

ACCURATE • RELIABLE • SYNCHRONIZED TIME



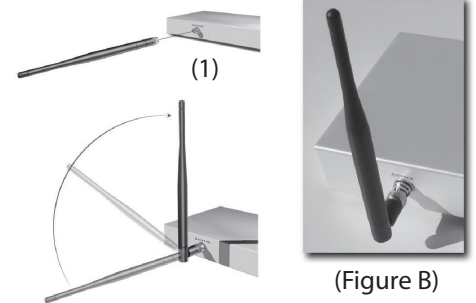
Plug and Play

Wireless Synchronized Time

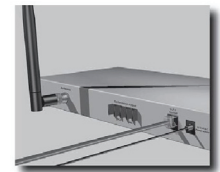
GPS Wireless Transmitter Set-up

- Step 1** - Screw transmitter antenna onto the back of transmitter. **(Figure B)**
- Step 2** - Mount GPS Receiver to exterior of the building **(see Mounting the GPS Receiver below)**. Plug the GPS cable into the socket located on the back of the transmitter.
- Step 3** - Plug the 9 Volt 2.6 Amp DC power supply into the transmitter. **(Figure C)**
- Step 4** - Plug the power supply into a 120 VAC outlet.
- Step 5** - Confirm proper settings of time zone and frequency channel and modify as needed.

(Figure A)



(Figure B)



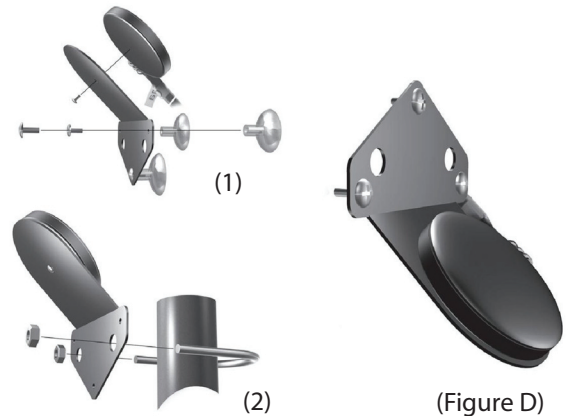
(Figure C)

Mounting the GPS Receiver

Connect the round GPS receiver onto the mounting plate with the provided screw. **(See Figure D)** The GPS Receiver should be located outside of the building, either roof mount or side wall so it has a clear view of the sky with no overhanging obstacles blocking its view. Run your GPS cable back to the transmitter and insert end into GPS socket.

Power LED

The Power LED Indicator located on the front of the transmitter will light up once you have connected the power supply (provided) to the transmitter and then to an active 120 VAC outlet. **(Figure A)**



(Figure D)

TRANSMITTER DISPLAY:

- | | |
|---------------------------------------|------------------------------------|
| 1. DAY/MONTH/YEAR | (Will automatically be set by GPS) |
| 2. TIME ZONE (UTC OFFSET) | (Factory Preset) |
| 3. GPS INDICATOR | (See GPS Communications section) |
| 4. TIME | (Will automatically be set by GPS) |
| 5. AM/PM 12/24 HOUR INDICATOR | (Factory set to 12 hour) |
| 6. CHANNEL # | (Factory Preset) |
| 7. DST (Daylight Savings Time) | (Factory set to DST On) |

GPS Communications

The GPS LED indicator located on the front of the transmitter will light up when the transmitter is communicating with the GPS Receiver (**See Figure A**). The following characters indicate the status of the GPS communications.

DISPLAY

- “.oO” There is communication with the GPS Receiver. Time is valid.
- “.” There is communication with the GPS Receiver.
- “.o” There is communication with the GPS Receiver. However, the time is not valid.

Day/Month/Year

Display will show the Day/Month/Year received from the GPS satellites.

GPS Time

Displays Atomic clock based time received from the GPS Receiver. Upon initial set-up, the display will start at 12:00:00. After the installation and connection of the GPS receiver, the LED will light and the time will change to GPS based time.

Program Mode LED

You will use the Program mode for setting/changing specifications:

1. Channel #: Frequency you will operate on.
2. Time Zone
3. AM/PM: Format 12 or 24 hour operation. (Factory set to 12 hour)
4. DST (Factory set “ON”)

Programming

To enter program mode, push and hold down the Mode Button for 3 seconds or more.

Once in program mode, when you push the Mode Button, the program mode will be changed as follows:

CHANNEL

TIME ZONE (UTC OFFSET)

12/24 HOUR OPERATION

DST (ON OR OFF)

TIME/DAY/DATE

Frequency Channel

The factory has preset your transmitter to the FCC assigned Frequency Channel. You can skip this step unless a separate frequency sticker is attached to your transmitter, or directed by factory personnel.

If a frequency sticker is attached:

Push and hold the "MODE" button located on the front of the transmitter until "CHANNEL" appears.

Push the "SET" button located on the front of the transmitter until you find the Frequency Channel that has been assigned by the FCC and provided to you.

Once the Channel is selected, push the Mode button to return to programming other features.

There are 10 available channels as follows:

"CH00" 467.2125 MHz

"CH01" 467.2375 MHz

"CH02" 467.2625 MHz

"CH03" 467.2875 MHz

"CH04" 467.3125 MHz

"CH05" 467.3375 MHz

"CH06" 467.3635 MHz

"CH07" 467.3875 MHz

"CH08" 467.4125 MHz

"CH09" 467.4375 MHz

Time Zone (UTC OFFSET)

The factory has preset the transmitter to your Time Zone. If you need to change, push and hold the "MODE" button located on the front of the transmitter unit. "UTC OFFSET" will display. Push the "SET" button located on the front of the transmitter unit until you find your time zone.

Once the "Time Zone" is selected, push the Mode button to return to programming other features.

North American Time Zones: There are 24 available time zones worldwide.

- 05: EASTERN

- 06: CENTRAL

- 07: MOUNTAIN

- 08: PACIFIC

- 09: ANCHORAGE

- 10: HONOLULA

12 or 24 Hour Operation

Your system is factory set for 12-hour operation; you can skip this step if you will operate on 12-hour time. If AM or PM is on the display, then the 12-hour option is selected. If neither AM nor PM is on the display, then the 24-hour option is selected.

To change from/to 12 hour operation:

Push and hold the "MODE" button located on the front of the transmitter until "FORMAT" appears. Push the "SET" button to Select 12-hour or 24-hour operation.

Once the "format" is selected, push the Mode button to return to programming other features.

Daylight Saving Time

Your transmitter is factory set to have DST on and the display will show "DST+". If you want to turn it off, push "MODE" until you see "DST", then push the "SET" button to elect "OFF". The letters "DST+" (Daylight Saving Time) will be displayed when adjustment for Daylight Saving Time is active. The letters "DST" will be displayed when adjustment for Daylight Saving Time is inactive. If neither "DST+" nor "DST" is on the display, Daylight Saving time is inactive.

Detailed Transmitter Operation

The first time the power supply is attached to the transmitter, the transmitter will be in program mode and the "POWER LED" will light. Program your transmitter to the desired settings. The transmitter will initially show 12:00:00 and increment each second until it receives a valid time signal from the GPS Receiver. The "GPS" LED light turns on when the time information from the GPS satellite is valid and the symbol "oO" will appear on the upper right corner of display.

Note: The transmitter will transmit the displayed time even if it is not GPS time.

Once the transmitter receives the GPS Receiver time signal, the transmitter sets its internal clock to that time and will display the correct time/date. The transmission signal is an FM radio signal in the 467 MHz range that will transmit time data on one of the 10 available frequencies. The frequency you will use has been approved by the FCC (Federal Communications Commission) and the system will be licensed by the FCC in the name of the end user at that location.

The transmitter continually monitors the GPS Receiver and will update its internal clock with the time data it receives. The transmitter transmits the time signal at 10 seconds, 30 seconds, and 50 seconds past each minute and on each minute.

DST

The transmitter is preprogrammed to automatically make adjustment for Daylight Saving Time. The letters "DST+" (Daylight Saving Time) will be displayed when adjustment for Daylight Saving Time is active. The letters "DST" will be displayed when adjustment for Daylight Saving Time is inactive. If neither "DST+" nor "DST" is on the display, Daylight Saving Time is not applied. The adjustment to Daylight Saving Time and back to Standard Time takes place at 12:00 AM on the day of the change.

Note: The GPS signal does not encode information about Daylight Saving Time. In the spring when the transmitter changes to Daylight Saving Time, the system analog clocks will adjust by advancing faster than their normal speed to make the adjustment and then return to normal operation. In the fall when the transmitter returns to Standard Time, the system clock will make the time adjustment and then return to normal operation.

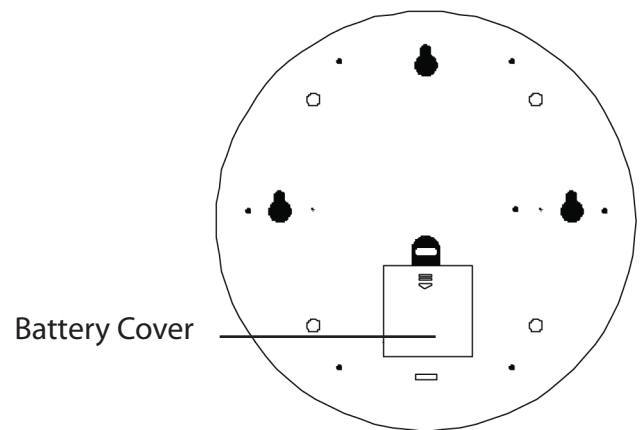
Synchronous Output

The transmitter comes with two relay output terminals located in the back of the transmitter (see Figure B). One normally open and the other normally closed, provide a relay output connection to the Synchronous Clock System.

GPS Wireless Clock Setup

Step 1 - Remove battery cover located on the back of the clock and put the two alkaline D Cell batteries (provided) into the battery holder.

Step 2 - Attach the battery cover to the original position. Receiver setup is now complete. See Receiver Operation for details of operation.



Detailed Clock Receiver Operation

When batteries are put into the clock, the clock hands will spin clockwise and stop at 12:00:00. The clock receiver is then activated and it will look for a signal from the transmitter. During the very first installation, the channel stored in the clock receivers nonvolatile memory is "CH00" and it will initially look for this frequency. The clock will scan each channel automatically and it will spend up to 1 minute searching each frequency until it finds the transmitter.

If reception fails after scanning all the channels initially, the second hand of the clock will double step from the starting position of 12:00:00.

Once the clock receives the time signal from the transmitter, the clock sets its internal time and the hands will adjust to GPS time. The channel frequency will be memorized and stored in nonvolatile ROM at that time.

The clocks receive updated GPS time data at 2:00, 6:00, 10:00, AM/PM every 24 hrs. When the clock does not receive the signal, the second hand of the clock will double step, giving you a visual indicator of a transmission problem at that location.

Protecting Your Transmitter

It is important that you protect the transmitter to ensure maximum life.

The following steps are recommended.

1. Place transmitter in an area that has little human traffic and a spot where it will not get damaged.
2. The room temperature should be standard room temperature, but the transmitter can handle normal internal building temperature fluctuations.
3. It should not be stored against a metal cabinet or metal wall. The metal could prevent the transmitter from achieving maximum output.
4. In environments that are prone to power outages, it is suggested to put transmitter on a UPS (Uninterruptible Power Supply) system. This will protect the system from significant power spikes. Like any other electronic device, a significant power surge could damage the circuitry.
5. Put the transmitter on a Monthly/Quarterly "maintenance" schedule. Visually inspect the transmitter and make sure:
 - a. The transmitter is physically safe.
 - b. The unit has power.
 - c. The GPS LED is lit.