

### Product Guide Specification

**Specifier Note: This product specification is written according to the Construction Specifications Institute (CSI), Master Format, SectionFormat, and Page Format, contained in the CSI manual of Practice.**

**This section must be carefully reviewed and edited by the Architect/Engineer/Consultant to meet the requirements of the project and local building code. Coordinate this section with other specification sections and the drawings.**

**Delete all “Specifier Notes” when editing this section.**

### DIVISION 27 53 13

#### TIMETRAX SYNC – GPS, INTERNET/INTRANET NTP SYNCHRONIZED WIRELESS TIME SYSTEM – 915MHz

**Specifier Note: This section covers the Pyramid Technologies TimeTrax Sync – GPS, Internet/Intranet NTP Synchronized Wireless Time System. Consult Pyramid Technologies for assistance in editing this section for the specific application.**

#### Part 1 General Requirement and Scope

- A. Furnish and install a complete, new GPS, Internet/Intranet NTP synchronized clock system using Pyramid Technologies wireless system. Equipment supplied shall be of manufacturer’s latest model design.
- B. All bids shall be based on the equipment as specified below. The specifier must approve any alternate system.

(Reference Division 27 53 13 Clock Systems)

**Specifier Note: Edit the following list as required for the project.**

#### 1.1 Section Includes:

- A. 902 – 928MHz 1 Watt Base Transmitters
- B. 902 – 928MHz Repeater Transmitters
- C. Time Source – GPS Receiver/Internet/Intranet NTP

- D. Analog Clocks (Battery)
- E. Analog Clocks (AC)
- F. Digital Clocks

**Specifier Note: Edit the following list as required for the project. List other sections with work directly related to this section.**

## **1.2 System Description**

- A. GPS, Internet/Intranet NTP wireless clock system shall continually synchronize clocks through the building.
- B. Clock system shall automatically adjust for Daylight Saving Time.
- C. Customer will have the software ability to determine the number of time adjustment(s) per 24-hour period.
- D. The wireless clocking system shall incorporate an internal clock reference in the event of a time source failure ensuring the clocks continues to function as a synchronized system. Power interruption(s) to base transmitter does not cause failure of the system.
- E. During restoration of power or repair, the system shall resume normal operation without the need to manually reset the system or any components.

## **1.3 Submittals**

Product Data: Submit technical catalog for each component, describing physical characteristics, and style of complete installation. Clock color and finish to be described.

## **1.4 Substitutions**

Any considered proposed substitution shall be designed and manufactured of equivalent materials that meet or exceed specified requirements in this section.

Any proposed substitutions shall be identified 14 days before bid date.

Master clock systems requiring wire or conduit for synchronization shall be excluded from the bid process.

## **1.5 Supplier Industry Experience**

- A. Qualifications:
  - 1. Manufacturer: Company specializing in manufacturing commercial time related system products with a minimum of 20 continuous years of documented experience
  - 2. Installer: Pyramid Technologies or a certified Pyramid Technologies installation company

- B. Prior to installation, a site survey must be performed to determine proper transmitter and antenna placement.

### **1.6 Project Site Condition Installation**

- A. Clocks shall not be installed until painting and other finishing work is completed in each room.
- B. Installation of GPS receiver for access to exterior roof/side wall location shall be coordinated ensuring a watertight application.

### **1.7 System Start-up**

At completion of installation and prior to final acceptance, a system set up procedure must be followed. This set-up procedure must be performed by Pyramid Technologies or a Certified Pyramid Technologies installer.

### **1.8 Warranty**

Pyramid Technologies will provide a 5-Year Warranty on all components related to our synchronized wireless clock system.

## **Part 2 – Products**

### **2.1 Manufacturer**

GPS, Internet/Intranet NTP synchronized wireless clock system shall be manufactured by Pyramid Technologies, LLC, 45 Gracey Ave, Meriden, CT 06451 800-336-3592  
[www.pyramidwireless.com](http://www.pyramidwireless.com).

### **2.2 Operational System Start up**

#### **A. Base Transmitter Operation:**

1. Power is applied to the Transmitter.
2. Unit automatically checks for internal correct time and Daylight Saving rule set.
3. If time is valid – transmission begins.
4. Clean startup requires time zone and daylight savings time information and a time source protocol:
  - a. GPS
  - b. Other Pyramid Time device
  - c. External/Internal NTP
  - d. Internal NTP Servers
5. Once the Transmitter has received the designated time source, it sets its internal clock to that time. The Transmitter then starts to transmit its internal time on all 128 channels once every 10 seconds.

B. Analog Clock Operation:

1. Insert batteries or apply power. The clock will automatically set itself to the transmitted time.
2. After initial setup, the clock will shut off the receiver. At a minimum of once per day, the microprocessor will activate the receiver and starting with the stored channel, it will again look for a valid time signal. The customer has the software option of designating the number of times that the clock is activated to search for the signal and synchronized to the transmitted time.
3. If the clock has not decoded a valid time signal in 3 days, it will go to a 2-step mode as an indicator that no recent synchronization signal was being received.

## 2.3 Equipment

General: The clock system shall include a 902 - 928MHz transmitter, optional GPS receiver, Internet connection, Intranet NTP connection, receiver clocks, required 902 - 928 MHz repeaters, and all accessories for complete operations.

GPS Receiver Model #: 42328: GPS Roof or Wall Mounted with standard 10' cable with optional 50' or 100' Pyramid Technologies extension cable available. The GPS Receiver extension cable may require a plenum rating as required by local code.

Transmitter: Pyramid Technologies Wireless **Time Trax Sync Model #:9T1WI**. Transmitter enclosure includes a transmitter board and an external antenna. Transmitter receives a time source from 3 available options: GPS Receiver, Internet and Intranet NTP. The base unit shall transmit time once every 10 seconds to all clocks and secondary devices in the system.

Transmission:

Frequency Range: 902 to 928MHz  
Radio Technology: Narrowband FM Frequency Hopping  
Number of Channels: 128  
Output Power: 1 Watt  
Channel Bandwidth: 10kHz maximum  
Transmission Mode: 1-way communication  
Data Rate: 4800Kbps

Base Transmitter:

Transmitter Output Power: +29 +/- 1 dBm  
Transmitter Power Requirements: Universal Input 100 - 265 AC 50-60Hz  
Carrier Frequency Stability: +/- 5ppm

Transmitter shall have 128 channels to assure interference-free reception.  
Transmitter shall have software-enhanced worldwide time zone option available.  
Daylight Savings Time can be STD USA, Custom (user defined), or None.  
12-hour or 24-hour display

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Transmitter shall be a metal housing

Transmitter housing shall incorporate an LCD display, which includes the following:

Time AM or PM

Day & Date

GPS Reception indicator

Power supply requirements: 120VAC, 50/60Hz 10W Maximum power consumption

902–928MHz Repeater Transmitter Model #: 00000

Repeater shall be in a metal housing with an integral external antenna

Repeater shall have 128 channels to eliminate channel collisions

Repeater unit shall transmit time continuously to all clocks and secondary devices in the system.

2 LED lights on the exterior housing 1<sup>st</sup> to indicate signal reception from base transmitter and 2<sup>nd</sup> to signal outbound broadcast signal.

Power supply requirements: 120VAC, 50/60Hz 10W Maximum power consumption

Transmission:

Frequency Range: 902 to 928MHz

Radio Technology: Narrowband FM Frequency Hopping

Number of Channels: 128

Channel Bandwidth: 10kHz maximum

Transition Mode: 1 Way Communication

Data Rate: 4800 kbps

Battery-operated analog clocks shall be wall mounted. Clocks shall have ABS frames and polycarbonate lens. Face shall be white. Hour and minute hands shall be black.

13” diameter analog clock: Pyramid Technologies Model 00000

17” diameter analog clock: Pyramid Technologies Model 00000

Additional colors, finishes, and dial faces are available from the manufacturer. Analog clocks shall be battery-operated and have an expected 10-year battery life.

Analog clocks are capable of automatically adjusting for Daylight Saving Time.

Time is updated at a minimum of once per 24-hour period. Customer is able to adjust the number of updates per 24-hour period.

Clocks shall have an optional metal mounting bracket with key for tamper-proof installation.

Custom Dial Logos are available on 13” analog clocks.

Analog clock receivers shall be as listed:

Receiver power: 1 C cell Lithium battery

Antenna type: Internal

A transmitter power failure will cause the clocks to continue to perform as a standard quartz timepiece. After not receiving a time update for 72 hours the clocks will

physically demonstrate a second hand double-stepping to visually alert the staff of a transmitter failure.

Electric (AC) analog clocks operated shall be wall mounted. Clocks shall have ABS frames and polycarbonate lens. Face shall be white. Hour and minute hands shall be black.

13” diameter analog clock 120VAC: Pyramid Technologies Model 00000

13” diameter analog clock 24VAC: Pyramid Technologies Model 00000

17” diameter analog clock 120VAC: Pyramid Technologies Model 00000

Additional colors, finishes, and dial faces are available from the manufacturer. Analog clocks shall be AC powered (24VAC or 120VAC).

Analog clocks are capable of automatically adjusting for Daylight Saving Time.

Time is updated a minimum of 2 times per 24 hour period. Customer is able to adjust the number of updates per 24-hour period.

If power is interrupted, the clock will stop. Once power is restored – the clock will self-correct to the current time.

Clocks shall have an optional metal mounting bracket with key for tamper proof installation.

Custom Dial Logos are available on 13” analog clocks

Analog clock receivers shall be as listed:

Receiver power: 24VAC or 120VAC 2W Maximum power consumption

Antenna type: Internal

A transmitter power failure will cause the clocks to continue to perform as a standard quartz timepiece. After not receiving a time update for 72 hours, the clocks will physically demonstrate a second hand double-stepping to visually alert the staff of a transmitter failure.

Digital Clocks Pyramid Technologies Model # 00000, 4”, 7-segment LED display. Clocks shall have ABS frame and polycarbonate lens. LED digits shall be red, green, or blue. Overall dimensions: 18” long, 8”height, 3”deep.

Digital clocks must be able to receive a synchronized time signal from the Pyramid Technologies Master Transmitter.

Digital clocks must have time and date options.

Digital clocks shall be capable of automatically adjusting for Daylight Savings Time.

Power Supply: 120VAC & 24VAC, 50-60-cycle 10W Maximum power consumption

Digital clock is viewable from 165 feet.

Wire Guards:

Analog clock wire guard Pyramid Technologies Model # 42314 for 13” diameter analog clock.

Analog clock wire guard Pyramid Technologies Model # 42315 for 17” diameter analog clock.

Digital clock wire guard Pyramid Technologies Model # 42316 for 2.5” and 4” digital clocks.

**Part 3 - Execution**

**3.1 Demonstration**

Provide training to Owner’s representative on setting Master Transmitter and replacing batteries.

**3.2 Testing:**

All devices must be tested at their operational location under normal day-to-day conditions to assure reception of signal.

**Specifier Note: The above 3 sections must be carefully reviewed and edited by the Architect/Engineer/Consultant to meet the requirements of the project and local building code(s).**

**END OF SECTION**