

Installation and Operation Manual

Wi-Fi Digital and Analog Clocks (with instructions on optional Elapsed Time Indicator and Code Blue functions)



The Wi-Fi clock(s) should be installed in a secure location protected from:

- Physical damage
- Water, including condensation
- Direct sunlight
- Operation by untrained personnel

Operation of this product in a manner inconsistent with the instructions in the manual may result in damage to the product and will void the warranty.

Specifications

Installation

Button
Operation

Configuration

Homing Clock

Firmware
Update

Factory Defaults
Restore

Troubleshooting

Appendix

American Time

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american-time.com

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Installation

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Firmware
UpdateFactory Defaults
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Troubleshooting

Appendix

Wi-Fi is a popular technology that allows an electronic device to exchange data or connect to the internet wirelessly using radio waves. Wi-Fi and **Simple Network Time Protocol (SNTP)** are used to make installation and setup as simple as possible. All you need to do is apply power to a pre-configured clock in an area where the intended **Wireless Local Area Network (WLAN)** signal strength is sufficient.

Each Wi-Fi clock can be factory-configured to receive the precise time signal from your network server. They also automatically correct for the Daylight Saving Time changes and require little maintenance. Wi-Fi clocks only require synchronization twice per day using SNTP and create very little network traffic with staggered wake times. The electric and digital models can be user-selected to synchronize at a desired frequency.

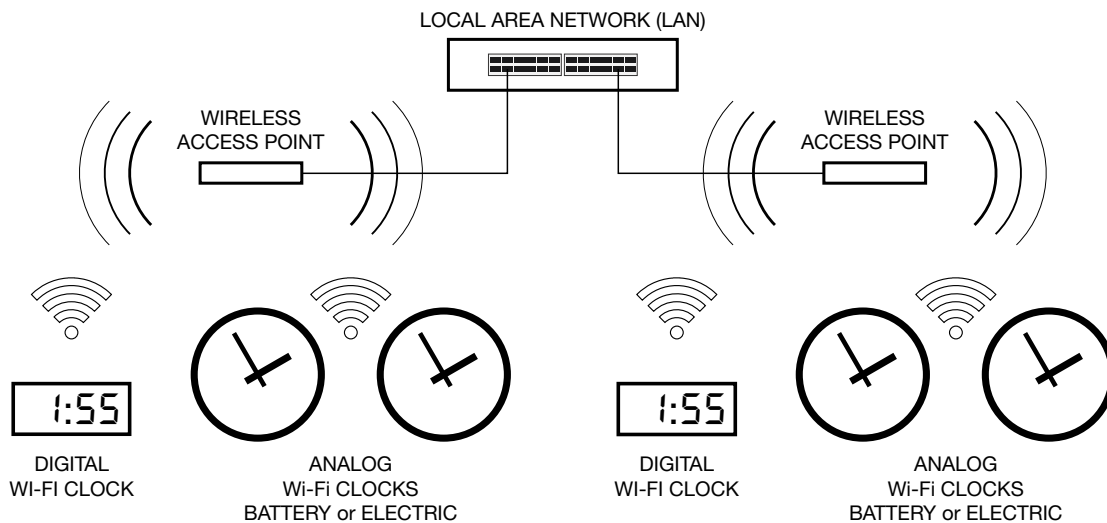
Network

Pre-configured Wi-Fi Clocks are plug and play on networks with Dynamic Host Configuration Protocol (DHCP).

A limited access point mode is also available for clocks that are not pre-configured at American Time as recommended.

IP – Wi-Fi Synchronized Time System

Description: Network diagram showing IP network clocks connected to LAN through multiple Wireless Access Points (WAP). Number of WAPs needed determined by Wi-Fi signal range. Wi-Fi clocks provided by American Time.



inCloud Management Portal

Wi-Fi clocks are configured for use with American Time's inCloud Management Portal. With the inCloud management portal you can set up, monitor and manage your American Time network clocks easily and from anywhere. inCloud is a cloud-based management interface, featuring a status dashboard for monitoring your clocks, configuration profiles to ensure clocks are utilizing the same settings, and network/connectivity information.

The designated site manager for your location should have received a welcome e-mail with a link to inCloud and initial log-in information after placing the order for your clocks. Logging in to inCloud will be required to complete setup of the clocks; ensure that you or your site manager is available during the configuration and installation process.

NOTE: Refer to the instruction sheet included with your shipment (INST-3244 - Setting Up Clocks on inCloud Management Portal) for information on initial setup with inCloud.

Any configuration changes should be performed using the inCloud management portal. To log in to inCloud, visit incloud.american-time.com and log in with the credentials provided in your site welcome e-mail.

NOTE: For non-inCloud customers, Wi-Fi clocks can still be individually configured and modified using the Limited Access Point mode described in the Configuration section of this manual.

General Features:

- Supports 2 static IP address SNTP servers for redundancy or Pool domain names
- 802.11n (b/g compatible, 2.4 GHz only)
- Data rates: 72, 65, 58, 43, 29, 22, 14, 7 Mbps (802.11n)
54, 48, 36, 24, 18, 12, 9, 6 Mbps (802.11g)
11, 5.5, 2, 1 Mbps (802.11b)
- Security protocols: WEP, WPA/WPA2 and Enterprise (PEAPv0-MSCHAPv2)
- DHCP or Static IP addressing
- Limited Access point operation for configuration
- Clocks may be preconfigured (SSID, Passphrase, time zone, time servers) for plug-n-play installation
- Clocks automatically update for DST by default
- Staggered wake times for reduced network load
- Wi-Fi Alliance Radio/FCC/ICES certified
- RoHS Compliant

General Specifications:

Operating Humidity: 0% to 95%, non-condensing

Operating Temperature: 32°-122°F (0°-50°C)

Storage Temperature: 32°-122°F (0°-50°C)

Accuracy: ±1 second



This icon indicates sections or pages which apply specifically to **analog clocks**



This icon indicates sections or pages which apply specifically to **digital clocks**

Wi-Fi Analog Clock Features:

- WLAN time synchronization
- Status LED
- Plug and play installation with no manual adjustments
- Battery clocks use six AA lithium batteries (included domestically)
- Electric clocks - 24VAC, 120VAC, 220VAC
- Plastic case clocks are high-impact resistant with a shatter-resistant polycarbonate crystal
- Metal case clocks are either anodized aluminum or powdercoated steel bezels with convex glass (10" and 12") or polycarbonate (15") crystal
- Wood case clocks are available in light oak or mahogany with a shatter-resistant polycarbonate crystal.

Model # nomenclature

WNXXXXXXXXXXXX

(a) (b) (c) (d) (e) (f) (g) (h) (i)

a: Clock Type

WN - Wi-Fi

b: Clock Diameter

4 - 10"

5 - 12"

6 - 15"

c: Mounting Type

2 - Round double-dial, ceiling mount

3 - Round double-dial, wall mount

4 - Round surface mount

5 - Round flush mount

6 - Round surface mount, plastic case

7 - Square surface mount

8 - Square flush mount

9 - Double-dial case, single display

d: Bezel Material/Finish

AG - Aluminum w/ polycarbonate lens

BA - Black plastic

BG - Black sand steel,
polycarbonate lens

BH - Black sand steel

GG - Gray steel w/ polycarbonate lens

GH - Gray steel

LG - Light oak w/ polycarbonate lens

MG - Mahogany w/ polycarbonate lens

WA - White plastic

e: Power Type

A - 110v/220v

B - 24v

D - AA battery powered

f: Movement

D - "AA" Movement

g: Hanger

1 - National Time

2 - Double-dial

3 - Economy (molded in)

4 - Surface

5 - Simplex

8 - Setco/Stromberg

9 - R&H (keyhole)

h: Dial and Color

01-93 - Dial style variations

AA - Dial style variation

XX - Custom dial

i: Special Customer Designations

BP - Battery booster pack

BU - Battery booster pack (unloaded)

L - Customer logo

LX - Customer logo, no labels

X - No logo

Z - Special (e.g. hands)

Wi-Fi Digital Clock Features:

- Super-bright red or green LED for high readability
- WLAN time synchronization
- Non-glare lens
- Selectable 12- or 24-hour format
- Black anodized aluminum frame
- 3 brightness levels (user-selectable)
- 10-year battery backup for internal realtime clock
- Included mounting bracket
- Visibility: 2.5 inch digits - up to 125 ft.; 4 inch digits - up to 200 ft.
- Optional Elapsed Time Indicator and Code Blue function
- Optional Calendar Mode with configurable date/time display durations and six date display options:

MM:DD:YY	DD:MM:YY	YY:MM:DD	M:D:YY	D:M:YY	YY:M:D
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Dimensions:

Digital Clocks: 2.5" display: 4 & 6 digit - 12.250" x 5.1875" x 2.5"d

4" display: 4 digit - 12.250" x 6.8750" x 2.5"d

4" display: 6 digit - 17.250" x 6.8750" x 2.5"d

ATSTCS Timer Control Station: 4.63"h X 4.56"w X 1.25"deep

Weight: Digital Clock: Varies by model

ATSTCS Timer Control Station: 0.27 lb.

Model # nomenclature

W N D X X X X X X

(a) (b) (c) (d) (e) (f) (g)

a: Clock Type

WND - Wi-Fi Digital

b: Digit Size

2 - 2.5"

4 - 4"

c: Number of Digits

4 - 4-digit (hours and minutes)

6 - 6-digit (hours, minutes, seconds)

M - 6-digit w/ calendar function

d: Number of Clock Displays

1- Single Display

2 - Double Display

e: LED Display Color

G - Green

R - Red

f: Mounting Type

C - Ceiling

S - Surface

W - Wall

g: Power Type

A - 120V Molex plug

B - 24V Molex plug

K - 220V Molex plug

P - 120V 3-prong plug

Battery Analog Clocks

Before installing verify with the network administrator:

- Dynamic Host Configuration Protocol (DHCP) settings
- Firewall port 123 is open for UDP data
- Good Wi-Fi coverage at intended installation location.
- Red gear locking pin (A) is removed from the movement

1. Adjustments/Configuration via limited access point mode

If clock was preconfigured at American Time as recommended, skip to step 2.

Otherwise, refer to Button Operation (pg 27) and Configuration (Limited Access Point mode, pg 12) to configure clock manually.

2. Apply power to the clock by inserting the barrel plug (C) of the battery pack into the left side of the Wi-Fi module where the power connection is located.

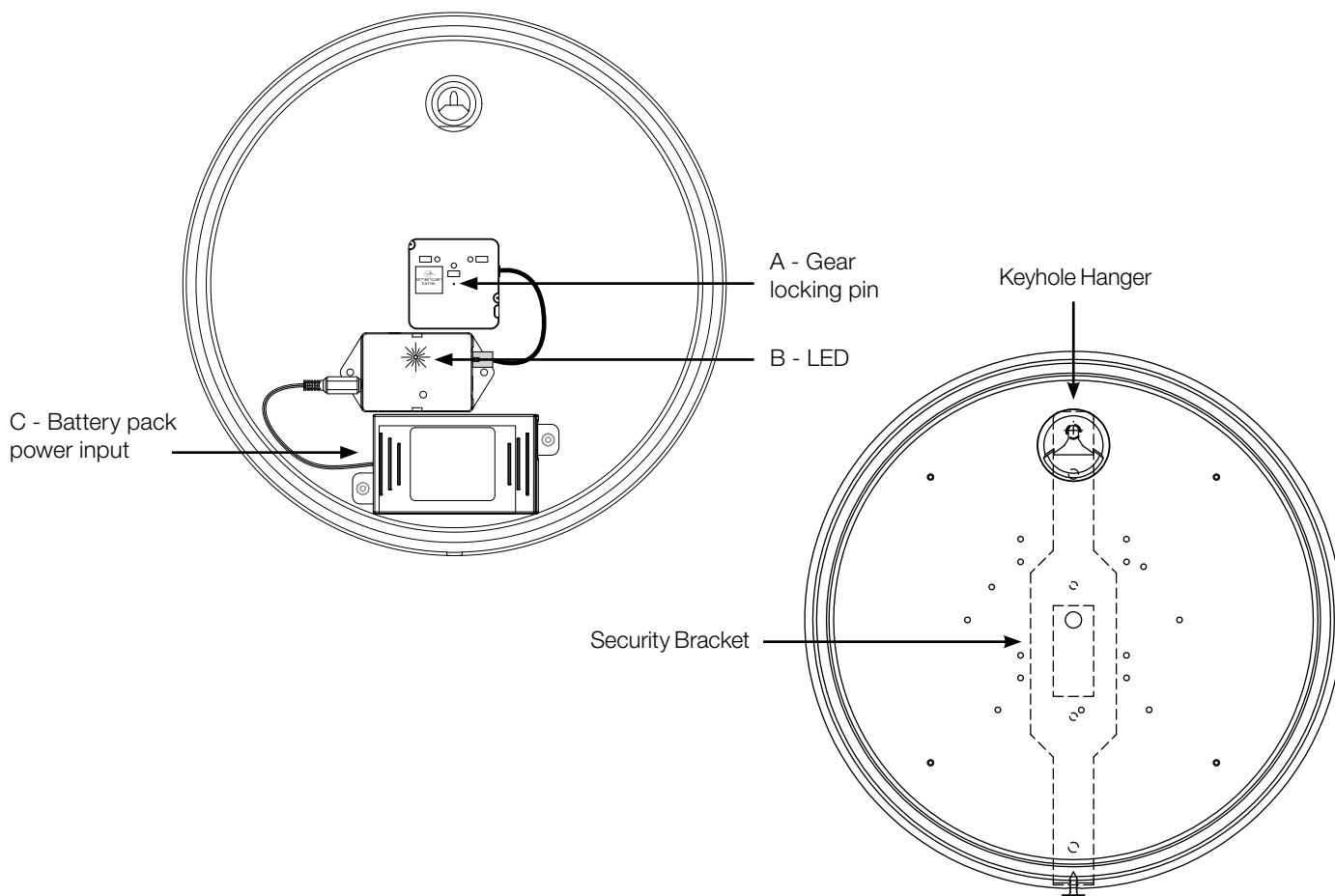
■ **Note:** If gear locking pin (A) has not been removed, remove it prior to applying power.

- i. Verify the LED (B):

1. Flashes red when power is applied to the clock.
2. Turns solid green within 60 seconds. Signifies normal operation and connection.
3. Solid orange indicates a time server connection failure
4. Solid red indicates a failed Wi-Fi connection

- ii. Verify the clocks hands begin to spin rapidly within 3 minutes after applying power.
- iii. Verify the correct time on the clock within 10 minutes of applying power.

3. Place the clock on the wall using the hanger on the back of the clock or the optional security bracket (sold separately).



Electric Analog Clocks

Before installing verify with the network administrator:

- Dynamic Host Configuration Protocol (DHCP) settings
- Firewall port 123 is open for UDP data
- Good Wi-Fi coverage at intended installation location.
- Red gear locking pin (A) is removed from the movement

1. Adjustments/Configuration via limited access point mode

If clock was preconfigured at American Time as recommended, skip to step 2.

Otherwise, refer to Button Operation (pg 27) and Configuration (Limited Access Point mode, pg 12) to configure clock manually.

2. Apply power to Wi-Fi module by inserting the barrel plug of the power cord into the left side of the Wi-Fi module where the power connection is located for the electric clocks. Insert the other end of the power cord into the appropriate power source.

■ **Note:** If gear locking pin (A) has not been removed, remove it prior to applying power.

i. Verify the LED (B):

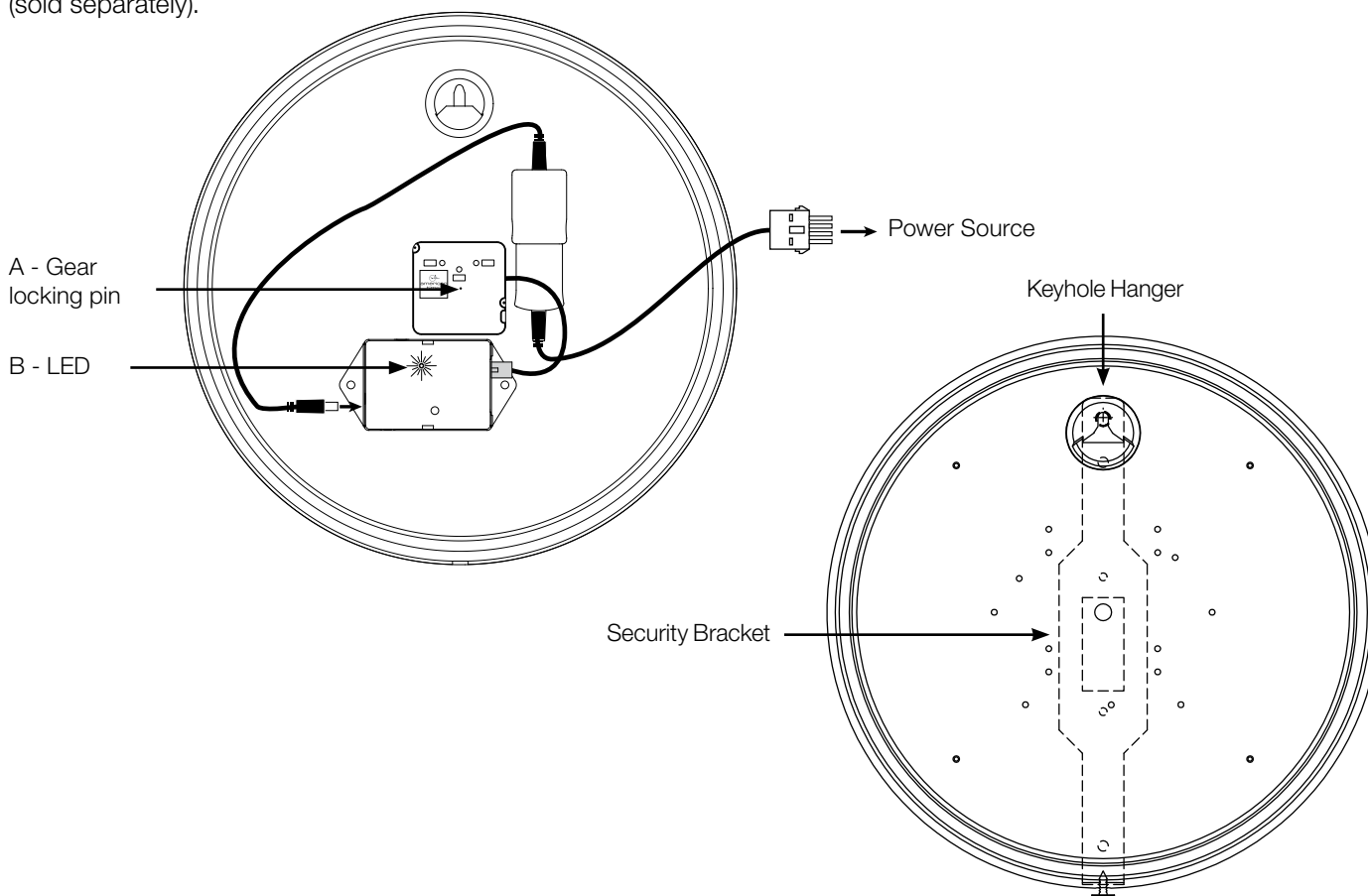
1. Flashes red when power is applied to the clock.
2. Turns solid green within 6 minutes (typically in under 60 seconds).
3. Solid orange indicates a time server connection failure
4. Solid red indicates a failed Wi-Fi connection

■ **Note:** The preceding sequence (1-4) may take up to 6 minutes.

ii. Verify the clocks hands begin to spin rapidly within 7 minutes after applying power.

iii. Verify the correct time on the clock within 15 minutes of applying power.

3. Place the clock on the wall using the hanger on the back of the clock or the optional security bracket (sold separately).



Digital Clocks

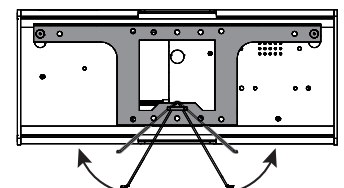
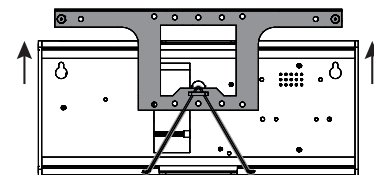
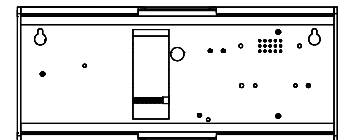
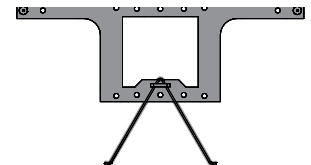
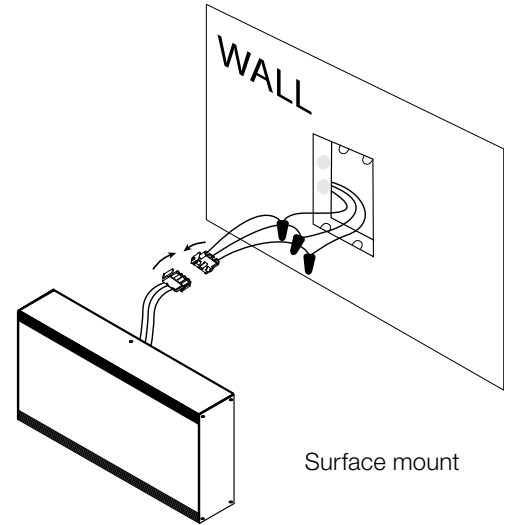
Before installing verify with the network administrator:

- Dynamic Host Configuration Protocol (DHCP) settings
- Firewall port 123 is open for UDP data
- Good Wi-Fi coverage at intended installation location.

Digital Single Display Surface Mounting

CAUTION: Risk of Electrical Shock - Disconnect and lock out power to the electrical box before installing or servicing the clock.

1. Remove the hanger from the clock by pushing the bracket down and pivoting the studs out of the backplate.
2. Mount the hanger on the wall using the bracket holes, either directly to the wall studs or to a single or double gang box.
3. For 120v 3-prong corded clock, run the cord through either cutout on the top or bottom of the clock and plug into a grounded outlet.
4. For clocks using Molex connections, make electrical connections (black to hot, white to neutral and green to ground) for the Molex cable (not wired to the clock) to a non-switched electrical circuit wiring using UL approved wire nuts. Route field wiring away from sharp projections and corners.
5. Join the wall and clock Molex together.
6. Seat the bracket spring in the channel on the bottom rail of the clock. Press down and pivot the hanger studs into the holes on the backplate, then release.
7. Remove plastic protector from display face.
8. Apply power to the circuit and confirm correct operation.

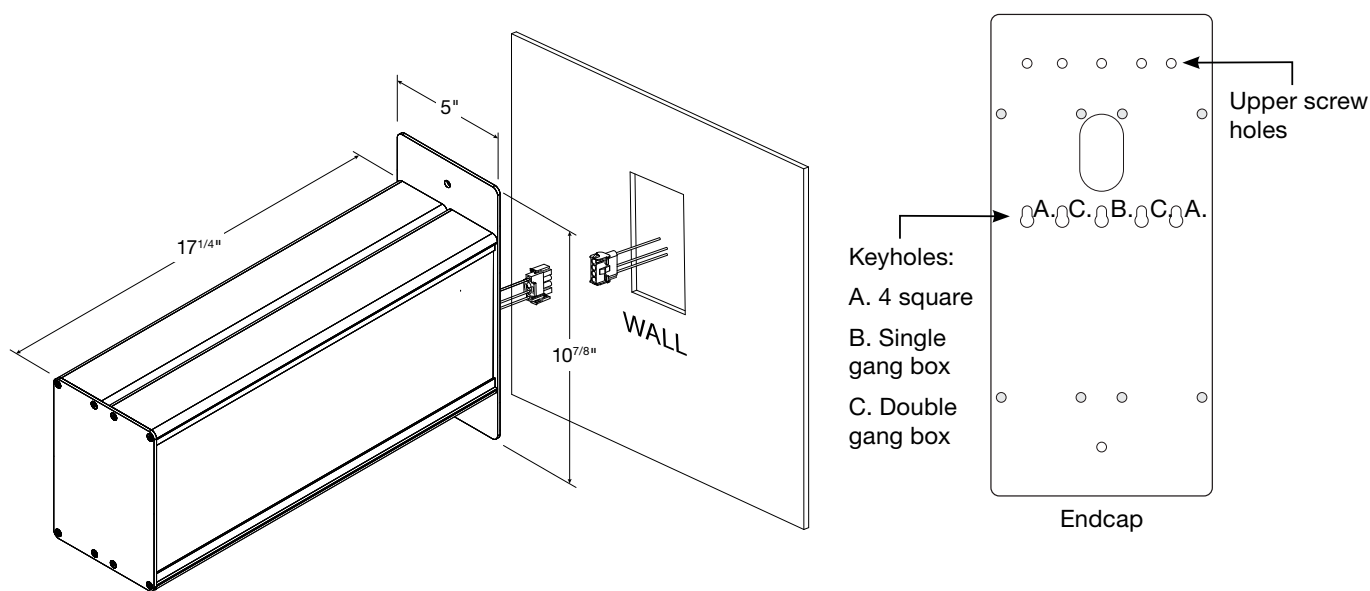


Digital 2-Sided Display - Ceiling or Wall Mount

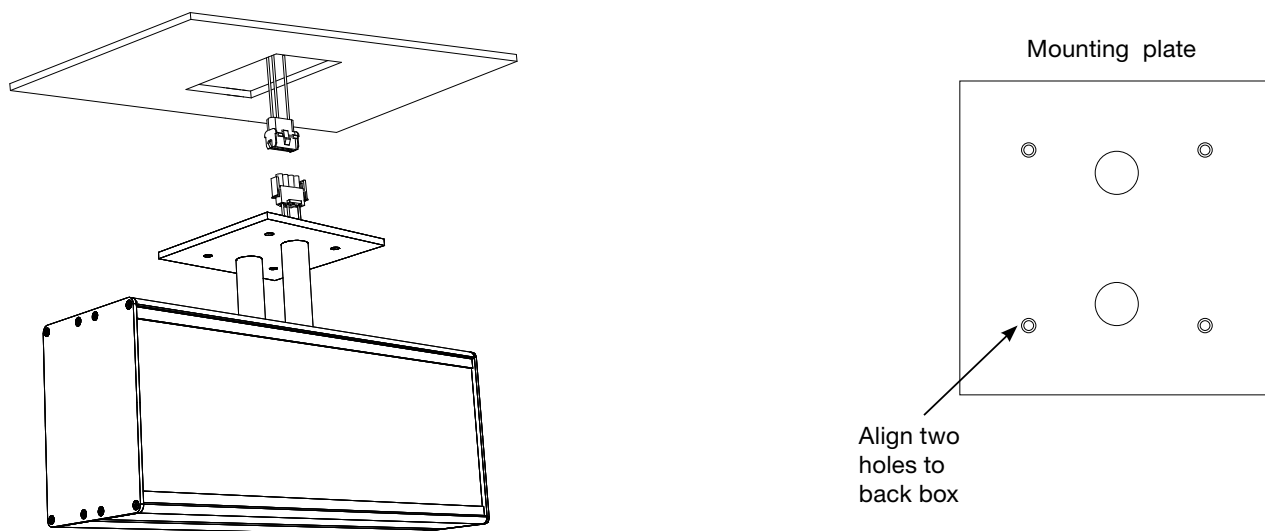
CAUTION: Risk of Electrical Shock - Disconnect and lock out power to the electrical box before installing or servicing the clock.

1. Make electrical connections (black to hot, white to neutral and green to ground) for the Molex cable (not wired to the clock) to non-switched electrical circuit wiring using UL approved wire nuts. Route field wiring away from sharp projections and corners.
2. Join the wall/ceiling and clock Molex together.
3. Mount the clock to the ceiling (4" box) or wall (single or double gang box).
4. Remove plastic protector from display face.
5. Apply power to the circuit and confirm correct operation.

Wall-Mount Clocks



Ceiling-Mount Clocks



The clock will act as a limited access point for direct Wi-Fi communication to complete configuration. After connecting to the clock with a wireless device it can be configured with a web browser.

■ **Note:** If your clock was preconfigured by American Time this process is unneeded (unless changes are required) and the clock can be mounted in its desired location out of the box. Wait to apply power to the Wi-Fi module until the clock is in its installation location so good Wi-Fi coverage can be verified

To enter configuration (limited access point mode) complete the following process:

Analog Battery Clocks: Apply power to Wi-Fi module by inserting the barrel plug (C) of the battery pack into the left side of the Wi-Fi module where the power connection is located.

Analog Electric Clocks: Apply power to Wi-Fi module by inserting the barrel plug of the power cord into the left side of the Wi-Fi module where the power connection is located for the electric clocks. Insert the other end of the power cord into the appropriate power source.

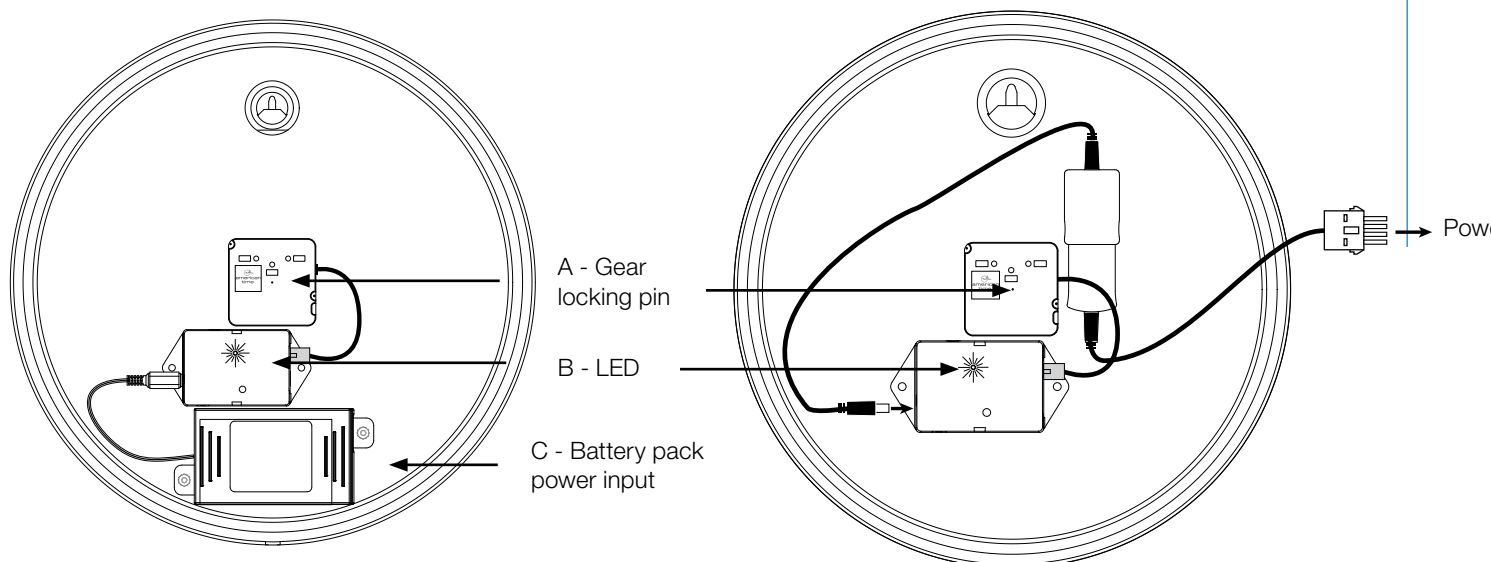
■ **Note:** If gear locking pin (A) has not been removed, remove it prior to applying power.

1. Verify the LED (B) starts flashing red.
2. Wait for the LED to either stop flashing (Battery clock) or turn a solid color (Electric clock).
3. Press and hold the button located on the middle of the Wi-Fi module.
 - a. The LED (B) should turn solid green to indicate the button press (continue holding the button).
 - b. Wait for the LED (B) to flash orange one time.

This will take about 2 seconds (additional flashes indicate other modes).

4. Release the button.
 - a. Verify the LED (B) flashes green/orange indicating Limited Access Point mode is active.
5. Proceed to Connection (page 14-15).

If the configuration has been performed somewhere other than the intended installation location, disconnect power from the Wi-Fi module by disconnecting the barrel plug (C) of the battery pack from the left side of the Wi-Fi module where the power connection is located. Reconnect the power at the installation location to verify good Wi-Fi coverage.



The clock will act as a limited access point for direct Wi-Fi communication to complete configuration. After connecting to the clock with a wireless device it can be configured with a web browser.

■ **Note:** If your clock was preconfigured by American Time this process is unneeded (unless changes are required) and the clock can be mounted in its desired location out of the box. Wait to apply power until the clock is in its installation location so good Wi-Fi coverage can be verified

To enter configuration (limited access point mode) complete the following process:

1. Ensure that the clock is powered up and push the SET-RUN button. The clock will display a scrolling message: **SETUP**.
2. Press the OK button and the clock Wi-Fi module will go into provisioning mode. The clock will scroll "00 00 192.168.240.1" during this time.
3. Proceed to Connection (page 14-15).
4. When the clock Wi-Fi module is connected to the Wi-Fi enabled device, the clock will scroll the message "CANCEL" across the screen. Pressing the OK button at any point before the configuration process is completed online will cancel the provisioning and disconnect the Wi-Fi module from the Wi-Fi enabled device.

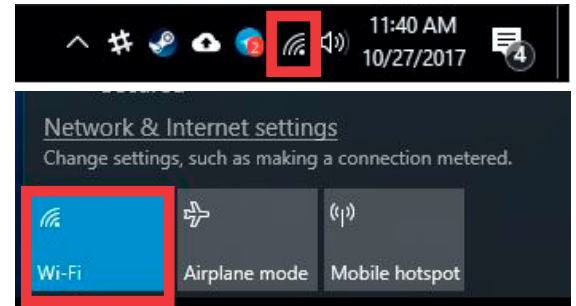
■ **Note:** Cancelling the provisioning process will return the clock to its previous settings.

5. Once configuration is complete (or provisioning is canceled), the clock will scroll a series of dashes and return to displaying time.

■ **Note:** The configuration process should be performed at the clock's intended installation location to verify good Wi-Fi coverage.

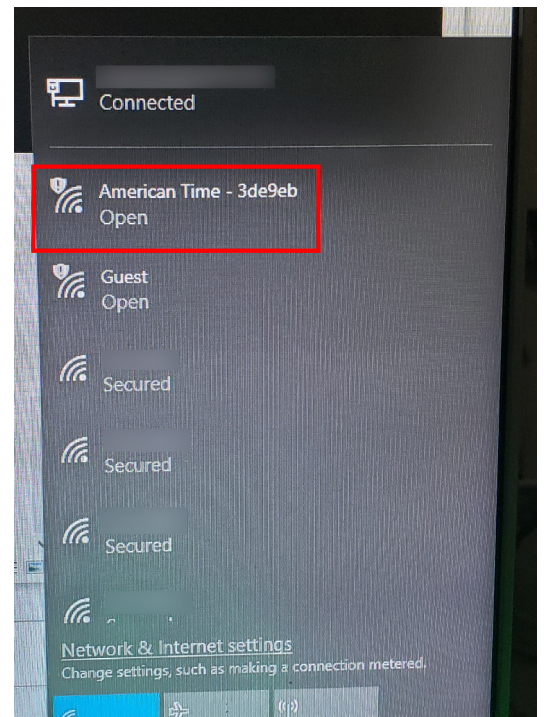
NOTE: Connection steps may vary depending on operating system. Contact your local IT support if assistance is necessary.

1. Select the Wi-Fi icon in your task bar.
2. Ensure that Wi-Fi is active.

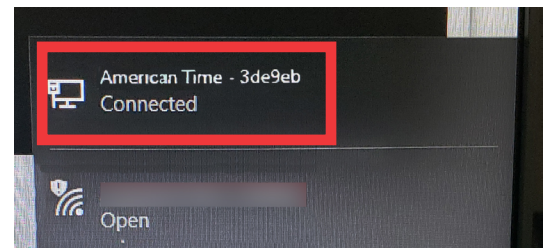


3. Select the network titled "American Time - xxxxxx." The numbers at the end of the SSID will correspond to the last six characters of MAC address printed on the sticker on the bottom or back of the clock.

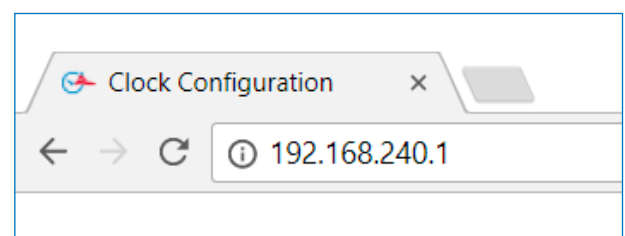
NOTE: The clock's access point may require a few seconds to become visible after activating configuration mode. If the SSID does not appear automatically, close and reopen the Wi-Fi menu.



4. Verify that the computer connects to the clock's access point.



5. Open a web browser and navigate to **192.168.240.1**.
6. Proceed to Clock Configuration on page 16.
7. When finished with configuration, the clock's access point will shutdown and the computer will automatically disconnect. The computer should automatically reconnect to the last Wi-Fi network to which it was connected prior to the configuration process.



NOTE: Connection steps may vary depending on operating system. Contact your local IT support if assistance is necessary.

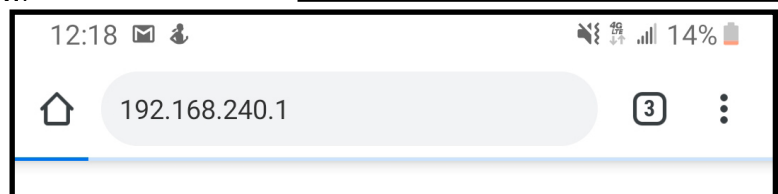
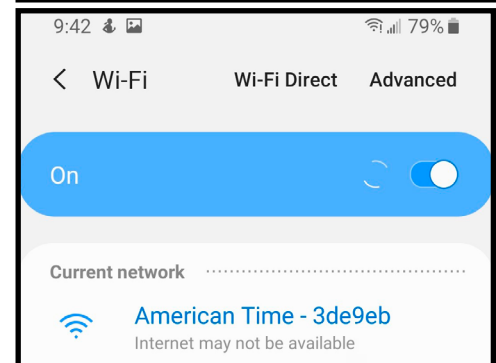
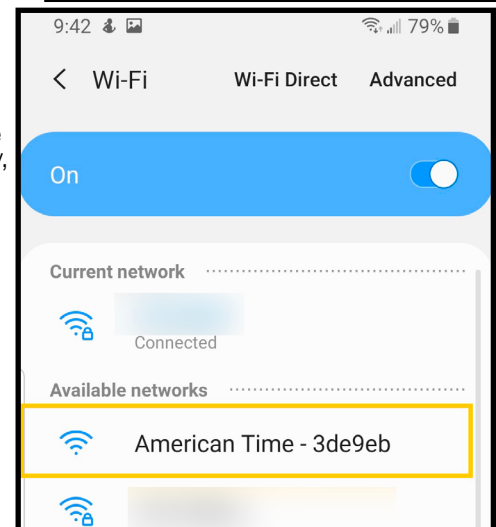
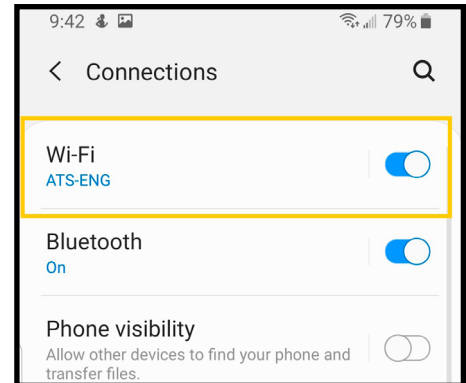
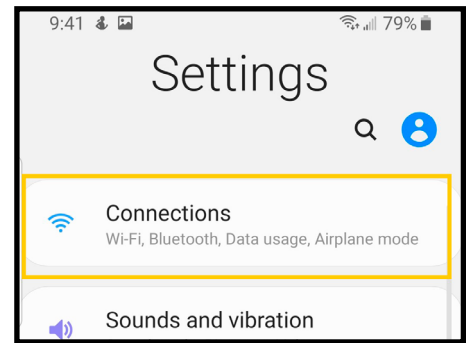
1. Open Settings and select Connections.
2. Ensure that Wi-Fi is active.
3. Open the Wi-Fi settings to view the available networks.

4. Select the network titled "American Time - xxxxxx." The numbers at the end of the SSID will correspond to the last six characters of MAC address printed on the sticker on the bottom or back of the clock.
- NOTE: The clock's access point may require a few seconds to become visible after activating configuration mode. If the SSID does not appear automatically, close and reopen the Wi-Fi menu.

4. Verify that the device connects to the clock's access point.

5. Open a web browser and navigate to **192.168.240.1**.

6. Proceed to Clock Configuration on page 16.
7. When finished with configuration, the clock's access point will shutdown and the device will automatically disconnect. The device should automatically reconnect to the last Wi-Fi network to which it was connected prior to the configuration process.



Clock Display Format: 12 Hour Format ▼

Brightness: High (Lv-3) ▼

Calendar Mode Configuration

Date Duration: 2

Time Duration: 8

Format: MMDDYY ▼

Sync Frequency: 1 Hour ▼

Time Zone: USA - Central Time (UTC - 6) ▼

Daylight Saving Time: Auto (US Only) ▼

SNTP Configuration

☐ Use IP Address

Primary SNTP IP: 192 .168 .10 .99

Secondary SNTP IP: 192 .168 .17 .171

☒ Use DNS

Pool Domain Name: 0.american.time.pool.ntp.org

Save

Wi-Fi Configuration

Exit Setup

Current SSID: ATS-Office

FW Version: American Time - 0.2.2.2

MAC Address: 001dc93ee3db

These settings configure your clock's display and time sync settings. **inCloud users should set these values using the Default/Custom Configs on inCloud.**

1. **Clock Display Format** – Sets the clock displays to a 12 hour or 24 hour time format. Applicable to Digital Clocks only.
2. **Brightness** - Sets the brightness of the display digits. Applicable to Digital Clocks only.
3. **Calendar Mode Configuration** - Set the duration (seconds) of the time and date display, and the date display format. Applicable to Digital Clocks only.
4. **Sync Frequency** – Sets the frequency of the clock sync from 1 to 12 hours. Applicable to Electric and Digital clocks only.
5. **Time Zones** – The Time Zone entry sets the time zone. Reference Appendix B for a list of all available time zone configurations.
6. **Daylight Saving Time** – Enable (Auto, Custom Fixed or Custom Floating) or Disable (Off) Daylight Saving Time adjustments.
7. **Use IP Address** – Enables use of "Primary SNTP IP" and "Secondary SNTP IP" static IP addresses for SNTP synchronization. Disables use of DNS pool.
8. **Primary SNTP IP** – This is the first SNTP time server from which the Wi-Fi clock will receive time. This server will be attempted first. If it fails to provide a valid time the secondary server is tried next.
9. **Secondary SNTP IP** – This is the second SNTP time server from which the Wi-Fi clock will receive time. This server is attempted only after the Primary SNTP server IP fails.
10. **Use DNS** – Enables use of "Pool Domain Name" for SNTP synchronization. Disables use of Primary and Secondary SNTP IPs.
11. **Pool Domain Name** – This text is used to retrieve an IP address from a DNS server for SNTP synchronization (i.e. Pool.ntp.org or time.nist.gov).
12. **Save button** – This button is used to save on screen settings.
13. **Wi-Fi Configuration** – This button moves to client settings menu page. Through the client settings menu page wireless network configuration pages can also be reached.
14. **Exit Setup** – This button exits limited Access Point mode and returns to normal operation.
15. **Current SSID** – The current Service Set Identifier (SSID) is the name of the wireless network the Wi-Fi clock will attempt to use if left unchanged.
16. **FW Version** – The current firmware version used on the Wi-Fi clock.
17. **MAC Address** – The Media Access Control (MAC) address is a unique identifier assigned to the Wi-Fi clock network hardware for communications.

Wi-Fi Configuration

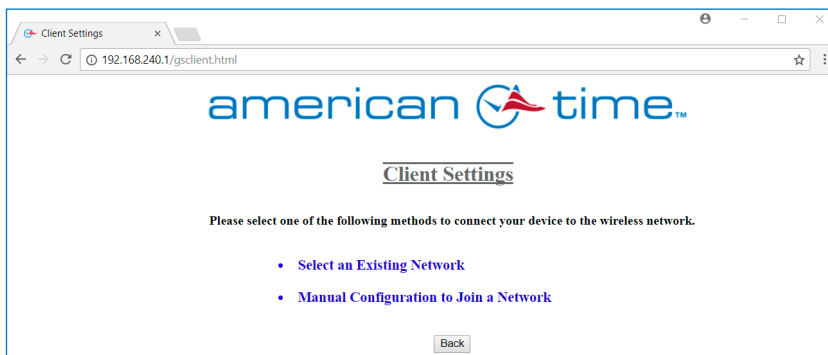
1. Click on “Wi-Fi Configuration” button from clock configuration pages.

The screenshot shows the 'Wi-Fi Configuration' page. It has two main sections: 'SNTP Configuration' and 'FW Update Settings'. In the 'SNTP Configuration' section, the 'Use DNS' radio button is selected. The 'Primary SNTP IP' is set to 129.6.15.30 and the 'Secondary SNTP IP' is set to 192.168.10.99. The 'Pool Domain Name' is '0.american.time.pool.ntp.org'. In the 'FW Update Settings' section, the 'Use Default Location' radio button is selected. The 'Custom Firmware Update Location' is '/wififw/devbuild/gs2000_Sir'. At the bottom, there are three buttons: 'Save', 'Wi-Fi Configuration', and 'Exit Setup'.

2. Click on “Wireless and Network Configuration”.



3. Select Wi-Fi configuration entry method.

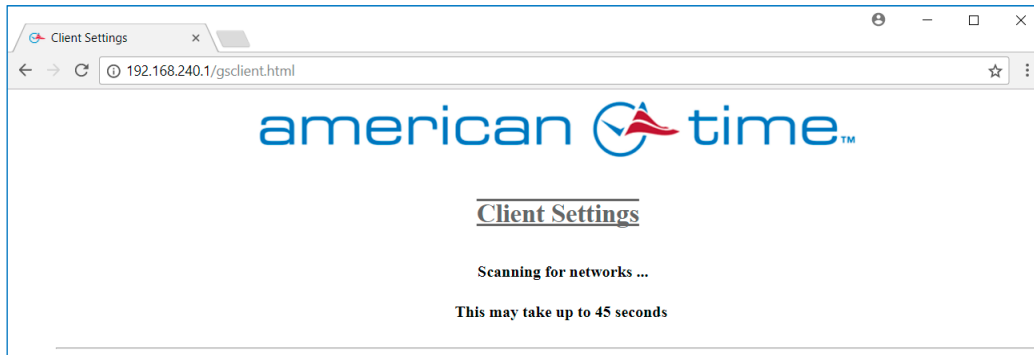


a. Click on “Select an Existing Network” if the SSID is active and available (this is normally the case) from desired network. If you select this option, go to **“a. Select an Existing Network”** on page 18.

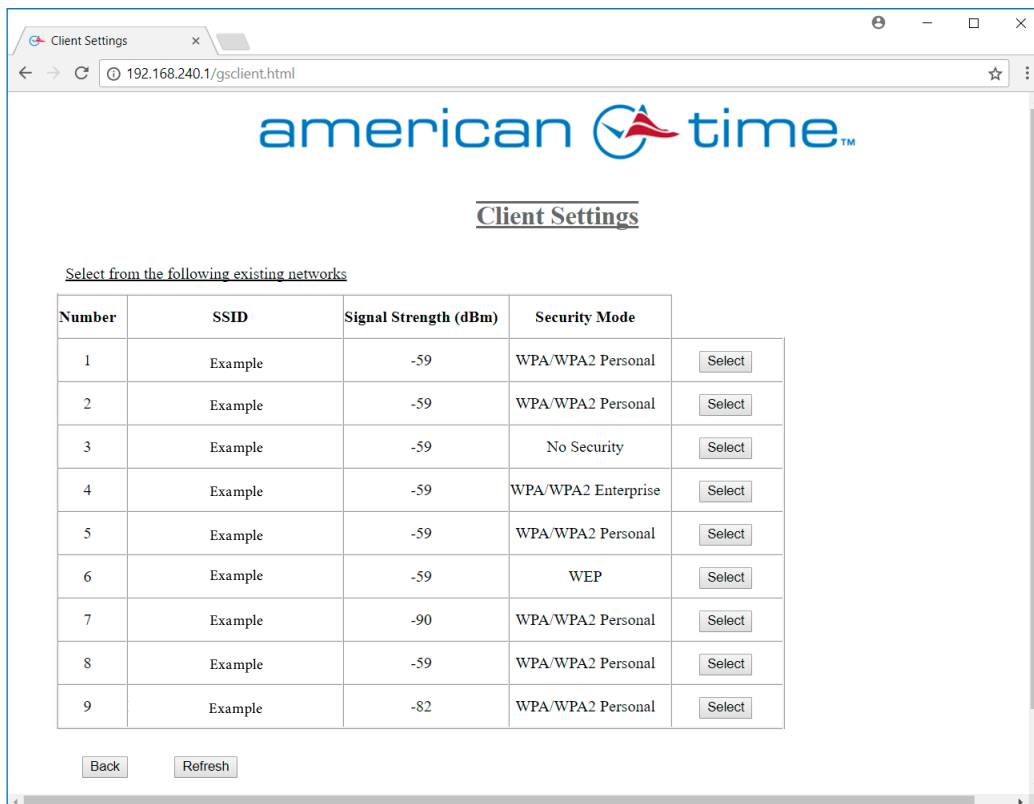
b. Click on “Manual Configuration to Join a Network” if the SSID is not active or is unavailable. If you select this option, go to **“b. Manual Configuration to Join a Network”** on page 20.

Select an Existing Network

1. If you selected the existing network option the screen below will appear while the clock scans for available networks.



2. The screen below will appear when the clock has completed the SSID scan process.
3. Click on the "Select" button next to the SSID you wish to configure your clock to.



4. Enter security information (if required for your network) and click next.

■ **Note:** If a static IP address is required, check the Advanced Options and select “Static IP Address Configuration” radial button.

■ **Note:** For Enterprise Security, see Appendix C

The screenshot shows a web browser window titled "Client Settings" with the URL "192.168.240.1/gsclient.html". The page features the "american time" logo and the heading "Client Settings". Below this is the section "Configure Wireless and Network Settings". It contains four input fields: "SSID:" with the value "Example_1", "Security:" with a dropdown menu showing "WPA/WPA2 Personal", "Passphrase:" (empty), and "Confirm Passphrase:" (empty). At the bottom of this section is a checkbox labeled "Advanced Options" which is currently unchecked. Below the checkbox are two buttons: "Back" and "Next".

5. Select "Save and Apply" button to save and exit to normal operation.

The screenshot shows the same web browser window, but now displaying the "Wireless Configuration Summary" section. The "SSID:" field shows "Example_1" and the "Security:" field shows "WPA/WPA2 Personal". Below these fields is a message: "Click on 'Save and Apply' to confirm your settings, and then re-connect using the new wireless settings." At the bottom are two buttons: "Back" and "Save and Apply".

Manual Configuration to Join a Network

If you selected “Manual Configuration to Join a Network” in step 3 the screen below will appear.

american time™

Client Settings

Configure Wireless and Network Settings

SSID:

Security:

Passphrase:

Confirm Passphrase:

☐ **Advanced Options**

1. Enter the SSID, security type and security settings.

■ **Note:** If a static IP address is required, check the Advanced Options and select “Static IP Address Configuration” radial button.

☒ **Advanced Options**

Select a method to obtain or set the IP address.

☐ Acquire IP Address Automatically (DHCP)

☒ Static IP Address Configuration

IP Address:

Subnet Mask:

Gateway:

DNS Server:

■ **Note:** For Enterprise Security, see Appendix C.

2. Click the next button to continue.
3. Click on the Save and Apply button to save and exit to normal operation.

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Client Settings

Wireless Configuration Summary

SSID: **Example_1**

Security: **WPA/WPA2 Personal**

Click on "Save and Apply" to confirm your settings, and then re-connect using the new wireless settings.

The Administrator Settings are used to enable/disable security for the clock and Wi-Fi browser pages. Enabling this security will require the username and password to be entered before any of the configuration settings can be modified via Limited Access Point mode in the future. Enter your security settings (Username and Password) to enable security. Blank out the username and password to disable security.

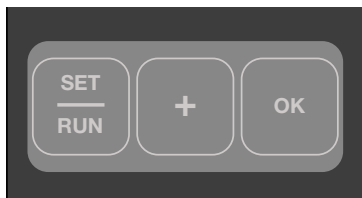
1. Click on “WiFi Configuration” button from clock configuration pages.

2. Click on “Administrator Settings” in the Client Settings menu.

3. Enter Username into text field (leave blank to disable security for limited access point mode).
4. Enter Password and confirm in to the the password text fields (leave both blank to disable security for limited access point mode).
5. Click on “Save and Apply”.

The buttons on the digital clock can be used for general clock configuration and advanced debug.

NOTE: Settings should be changed through the inCloud Management Portal whenever possible. Any settings changed using the physical buttons will not be reflected on inCloud and will be highlighted as a configuration discrepancy.



Go to the top of the clock case to change settings on the digital clock. Begin by pressing **Set/Run** and using the **OK** and **Increment (+)** buttons as required, referencing the **Figures** below. When complete, press **Set/Run** again to exit the menu structure.

Provisioning Clock

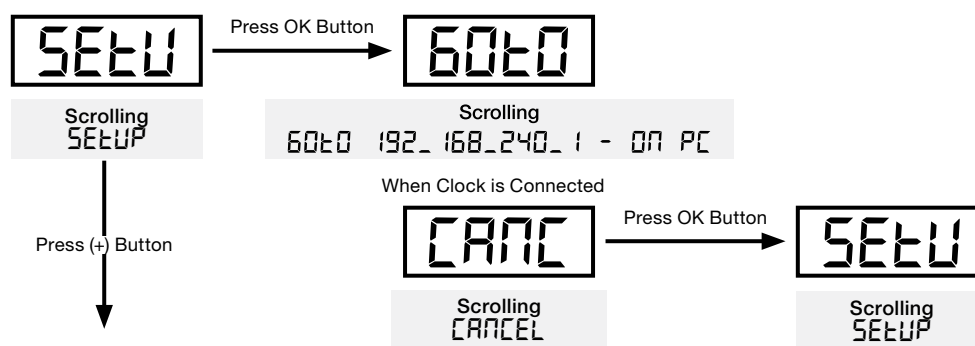
After pressing the SET/RUN button, the clock will scroll **SETUP**. Pressing OK will put the clock in provisioning mode.

In provisioning mode, the clock can be modified through the Limited Access Point portal. This allows access to controls such as time zone, Daylight Saving, and display/brightness settings. For more information on configuration through the portal, see the "Configuration" section of this manual.

After the clock is connected during setup, the clock will display **CANCEL**. Pressing OK will take the clock back to the **SETUP** stage.

Once provisioning is complete, selecting "done" on the portal will cause the clock to automatically switch out of setup mode. The clock will look for a signal and display a time.

To skip provisioning mode and move on to set the display brightness, press the (+) button while **SETUP** is scrolling.

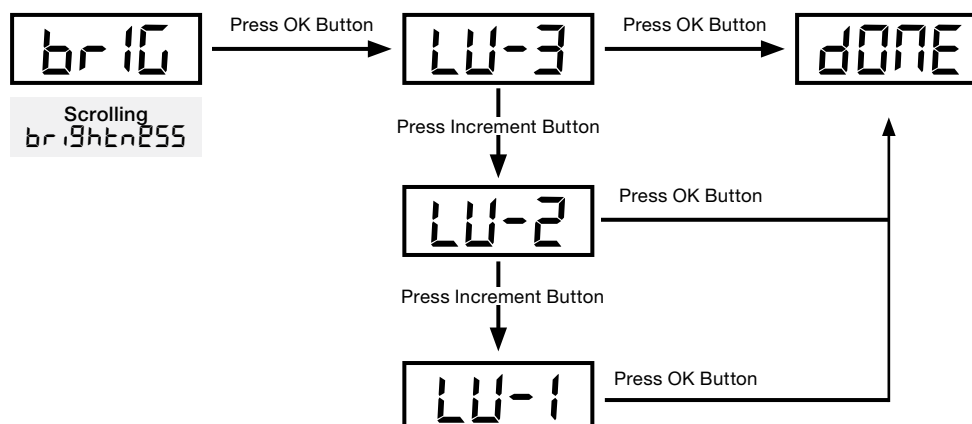


Setting Brightness

After **SETUP**, the clock will scroll **brightness**. Pressing OK will open the brightness menu.

In the brightness menu, the brightness of the digital display can be adjusted between three levels, 3 being the brightest and 1 the dimmest. Pressing the (+) button will scroll through the brightness setting. Pressing OK will set the brightness to the displayed value. The clock will then display **done** and go to the 12/24 hour menu option.

To skip setting the brightness and move on to the 12/24 hour mode option, press the (+) button while **brightness** is scrolling.



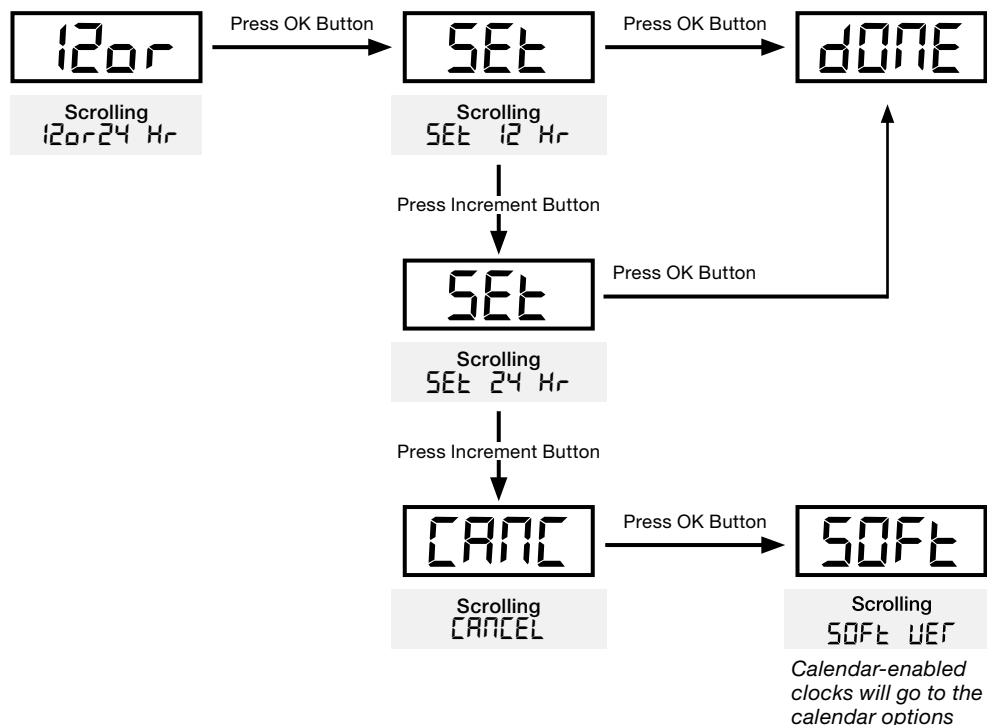
Setting Clock to 12 or 24 Hour Mode

After **12or24 Hr**, the clock will scroll **12or24 Hr**. Pressing OK will open the 12/24 hour mode menu.

In this menu, the clock can be set to display in either 12-hour or 24-hour time. Pressing the (+) button will cycle between **SEt 12 Hr** and **SEt 24 Hr**. Pressing OK will set the clock to display in the displayed mode. The clock will then display **done** and move on to either the calendar display settings (if the clock is calendar enabled) or will display the software version (if the clock is not calendar enabled).

To exit the 12/24 hour mode menu without making changes and move to the next menu option, scroll past **SEt 24 Hr** to **CANCEL** and press the OK button.

To skip 12/24 hour mode and move on to the next menu option, press the (+) button while **12or24 Hr** is scrolling.



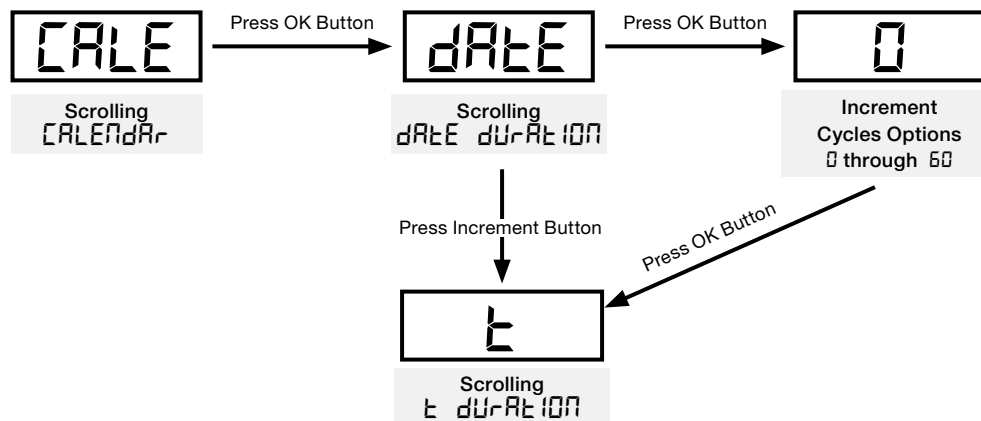
Setting Calendar Display Options

After **12or24 Hr**, calendar-enabled clocks will scroll **CALENDAr**. Pressing OK will open the calendar mode menu.

In this menu, the calendar display settings can be changed. Pressing the (+) button will scroll between **DATE dUrAtION**, **DATE dISPLAY**, and **CANCEL**. Press OK to enter the displayed setting.

In **DATE dUrAtION**, the duration the date is displayed can be set. This is determined by setting the number of seconds the date will display from 0 to 60. Pressing the (+) will increment the display time up by one second. Pressing OK will advance to **DATE dISPLAY**.

To exit the calendar mode menu without making changes and move to the software version display, scroll past **DATE dISPLAY** to **CANCEL** and press the OK button.





Introduction

Specifications

Installation

Button Operation

Configuration

Homing Clock

Firmware Update

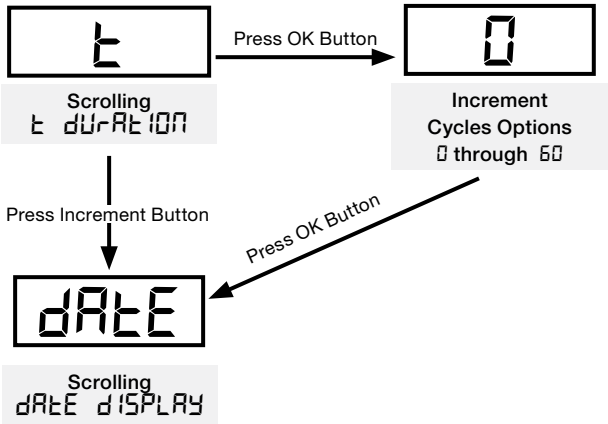
Factory Defaults Restore

Troubleshooting

Appendix

Setting Calendar Display Options (cont'd)

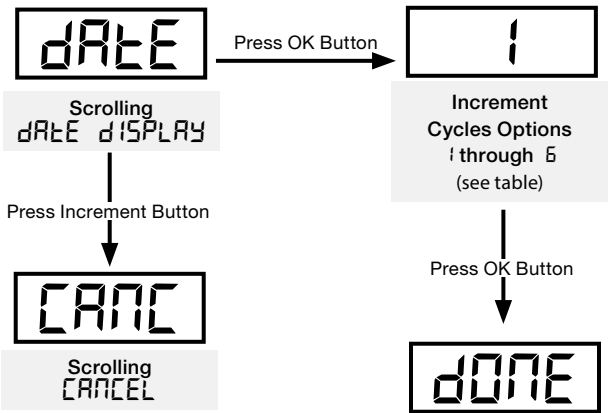
In *t dU-Rt tOn*, the duration the time is displayed can be set. This is determined by setting the number of seconds the time will display from 0 to 60. Pressing the (+) will increment the display time up by one second. Pressing OK will advance to *dAtE dISPLAy*.



In *dAtE dISPLAy*, the format of the date display can be set. Pressing the (+) button will cycle through the five different options for the date format.

dAtE dISPLAy option number	Calendar format
1	MM:DD:YY
2	DD:MM:YY
3	YY:MM:DD
4	M:D:YY
5	D:M:YY
6	YY:M:D

Pressing OK will set the displayed date setting. The clock will then display *dOnE* and go to the software version menu.

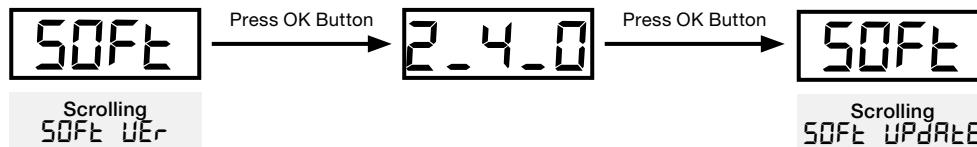


Software Version

After 120-24 Hr (CALENDAR for calendar-enabled clocks), the clock will scroll **SOFT VER**. Pressing OK will open the software version display.

This will scroll the current software version. Pressing OK will advance to the software update menu.

To skip the software version menu, press the (+) button while **SOFT VER** is scrolling.



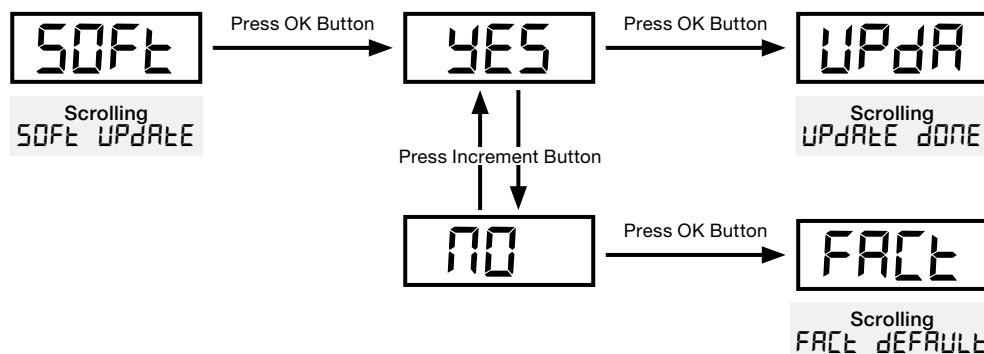
Software Update

After **SOFT VER**, the clock will scroll **SOFT UPDATE**. Pressing OK will open the software update menu.

Pressing the (+) button will cycle between **YES** and **NO**. With **YES** displayed, pressing OK will initiate a software update; once the update is complete, the clock will scroll **UPDATE DONE** and advance to the factory default menu.

With **NO** displayed, pressing OK will advance to the factory default menu.

To skip the software update menu, press the (+) button while **SOFT VER** is scrolling.



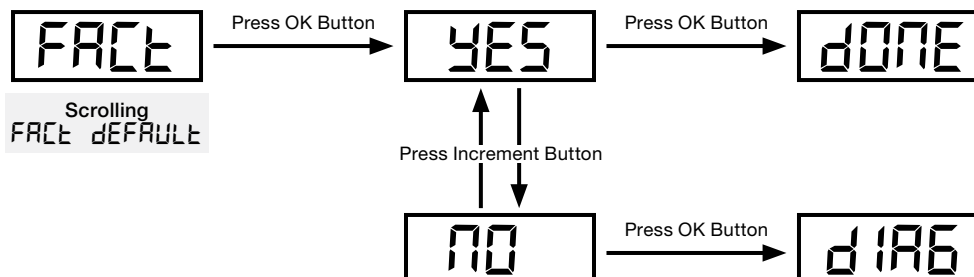
Factory Default

After **SOFT UPDATE**, the clock will scroll **FACTORY DEFAULT**. Pressing OK will open the menu to return the clock to its factory defaults.

Pressing the (+) button will cycle between **YES** and **NO**. With **YES** displayed, pressing OK will reset the clock to default; once the update is complete, the clock will display **DONE** and advance to the diagnostic menu.

With **NO** displayed, pressing OK will advance to the diagnostic menu.

To skip the factory default menu, press the (+) button while **SOFT VER** is scrolling.



Diagnostics

After **FACt dEFault**, the clock will display **dIAG**. Pressing OK will open the diagnostics menu.

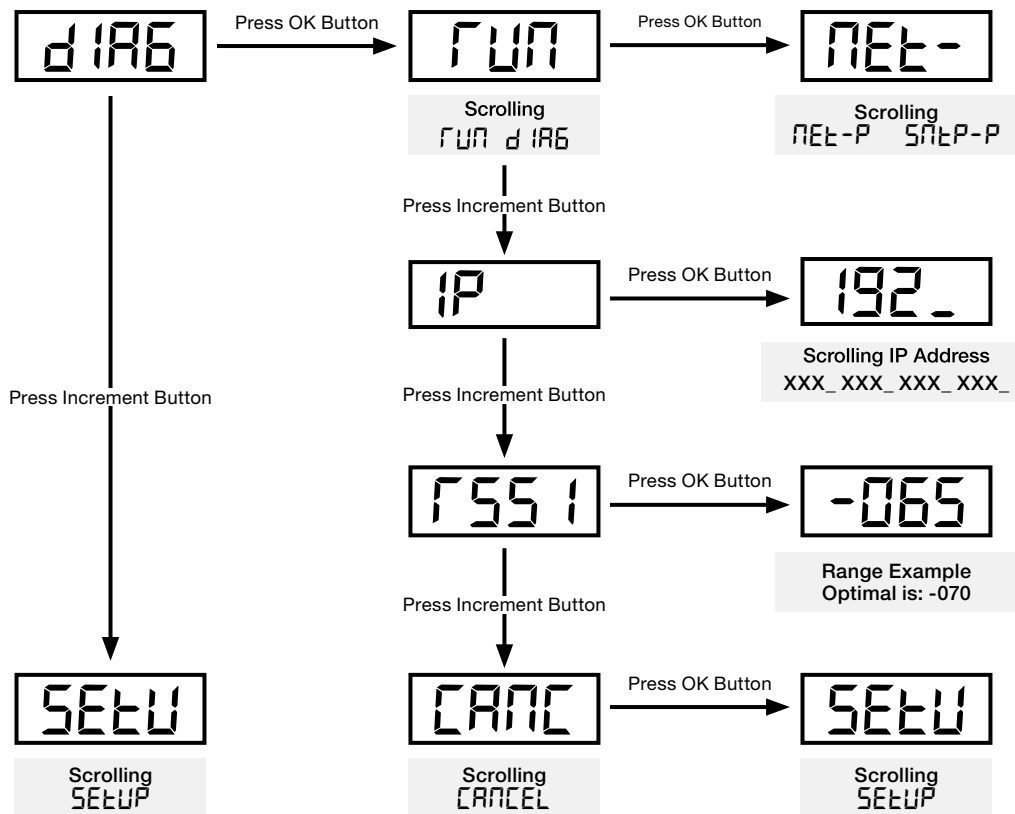
Pressing the (+) button will cycle through three diagnostic options. The first option will scroll **run dIAG**. Pressing OK will run the connection diagnostic. If the clock is fully connected and receiving time from a time server, it will display **Net-P** and **SNtP-F**. If the clock is connected to the internet but not receiving time from a time server, it will display **Net-P** and **SNtP-F**. If the clock is not connected to the internet, it will display **Net-F** and **SNtP-F**.

The second option will display **IP**. Pressing OK will display the clock's IP address. If the clock does not have an IP, it will display **Net-F** and **SNtP-F**, then display **IP** again. Pressing OK again will result in scrolling all zeroes (000-000-000-000).

The third option will display **RSSI**. Pressing OK will display the quality of the clock's network connection.

Pressing (+) after the RSSI menu will display **CANCEL**. Pressing OK will take the clock back to the beginning of the **SETUP** menu.

To skip the diagnostic menu, press the (+) button while **Soft User** is scrolling.



Time/Date Display Duration

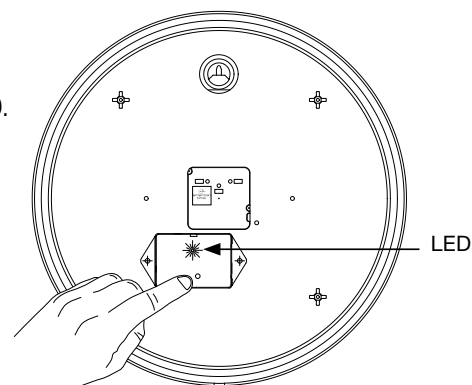
The calendar mode option allows the clock to be configured to alternate displaying the time and date at user-configured intervals. The time and date can be set to display at intervals ranging from 1 to 60 seconds under the **date duration** and **time duration** settings under **Calendar** in the clock menu (see page 21).

Calendar clocks are factory-configured to display the time for 15 seconds, followed by a five-second display of the date.

Setting either duration to "0" will disable the function (i.e. if **date duration** is set to "0," the clock will display only the time).

A recessed push button is located in the lower center of the Wi-Fi module. It can be used to initiate 5 different operations:

1. LED status indication
2. Configuration (via Limited Access Point). See also, page 12.
3. Clock homing (sending clock hands to 12 o'clock). See also, page 29.
4. Firmware updates (internet access is required). See also, page 28.
5. Factory defaults restore (restores to the configuration that the clock was shipped). See also, page 30.



Each operation is preceded by a number of orange flashes. If the button is released after the operational flash count (see list below) it will attempt the specific operation listed.

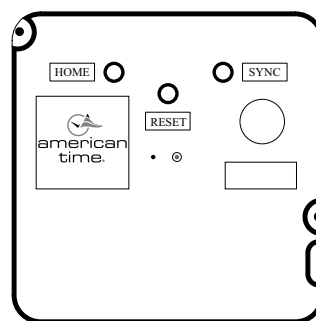
Orange LED Flash Count	Button Press Duration	Operation	LED Indication	Description
0	< 1 second	Clock Status Indication	Flashes status color for 3 seconds	Red: Network fail – see Analog Clock Troubleshooting, #7, page 23 Orange: Time sync fail– see Analog Clock Troubleshooting, #6, page 23 Green: Operating correctly
1	1 - 5 seconds	Configuration	Flash GREEN/ORANGE	Wi-Fi Limited Access Point is available for clock and Wi-Fi configuration (web browser 192.168.240.1)
2	5-10 seconds	Clock Homing	6 seconds RED 5 seconds ORANGE 10 seconds rapid GREEN flash	Send clock hands to 12 O'clock position then stop until power is reset
3	10-15 seconds	Firmware Update	Flash GREEN/ORANGE/RED	Update the firmware from the internet (port 80)
4	15+ seconds	Factory Defaults Restore	Flash RED/GREEN	Reset configuration to factory settings

Movement for Analog Clocks

Home Button: This button is used to return the clock hands to the 12:00 or Home position. Can be used to verify if the hands are set in the right position.

Reset Button: This button is not applicable for Wi-Fi products.

Sync Button: This button is not applicable for Wi-Fi products.



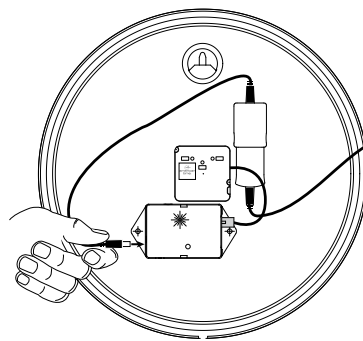
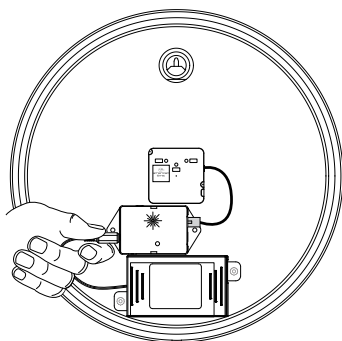
Occasionally American Time will have new firmware updates available. Contact American Time for the most recent firmware version available. Firmware updates require access to the internet through port 80.

■ **Note:** If traffic is redirected on port 80, firmware updates will fail. Prior to completing the firmware update process verify internet access is available on port 80.

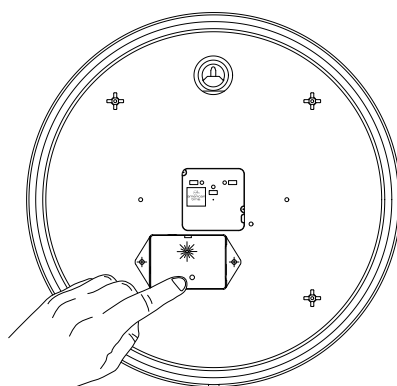
To complete a firmware update, complete the following process:

■ **Note:** To update firmware on digital clocks, see page 25.

1. Apply power to Wi-Fi module by inserting the barrel plug from the power source into the left side of the Wi-Fi module where the power connection is located. If clock is currently powered and running, go to step 4.



2. Verify the LED starts flashing.
3. Wait for the LED to either stop flashing (Battery clock) or turn a solid color (Electric clock).
4. Press and hold the button located on the middle of the Wi-Fi module.



- a. The LED should turn solid green to indicate the button press (continue holding the button).
- b. Wait for the LED to flash orange one time quickly (do not release the button).
- c. Wait for the LED to flash orange twice quickly (do not release the button).
- d. Wait for the LED to flash orange three times quickly.

5. Release the button.

- a. Verify the LED alternates green/orange/red.
- b. Verify LED turns off.
- c. Verify LED flashes red.

■ **Note:** If the LED turns solid red for approximately 3 seconds, the firmware update process failed.

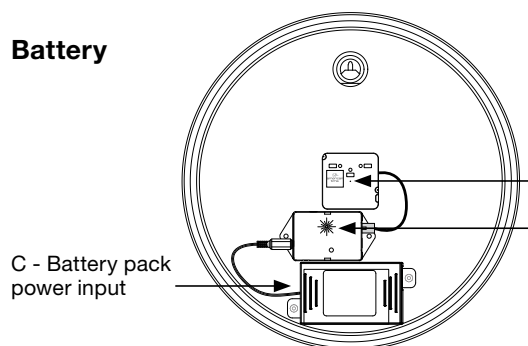
To verify firmware update process is successful connect to the clock in configuration mode and verify firmware version at the bottom of the browser page. Contact American Time technical support at **800-328-8996**.

6. Power cycle Wi-Fi module by disconnecting barrel plug from the power source for 5 seconds and reconnecting.

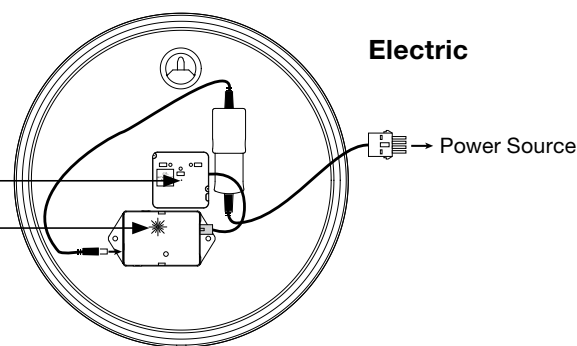
If the clock is dropped it is possible for the clock hands to move from the correct placement. The Wi-Fi module can tell the clock movement to go to 12 o'clock to verify hand placement is still correct.

To check hand placement complete the following process:

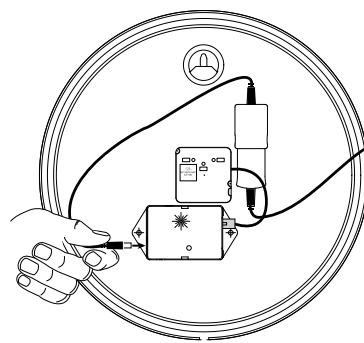
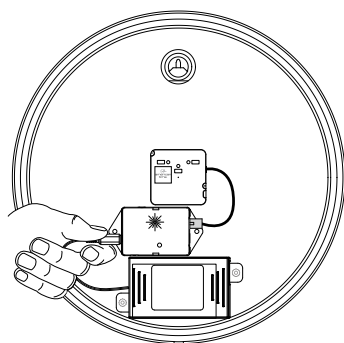
Battery



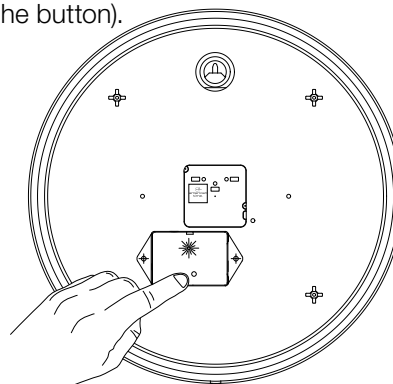
Electric



1. Apply power to Wi-Fi module by inserting the barrel plug from the power source into the left side of the Wi-Fi module where the power connection is located.



2. Verify the LED starts flashing red.
3. Wait for the LED to either stop flashing (Battery clock) or turn a solid color (Electric clock).
4. Press and hold the button located on the middle of the Wi-Fi module.
 - a. The LED should turn solid green to indicated the button press (continue holding the button).
 - b. Wait for the LED to flash orange one time (do not release the button).
 - c. Wait for the LED to flash orange twice.



5. Release the button.
 - a. Verify the LED turns solid red.
 - b. Verify the LED turns solid orange.
 - c. Verify the LED flashes green.
6. Hands should begin moving rapidly within 30 seconds.
 - a. If not, remove power and start with step 1 again.
7. Wait for hands to stop moving (this may take up to 20 minutes).
8. Verify all three hands (second hand, minute hand and hour hand) stop at the 12 position.
 - a. If not, contact American Time technical support at **800-328-8996**.
9. Power cycle Wi-Fi module by disconnecting barrel plug from the power source for 5 seconds and reconnecting.

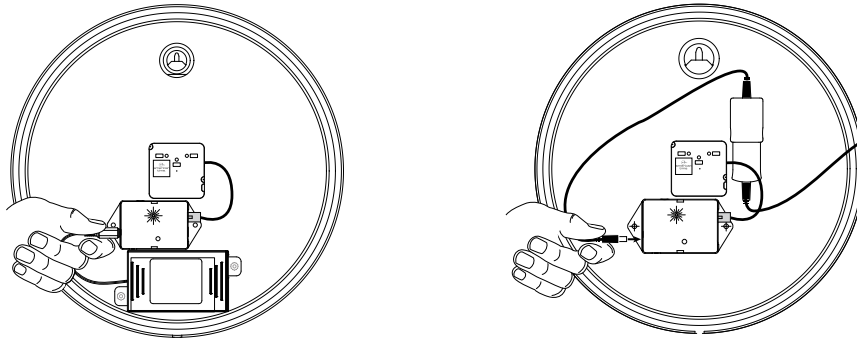
American Time preconfigures your clock settings prior to shipment to you. These preconfigured settings are stored in memory even after settings have been changed.

■ **Note:** If your clock was not preconfigured at American Time, completing the factory defaults restore process will not help. Refer to configuration section of this manual to reconfigure your clock.

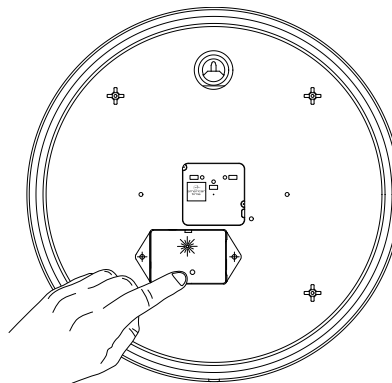
To restore preconfigured settings complete the following process:

■ **Note:** To restore factory defaults on digital clocks, see page 11, **Fig.5**.

1. Apply power to Wi-Fi module by inserting the barrel plug from the power source into the left side of the Wi-Fi module where the power connection is located. If clock is currently running, go to step 3.



2. Verify the LED starts flashing red.
3. Wait for the LED to either stop flashing (Battery clock) or turn a solid color (Electric clock).
4. Press and hold the button located on the middle of the Wi-Fi module.



- a. The LED should turn solid green to indicated the button press (continue holding the button).
- b. Wait for the LED to flash orange one time (do not release the button).
- c. Wait for the LED to flash orange twice (do not release the button).
- d. Wait for the LED to flash orange three times (do not release the button).
- e. Wait for the LED to flash orange four times.
5. Release the button.
 - a. Verify the LED alternates red/green.
6. Wait 20 seconds.
7. Power cycle Wi-Fi module by disconnecting barrel plug from the power source for 5 seconds and reconnecting.

Analog Clock Troubleshooting

1. Clock is at Home Position

When the clocks are initially powered on, if they don't receive SNTP time the hands will advance to home and stay at home until the problem is fixed. Battery clocks will retry every 12 hours and electric clocks will retry by default every hour but can be changed in configuration sync frequency settings.

- a. Verify red gear locking pin is removed. Reference page 8 or 9.
- b. Disconnect barrel jack plug from Wi-Fi receiver module.
- c. Reconnect barrel jack plug after waiting at least 5 seconds.
- d. Watch for LED to flash. Should flash red then solid green within 60 seconds for normal operation.
 - If no LED is illuminated proceed to 3.
 - If red LED is illuminated proceed to 6.
 - If orange LED is illuminated proceed to 5.

■ **Note:** If you missed the flash, do quick button press to see status of clock.

2. Clock is off time

- a. Press button and release on receiver, watch LED.
 - If LED is green, proceed to b.
 - If LED is orange, proceed to 6.
 - If LED is red, proceed to 7.
- b. Has DST change happened recently?
 - If YES, check **DST** setting is correct by going into Configuration. See page 12.
 - If NO, go to "c".
- c. Check **time zone** is set correctly by going into Configuration. See page 12.
 - If time zone is correct, contact IT staff to verify time server.

3. Clock is not on time within 10 minutes of applying power

- a. Reference section 1b-1d. If issue is not resolved here proceed to 2b.
- b. Verify hand positions (see Homing Clock page 29)
- c. Confirm proper time-zone and daylight savings time settings are configured. Reference page 16.
- d. Verify time server is distributing the correct time.
 - Contact IT staff to verify time server.

4. Verify Clock Power

- a. If using battery clocks, confirm the battery voltage and polarity.
 - Using and multi-meter, verify the voltage is between 1.55-1.8V at the battery booster. Clocks will not function properly below 1.55V.
 - Confirm polarity of the batteries inside the batter pack.
 - Make sure Barrel jack plug of the battery pack is plugged tightly into Wi-Fi Receiver module.

■ **Note:** If batteries need to be replaced all 6 six batteries should be replaced at the same time with 1.5V Lithium batteries only. Do not use Alkaline batteries.
- b. If using AC Electric clocks and no LED is illuminated.
 - Confirm outlet has proper voltage levels.
 - Make sure Barrel jack plug of the power supply is plugged tightly into Wi-Fi Receiver module.

5. Clock is power cycling every hour

- If wired into a legacy clock system, it is possible that the master clocks correction protocol will power cycle it's mechanical clocks hourly to synchronize.
 - Disconnect clock from the master clock power source and provide an un-switched power source.

6. SNTP failing (flashing orange prior to solid orange)

- Verify Port 123 is open for UDP traffic.
- If "Use IP Address" is selected in SNTP configuration, verify SNTP primary and secondary time servers (See Clock Configuration on page 13 and Wi-Fi Configuration on page 14).
- If "Use DNS" is selected in SNTP configuration, verify "Pool Domain Name" server (See Clock Configuration on page 13 and Wi-Fi Configuration on page 14).

7. Network connection failing (continues flashing red prior to solid red).

- Verify proper signal reception in the intended installation location.
 - Contact IT staff to verify signal at installation location
- Verify correct SSID and Password. See Clock Configuration "Current SSID" page 13.

9. Clocks correcting when first powered but time drifts in good signal area using NIST time server.

■ **Note:** NIST time servers will reject multiple time requests from the same IP address.

- Change to internal time server or use Pool Domain Name option of SNTP configuration.

10. Limited Access Point is visible, but computer/mobile device cannot connect to the AP or cannot load the configuration portal.

- Likely caused by Wi-Fi signal interference. Move the clock to a different location for configuration.
 - **Note:** If a Wi-Fi scanner application is available, find a location for configuration where there are no Wi-Fi networks using Channel 6.

If the above steps do not resolve the issue, please contact American Time at 800-328-8996 or techs@atsclock.com.

Digital Clock Troubleshooting

1. Clock is not on time within 6 minutes of applying power.

- Enter Diagnostics menu on Digital clock. Reference menu flow chart beginning on page 22. Normal operation will scroll **NET-P** followed by **SNTP-P**.
 - If **NET-F** is displayed, there is a problem with connecting to the Wi-Fi network proceed to 5.
 - If **ET5-F** is displayed, there is an issue with the time server. Proceed to 7.
 - If **NET-n** is displayed, there is a problem connecting to the Wi-Fi network. Proceed to 6.

2. Time on clock is not correct.

- Reference section 1. If issue is not resolved here proceed to 2b.
- Confirm proper time-zone and daylight savings time settings are configured. See Digital Clock Configuration on page 13.
- Verify time server is distributing the correct time.
 - Contact IT staff to verify time server.

3. Nothing is displayed on clock.

- a. Verify proper voltage is at clock.
- b. Verify that the clock is wired to the proper voltage; i.e. a 120VAC clock will not function on a 24VAC system.

Digital Clock Troubleshooting (cont'd)**4. Clock is power cycling every hour.**

- a. If wired into a legacy clock system, it is possible that the master clock's correction protocol will power cycle its mechanical clocks hourly to synchronize.
 - Disconnect clock from the master clock power source and provide a local unswitched power source.

5. Clock is not finding a Wi-Fi signal (nE -F on Clock Display).

- a. Verify proper signal reception in the intended installation location.
 - Enter DIAG menu and RSSI. Reference menu flow chart beginning on page 22. If the RSSI is weaker than -075 (example: -078 is weaker than -075) intermittent failures can occur.
 - Contact IT staff to verify signal at installation location.
- b. Verify correct SSID and Password (See Digital Clock Configuration "Current SSID" page 16).

6. Clock is finding a Wi-Fi signal but cannot connect to the access point (nE -n on Clock Display).

- a. Verify access point (AP) is working correctly.
 - Check to see if AP has power and is turned on.
 - Contact IT staff to verify AP is transmitting on the 2.4 Ghz frequency.
- b. Verify correct SSID (See Digital Clock Configuration "Current SSID" page 16).

7. SNTP failing (E5 -F on Clock Display)

- a. Verify Port 123 is open for UDP traffic.
- b. If "Use IP Address" is selected in SNTP configuration, verify SNTP primary and secondary time servers (See Digital Clock Configuration on page 13).
- c. If "Use DNS" is selected in SNTP configuration, verify "Pool Domain Name" server (See Digital Clock Configuration on page 13)

8. Display IP address

- a. Enter DIAG menu IP. Reference Digital Button Operation flow chart (page 11, Figure 6).

9. Clocks correcting when first powered but time drifts in good signal area using NIST time server.

■ **Note:** NIST time servers will reject multiple time requests from the same IP address.

- a. Change to internal time server or use Pool Domain Name option of SNTP configuration.

10. Limited Access Point is visible, but computer/mobile device cannot connect to the AP or cannot load the configuration portal.

- a. Likely caused by Wi-Fi signal interference. Move the clock to a different location for configuration.

■ **Note:** If a Wi-Fi scanner application is available, find a location for configuration where there are no Wi-Fi networks using Channel 6

If the above steps do not resolve the issue, please contact American Time at **800-328-8996** or **techs@atsclock.com**.

Introduction

American Time Wi-Fi clocks are set by default to connect to one of four American Time time servers:

- 0.americantime.pool.ntp.org
- 1.americantime.pool.ntp.org
- 2.americantime.pool.ntp.org
- 3.americantime.pool.ntp.org

Specifications

Wi-Fi clocks can be configured to connect to a different time server in the online configuration dialog (see page 16). Clocks can be set to receive time either from a set IP address or from a DNS pool.

Installation

Please reference <http://tf.nist.gov/tf-cgi/servers.cgi> for the latest NIST Internet Time servers list, which includes the status of each server.

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Description	Hours Difference from UTC (Winter)	Hours Difference from UTC (Summer)	Observes Daylight Saving Time
USA Alaska	-9	-8	YES
USA Aleutian Time	-10	-9	YES
USA Arizona	-7	-7	NO
USA Atlantic / Puerto Rico	-4	-4	NO
USA Central Time	-6	-5	YES
USA Chamorro	+10	+10	NO
USA Eastern Time	-5	-4	YES
USA Hawaii	-10	-10	NO
USA Indiana East	-5	-5	NO
USA Mountain Time	-7	-6	YES
USA Pacific Time	-8	-7	YES
USA Midway Island / Samoa	-11	-11	NO
USA Wake Islands	+12	+12	NO
UTC+00:00	+0	+0	NO
UTC+01:00	+1	+1	NO
UTC+02:00	+2	+2	NO
UTC+03:00	+3	+3	NO
UTC+03:30	+3.5	+3.5	NO
UTC+04:00	+4	+4	NO
UTC+04:30	+4.5	+4.5	NO
UTC+05:00	+5	+5	NO
UTC+05:30	+5.5	+5.5	NO
UTC+05:45	+5.75	+5.75	NO
UTC+06:00	+6	+6	NO
UTC+06:30	+6.5	+6.5	NO
UTC+07:00	+7	+7	NO
UTC+08:00	+8	+8	NO
UTC+08:45	+8.75	+8.75	NO
UTC+09:00	+9	+9	NO
UTC+09:30	+9.5	+9.5	NO
UTC+10:00	+10	+10	NO
UTC+10:30	+10.5	+10.5	NO
UTC+11:00	+11	+11	NO
UTC+11:30	+11.5	+11.5	NO
UTC+12:00	+12	+12	NO
UTC+12:45	+12.75	+12.75	NO
UTC+13:00	+13	+13	NO
UTC+14:00	+14	+14	NO

Description	Hours Difference from UTC (Winter)	Hours Difference from UTC (Summer)	Observes Daylight Saving Time
UTC-01:00	-1	-1	NO
UTC-02:00	-2	-2	NO
UTC-03:00	-3	-3	NO
UTC-03:30	-3.5	-3.5	NO
UTC-04:00	-4	-4	NO
UTC-04:30	-4.5	-4.5	NO
UTC-05:00	-5	-5	NO
UTC-06:00	-6	-6	NO
UTC-07:00	-7	-7	NO
UTC-08:00	-8	-8	NO
UTC-09:00	-9	-9	NO
UTC-09:30	-9.5	-9.5	NO
UTC-10:00	-10	-10	NO
UTC-11:00	-11	-11	NO
UTC-12:00	-12	-12	NO

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■ **Note:** If certificate(s) are required, prior to configuring clock(s), the required certificate(s) should be available on configuration device (i.e. laptop).

■ **Note:** Certificate(s) need to be DER encoded format for clock to function properly if certificate(s) are used.

1. **SSID** – Enter SSID of network
 2. **Security** – Select security type WPA/WPA 2 Enterprise
 3. **EAP Type** – Select Enterprise security type (EAP-PEAPv0 is the only available type. Additional Enterprise security types may become available in the future)
 4. **EAP Username** – Enter (if applicable)
 5. **EAP Password** – Enter (if applicable)
 6. **Confirmation EAP Password** – Enter (if applicable)
 7. Click on "Upload Certificates" button (if applicable)
 - a. If certificates are used, continue with step 8, otherwise skip to step 12
- **Note:** The CA certificate upload to the clock(s) is not required for clock to function on PEAPv0 security.

The screenshot shows a web browser window with the address bar displaying "192.168.240.1/eapcerts.html?eaptype=eap-peap0". The page features the "american time" logo at the top. Below the logo, the heading "Certificate Upload" is centered. A message states, "Please upload certificates in DER format only." Underneath, there is a section for "CA Root Certificate" with a text input field and a "Browse..." button. Below this is an "Upload" button. A horizontal line separates this section from the "EAP Certificate List" section. The "EAP Certificate List" section includes a message: "This is the list of EAP certificates you have already uploaded. You can delete them individually using the button below". Below this message is a table with one row containing a dropdown arrow icon. At the bottom of the table is a "Delete" button.

8. Click on "Choose File" button of pop-up window
9. Select CA Root Certificate
 - **Note:** This file must be DER encoded to function properly on clock(s)
10. Click on "Upload" button
11. Close certificate upload window
12. Click on "next" button
13. Click on "Save and Apply" button

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The **ATSTCS Control Station** can be mounted to a double gang box, 1½ inch deep or deeper. The Control Station can be mounted up to 30 feet away from the Digital Clock/Timer. The recommended minimum interconnecting field wire size is #22 AWG stranded wire with minimum 1/32" thick insulation.

Ensure that installation conforms to the National Electrical Code and local wiring codes.

CAUTION: Electric Shock Hazard! Ensure that **NO** electrical power is present on any wire before installation.

- 1. Pull interconnecting field wires into the double gang box.
- 2. Connect field wiring interconnecting the ATSTCS Control Station with the Digital Clock/Timer to the appropriate wires of the Control Station. See wiring detail below.
- 3. Mount the Control Station to the double gang box using the machine screws provided.
- 4. Terminate

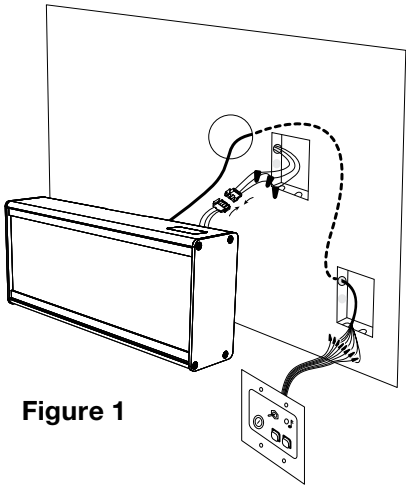


Figure 1

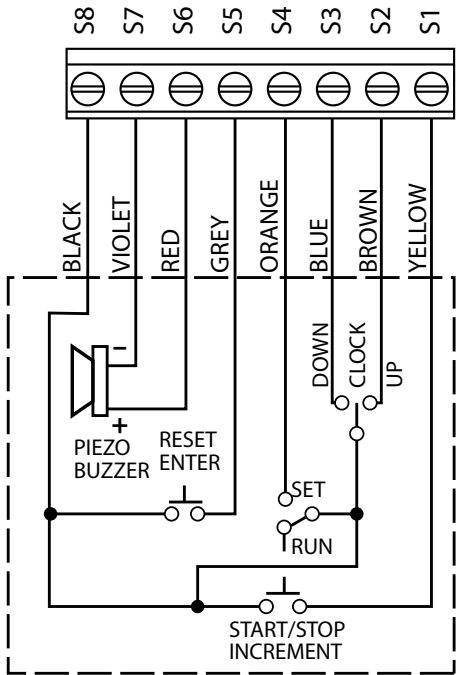
ATSTCS Timer Control Station Specs:

Dimensions: 4.63"h X 4.56"w X 1.25"d

Weight: 0.27 lb.

Operating Modes: Incrementing timer with programmable preset value and start/stop capability. Decrementing timer with programmable preset value and start/stop capability. Code Blue incrementing timer.

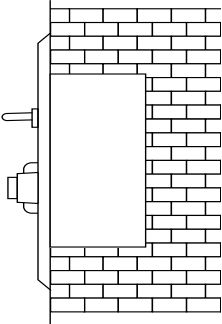
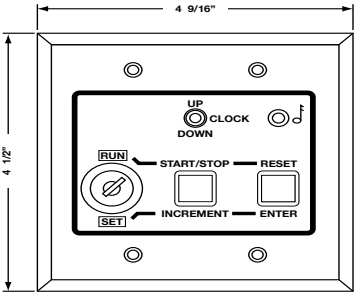
Indications: 2-second audible alarm



ATSTCS Wiring Diagram



Control Station



Run/Set Switch -

- **Set Position:** This position is used to set a preset up or down counting time (Timer). It is also used to reset the Code Blue timer.

This position is not used for setting clock time.

- **Run Position:** This position is used to permit Clock/Timer to operate.

Up/Clock/Down Switch -

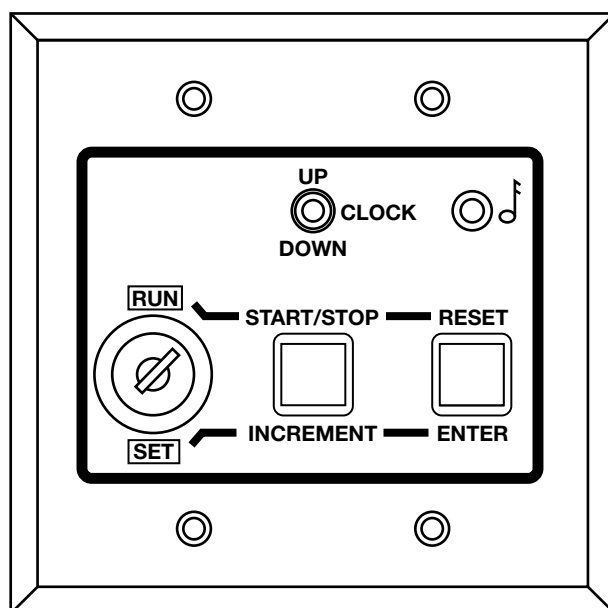
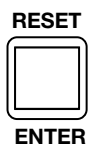
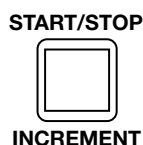
- **Up Position:** This position is used to choose up counting elapsed timer mode.
- **Clock Position:** This position is used to choose clock mode.
- **Down Position:** This position is used to choose down counting elapsed timer mode.

Start/Stop/Increment Switch -

- This button is used to Start/Stop, and resume timer count, when **Run/Set** Switch is in the **Run** position (Code Blue timer can only be stopped).
- This button is also used to increment/advance the number value being set when the **Run/Set** Switch is in **Set** position.

Reset/Enter Switch -

- This button is used to return a timer (excluding the Code Blue timer) to the beginning of its count, when the **Run/Set** Switch is in **Run** position.
- This button can also be used to select a field (i.e. format, minute digits, hour digits) when the **Run/Set** Switch is in **Set** position.



Powering Up

Before applying power, place the **SET/RUN** switch to the **RUN** position and the **UP/DOWN/CLOCK** switch to the **CLOCK** position.

Apply power to the unit. The displays may rotate during the power on self test and then a version number will appear for a few seconds. Once the receiver inside the clock completes an SNTP time sync, the clock will display and begin keeping time.

Setting the Up Counter Preset Time

If you want to use the alarm and hold feature with the **UP** timer, you will need to set a preset time for the UP timer.

Set the **UP/DOWN/CLOCK** switch to the **UP** position.

Set the **SET/RUN** switch to the **SET** position. The hours digits will be flashing.

Using the **INCREMENT** switch, set the desired hours for the preset time, then press **ENTER**. The minutes digits will now be flashing.

Set the desired minutes the same way, then press **ENTER**. The seconds digits will then be flashing.

Set the desired seconds the same way, then press **ENTER**. The display will then flash **done**.

Set the **SET/RUN** switch back to the **RUN** position.

■ **Note:** A preset of **00:00:00** allows the digital clock/timer to be used as a standard elapsed timer with a maximum elapsed time of **30:59:59**.

Up Counter Elapsed Time Operation

Once the desired preset value has been set, the unit is now ready to function as an UP count elapsed timer.

Be sure the **SET/RUN** switch is in the **RUN** position.

Set the **UP/DOWN/CLOCK** switch to the **UP** position.

Press **RESET** to display **00:00:00**.

Press the **START/STOP** switch to begin counting elapsed time.

Press the **START/STOP** switch again to stop and hold the count.

Press the **START/STOP** switch again to resume elapsed time counting.

To start over press **RESET** to display **00:00:00** again.

When the timer reaches the preset value, it will sound the audible alarm for 2 seconds and hold the time count.

During an UP count elapsed time operation, you can display any of the other time functions using the UP/DOWN/CLOCK switch as desired.

Setting the Down Counter Preset Time

If you are using the clock as a DOWN counting elapsed timer, you will need to set a preset time to count DOWN from. In this mode, the alarm and hold will occur at 00:00:00.

Set the **UP/DOWN/CLOCK** switch to the **DOWN** position.

Set the **SET/RUN** switch to the **SET** position. The hours digits will be flashing.

Using the **INCREMENT** switch, set the desired hours for the preset time, then press **ENTER**. The minutes digits will now be flashing.

Using the **INCREMENT** switch, set the desired minutes for the preset time, then press **ENTER**. The seconds digits will then be flashing.

Using the **INCREMENT** switch, set the desired seconds for the preset time, then press **ENTER**. The display will then flash **done**.

Set the **SET/RUN** switch back to the **RUN** position.

Down Counter Elapsed Time Operation

Once the desired preset value has been set, the unit is now ready to function as a DOWN count elapsed timer.

Set the **UP/DOWN/CLOCK** switch to the **DOWN** position.

Be sure the **SET/RUN** switch is in the **RUN** position.

Press **RESET** to display the preset value which was set previously.

Press the **START/STOP** switch to begin counting down elapsed time.

Press the **START/STOP** switch again to stop and hold the count.

Press the **START/STOP** switch again to resume elapsed time counting.

To start over press **RESET** to display the preset value again.

When the timer reaches 00:00:00, the timer will stop counting and the audible alarm will sound for 2 seconds.

During a DOWN count elapsed time operation, you can display any of the other time functions using the UP/DOWN/CLOCK switch as desired.

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NOTE: The ATSTCS panel is required for Code Blue function.

Description

The Code Blue feature provides an override which forces the clock into a special count up elapsed time mode. No matter which of the three normal functions is being displayed, Code Blue input will cause the unit to begin counting elapsed time from **00:00:00**. All other functions of the unit continue to operate in the background during a Code Blue.

Operation

A Code Blue is initiated by applying a signal ranging from 12vac/vdc to 30vac/vdc to the K2+ and K2- terminals. See the sample pinout for more detail.

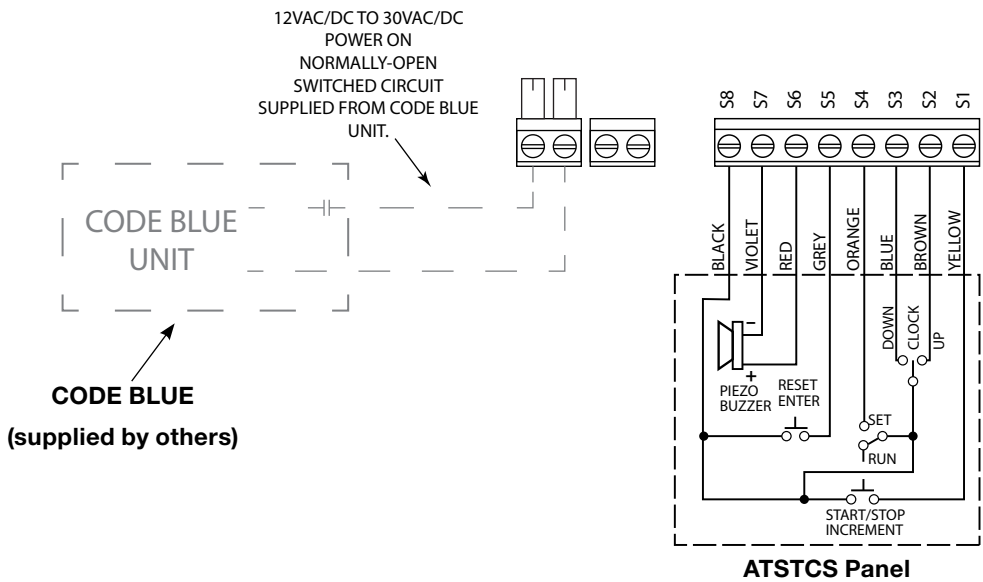
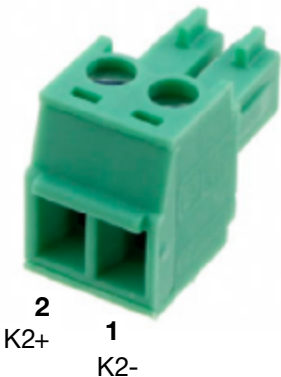
The Code Blue timer is the highest priority function of the clock/timer while in the run mode. No matter which of the 3 normal functions is being displayed, the Code Blue input will cause the clock to begin counting up elapsed time from **00:00:00**.

The Code Blue timer can be stopped and the time held for viewing by pressing the **START/STOP** button on the ATSTCS switch panel. The Code Blue timer cannot be restarted from the switch panel.

To reset the clock back to normal operation, the **RUN/SET** switch must be set to the **SET** position momentarily and then returned to the RUN position.

All other functions of the clock continue to operate in the background during a Code Blue. Time of day and time corrections from the network will not be affected. The standard count up timer and the count down timer will continue as well. However, if one of these timers is switched on for display when a Code Blue occurs, that particular timer will be reset when the clock is reset back to normal operation.

Code Blue Pinout



The ATSTCS must be in the RUN mode for Code Blue to override.

The 12vac/vdc to 30vac/vdc signal that starts the Code Blue timer originates from equipment external to the Digital Clock/Timer. The external equipment usually employs a switch device (i.e., a relay contact) to apply this signal. That switching device is often referred to as the Code Blue contact.

The Code Blue contact does not have to open before resetting the Digital Clock/Timer back to normal operation, but must be opened before another Code Blue can occur. The transition from no voltage to applied voltage (across the K2+ and K2- terminals) initiates a Code Blue.

If the Code Blue contact opens and closes again before the Digital Clock/Timer is reset back to normal operation, the Code Blue timer will start over from **00:00:00**.

If a power failure occurs during any Code Blue event, the Code Blue timer will start over from **00:00:00**.

System Maintenance

The Digital Clock/Timer and ATSTCS Control Station have been manufactured for years of dependable, reliable use. However, to assure the reliability of this product, it is recommended that the Digital Clock/Timer be **tested at least every six (6) months** with the Control Station and Code Blue contact for operation in accordance with wiring configurations used.

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