

Primex XR 72MHz Synchronized Time Solution

# XR Levo Series Digital Clock & Timer Troubleshooting Guide



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## Primex, Inc.

Primex is a leading provider of synchronized time and environmental monitoring solutions. Our solutions automate and maintain facility compliance, increase efficiencies, enhance safety and reduce risk for organizations in the healthcare, education, manufacturing and government vertical markets.

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# Levo Series Digital Clocks and Timers Troubleshooting

Learn more about common troubleshooting procedures for an XR Levo Series Digital Clocks & Timers (current, second generation).



# Clock does not power on

Model: Levo & Classic Digital Clocks and Timers

## Symptoms

All or some of the symptoms may be present.

- Clock display remains dark after being connected to power.
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## Problem

Clock power connection or electrical junction box voltage.

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## Analyze

1. Verify the clock power cord is securely connected to the power leads at the electrical junction box.
  2. Verify the clock voltage and the voltage being supplied at the electrical junction box are the same
  3. If there are large groups of for clocks that have lost power, request assistance from the facility maintenance staff to check the circuit breakers.
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## Solution

1. Verify power connections.
  2. Verify clock voltage.
  3. Check circuit breakers.
-

# Only dashes displayed, time is not displayed

Model: Levo and Classic Series Digital Clocks and Timers

## Symptoms

All or some of the symptoms may be present.

- Digital Clock/Timer only displays dashes and time is not displayed.
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## Problem

Digital Clock/Timer is not receiving a signal from the Transmitter.

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## Analyze

1. Determine if cause is due to Transmitter broadcasting schedule and/or clock signal search frequency.

Digital Clock/Timer signal search frequency: every 10 minutes on the 5's (5, 15, 25, 35, 45, 55 minutes) of the hour, a clock's receiver turns on to search for a Transmitter signal to receive a time update.

Transmitter with External Antenna: were the clock(s) installed between the 7th and 38th minute of the hour? Clocks receive a time signal and update their time the 39th minute of the hour. If the Transmitter is not in an error mode, power the down the Transmitter, wait 30 seconds, and power back on. A power cycle forces the Transmitter to broadcast for eight consecutive hours.

Broadcast (Transmit) Schedule Transmitter with Internal Antenna: broadcasts its synchronized time continuously to the system clocks and devices.

Digital Clock/Timer signal search frequency: every 10 minutes on the 5's (5, 15, 25, 35, 45, 55 minutes) of the hour, a clock's receiver turns on to search for a Transmitter signal to receive a time update.

2. Identify scope of clocks experiencing issue - single clock or all clocks/clocks in specific area.

Single clock

- a. Reset the clock to initiate a manual signal search: press and immediately release the button located in its setting panel.

Levo Series - from the back side of the clock remove the small rectangular access panel. Setting changes can be made while the clock/timer is ON and changes will take effect within a few seconds.

All clocks/clocks in specific area: verify the Transmitter(s) is not in an error state. If multiple Transmitters on site, start with the Master Transmitter and then proceed by verifying the other units.

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a. Is the Transmitter's red LED flashing and/or is information displayed on its front display not correct? If yes, the Transmitter is an error state that may result in the clocks not receiving a broadcasting signal. Resolve the issue by completing the troubleshooting topics for the Transmitter model. Once the Transmitter is in a normal state and broadcasting, clocks correct at their next scheduled update.

3. If a clock(s) continue not to set its time, it may be due to the signal coverage at the install location or area.

Perform a signal check: take the clock with the issue to a known good signal area where clocks are set to the correct time with a solid colon. Apply power to the clock experiencing the issue. Press and release the clock's reset button in its setting panel. If the clock sets to the correct time, it's a signal issue at the original installation location .A reset causes the clock to scan for a broadcasting Transmitter frequency.

4. If a clock(s) in a specific area continues not set its time, it may be due to interference preventing a clock from receiving a broadcasting signal.

#### NOTE

When certain types of electronic light ballasts become defective they may radiate broadband noise, which can interfere with wireless devices. While interference issues are unlikely with the Primex system, high levels of noise present in the 72-76MHz range could potentially cause clocks which are located far from the Transmitter and also within the close proximity of these ballasts to not receive a signal. Very limited instances have occurred in the past, which has only been found to happen when ballasts become defective.

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## Solution

1. Determine if Transmitter broadcast schedule or clock signal search frequency is cause of clock not updating its time.
2. Single clock: reset clock to search for signal.
3. All clocks/clocks in specific area: check Transmitter status and resolve any issues.
4. Verify signal coverage at install location or area.
5. Verify no interference at install location or area - defective ballast.

If the issue cannot be resolved, additional troubleshooting is required. For further assistance, contact Primex Technical Support at 1-262-729-4860.

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# One or more LED segments are not illuminated (appear dark)

Model: Levo Series and Classic Series Digital Clocks and Timers

## Symptoms

All or some of the symptoms may be present.

- One or more LED segments are not illuminated (dark).
  - All LED segments are not illuminated.
- 

## Problem

Segment may be burned out or power trouble on the circuit board.

### NOTE

First digit is not illuminated from 0:01.01 to 9:59.59 in 12 or 24-Hour configuration.

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## Analyze

Initiate a reset.

1. Either power cycle the clock or initiate a manual reset.

Levo Series - from the back side of the clock remove the small rectangular access panel. Setting changes can be made while the clock/timer is ON and changes will take effect within a few seconds.

A power cycle or manual reset causes the clock to scan for a broadcasting Transmitter. The clock initiates its power cycle/reset sequence as described below.

1. All LED segments display 8s with a red dot on the bottom right of each of the two hour digits and one at the second or last minute digit.
  2. All LED segments display dashes and then dashes with a colon between the hours and minutes.
  3. Once the clock/timer receives a signal from the Transmitter, the LED segments display the time received from the Transmitter and a flashing red dot appears at the bottom right of the second hour digit for three minutes.
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## Solution

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1. Reset the clock to search for a signal.
  2. If a single or all segments fail to illuminate after a reset, the clock will be required to be replaced. For further assistance, contact Primex Technical Support at 1-262-729-4860.
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# Colon between the hour and minute is flashing

## Symptoms

All or some of the symptoms may be present.

- The colon between the clock hour and minute is flashing.
  - The clock's time may not be accurate.
- 

## Problem

The clock has not received a signal from a Transmitter for more than 3 days.

Digital Clock/Timer signal search frequency: every 10 minutes on the 5's (5, 15, 25, 35, 45, 55 minutes) of the hour, a clock's receiver turns on to search for a Transmitter signal to receive a time update.

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## Analyze

1. Identify scope of clocks experiencing issue - single clock or all clocks/clocks in specific area.

Single clock

- a. Reset the clock to initiate a manual signal search: press and immediately release the button located in its setting panel.

Levo Series - from the back side of the clock remove the small rectangular access panel. Setting changes can be made while the clock/timer is ON and changes will take effect within a few seconds.

All clocks/clocks in specific area: verify the Transmitter(s) is not in an error state. If multiple Transmitters on site, start with the Master Transmitter and then proceed by verifying the other units.

- i. Is the Transmitter's red LED flashing and/or is information displayed on its front display not correct? If yes, the Transmitter is in an error state that may result in the clocks not receiving a broadcasting signal. Resolve the issue by completing the troubleshooting topics for the Transmitter model. Once the Transmitter is in a normal state and broadcasting, clocks correct at their next scheduled update.

2. If a clock(s) continue not to set its time, it may be due to the signal coverage at the install location or area.

Perform a signal check. Take the clock with the issue to a known good signal area with clocks that are set to the correct time with a solid colon. Apply power to the clock experiencing the issue. Press and release the clock's reset button in its setting panel. A reset causes the clock to scan for a broadcasting Transmitter frequency. If the clock sets to the correct time, it's a signal issue at its original installation location.

3. If a clock(s) in a specific area continues not set its time, it may be due to interference preventing a clock from receiving a broadcasting signal.
-

## NOTE

When certain types of electronic light ballasts become defective they may radiate broadband noise, which can interfere with wireless devices. While interference issues are unlikely with the Primex system, high levels of noise present in the 72-76MHz range could potentially cause clocks which are located far from the Transmitter and also within the close proximity of these ballasts to not receive a signal. Very limited instances have occurred in the past, which has only been found to happen when ballasts become defective.

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## Solution

1. Determine if Transmitter broadcast schedule or clock signal search frequency is cause of clock not updating its time.
2. Single clock: reset clock to search for signal.
3. All clocks/clocks in specific area: check Transmitter status and resolve any issues.
4. Verify signal coverage at install location or area.
5. Verify no interference at install location or area - defective ballast.

If the issue cannot be resolved, additional troubleshooting is required. For further assistance, contact Primex Technical Support at 1-262-729-4860.

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# Displays 13:15 and Not Updating to Correct Time

## Symptom

Clock displays 13:15 and is not updating to the correct time.

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## Cause

13:15 is a Primex code that represents the number of digits and clock's firmware version. The cause of this issue is due the clock is not seeing a signal from a Transmitter.

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## Solution

1. Check the status of the Transmitter(s) to be sure they have the correct information on its display and red LED is not flashing.

Once the Transmitter is broadcasting, clocks will correct at their next scheduled update.

Digital Clock/Timer signal search frequency: every 10 minutes on the 5's (5, 15, 25, 35, 45, 55 minutes) of the hour, a clock's receiver turns on to search for a Transmitter signal to receive a time update.

2. Does Transmitter have an External Antenna? During troubleshooting, you can power-cycle a Transmitter with an External Antenna to allow it to broadcast continuously for 8 hours.

Broadcast (Transmit) Schedule Transmitter with Internal Antenna: broadcasts its synchronized time continuously to the system clocks and devices.

Broadcast (Transmit) Schedule Transmitter with External Antenna: broadcasts its synchronized time to the system clocks and devices from the 39th to the 6th minute of the next hour and changes to a standby mode during the 7th to the 38th minute of the hour (standard broadcast schedule). During initial power-up, the Transmitter broadcasts for 8 consecutive hours. After the 8 hour power-up period, the Transmitter reverts to its timed broadcast schedule.

3. Reset the clock. A reset causes the clock to scan for a broadcasting Transmitter frequency.

From its setting panel, press and release the Reset button - from the back side of the clock remove the small rectangular access panel. Setting changes can be made while the clock/timer is ON and changes will take effect within a few seconds.

4. There is also a potential the clock is experiencing interference and not allowing the clock to receive a broadcasting signal.

Move the clock to an area where other clocks are set to the correct time. This task should isolate the issue to either a defective clock or signal issue.

### NOTE

When certain types of electronic light ballasts become defective they may radiate broadband noise, which can

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interfere with wireless devices. While interference issues are unlikely with the Primex system, high levels of noise present in the 72-76MHz range could potentially cause clocks which are located far from the Transmitter and also within the close proximity of these ballasts to not receive a signal. Very limited instances have occurred in the past, which has only been found to happen when ballasts become defective.

If the issue cannot be resolved, additional troubleshooting is required. For further assistance, contact Primex Technical Support at 1-262-729-4860.

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# Code Blue Event Fails to Trigger

## Problem

A Code Blue Event Fails to Trigger.

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## Cause

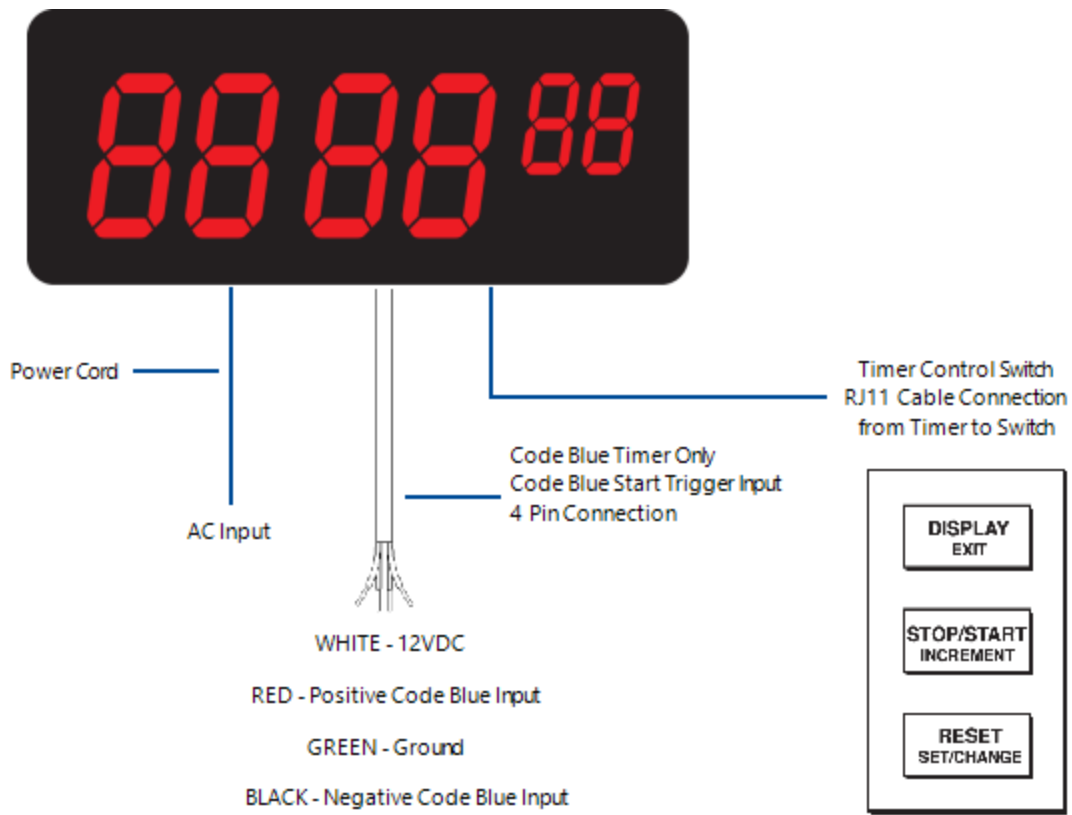
A Code Blue Timer is a multifunction digital clock and timer that integrates with an existing Code Blue system to effectively time each event.

- When a Code Blue event is invoked, a relay/pulse is sent from the Code Blue system to the Code Blue Timer, which triggers it to begin counting up.
  - If a Code Blue event is in effect, it will take priority and the timer's previous task will run in the background until the Code Blue event ends or is stopped.
  - A switch control allows the user to operate the timer in multiple modes.
  - In the event of a power outage, the timer's memory maintains the correct time for up to one hour.
- 

## Solution

Assistance from the Code Blue System provider may be needed to resolve this issue.

1. Inspect the wiring from the Code Blue Timer to the Code Blue System. Wiring is determined by the Code Blue System as specified below. The supplied 4-pin connector integrate the Code Blue System to the Code Blue Timer.
    - Code blue systems that apply a voltage to start a code blue event: wire the timer 4 pin connector's RED (Positive Code Blue Input) and BLACK (Negative Code Blue Input) wires to the code blue system. Cap off the WHITE and GREEN wires separately. An input voltage of 5-120V (AC or DC) can be used. When using DC, be sure to use the correct polarity; RED wire is positive and the BLACK wire is ground. Code Blue start and stop events are triggered by the application of voltage across the code blue input wires.
    - Code blue systems that use a dry contact and do not inject a voltage: wire the timer 4 pin connector's GREEN (Ground) and BLACK (Negative Code Blue Input) wires together and wire the WHITE (12VDC) and RED (Positive Code Blue Input) wires to the code blue system dry contact.
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If the issue cannot be resolved, additional troubleshooting is required. For further assistance, contact Primex Technical Support at 1-262-729-4860.

# Elapsed Timer count-up or count-down fails to trigger

## Symptom

- Elapsed Timer count-up or count-down does not trigger when initiated from Timer Switch Control.
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## Problem

There may be an issue with a cable connection, wiring issue, or a defective Timer Switch Control.

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## Analyze

1. Inspect the Timer Switch Control for any damage or degradation.
  2. Check the cable from the Elapsed Timer to the Timer Switch Control for any damage or degradation. Cable may need to be replaced.
    - Levo Series Elapsed Timer: cable is a RJ11 flat telephone cable (straight wire configuration).
  3. Loosen the screws on the membrane Timer Switch Control. The screws may be over tightened, causing the issue.
  4. Swap the Timer Switch Control with a known good switch to isolate the issue to the switch itself or a potential wiring issue between the Timer Switch Control and the Elapsed Timer.
- 

## Solution

1. Inspect Timer Switch Control.
2. Verify cable connections.
3. Loosen screws on membrane Timer Switch Control.
4. Swap Timer Switch Control.

If the issue cannot be resolved, additional troubleshooting is required. For further assistance, contact Primex Technical Support at 1-262-729-4860.

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# Programmable Timer is Not Counting Down Per its Schedule

## Problem

Programmable Timer is not counting down.

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## Cause

For Programmable Timer models, the timer's schedule is configured in the Primex Event Scheduler Pro software to the schedule ID controller 24. The schedule is downloaded from the Event Scheduler Pro to the system Transmitter, allowing the Transmitter to broadcast the schedule. This issue may be due the timer setting, the schedule download to the Transmitter(s), or the Transmitter status.

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## Solution

1. From its setting panel, verify the PT/TC Switch (5) is set to the ON position.

At access the setting panel - from the back side of the clock remove the small rectangular access panel. Setting changes can be made while the clock/timer is ON and changes will take effect within a few seconds.

2. From the Primex Event Scheduler Pro software, verify the schedule ID is set to controller 24.
3. Verify the schedule has been downloaded the local Transmitter(s) that are within range of a Programmable Timer.
4. Verify the Transmitter operating status. Refer to the Transmitter Troubleshooting topics.

If the issue cannot be resolved, additional troubleshooting is required. For further assistance, contact Primex Technical Support at 1-262-729-4860.

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# Configure Display Settings

Levo Series Digital Clocks and Timers have a dip switch control panel that sets its display settings.

## How to access setting panel

To change the factory default settings, from the back side of the clock remove the small rectangular access panel. Setting changes can be made while the clock/timer is ON and changes will take effect within a few seconds.

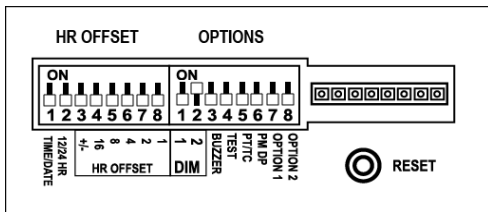
### NOTE

When power is first applied to the clock/timer or the reset button is pushed, a decimal point will flash for approximately three minutes while its receiver is turned on to search for a Transmitter signal. If the clock does not receive valid time data from the Transmitter for 3 days, the red colon on the clock will flash.

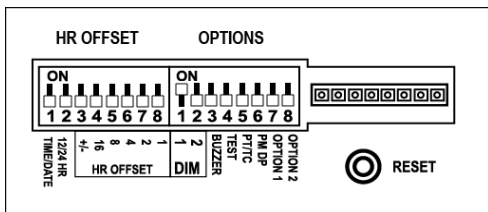
## Set LED dimmer display

The LED display is set to 100% by factory default.

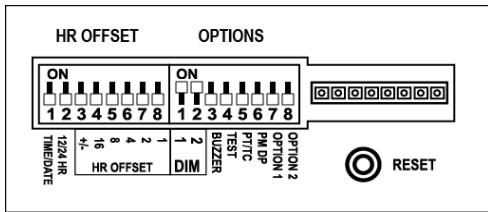
To dim the LED by 25%, set the OPTIONS, DIM switch 1 to the OFF position and DIM switch 2 to the ON position, as illustrated below.



To dim the LED by 50%, set the OPTIONS, DIM switch 1 to the ON position and DIM switch 2 to the OFF position, as illustrated below.

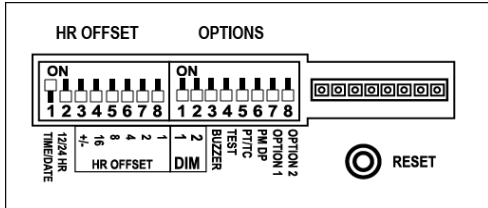


To dim the LED by 75%, set the OPTIONS, DIM switch 1 to the ON position and DIM switch 2 to the ON position, as illustrated below.



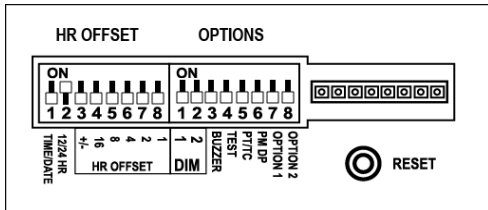
### Set alternating time/date

To set the display of a to alternate between the current time and date, set the HR OFFSET- Time/Date switch (1) to the ON position, as illustrated below.



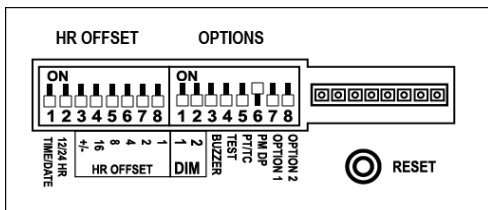
### Set display to 24-hour time

To display 24-hour time, set the HR Offset - 12/24 HR switch (2) to the ON position, as illustrated below.



### Set PM indicator

To enable the PM dot indicator, set the OPTIONS - PM DP switch (6) to the ON position, as illustrated below.

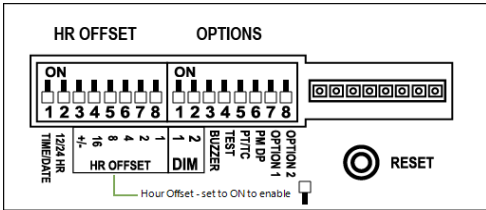


### Set offset hours

The Clock/Timer displays the time received from the Transmitter. The hour offset is for application use when the clock/timer is to display the time for another Time Zone.

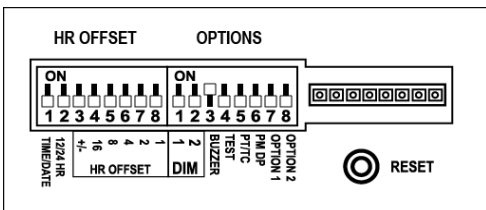
By moving the appropriate "HR OFFSET" dip switch(s) and the direction (+/-) dip switch, any full-hour time can be displayed. The "HR OFFSET" switch designates how many hours are offset from the current Transmitter Time Zone.

The clock reads the hour offset on start up, when the RESET button is pushed, and each time the clock receives data from the Transmitter for the offset hours to go into effect.



### Set audible buzzer (timer models only)

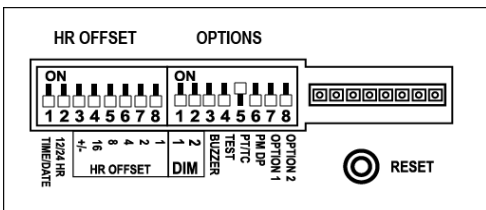
The audible buzzer is only on the count-up and count-down timer function. To enable the buzzer feature, set the OPTIONS - Buzzer switch (3) to the ON position, as illustrated below.



### Set Programmable Timer mode (programmable timer only)

For Programmable Timer models, the timer schedule is configured in the Primex Event Scheduler Pro software to the schedule ID controller 24. The schedule is downloaded from the Event Scheduler Pro to the system Transmitter, allowing the Transmitter to broadcast the schedule.

To enable a programmable timer to receive the broadcast schedule from the Transmitter, set the PT/TC Switch (5) to the ON position, as illustrated below.



# Support

To obtain additional technical documentation for Primex products, visit the Support area on our website at [www.primexinc.com](http://www.primexinc.com)

You may require Technical Support when you have questions about product features, system configuration, or troubleshooting. Support services are delivered in accordance with your organization's support agreement, end user licenses agreements, and warranties, either with a Primex Certified Sales and Service Partner or directly with Primex.

## **Support through Primex Certified Sales and Service Partners**

Ensuring our customers experience excellent service is of utmost importance to Primex. Our network of Certified Sales and Service Partners offer technical support services for Primex products.

If you have purchased Primex products or have a service agreement with a Primex Partner, they are your primary contact for all Technical Support inquires.

## **When contacting Primex Technical Support**

Make sure you have satisfied the system requirements listed in your product documentation. Also, you should be at the computer or device on which the problem occurred, in case it's necessary to replicate the problem.

When you contact Primex Technical Support, please have the following information available:

- Customer ID/Account Name
- Problem description/error messages
- Device hardware information
- Troubleshooting performed before contacting Primex

## **Primex Technical Support**

Hours: 8:00 a.m. to 5:00 p.m CST | Monday through Friday

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