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1 Primex Wireless, Inc.
2 965 Wells Street
3 Lake Geneva, WI 53147
4 800-537-0464
5 www.primexwireless.com
6
7

8 **Product Guide Specification**

9
10 **Specifier Note: This product specification is written according to the Construction**
11 **Specifications Institute (CSI), *MasterFormat™*, *SectionFormat*, and *PageFormat*,**
12 **contained in the *CSI Manual of Practice*.**

13
14 **The section must be carefully reviewed and edited by the**
15 **Architect/Engineer/Consultant to meet the requirements of the project and local**
16 **building code. Coordinate this section with other specification sections and the**
17 **drawings.**

18
19 **Delete all “Specifier Notes” when editing this section.**
20

21 **DIVISION 27 56 16**

22
23 **Specifier Note: This section covers the Primex Wireless GPS Synchronized Clock**
24 **System. Consult Primex Wireless for assistance in editing this section for the**
25 **specific application.**
26

27 28 29 **Part 1 General Requirements and Scope:**

30 Furnish and install a complete new synchronized Wireless bell and tone
31 system manufactured by Primex Wireless Inc.

32
33 Division 1 applies to this section.
34

35 **Specifier Note: Edit the following list as required for the project.**
36

37 38 39 **1.1 Section Includes**

40 Wireless Tone Generator
41 Scheduling software
42 Wireless transceivers
43

44 **Specifier Note: Edit the following list as required for the project. List other**
45 **sections with work directly related to this section.**
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1.2 Related Work Specified Elsewhere:

- 26 00 00 – Electrical (120 volt grounded outlet required for transmitter.
- Division 2753 13 – GPS Wireless Clock System or 1 watt external/ Command point
- Division 27 42 01 – Wireless Digital Clocks and Specialty Timers

Specifier Note: List standards referenced in this section, complete with designations and titles. This article does not require compliance with standards, but is merely a list of those used.

1.3 References

- This Technical Specification and Associated Drawings
- National Fire Protection Agency (NFPA) – 70, National Electric Code (NEC) – 2002.
- Primex Wireless Clock System User Manual
- Primex Wireless Tone Generator User Manual.

1.4 Definitions

- CD-ROM: Compact disk, read-only memory.

- GPS: Global Positioning System, a worldwide system that employs 24 satellites in an integrated network to determine geographic location anywhere in the world, and which employs and transmits Universal Coordinated Time, the world’s most accurate and reliable time.

- NTP: Network Time Protocol, used for synchronizing the clocks on computer networks and devices from either a public server or a separate server on a private local area network.

- PC: Personal computer (Owner-furnished)

- UTC Universal Coordinated Time

- WTG: Wireless Tone Generator.

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4 **1.5 System Description**

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6 The system shall provide wireless time from a master time source. This time source
7 will either be the atomic clock on the GPS system or the clock from a defined NTP
8 server that the XR transmitter can access via the customer Ethernet. The master
9 time will be synchronized to UTC. Each WTG and every other component in the
10 system shall use both precise time and synchronized time.

11
12 The WTG system shall provide a tone at pre-defined times to an Owner-furnished
13 public address system, or relay closure to Owner furnished bell system. The tone
14 and relay shall actuate all devices programmed to operate on receipt of the tone.

15
16 Timing and operation of the WTG system shall be controlled by software provided
17 by system manufacturer, housed in the transmitter and programmed by an Owner-
18 furnished PC.

19
20 The system shall not require wiring from the transmitter to the
21 WTG. Initially and at scheduled intervals, the WTG receives the time data and
22 command packets from the transmitter. Using that information, the WTG can send
23 an audio tone to and an existing PA-type announcement system and/or an existing
24 bell system.

25
26 The transmitter shall continuously broadcast (transmit) a time data packet and
27 command packets to the WTG. The transmitter shall operate on FCC licensed
28 frequencies that have optimal building penetration and that are regulated by the
29 FCC to minimize interference on the selected channel.

30
31 The GPS unit shall receive the precise time via satellite from its vantage point with a
32 view of the sky' and continuously provide this precise time to the transmitter.

33
34 The system shall incorporate fail-safe design so that failure of any component shall
35 not cause failure of the system. Upon restoration of power or repair of failed
36 component, the system shall resume normal operation without the need to reset the
37 system or any component thereof.

38
39 The system must operate in accordance with a "Radio Station Authorization" Form
40 FCC 601 – LM, granted by the Federal Communications Commission (FCC). This
41 license will be issued to and held by the end user.

42
43 **1.6 Regulatory Requirements**

44
45 Equipment and components furnished shall be of manufacturer's latest model.
46

1 The end user will hold a license, known as a “Radio Station Authorization” granted
2 by the FCC.

3
4 This license grants the end user protected use for wireless transmission at the
5 designated frequency.

6
7 This license will designate a unique “call sign” for each end user.

8
9 Transmitter and receiver shall comply with Part 15 and Part 90 of FCC rules,
10 as follows:

11
12 This device may not cause harmful interference, and

13
14 This device must accept any interference received, including interference
15 that may cause undesired operation.

16
17
18 System shall be installed in compliance with local and state authorities
19 having jurisdiction.

20
21 Unauthorized changes or modifications to the equipment will void the
22 Owner's authority to operate the equipment.

23 24 **1.7 Submittals**

25
26 Product Data: Submit complete catalog data for each component, describing
27 physical characteristics and method of installation.

28
29 **Specifier Note: In accordance with FCC regulations, an application for**
30 **“Radio Station Authorization” must be filed prior to use of the equipment.**
31 **Normally, the manufacturer will have completed the filing and obtaining**
32 **the license. If not, the Owner will be required to file the application with**
33 **the FCC prior to use. Furnishing the license, or a copy of the application,**
34 **will confirm that FCC approval has been obtained.**
35

36 Operating License: Submit evidence of application for FCC Radio Station
37 Authorization prior to installing equipment. Furnish the license or copy of the
38 application for the license, to the Owner/End User prior to operating the
39 equipment. The original license must be delivered to the Owner/End User.

40
41 Samples: Submit one WTG for approval. Approved sample shall be tagged and
42 shall be installed in the work at location directed.

43
44 Manufacturer's Instructions: Submit complete installation, set-up and maintenance
45 instructions.
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1.7 Substitutions

Proposed substitutions, to be considered, shall be manufactured of equivalent materials that meet or exceed specified requirements of this Section.

Proposed substitutions shall be identified not less than 10 days prior to bid date.

Other systems requiring wiring and/or conduit between master and tone generator, will not be accepted.

Other systems using wireless technology in an unlicensed frequency range will not be accepted.

Other systems using wireless technology where the license is held by any party other than the end user will not be accepted.

1.8 Quality Assurance

Permits: Obtain operating license for the transmitter from the FCC.

Qualifications:

Manufacturer: Company specializing in manufacturing commercial time systems product with a minimum of 30 continuous years of documented experience including 4 years producing wireless time systems.

Installer: Company with documented experience in the installation of commercial time systems.

1.9 Delivery Storage and Handling

Deliver all components to the site in the manufacturer's original packaging. Packaging shall contain manufacturer's name and address, product identification number, and other related information.

Store equipment in finished building, unopened containers until ready for installation.

1.10 Project Site Conditions

1
2 Verify that a PC having the specified minimum system requirements will be
3 available for use in programming the WTG. See 2.4 below for system requirements
4
5

6 **1.11 System Startup**
7

8 At completion of installation and prior to final acceptance, turn on the equipment;
9 ensure that all equipment is operating properly, and that all WTG's are functioning.
10

11 **Part 2 – Products**
12

13 **2.1 Manufacturer**
14

15 GPS wireless clock system shall be manufactured by Primex Wireless, Inc., 965
16 Wells Street, Lake Geneva WI 53147 (800) 537-0464 FAX (262) 248-0061
17 www.primexwireless.com.
18

19 **2.2 Sequence of Operation**
20

21
22 WTG Operation: When the WTG receives a signal from the transmitter it shall
23 generate a tone and relay closure to actuate the devices that have been
24 predetermined to operate upon receipt of that tone and closure.
25

26 **Specifier Note: if local building codes require UL approved devices specify**
27 **a Wireless Industrial Controller. Contact Primex Wireless for information.**
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31
32 **2.3 Wireless Tone Generator:**
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34 Primex Wireless **Model 14480**, WTG, complete with scheduling software, cables,
35 transceivers, and antenna required for complete installation.
36

37 Size: Approximately 7-1/4 inches (184mm) wide by 5 inches (140mm) long by
38 1-1/2 inches (32mm) high, not including antenna.
39

40 WTG shall be housed in a black plastic case.
41

42 9 volt switching power supply (fed from 120 volt line)
43

44 Switching contacts "Form D", two sets: one normally open, one normally closed.
45
46

Wireless Bell and Tone Synchronization System
Division 27 56 16

- 1 Switch ratings:
- 2
- 3 Contact ratings:
- 4 4.4 amp, 1/6 hp, 125v, 250v, AC
- 5 4.4 amps, 20 volts DC
- 6
- 7 DC Break ratings:
- 8 30 watt maximum
- 9 One amp, 30 volts, DC; 2.4 amps, 125 volts DC
- 10
- 11 Audio Output:
- 12 Isolation transformer with center tap, 600/150 ohms output impedance
- 13
- 14 Variable output and line level
- 15
- 16 Relay output
- 17 Test and reset buttons
- 18
- 19 Signal indicator
- 20
- 21 25 switch identification codes.
- 22
- 23 Selectable channels: 49
- 24
- 25 96 programmable events with 7 day selectable operations.
- 26
- 27 12 Selectable tone/closure length for each event
- 28
- 29 Selectable daylight saving time bypass.
- 30
- 31 Selectable automatic channel scanning.
- 32
- 33 Computer programmable through transmitter, with automatic backup, and
- 34 schedule changes which easy to make.
- 35
- 36 Switching information stored in non-volatile memory in the transmitter and
- 37 broadcast at regular intervals. Each switch retains its instructions in non-
- 38 volatile memory.
- 39
- 40 Capacitor to maintain internal clock memory for up to 8 hours in the event
- 41 of loss of power
- 42
- 43 On Screen Display/Menu
- 44 Press buttons allowing user to toggle through commands/displays
- 45 Displays date/time received from primary transmitter
- 46 Allows displaying last time update for diagnostic checks

1 Confirms that software schedule has been received and processed
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11 **2.4 Software**
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13 Provide Primex Wireless Event Scheduler Pro software for installation and
14 programming by Owner, compatible with the following PC operating systems:
15

16 Windows 95 with Internet Explorer 5.01 Service Pack 2.

17
18 Windows 98

19
20 Windows ME

21
22 Windows NT with Service Pack 6a, Internet Explorer 5.01 Service
23 Pack 2, and valid administrator rights.

24
25 Windows 2000 with valid administrator rights.

26
27 Windows XP with valid administrator rights.

28 Software shall be in form of a CD, suitable for operation in
29 standard CD-ROM drives.

30
31 Provide connecting cables for a completely operational system.

Specifier Note: The Primex Wireless Event Scheduler Pro software may be downloaded using an optional wireless connection. This option would be used when a physical connection between the computer and transmitter is not practical or possible. If this option is used, the following specifications should be added.

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35 **2.6 Transceivers**
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37 Transmission.

38
39 Frequency range: 902 MHz – 923 MHz.
40

1 Peak power consumption: 200mA typical.

2
3 Sensitivity: -113 dBm

4
5 Range: 200ft. + (indoor-environment dependent)

6
7 Operating Temperature Range: -40° – 176°F (-40o – 80oC)

8
9 Humidity: 10% - 90%.

10
11 **Part 3 - Execution**

12
13 **3.1 Examination**

14
15 Verify that construction is complete in spaces to receive equipment and those rooms
16 are clean, dry, and permanent air conditioning systems are operating.

17 Verify that 120 volt electrical outlet is located within 6 feet (1.8m) of location of
18 WTG, and that outlet is operational and properly grounded.

19 Verify that a compatible PC, meeting requirements specified above, is available for
20 dedicated use during software installation and system testing

21
22 **3.2 Installation**

23
24 Furnish all equipment necessary for a complete and operational system

25
26
27 **Specifier Note: To assure optimum performance of the GPS Wireless Clock System,**
28 **transmitter(s) location (s) must be specified in the construction documents. Primex**
29 **Wireless Applications Engineering Dept. should be consulted to determine the**
30 **number and placement of transmitter(s) required for the project.**
31 **Contact Primex Wireless Technical Support at 1-800-404-8112.**

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35 **Specifier Note: The WTG can be located anywhere within transmission range of the**
36 **transmitter that is convenient for hook up to the PA system or to bell system as**
37 **appropriate. Normally the WTG would be within close proximity (within 8 feet) to the**
38 **PA system. However, it can be located at greater distances (up to 50 feet) for the bell**
39 **systems and for PA amplifiers with a balanced input. Increasing the distance beyond 8**
40 **feet (2.3m) for amplifiers without a balanced input is not recommended.**

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44
45 Install the WTG in location indicated, and secure to base using fasteners of
46 type recommended by manufacturer, and suitable for the surface to which it

Wireless Bell and Tone Synchronization System
Division 27 56 16

1 is attached.

2

3 Align the antenna vertically.

4

5 Toggle LED display to channel to verify it matches the selected channel on the
6 transmitter.

7

8 Toggle LED display to switch ID to verify it matches the selected switch ID
9 number on the scheduling software.

10

11 Remove the smaller cover, then the larger cover from the unit for
12 access to the selector switches. Set the dip switches as required for
13 daylight savings time adjustment (if applicable).

14

15 Adjust WTG volume as required.

16

17 Confirm proper installation of the WTG and check volume by
18 holding down the test function button.

19

20 Press the "reset" button to effect any changes in settings.

21

22 Relay output: If required, connect the relay output to the devices to
23 be controlled. Confirm compatibility between relay output and
24 devices.

25

26 Connect the WTG to a standard 120 volt outlet.

27

28 Confirm that the green LED is flashing, to indicate that the WTG is
29 receiving a signal from the transmitter.

30

31 Primex Wireless Scheduler download sequence:

32

33 Connect computer to transmitter in accordance with manufacturer's
34 instructions.

35

36 Download schedule per software instructions.

Specifier Note: If using the Primex Wireless Scheduler Transceivers, include the following:

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38

39

40 Connect transceivers to computer and transmitter in accordance with

41

42 manufacturer's instructions.

43

1 Download schedule per software instructions.
2

3 **3.3 Adjusting**
4

5 Prior to final acceptance, inspect each item, adjust as required,
6 modify the software
7 as directed, and replace parts which are found defective
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13 **3.4 Demonstration**
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15 Provide training to Owner's representative on installing the software, adjusting and
16 programming the transmitter, setting and adjusting WTG and routine maintenance
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18 **3.5 Protection**
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20 Protect finished installation until final acceptance of the project.
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23 **END OF SECTION**
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