed by multiples of 15 minutes for every additional 50 clocks. For example, in a system with 150 clocks, the broadcast rate should be once every 15 minutes, and in a system with 200 clocks, the broadcast rate should be once every 30 minutes, 300 clocks once every 60 minutes.
9. **Send Specific Monitor IP** - Allows the user to set an IP address that can be used to access the IP monitor.
10. **Monitor IP Address** - This field shows the Network Monitor's IP address. It cannot be changed.
11. **Submit** - Applies any changes to the previous options when pressed.

Web Interface - Network Servers



Network Servers

1 Retry Failed Server After: Updates

2

1st Server Address: ☒

2nd Server Address: ☐

3rd Server Address: ☐

4th Server Address: ☐

5th Server Address: ☐

6th Server Address: ☐

7th Server Address: ☐

8th Server Address: ☐

9th Server Address: ☐

10th Server Address: ☐

3 Rotate Servers ☐

4

1. **Retry Failed Server After** - This field will allow the user to set how often the clock will attempt to contact a NTP server that has failed to communicate time data to the clock.
2. **Server Addresses** - These fields allow a user to set the address that the clock will use to obtain NTP time. Web addresses may be entered as a URL or IP address.
3. **Rotate Servers** - When left unchecked, the clock will only attempt to obtain time from the selected NTP server, and will only attempt to try other servers if the selected server fails. When checked, the clock will rotate through the listed addresses each time the clock performs a synchronization check.
4. **Submit** - Applies any changes to the previous options when pressed.

Web Interface - Clock Status

Clock Status

Internal Time: **Apr 18 2014 09:59:20**
Code build Date and Time: **Dec 19 2013 15:25:20**
IP Address: **192.168.1.87** MAC Address: **00-31-76-84-15-8E**
SVN Revision Stamp: **1750**
RTC Functional: **TRUE** Runtime: **0Days, 01Hrs, 37Min, 59Sec**
HTTP Requests Serviced: **37** Reason for last restart: **Power Up**

NTP Server Failures 5 0 0 0 0 0 0 0 0 0
Currently Failed
Refreshes Until Retry
Mean Difference: 5 0 0 0 0 0 0 0 0 0
Cumulative Adjustment: **-608 mSec**
Cumulative **44Days, 16Hrs, 19 Min 48 Sec**
mSec Adjustment per Hour: **0 mSec**
Weighted Avg Diff Server vs Clock: **-5.66 mSec**
Worst Diff Server vs Clock: **-43 mSec**
Last Sync at: **04-18-14 09:50:56**

NTP Details

 1

Resync NTP Now

 2

Reset NTP History

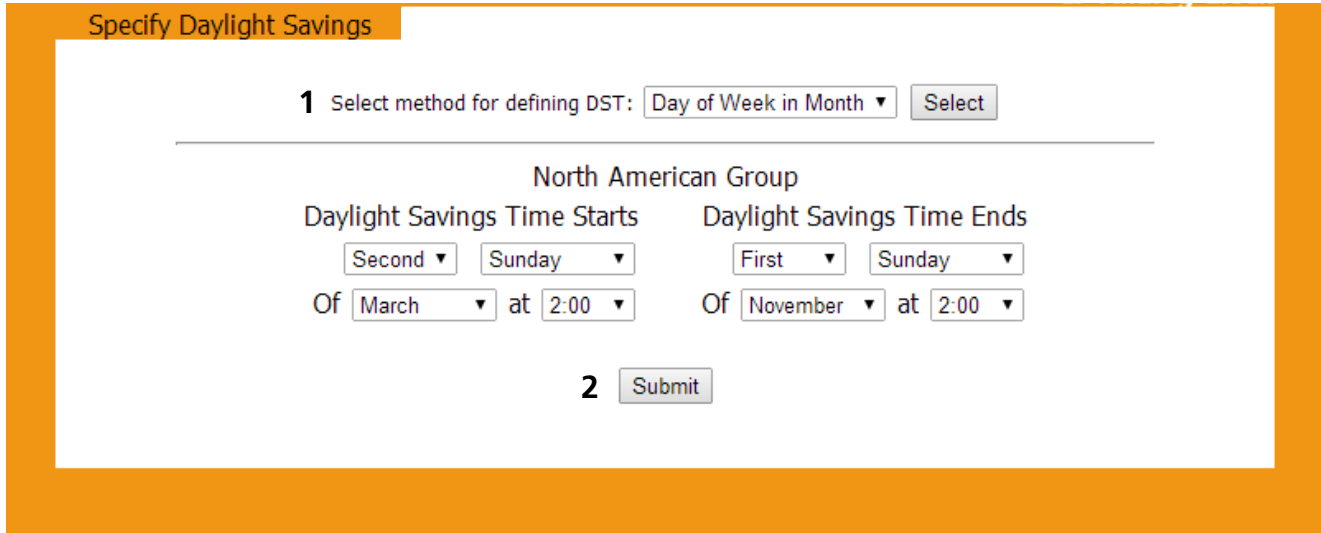
 3

Reset Adjustment Data

 4
Network Sync Every: **15 Minutes**
Worst Server 1: **192.168.1.8**
From Server 1: **192.168.1.8**

1. **NTP Details** - This button provides additional details about NTP synchronization when clicked.
2. **Resync NTP Now** - This button forces a synchronization with the NTP server when clicked.
3. **Reset NTP History** - This button resets all of the data in the NTP details window when clicked.
4. **Reset Adjustment Data** - This button resets the statistics of previous time drifts when checked.

Web Interface - Daylight Saving Time

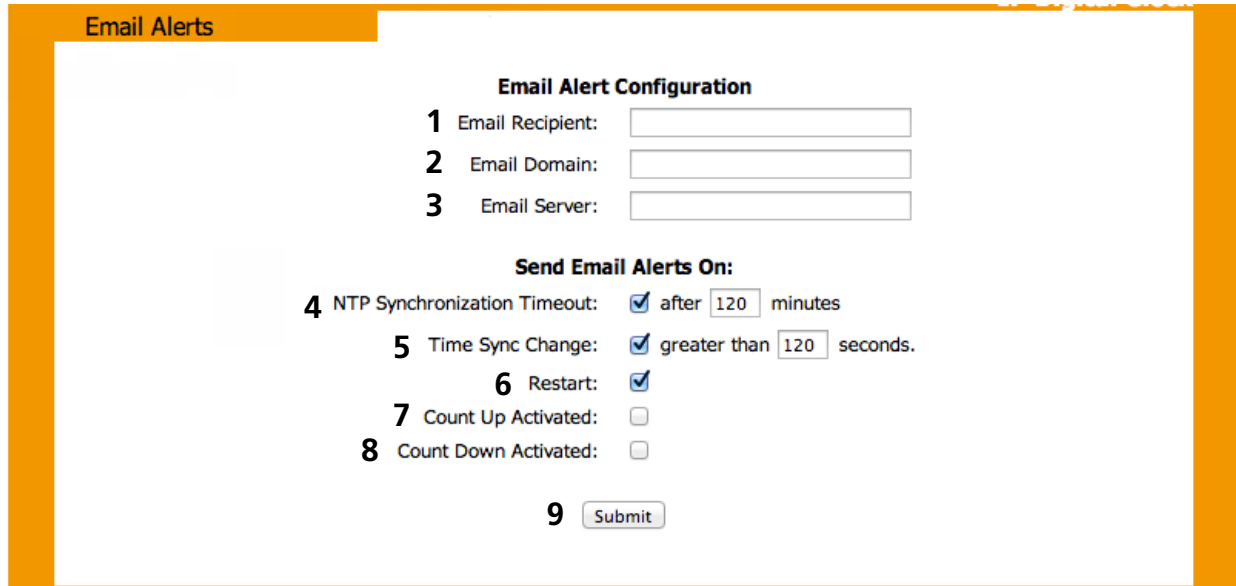


1. **Method for Defining DST** - There are four methods for defining Daylight Saving Time. The method can be selected from the drop-down menu. Clicking on the Select button displays additional options for that method.

- **Day of the Week in the Month** - This mode allows the user to select the day of the week, month, and time for when the clock will switch to daylight Saving Time. Once the day, month, and time have been set, click Submit to apply the settings to the clock. Example: Second Sunday of March at 2:00.
- **Day of the Month** - This mode allows the user to select the specific day of the month and time for when the clock will switch to daylight saving time. Once the date, month, and time are set, click Submit to apply the settings to the clock. Example: March 1st at 2:00.
- **By Country** - This mode allows the user to select preset Daylight Saving Time information associated with a specific country or group of countries. Select the preset from the drop-down menu, then click Submit to apply the settings to the clock.
- **None** - This mode does not change the clock for Daylight Saving Time.

2. **Submit** - Applies any changes to the previous options when pressed.

Web Interface - Email Alerts



1. **Email Recipient** - This field is where the user enters the name of the email alert recipient. Only the name should be entered, not the domain or suffix (*Correct: jsmith | Incorrect: jsmith@domainname.com*)

2. **Email Domain** - This field is where the user enters the domain of the email alert recipient. Only the domain and suffix should be entered, not the name
(*Correct: domainname.com | Incorrect: jsmith@domainname.com*).

3. **Email server** - This field is where the user enters the address of the local outgoing email server for the email recipient. Consult with the network administrator for the email server address. Emails are sent using SMTP.

FIELDS 1, 2, AND 3 MUST BE COMPLETED FOR THE EMAIL FEATURE TO FUNCTION

4. **Email Alert - NTP Synchronization Timeout** - When selected, the clock will send an email alert if the clock hasn't received a time synchronization after the number of minutes listed in the field next to the selection box.

5. **Email Alert: Time Sync Change** - When selected, the clock will send an email alert whenever the difference between the original time and most recent time synchronization data is greater than the listed number of seconds. The number of seconds may be changed using the field next to the selection box.

6. **Email Alert: Restart** - When selected, the clock will send an email alert whenever the clock has lost and regained power, either through intentional disconnection or a power outage.

7. **Email Alert: Count Up Activated** - When selected, the clock will send an email alert whenever the clock begins a Count Up.

8. **Email Alert: Count Down Activated** - When selected, the clock will send an email alert whenever the clock begins a Countdown.

9. **Submit** - Applies any changes to the previous options when pressed.

Web Interface - Elapsed Timer

Elapsed Timer

lights

Button 1

No Action

lights

Button 2

No Action

lights

Button 3

No Action

lights

Button 4

No Action

On countdown complete, close

None

for

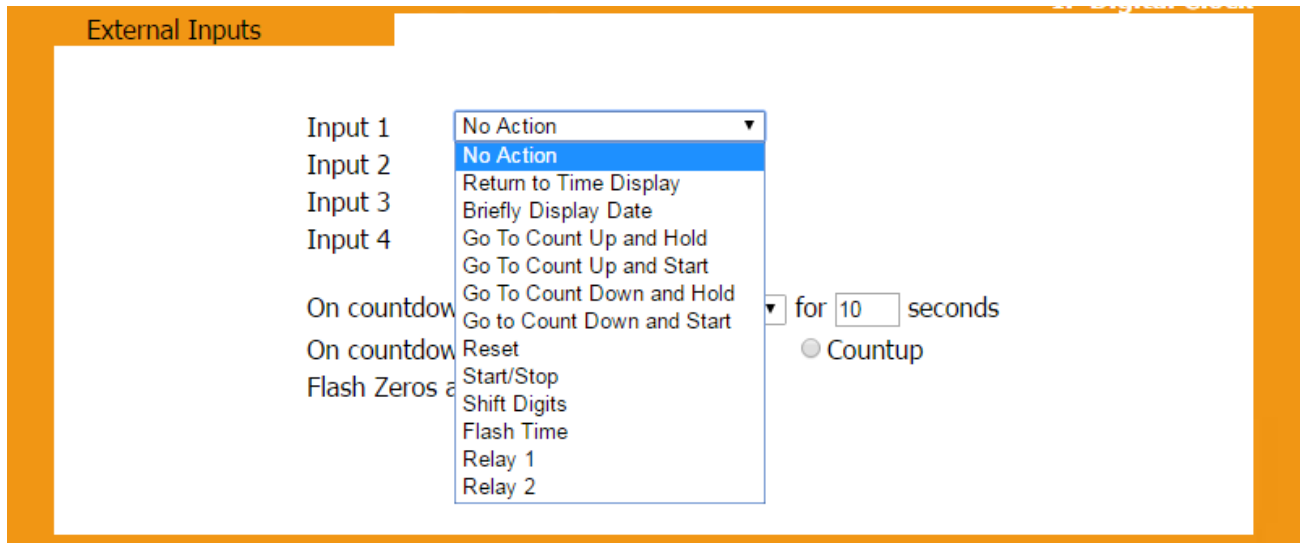
0

seconds

save

A user may set up and configure the Elapsed Timer control panel through this tab. For detailed instructions on the many functions and uses of the Elapsed Timer, refer to the Elapsed Timer Manual.

Web Interface - Inputs (3300 only)



The 'Inputs' tab allows a user to program the clock to perform a certain function through a switch or relay contact closure from an outside device such as Code Blue, Nurses Call, etc. Program the first Input on the 3300 digital clock by selecting one of the options in the drop down list next to Input 1. Listed below are the options and the function of each one:

No Action - This function does nothing if the input is activated.

Return to Time Display - Activating the input causes the clock to display the time. If a countdown or count up is in progress, the function is reset when the input is activated.

Briefly Display Date - Activating the input causes the clock to briefly display the date. This only works if the clock is displaying the time, not a countdown.

Go to Count Up and Hold - Activating the input causes the clock to display and hold at zero.

Go to Count Up and Start - Activating the input causes the clock to switch from its current display and begin a count up from zero.

Go to Count Down and Hold - Activating the input causes the clock to display and hold at a start time specified by the user.

Go to Count Down and Start - Activating the input causes the clock display to begin counting down from a time specified by the user.

Reset - Activating the input restarts whichever countdown/count up is in progress.

Start/Stop - Activating the input causes the timer to pause or resume its counting functions.

Shift Digits - Activating the input causes the digits to shift from displaying Hour/Minutes to Minutes/Seconds (Applies to 4 digit clocks only).

Flash Time - Activating the input causes the clock to briefly display the time while another function, such as count up or count down, is occurring. Activating the input does not pause, stop, or reset whichever function is occurring at the same time.

Relay 1 - Activating the input causes Output Relay 1 to activate.

Relay 2 - Activating the input causes Output Relay 2 to activate.

Code Blue - Performs a special-purpose count up. Refer to the section on the next page labeled "Code Blue"

Web Interface - Inputs (3300 only)

Code Blue:

Code Blue is a special-purpose count up designed for use in hospitals and other medical facilities. This function overrides the control panel LED settings. The lights are green while the timer is running and red when the timer has been paused.

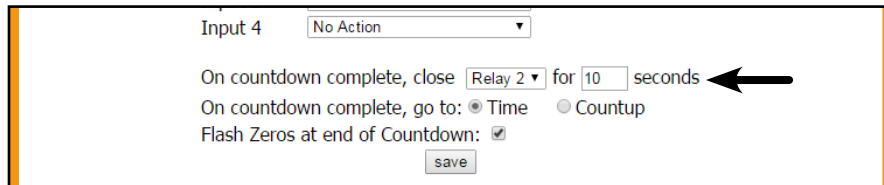
When an input programmed with Code Blue is activated for the first time, the count up starts.

When the input is activated a second time, the count up pauses. If the input is activated a third time, the count up will resume.

When the input is activated for a period longer than three seconds, the count up resets to zero and the display goes back to showing the time.

If a button programmed with the Start/Stop function is pressed while Code Blue is running, the count up will pause. If Start/Stop is pressed again, the count up will resume.

On countdown complete, close: This option allows a user to choose how many seconds a relay will be closed for.



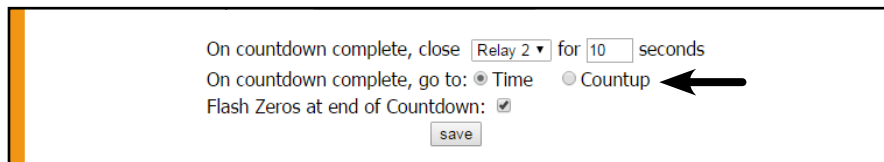
Input 4

On countdown complete, close for seconds

On countdown complete, go to: ☒ Time ☐ Countup

Flash Zeros at end of Countdown: ☒

At end of Countdown, go to: This option allows a user to choose between having the clock display the time or start a count up when a countdown completes.

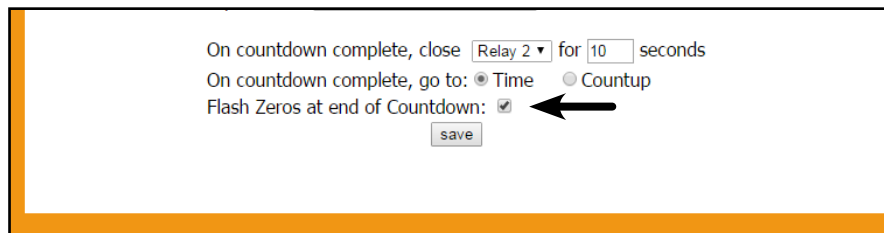


On countdown complete, close for seconds

On countdown complete, go to: ☒ Time ☐ Countup

Flash Zeros at end of Countdown: ☒

Flash Zeros at end of Countdown: This option allows a user to command the clock to have the zeros on the clock display blink on and off to indicate the end of a countdown.



On countdown complete, close for seconds

On countdown complete, go to: ☒ Time ☐ Countup

Flash Zeros at end of Countdown: ☒

Once all of the Input settings are chosen, click the 'Submit' button to store the selected options or, when all the tabs have been programmed, click the 'submit' button located at the bottom to store all changes..

Web Interface - Log



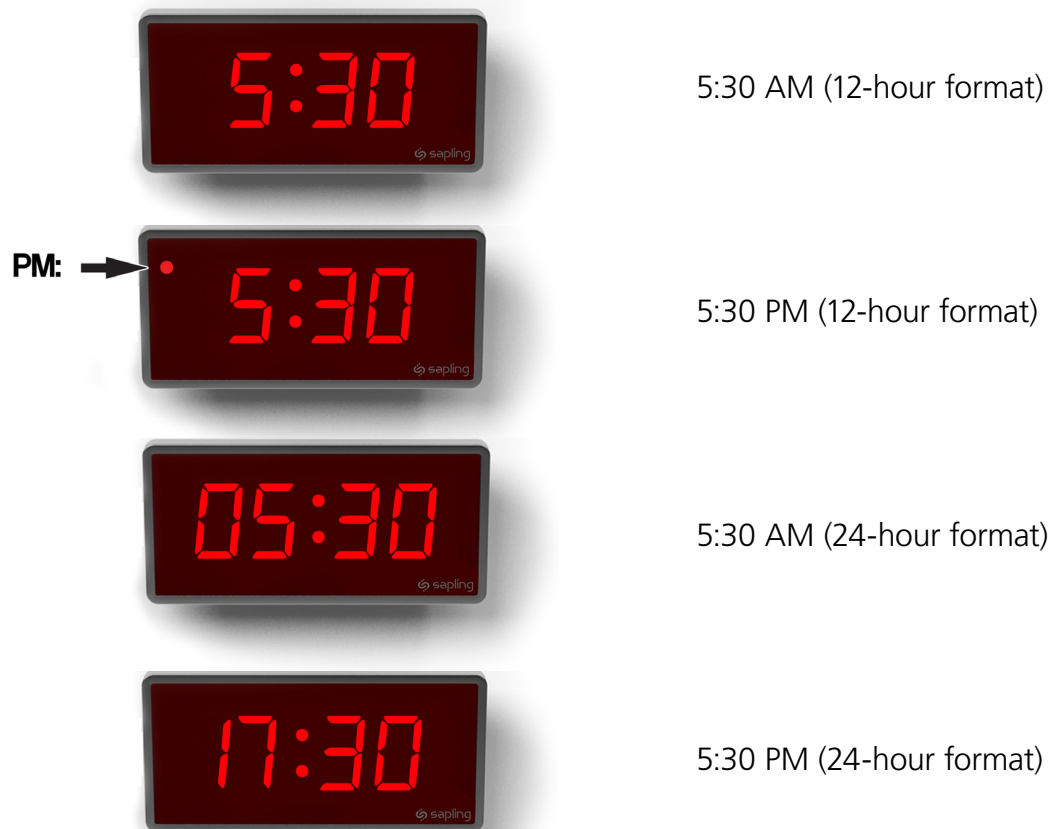
1. **Clear Log** - When clicked, this button deletes all of the information on the Log page.
2. **Next** - When clicked, this button displays the next page of log entries.

Each log entry will display the date and time of the event, along with a note describing the event being logged.

Reading the Display

The digital clock is designed to display time in either a 12-hour or 24-hour format. When the display is set to the 12-hour format, a circular light will appear in the top left corner of the display to indicate PM, or disappear to indicate AM. When the display is set to the 24 hour format, the full 24-hour time will appear on the display; no other lights should appear.

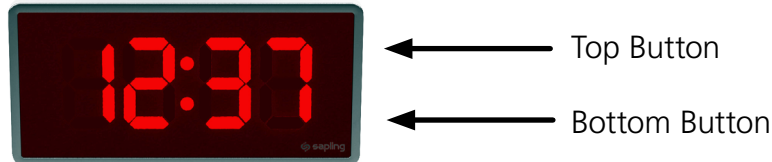
Some examples:



The factory default setting for all digital clocks is the 12-hour format. If you wish to set the clock to display time in a 24-hour format, see the section labeled "**Web Interface - Display Settings.**"

Manual Controls

Some functions of the IP Digital Clock can be controlled through the two push-buttons on the face of the clock. That said, it is ALWAYS preferable to use the Web Interface and IP monitor software when commanding the clock, as these buttons become difficult to access when the clock has been installed on a high wall.



Display IP Address

When the top and bottom buttons are simultaneously pressed and held for two seconds, the clock will display the number groups of the IP address. For example, if the IP address of the clock is 192.168.0.80, then the following groups will appear:

[192] [168] [000] [080]

The clock will cycle through the groups twice, then automatically return to displaying the time.

Simple Count Up

A user can set the clock to simple count-up mode by pressing and releasing the bottom button. When activated, the clock will switch to 00:00:00 (or 00:00 on a 4-digit clock) and begin counting up.

Pressing the bottom button again will start or resume count up if the count-up is not running, or pause the count-up if the count up is running.

To exit this mode, quickly press and release the top button and the clock will show the time again.

Accessing the Clock After it has been Installed

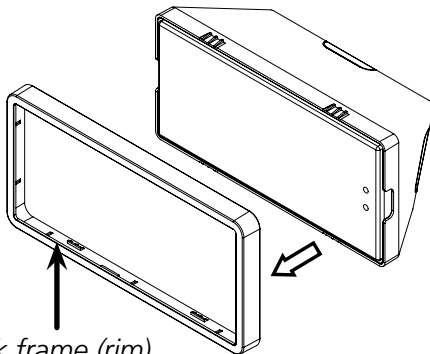
If the user observes an issue with the clock, please contact your dedicated dealer or us for support.

The below instructions are provided for accessing the clock for the purpose of changing its settings after it has been installed.

Surface (wall) Mounted, Dual-Faced, Flag Mounted Clocks:

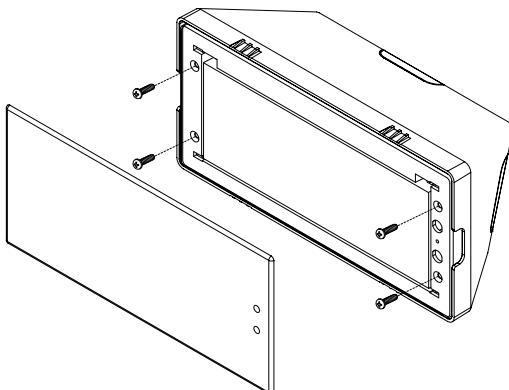
The clock housing consists of an outer frame (rim) that snaps on to the clock using mounting tabs.

1) To access the clock's electric board, there is a need to gently pull the rim out of the housing as shown in the below image.

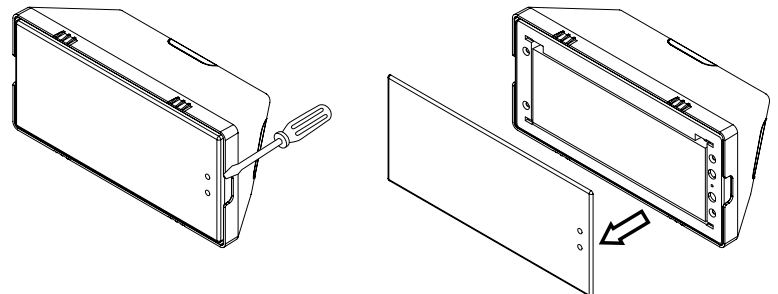


outer clock frame (rim)

3) Once the filter has been removed, a Phillips screwdriver should be used for unscrewing the clock display from the housing. The clock display is attached to the clock main electrical board, which consists of jumper switches, access to the power and data wires, as well as other ports and interfaces, depending on the clock model (3200 or 3300).

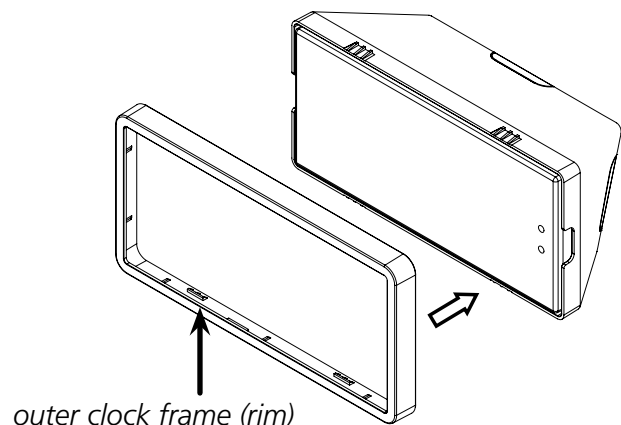


2) Once the frame (rim) has been removed, gently pull off the clock filter (which is held by four tabs). You may use a flat head screwdriver to pop off the filter by wedging it between the filter and the housing, as shown in the below image.



Placing the clock outer frame (rim) back:

Depending on the clock size, there may be 4 or 6 tabs. Gently push the outer frame (rim) onto the housing, allowing all tabs to latch into position so the rim will evenly align with the clock display.



outer clock frame (rim)

Flush Mounted Clocks:

Begin at Step 2.

Frequently Asked Questions

What happens to the digital clock if contact with the NTP server is lost?

The digital clock will rely on an internal quartz oscillator for keeping the time until time data is received. The clock will drift by a few seconds each year while communication with its accurate time source has been lost.

How do I take advantage of the 3200/3300 chronograph functions?

The Chronograph functions can be engaged with the optional Elapsed Timer Control Panel accessory (part# SBD-ELT-001-0), or by using a dry contact closure with the configurable user inputs (3300 only). Refer to the respective selections of this manual for setup instructions.

If a change is made on the web interface, does it affect one IP clock or all of them?

The web interface allows the user to adjust settings for only one IP clock.

If a user wishes to apply the changes from one web interface to all clocks on the system, they may do so through the IP monitoring software.

What type of cable is used for PoE?

PoE is typically carried through a CAT5, CAT5e, or CAT6 network cable.

When I power my clock, it seems to be running a test instead of showing the time. What is it doing?

Immediately after power up, the digital clock will run an LED display test to allow the user to confirm that each segment of the display is functioning properly. This should only last a few seconds.

What is the default password for the web interface?

The default user password is 1111. The default technician password is 6063.

Troubleshooting

The clock is not powering up. What should I do?

If you are using a power injector or PoE switch, confirm that the injector or switch is powered. If you can confirm that the injector is powered, but the clock is still not powering up, confirm that the cable from the network router has been inserted into the INPUT socket, and that the cable leading to the clock has been inserted into the OUTPUT socket.

I cannot connect to the web interface. What should I do?

Use the front buttons to confirm that you are trying to access the correct IP address. If you were using the correct IP address, reexamine your network firewall for settings that could prevent you from accessing the clock.

The clock is not showing the right time. What should I do?

Attempt the following corrections in numerical order until the clock properly synchronizes:

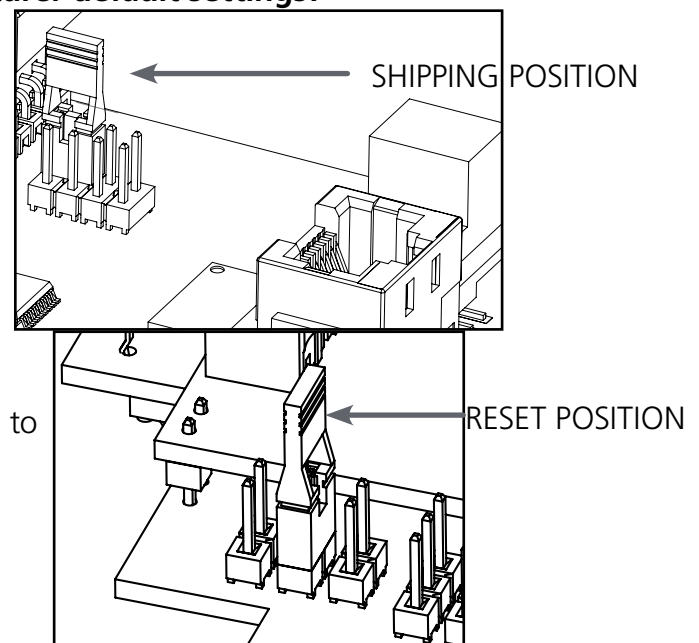
1. Confirm that the clock is on the network by finding it using the IP monitoring software.
2. Confirm that the clock is able to communicate over your network. Be mindful of passwords and firewalls, and be sure that Port 123 is open if you are getting NTP time from the Internet.
3. On the web interface, click on the tab 'Clock Status' and press the 'Resync NTP Now' button.
4. On the web interface, click on the tab 'Clock Settings' and review the text box labeled "GMT Offset". Confirm that the number matches your time zone. If it does not, revise the number, press submit, and then press the "Resync NTP Now" button on the 'Clock Status' page.
5. On the web interface, click on the tab 'Network Servers', confirm that the 'Rotate Servers' box is selected, then press submit. Return to the 'Clock Status' page and press the "Resync NTP Now" button.
6. If the problem persists, contact technical support.

Is there a way to reset the clock to its manufacturer default settings?

To reset the clock to its default settings:

- 1) Power off the clock.
- 2) Move the settings jumper from the SHIPPING position to the RESET Position.
- 3) Power on the clock.
- 4) Wait for the clock to display time.
- 5) Power off the clock.
- 6) Move the settings jumper from the RESET position to the SHIPPING position.

The clock should now be back to its default settings.



Warranty

Sapling Limited Warranty and Disclaimer

The Sapling Company, Inc. warrants only that at the time of delivery and for a period of 24 calendar months after delivery or the period stated in this invoice, if different, the Goods shall be free of defects in workmanship and materials, PROVIDED that this warranty shall not apply:

To damage caused by Buyer's or any third party's act, default or misuse of the Goods or by failure to follow any instructions supplied with the Goods.

Where the Goods have been used in connection with or incorporated into equipment or materials the specification of which has not been approved in writing by The Sapling Company, Inc.;

To Goods which are altered, modified or repaired in any place other than a Sapling Company, Inc. factory or by persons not expressly authorized or approved in writing by The Sapling Company, Inc.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WITH RESPECT TO GOODS DELIVERED UNDER THIS CONTRACT, WHETHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. The foregoing warranty runs only to Buyer. There are no oral or written promises, representations or warranties collateral to or affecting this contract. Representatives of The Sapling Company, Inc. may have made oral statements about products described in this contract. Such statements do not constitute warranties, shall not be relied on by Buyer and are not part of the contract.

Note: An extended 5 year (60 month) warranty is also available at the time of the system purchase with a surcharge.