

Installation Manual

Zone Clocks



Zone Clocks

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For information on how to pair wireless and TalkBack clocks, configure IP (PoE) and Wi-Fi clocks, wire 2-wire digital or RS485 systems, run diagnostics, troubleshoot clock problems, or answer other frequently asked questions for a specific clock type, please see the manual for that clock model. This manual only covers installation for the zone clock mounting assembly, and details on how to configure a clock for a given time zone and Daylight Savings rules.

Important Safety Instructions

DANGER

SHOCK HAZARD



- Keep the electricity to this device turned OFF until the clock installation is complete.
- Do not expose the clock movement 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.

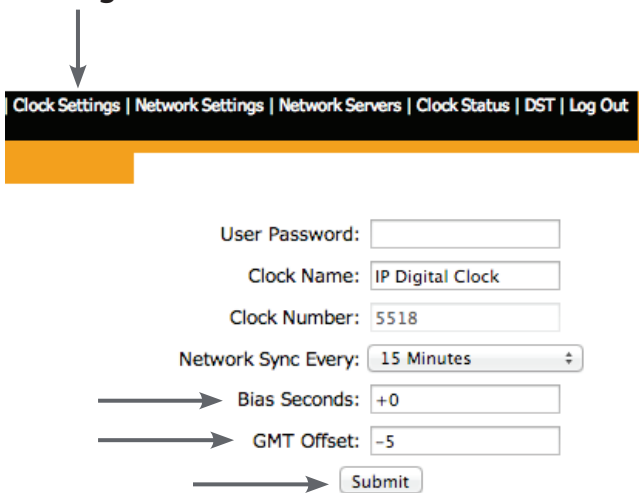
Configuring a Clock to be Used in a Zone Clock

IP Power over Ethernet and Wi-Fi Systems

Clocks for IP-PoE and Wi-Fi Zone Clocks are configured by the user. **EACH CLOCK MUST BE CONFIGURED SEPARATELY BY THE USER.** Consult the manual for instructions on how to log in to each clock. Once you have logged into the clock, navigate to the following pages:

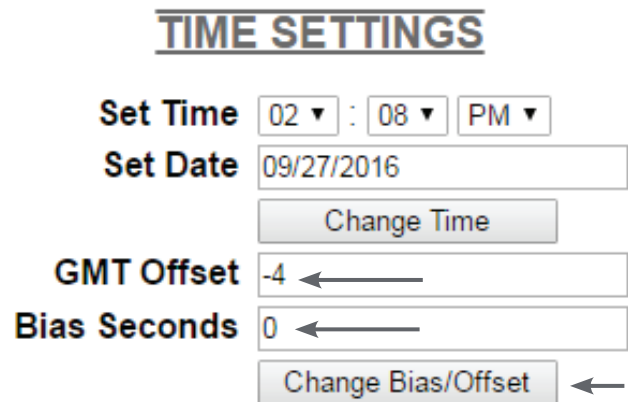
IP Power over Ethernet

On an IP PoE clock, navigate to the **Clock Settings** tab.



Wi-Fi

On a Wi-Fi clock, press the **General Settings** button, followed by the **Time Settings** button.



Configure the GMT offset for the city that you wish to represent with your clock. If you are unsure of the GMT offset of a particular city, you can look it up on the following website:

<https://www.timeanddate.com/time/map/>

If you are configuring time for a country with a half-hour or 15-minute offset (such as India, Iran, or parts of Australia), use the Bias Seconds field to account for the additional time. Half an hour is 1800 seconds, and 15 minutes is 900 seconds.

When finished, press the **Submit** or **Change Bias/Offset** button at the bottom.

INSTRUCTIONS CONTINUE ON NEXT PAGE

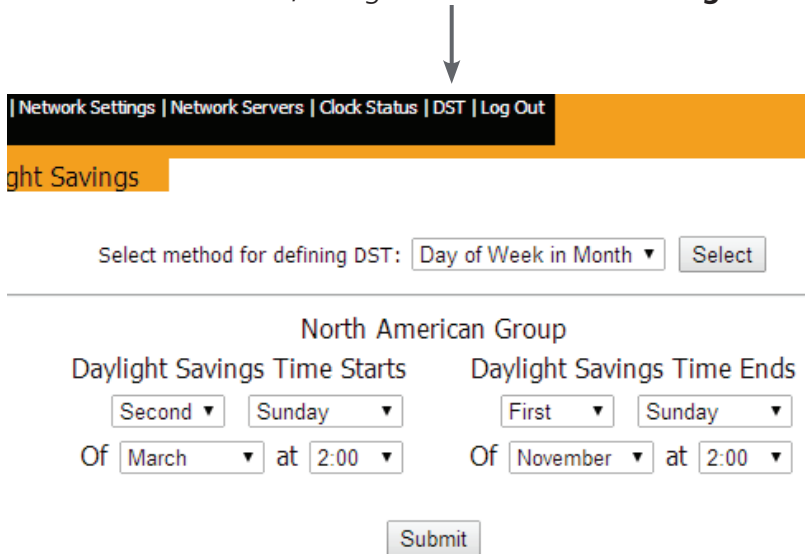
Configuring a Clock to be Used in a Zone Clock

IP Power over Ethernet and Wi-Fi Systems (continued)

Clocks for IP-PoE and Wi-Fi Zone Clocks are configured by the user. **EACH CLOCK MUST BE CONFIGURED SEPARATELY BY THE USER.** Consult the manual for instructions on how to log in to each clock. Once you have logged into the clock, navigate to the following pages:

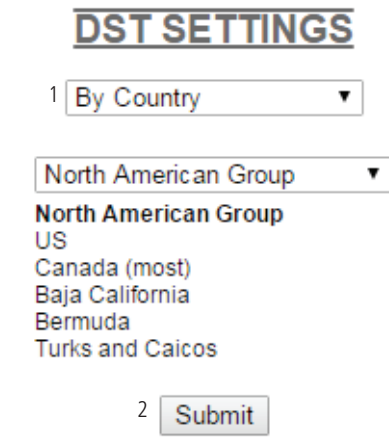
IP Power over Ethernet

On an IP PoE clock, navigate to the **Clock Settings** tab.



Wi-Fi

On a Wi-Fi clock, press the **General Settings** button, followed by the **Daylight Saving Time** button.



Configure the Daylight Saving Time setting so that it matches the country of the clock's designated city. If you are unsure of the DST laws for a particular country, you can look them up on the following website:

<https://www.timeanddate.com/time/dst/events.html>

When finished, press the **Submit** button at the bottom.

At this point, you may wish to attach a sticker or other temporary label to the clock which lists the name of the configured city. This will help you identify the correct nameplate to attach at the end of the installation.

Configuring a Clock to be Used in a Zone Clock

2-Wire and Proprietary Wireless/Talkback Systems

Clocks for 2-Wire and Wireless Zone Clocks are configured by Sapling prior to being shipped to the installer. **You do not need to configure the time zone for the clock when installing it for the first time.** These clocks should have attached labels indicating which name plate each clock should be mounted with. If a clock has not been configured correctly, check to confirm that you have assigned the correct nameplate to the clock. If you are still certain that the clock has not been configured correctly, contact support at (+1) 215.322.6063.

First-time installers should continue to the physical installation part of this manual.

In the unlikely event that you wish to change the pre-programmed time zone of a clock, you will need the following:

For Analog Clocks:

- A Computer with at least one open USB port running Windows 7, 8, 8.1, or 10.
- A copy of the program `anaconfig.exe`
- A USB-to-clock programming cable, part number A-USBTTL-INTF-1

For Digital Clocks:

- A Computer with at least one open USB port running Windows 7, 8, 8.1, or 10.
- A copy of the program `sbdconfig.exe`
- A USB-to-clock programming cable, part number D-USB485-INTF-1

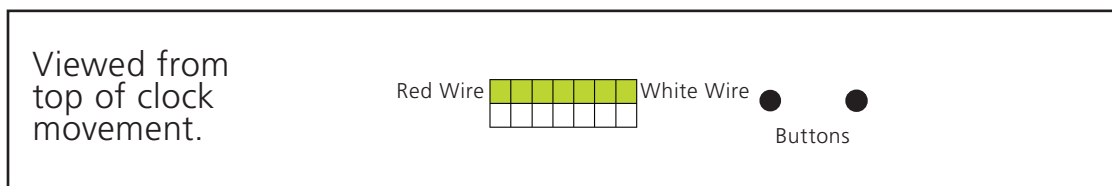
Instructions on connecting to and reconfiguring a Digital Clock using `sbdconfig.exe` may be found in the Digital Clock Manual.

To reconfigure an Analog Clock, take the clock off of the zone clock pole and use the following instructions:

- 1) Connect the USB side of the cable to your computer's USB port. Your computer may indicate to you that it is installing device drivers. If so, wait until the drivers are installed before proceeding.
- 2) Connect the clock side of the cable to the port on top of the clock, then power the clock.

Note the colors of the wires on the clock-side connector. Orient the cable using these colored wires.

FRONT/FACE OF CLOCK



BACK OF CLOCK

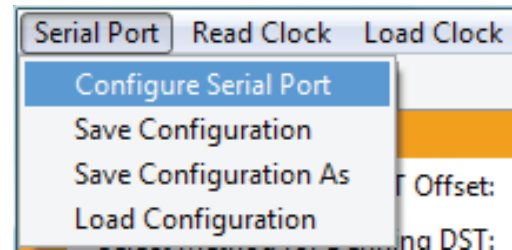
INSTRUCTIONS CONTINUE ON NEXT PAGE

Configuring a Clock to be Used in a Zone Clock

2-Wire and Proprietary Wireless/Talkback Systems (continued)

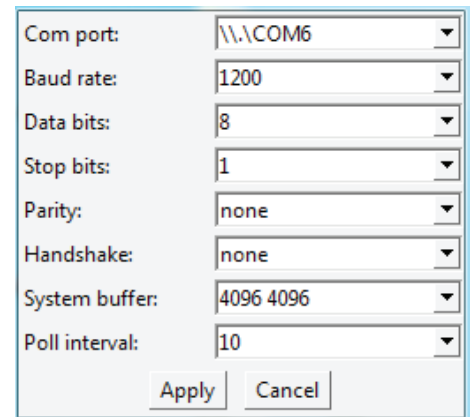
3) Launch anaconfig.exe.

4) At the top of the program window, click on **Serial Port**, then on **Configure Serial Port** from the drop-down menu. A new window for Serial Configuration should appear.



5) Make sure the following values are entered:

Baud Rate - 1200
Data bits - 8
Stop bits - 1
Parity - none
Handshake - none
System Buffer - 4096 4096
Poll Interval - 10



6) Obtain the COM port by pressing the windows start button, then using the search bar to find a program "Device Manager".

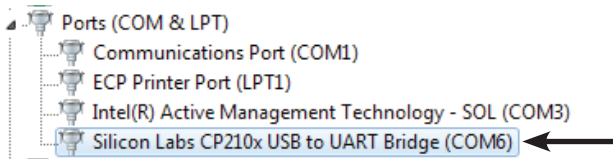
If this doesn't work, on Windows 7, press the start button, then click on the following buttons/links in this order: Start button, Control Panel, System and Security, Device Manager. On Windows 10, right click on the Start button and select Device Manager from the drop-down menu.

7) Look for a new item called **USB to UART Bridge Controller** under the Device Manager category "Other Devices". This means that a driver must be installed. You may obtain and install the correct driver for your operating system at this URL:

<https://www.silabs.com/products/development-tools/software/usb-to-uart-bridge-vcp-drivers>

Configuring a Clock to be Used in a Zone Clock

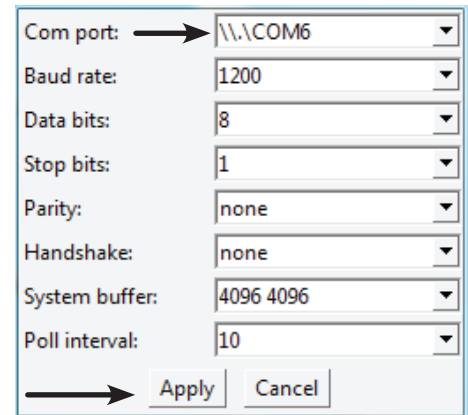
2-Wire and Proprietary Wireless/Talkback Systems (continued)



8) After the drivers have been successfully installed, the Device Manager will refresh and a new item will appear under the Ports (COM & LPT) category. Identify the item labeled **Silicon Labs CP210x USB to UART Bridge**. Make note of which port the USB Serial Port is assigned to. In this example it is COM6.

9) Enter this information in the Serial Configuration window for anaconfig.exe.

Once entered, press the Apply button on the Serial Configuration window.



10) Make sure the Zone Clock DST Tab is selected.



11) Enter the new GMT Offset for this clock. 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.

Clock GMT Offset: 0

INSTRUCTIONS CONTINUE ON NEXT PAGE

Configuring a Clock to be Used in a Zone Clock

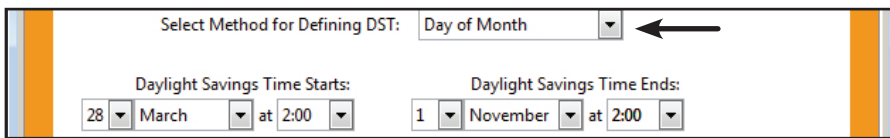
2-Wire and Proprietary Wireless/Talkback Systems

12) Enter the new Daylight Savings Time setting for this clock. Look up the Daylight Savings Rules for the location that the clock will represent, then enter the appropriate DST information.

Select Method for Defining DST: This drop down allows a user to choose between four options for Daylight Savings Time.

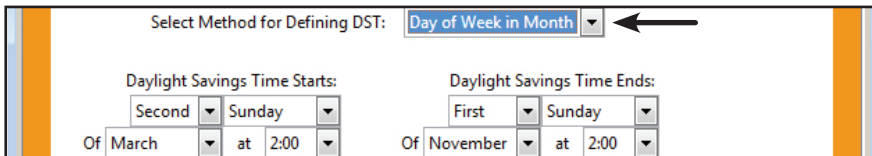
Day of Month: When this option is selected, Daylight Saving Time can be set based on what date and time it begins and ends. For example, Daylight Saving Time can begin on March 28 at 2AM and end on November 1st at 2AM. (Fig. 1.)

Fig. 1



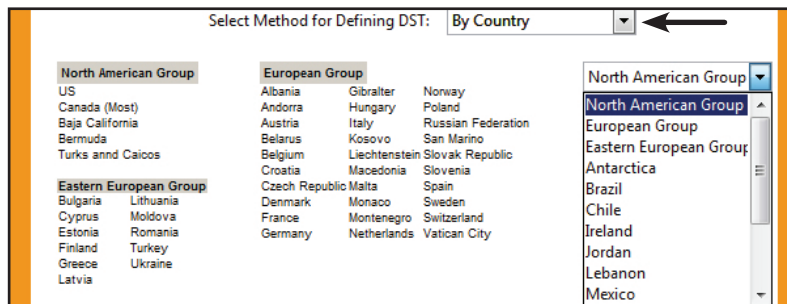
Day of Week in Month: When this option is selected, Daylight Saving Time can be set based on what week in what month and what time it begins and ends. For example, Daylight Saving Time can begin on the second Sunday in March at 2AM and ends on the first Sunday in November at 2AM. (Fig. 2)

Fig. 2



By Country: When this option is selected, Daylight Saving Time can be chosen by country. For example, Daylight Saving Time can be selected to follow the DST rules established in the United States. (Fig. 3)

Fig. 3



None: When this option is selected, Daylight Saving Time is not applied. (Fig. 4)

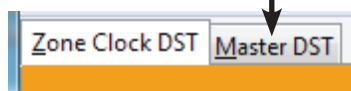
Fig. 4



13) Once all of the settings are chosen, Click the **Update Clock** button on the bottom.

Update Clock

14) Select the Master DST Tab

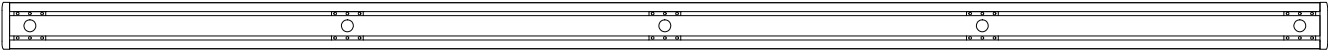
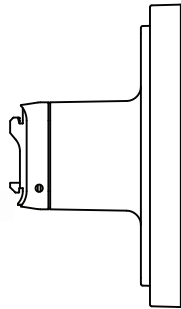
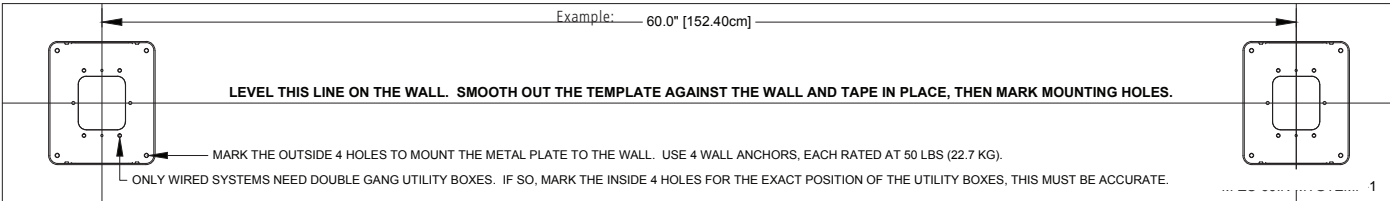


15) Enter the GMT Offset and DST for YOUR time zone. These should be the settings already entered on your local master clock. Once these settings have been entered, click on the Update Clock button at the bottom.

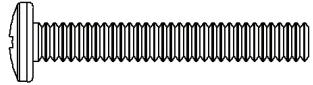


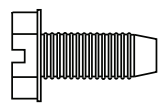
16) Remove the programming cable and mount the clock on the Zone Clock Pole.

Mounting a Zone Clock Pole

Included in Package

Description	Quantity	Picture
1) Zone Clock Pole	1	(Shown below. The pole length may vary depending on the number and type of clocks.)
		
2) Mounting Bases	2 (Depending on Pole Length)	
3) Mounting Template	1	(Shown below. The template content may vary depending on the number and type of clocks.)
		
4) Mounting kit	1	(See below)

Included in Wiring and Mounting Kit

4a) #6-32x1 screw	8	
4b) #8-32x(SEE NOTE)	12-42 (Depending on number and type of clocks)	
4c) Internal-tooth washer	12-42 (Depending on number and type of clocks)	
4d) #10-32x3/8 green screw	1	

A user will also have to provide a Phillips-head screwdriver, power and communication cables, a small flat-blade screwdriver, eight #8 Self-tapping screws, and eight wall anchors. The wall anchors should be able to support the self-tapping screws and a weight of at least 50 pounds (22.68kg).

IP systems will also require an RJ45 connector, and a crimping tool for an RJ45 connector.

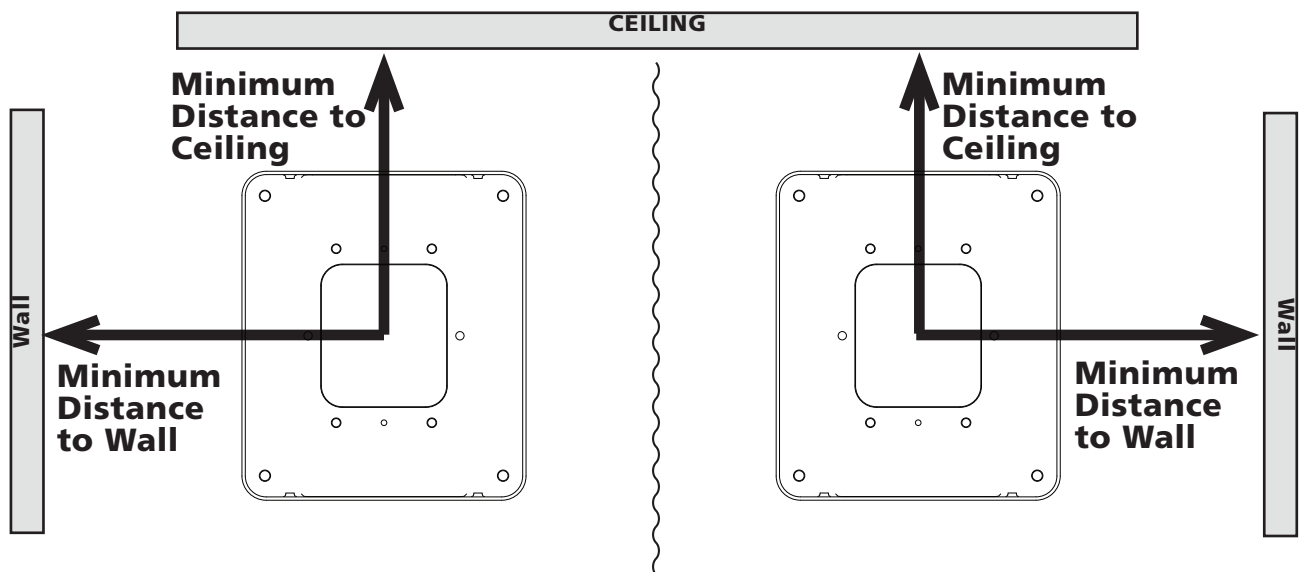
The kit will also include the individual clocks and housings. Consult the manual for your type of clock system for additional parts.

NOTE: This value is 3/8" for all clocks except square clocks. For each square clock, two screws will be 3/8" while the other four screws will be 3/4"

Mounting a Zone Clock Pole

1) Determine where you wish to install the zone clock by using the template as a guide. Use a level to confirm that the horizontal line on the template is level with the floor. The amount of space that you must leave between the template and the ceiling or walls depends on the type of clock that you purchased. Use the table below to determine how much space is required for your zone clock. Height is the distance from the center of the mounting plate to the ceiling. Length is the distance from the center of the mounting plate to the closest wall.

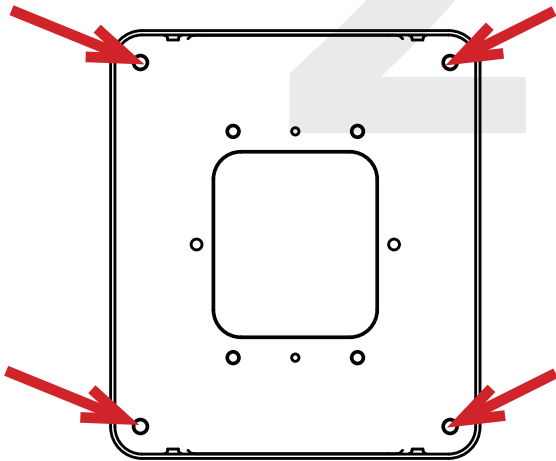
When you are satisfied with the position, attach the template to the wall to prevent it from moving.



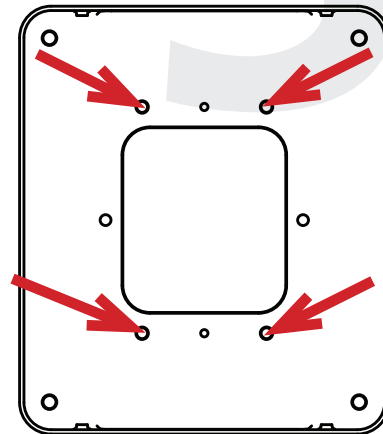
NAME	TO CEILING	TO WALL
Analog with Round 12 inch housing	10.5" (26.7cm)	10.5" (26.7cm)
Analog with Round 16 inch housing	14.5" (36.8cm)	14.5" (36.8cm)
Analog with Round 12 inch housing and Aluminium Rim	11.5" (29.2cm)	11.5" (29.2cm)
Analog with Round 16 inch housing and Aluminium Rim	15.5" (39.4cm)	15.5" (39.4cm)
Analog with Square 9 inch housing	9" (22.9cm)	9" (22.9cm)
Analog with Square 12 inch housing	11" (27.9cm)	11" (27.9cm)
Digital with 2.5 inch 4 digit display	5" (12.7cm)	11.5" (29.2cm)
Digital with 2.5 inch 6 digit display	5" (12.7cm)	13.0" (33.0cm)
Digital with 4 inch 4 digit display	5" (12.7cm)	13.0" (33.0cm)
Digital with 4 inch 6 digit display	5" (12.7cm)	16.5" (41.9cm)

Mounting a Zone Clock Pole

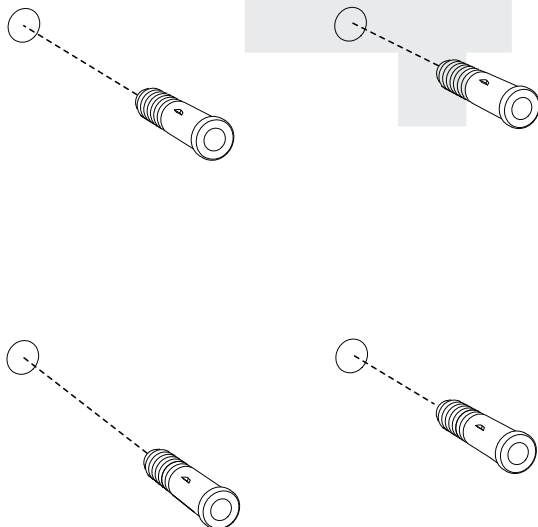
2) Locate the positions for the outer holes on each mounting plate. Use the drill to create each hole through the template.



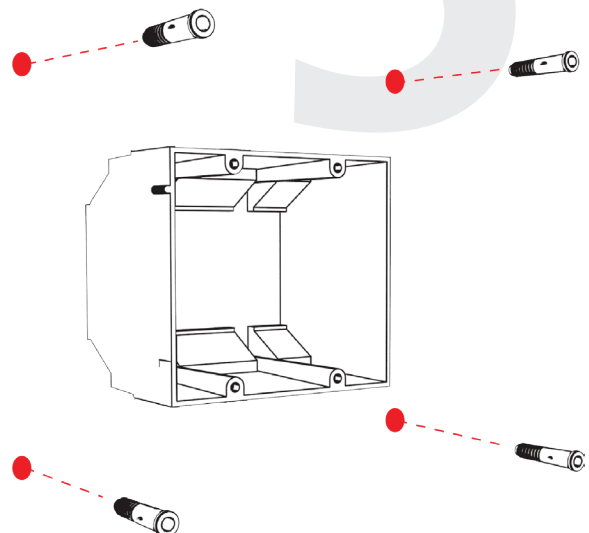
3) Use a pencil to poke through the template and find the position of each inner hole. Mark each position on the wall. **Skip this if your clock is battery-powered.**



4) Remove the template and insert the wall anchors into the outer holes.

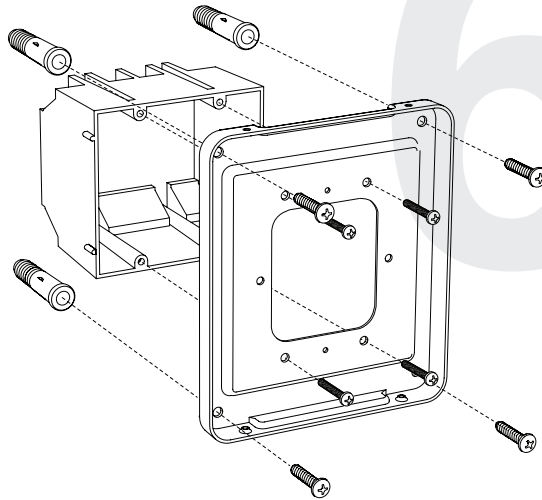


5) Use the positions of the marked holes to trace the location for your double gang box. It is VERY important that the holes on the gang box match the positions of the marked holes on the template. **Skip this if your clock is battery-powered.**



Mounting a Zone Clock Pole

6) Insert the machine screws through the mounting plates and into the gang boxes, then insert the self-tapping screws through the mounting plates and into the wall anchors.



7) If wires are being used, run wiring from your Master Clock/PoE Switch/Converter Box to the gang boxes. Consult your clock's manual for wiring instructions. Check with the manual for your Master Clock/PoE Switch/Converter Box to confirm that the Master Clock/PoE Switch/Converter Box is functioning correctly. If you are using an IP-Ethernet clock, do not run more than four wires to each gang box. If you have more than three IP clocks on the pole, run additional ethernet cables to the other gang boxes. **Skip this if your clock is battery-powered.**

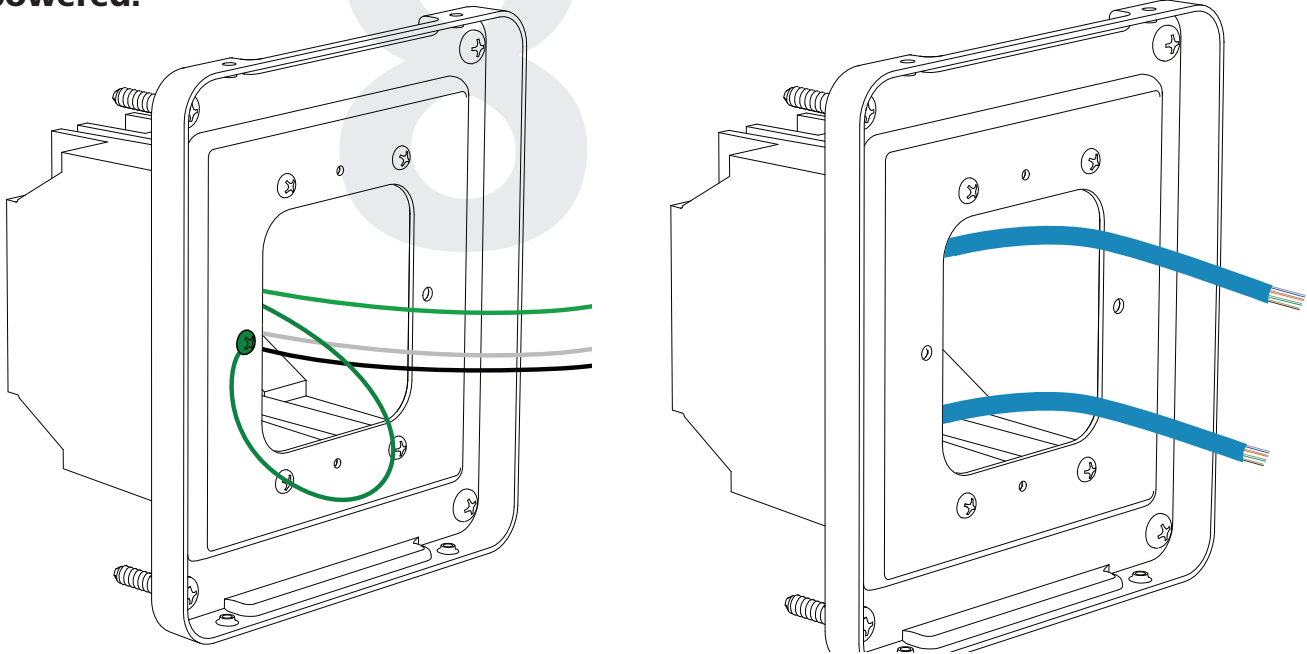
CHECK YOUR WIRING

The voltage between the white and black wires should measure 21.5-26.5 volts AC in the 24 volt model.

If you are using the 24 volt 2-wire digital system, consult the converter box manual for more information.

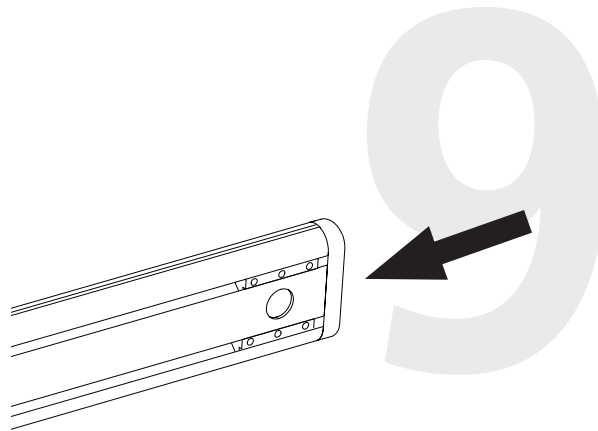
Mounting a Zone Pole

8) Thread wiring through the mounting plate. If the wires are NOT Power over Ethernet, attach grounding wires to mounting plates using green screws. **Skip this if your clock is battery-powered.**



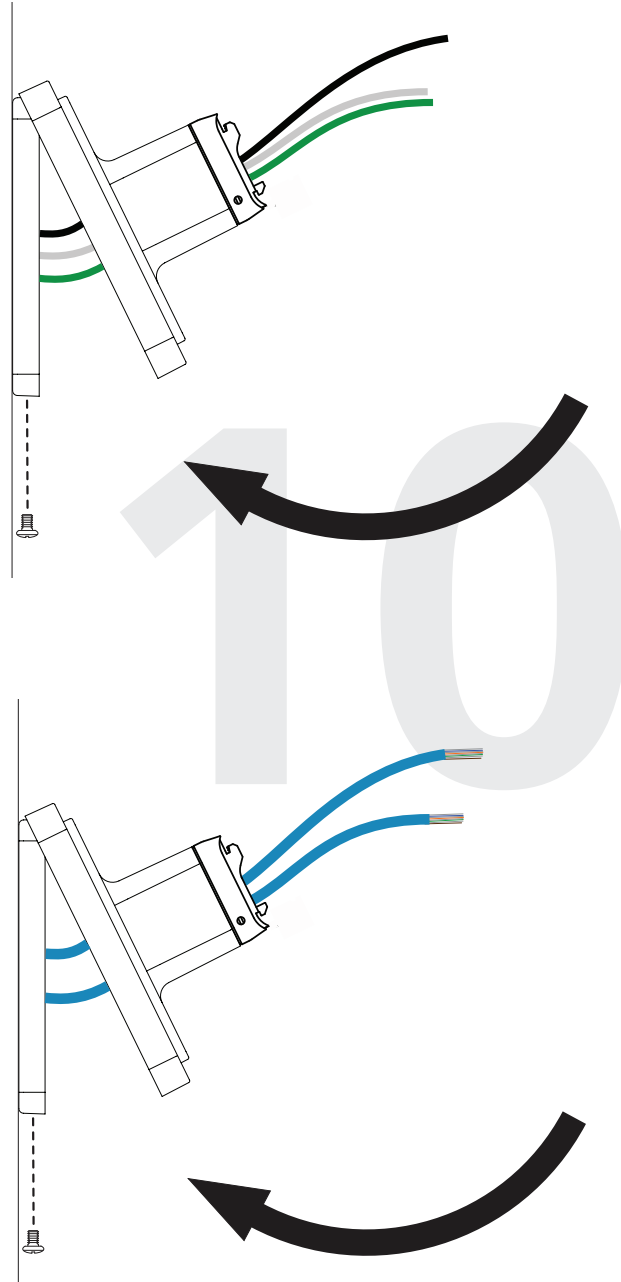
* Power wires should extend far enough from the gang box to reach the first clock.

9) Place the end-caps on the pole. Your pole may already have end-caps attached.



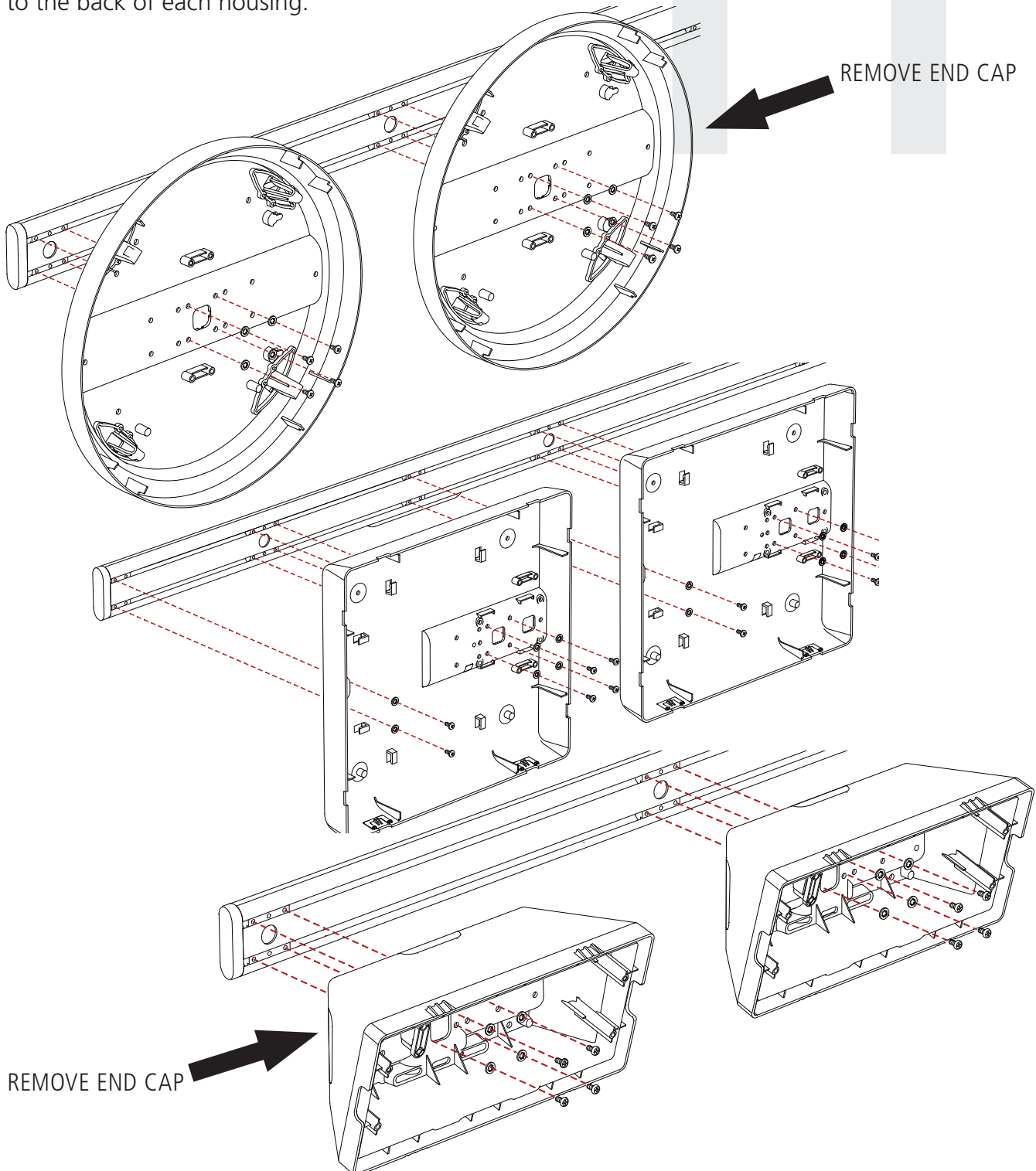
Mounting a Zone Pole

10) Thread wiring through the bases, then attach the bases to the mounting plates.



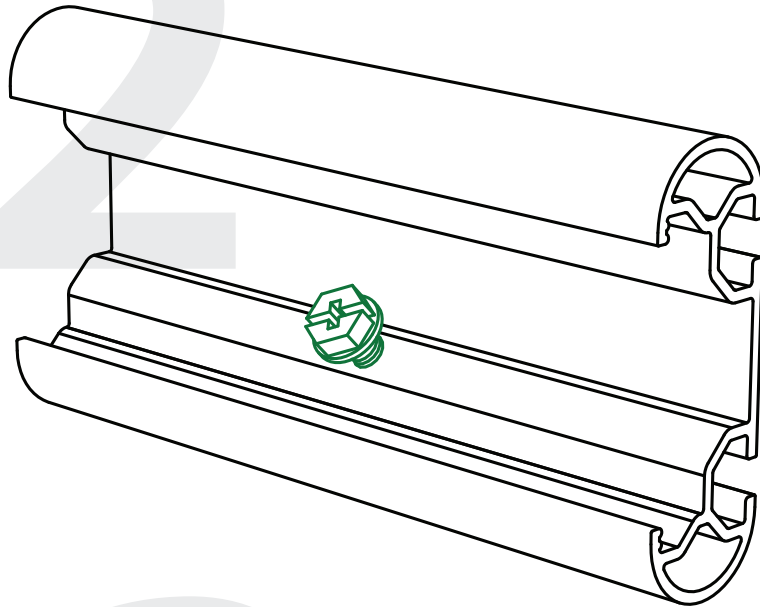
Mounting a Zone Pole

11) Attach the housings to the sliding nuts on the zone clock pole. Use the black M4-0.5x10 screws and internal-tooth washers for each housing until each housing is attached. Round and Digital housings require four screws and four washers per housing. Square clocks require six screws and six washers per housing. For Round and Digital, use a screwdriver to remove the end caps attached to the back of each housing.

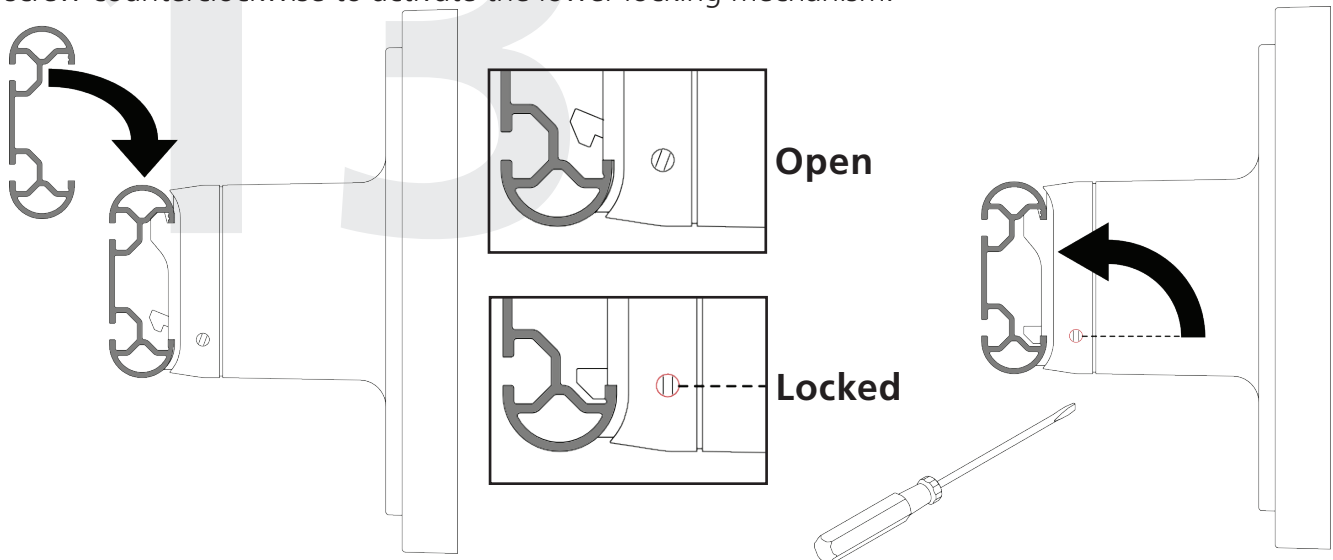


Mounting a Zone Clock Pole

12) Attach the grounding screw to the hole in the zone clock pole. Leave some space between the head of the screw and the pole so that the grounding cable can be attached later. **Skip this if your clock is battery-powered or uses Power over Ethernet.**



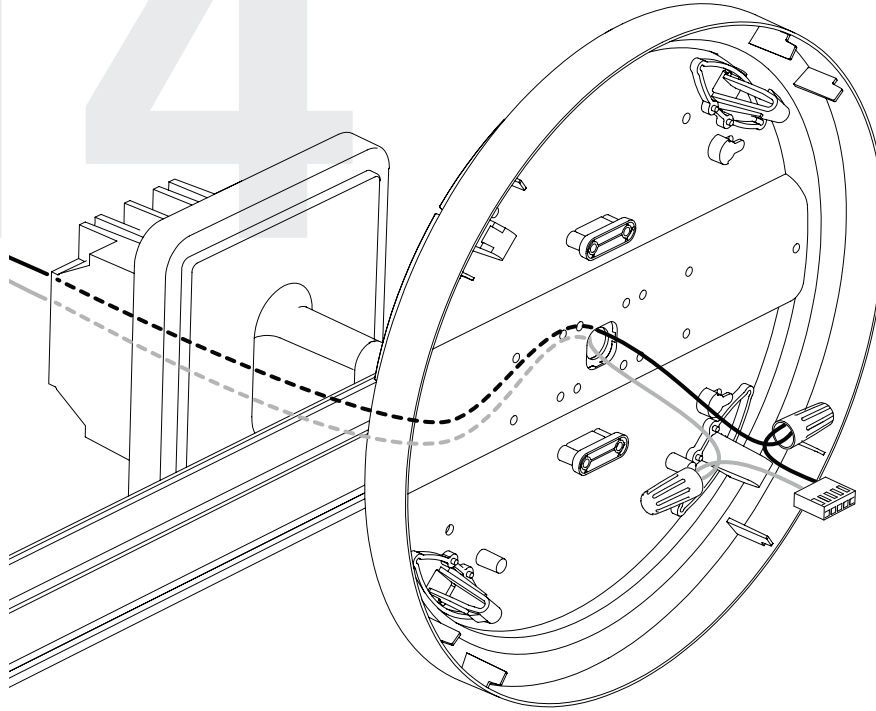
13) Mount the zone clock pole and attached housings to the bases by hanging the upper edge of the pole on the upper hooks of the base. Then, using the flathead screwdriver, turn the inner screw counterclockwise to activate the lower locking mechanism.



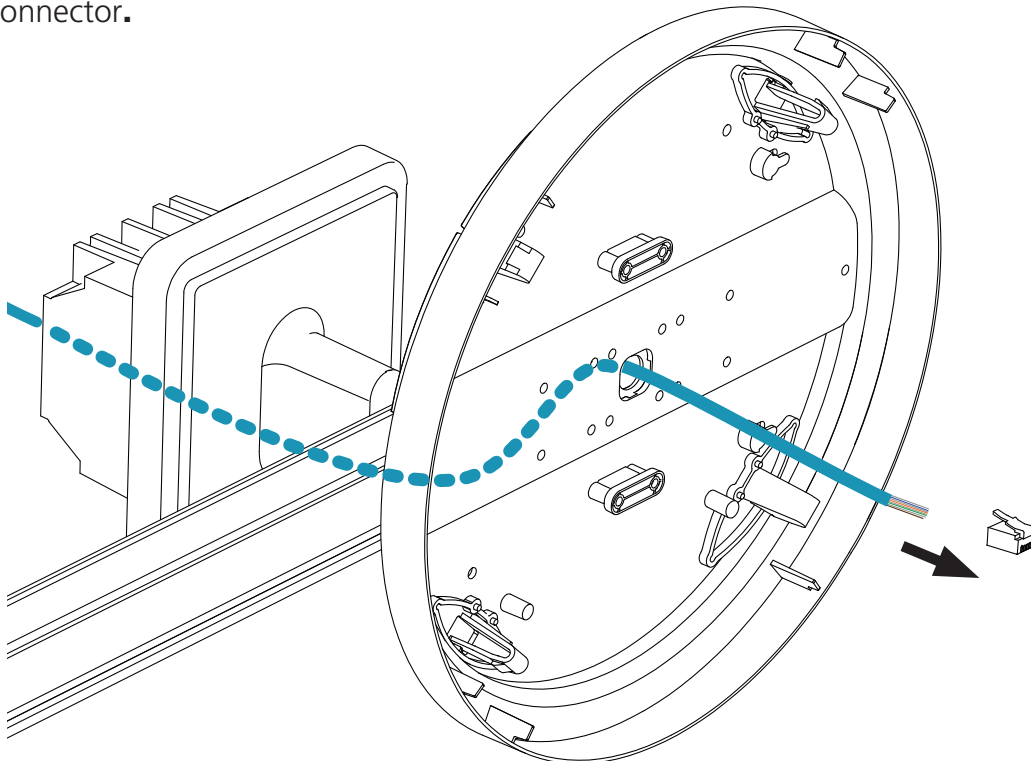
Test the pole to confirm that the locking mechanism has fully engaged. The pole should be able to slide side to side while attached to the base, but a user should not be able to lift the pole off of the base. **FAILURE TO FULLY ENGAGE THE LOCKING MECHANISM MAY RESULT IN USER INJURY.**

Mounting a Zone Clock Pole

14) Attach the wires that have been threaded into each adapter to one of the supplied connectors. Consult your clock manual for instructions on how to properly wire the other clocks. **Skip this if your clock is battery-powered.**

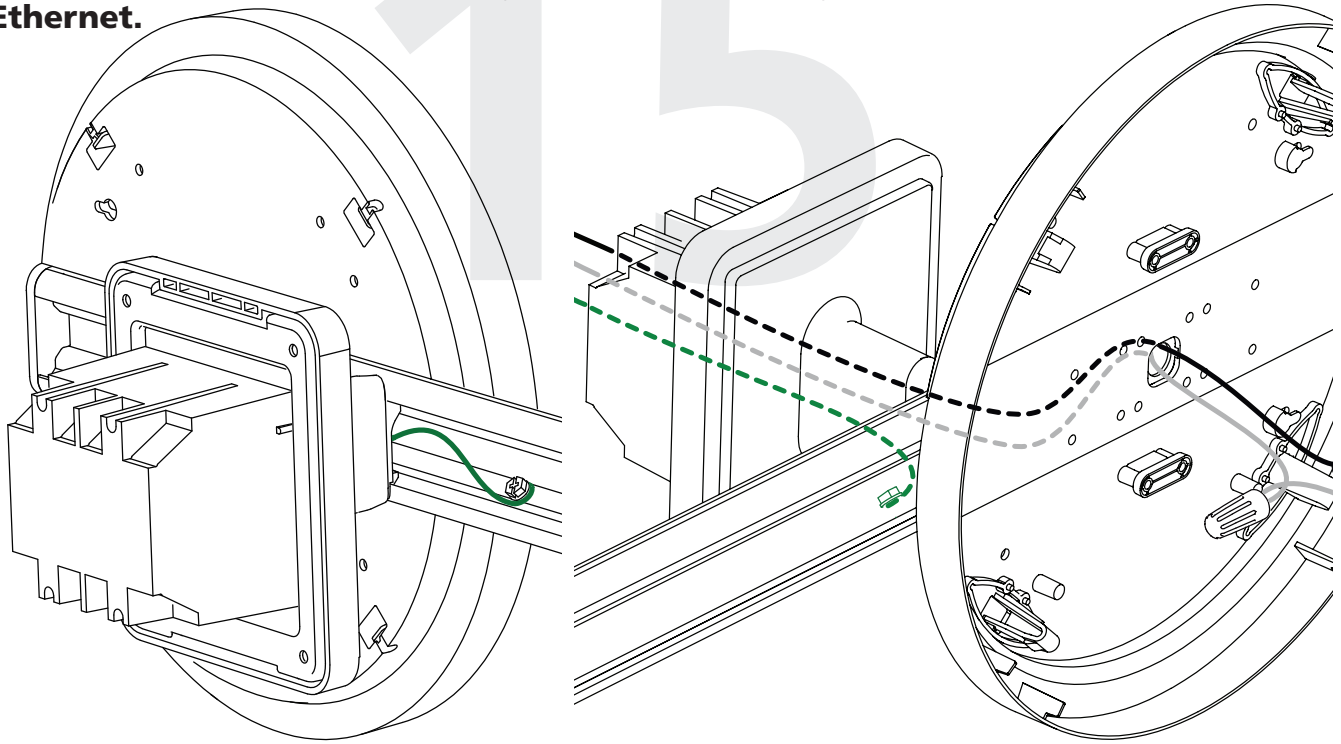


If your clock uses **Power over Ethernet**, use a crimp tool to insert the CAT5/CAT6 wires into the RJ45 connector.



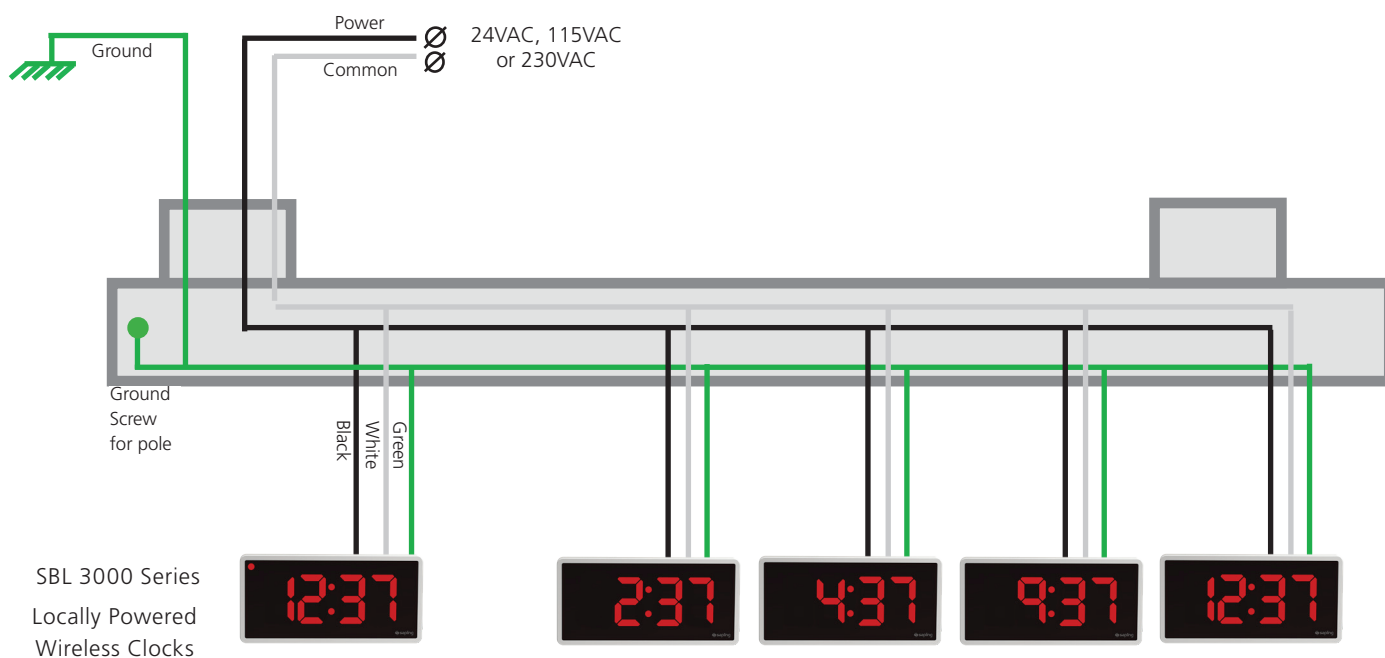
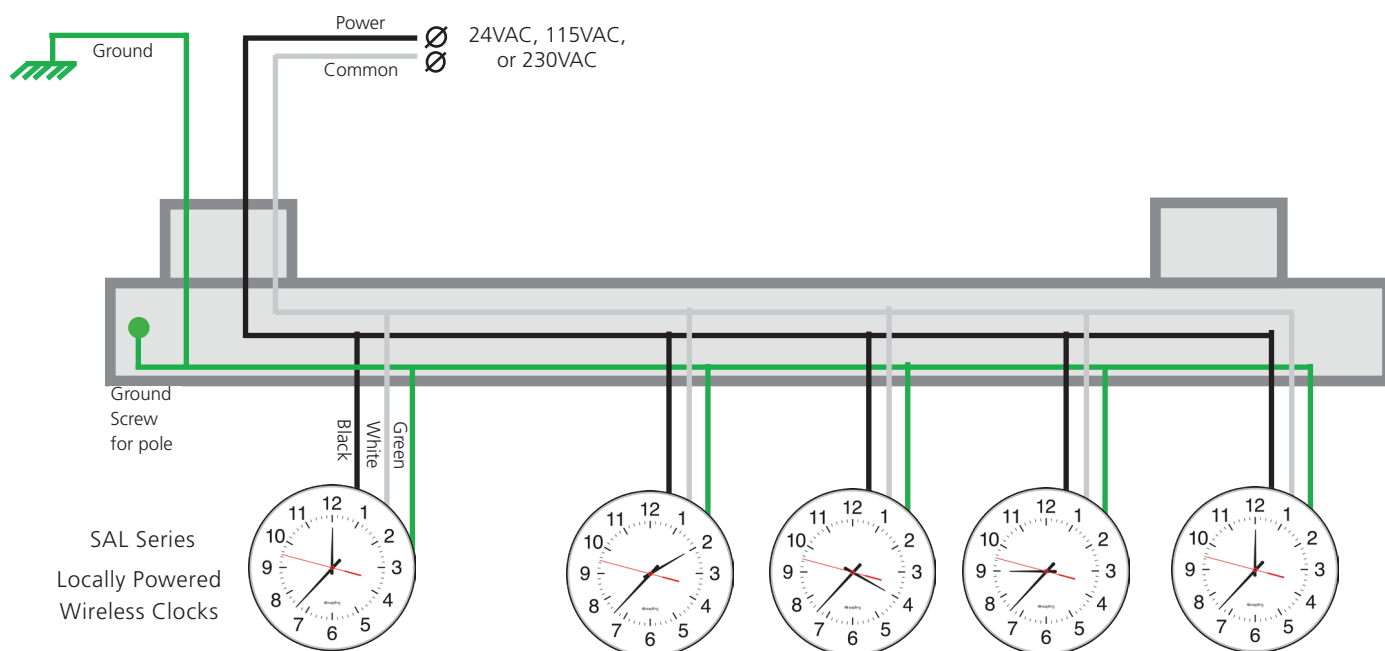
Mounting a Zone Clock Pole

15) Attach the grounding wire to the green grounding screw. Once the wire is wrapped around the screw, tighten the screw so that the grounding wire is held firmly between the screw head and the surface of the pole. **Skip this if your clock is battery-powered or uses Power over Ethernet.**

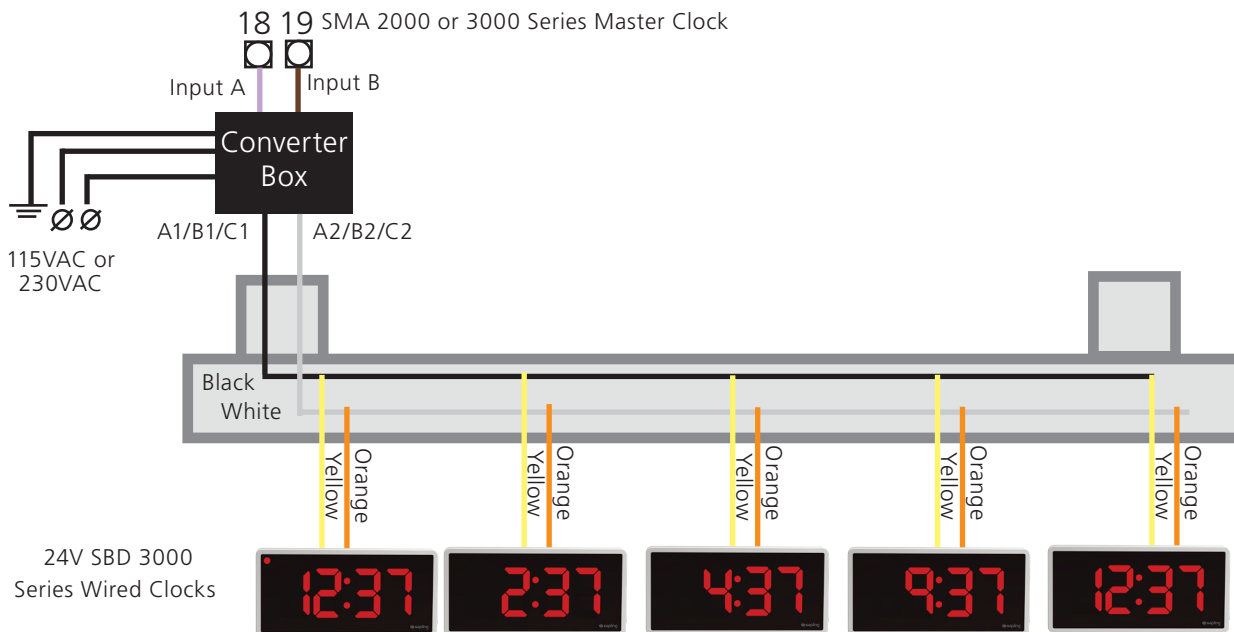
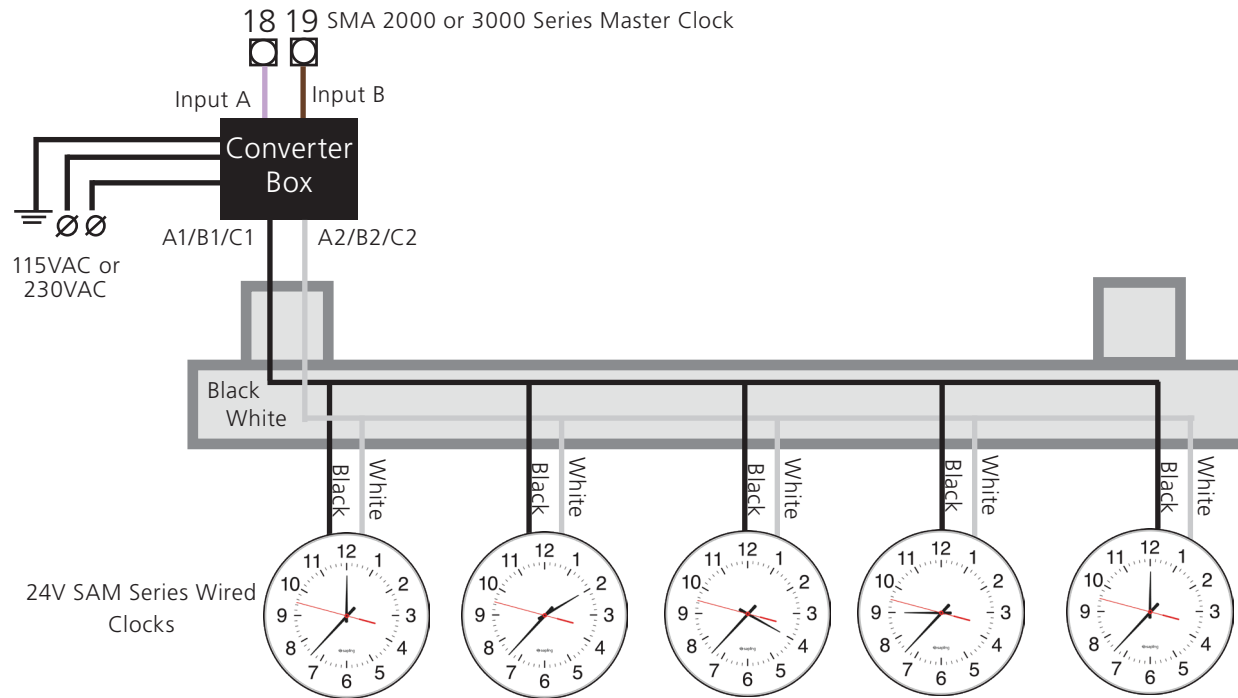


16) Run wiring or IP cables to the remaining clocks. Thread wiring through the white cable anchors where applicable (this may have already been done for you, if it is a wire-powered system). Details on how to power each clock and attach it to the housing can be found in the double-mount portion of the clock manual for your synchronization system.

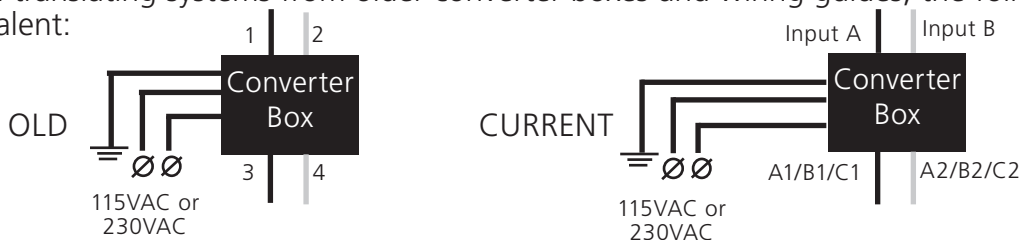
Wiring Guide—Locally Powered Wireless



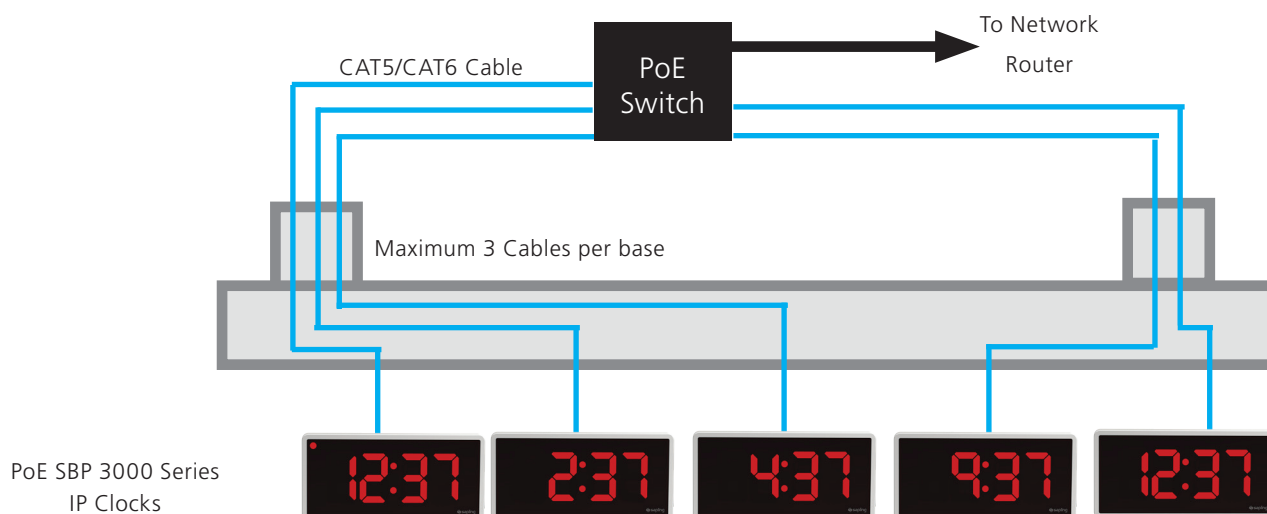
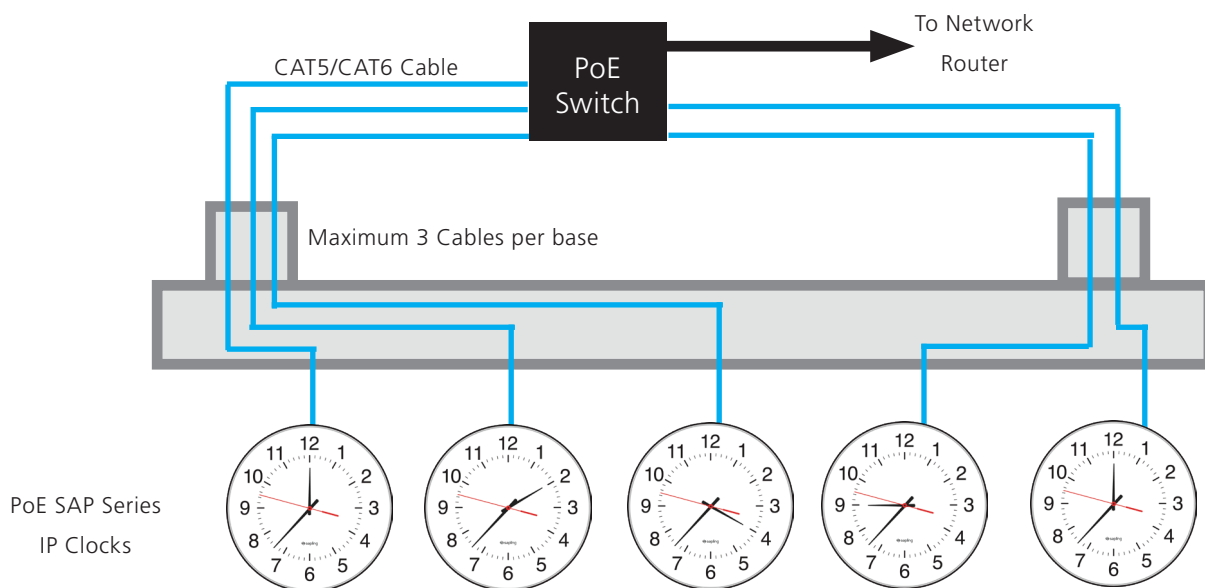
Wiring Guide—2-Wire Digital



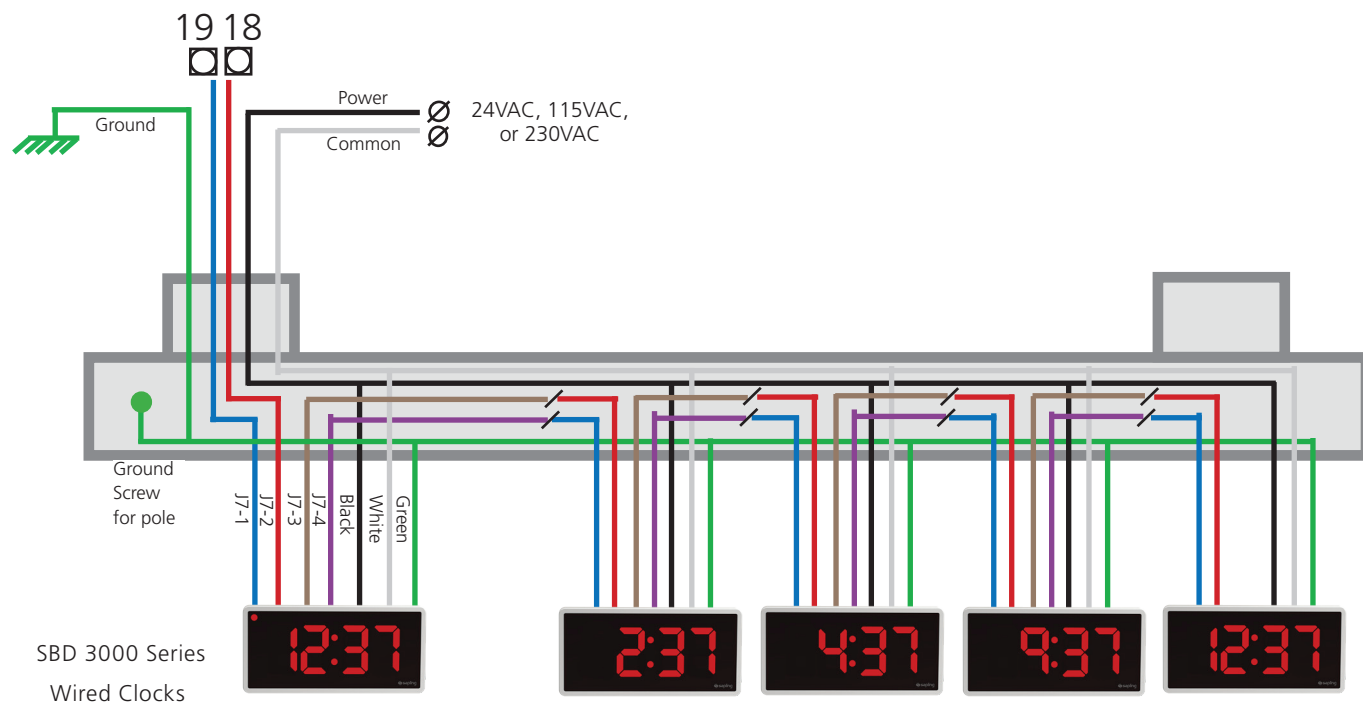
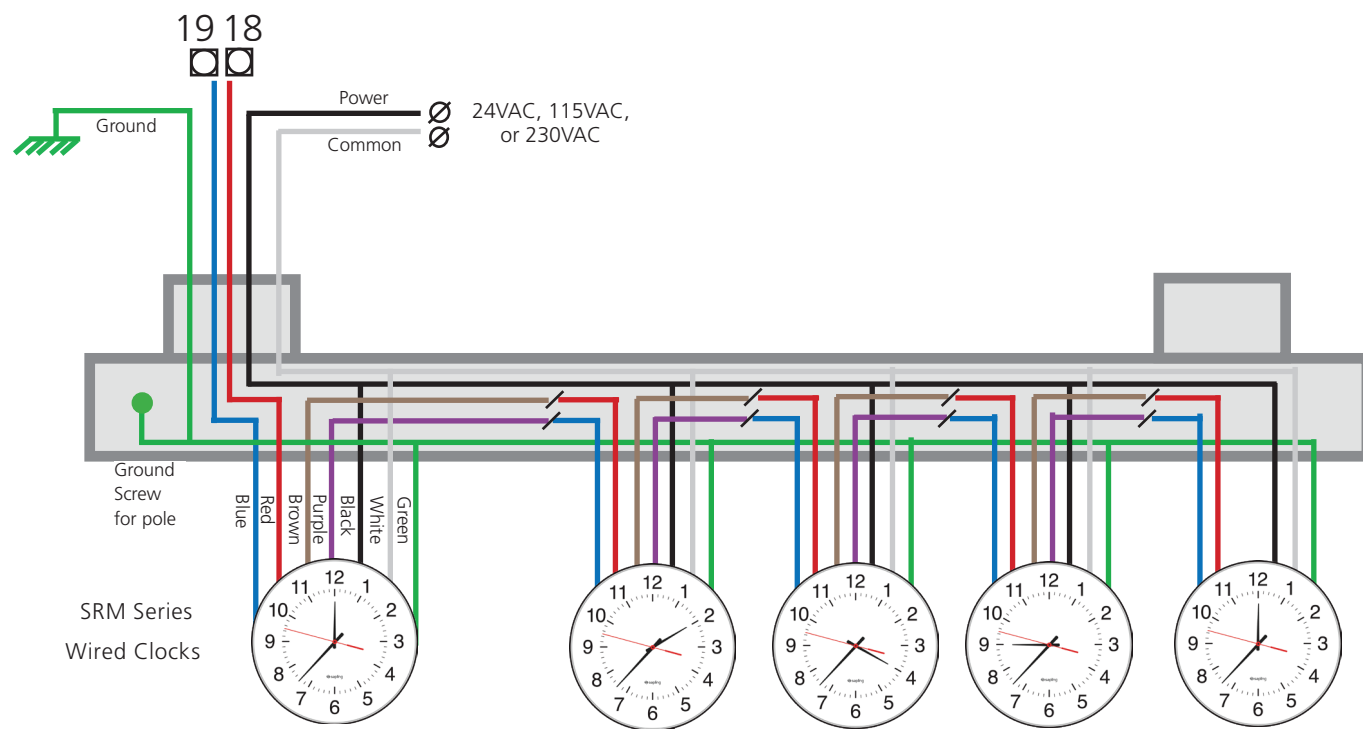
When translating systems from older converter boxes and wiring guides, the following values are equivalent:



Wiring Guide—Power over Ethernet (PoE)

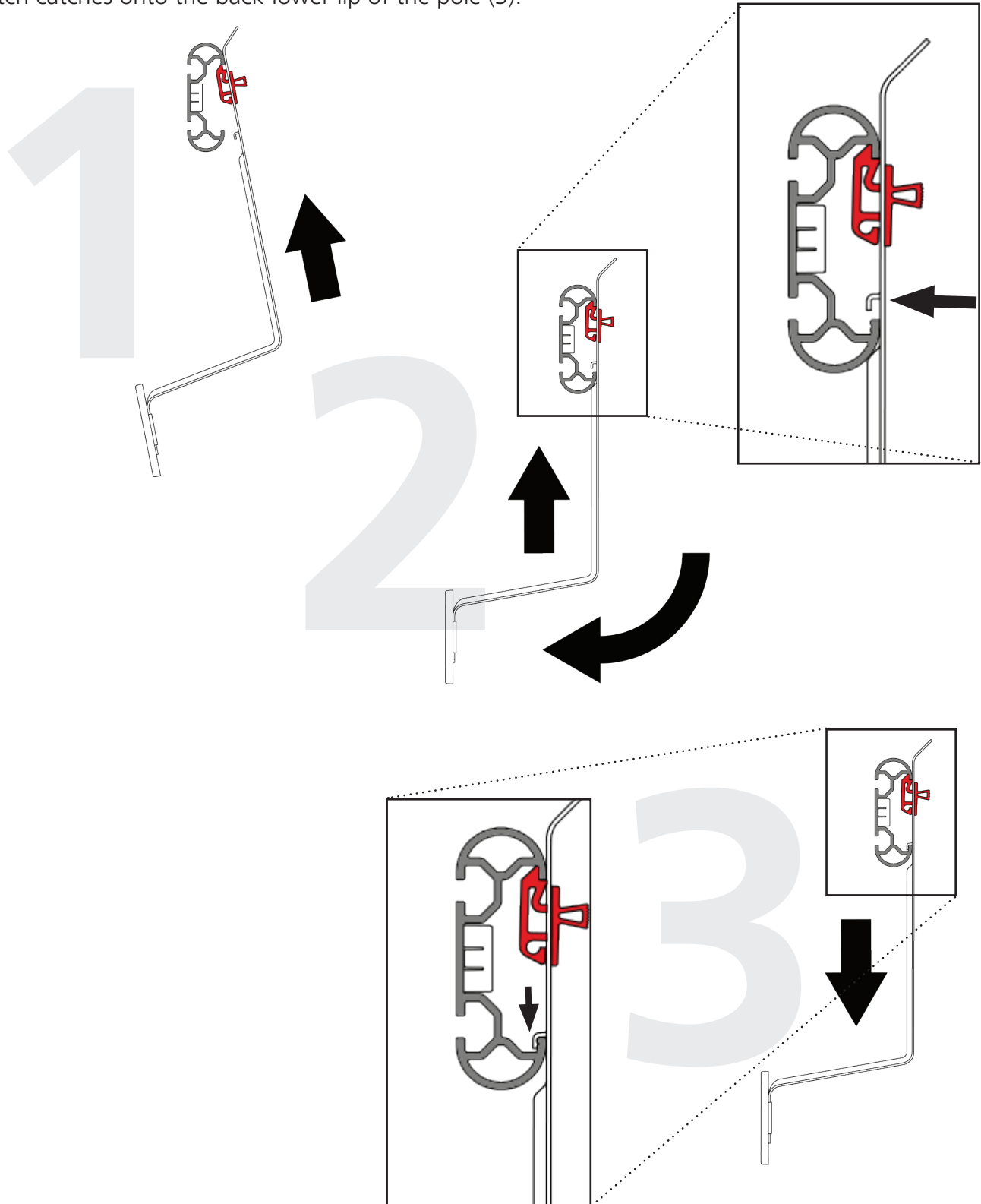


Wiring Guide—RS485



Attaching the Name Plates

The name plates are attached to the pole by sliding the upper latch underneath the back-upper lip of the mounting pole (1), then swinging the bottom of the plate forward (2) until the lower latch catches onto the back-lower lip of the pole (3).



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.

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