

CSI *MasterFormat*™ Specification

SiteSync IQ®

Wireless Remote Transmitter



This product specification is written according to the Construction Specifications Institute (CSI), *MasterFormat*™, *SectionFormat*, and *PageFormat*™, contained in the CSI *Manual of Practice*. Reference 16735, Master Format 2004 section 27 53 13.

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

Section 27 53 13 or 16735

Clock Systems

Part 1 - General

1.1 Section Includes

- A. Transmission System
 - 1. Remote Transmitter with Ethernet connection
 - 2. Primary Internal Transmitter
 - 3. Magnetic mount or Campus transmitting antenna

- B. Wireless Synchronized Devices
 - 1. Analog Clock
 - 2. Digital Clock
 - 3. Master Clock Synchronizer Module
 - 4. Wireless Relay Module
 - 5. Signal Indicator SiteSync IQ

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

1.2 Related Sections

- A. Division 16 or 27 – Electrical 120vac 60Hz grounded outlet required for SiteSync IQ Remote Transmitter.
Ex: Minimum 10 amp circuit

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.

- C. Division 16 or 27 – Electrical 120vac 60Hz grounded outlet for each AC powered clock, Master Clock Synchronizer and Wireless Relay.

1.3 References

- A. This Technical Specification and Associated Drawings.
- B. National Fire Protection Agency (NFPA) – 70, National Electric Code 2005.
- C. American Time SiteSync IQ Remote Transmitter User Manual.
- D. American Time Master Clock Synchronizer User Manual.
- E. American Time Wireless Relay (User Manual)

1.4 Definitions

- A. **Ethernet:** Time synchronization via SNTP (Simple Network Time Protocol) or Daytime Protocol. The Remote Transmitter receives the atomic time via an Ethernet connection, which is then transmitted to your clocks. This requires a TCP/IP Network with Internet access or connection to a Network Time Server.

Specifier Note: American Time promotes the use of one transmitter to cover an entire facility with a time signal. The following is a guide for signal coverage. Radio signal coverage can never be guaranteed via a simple matrix or chart. This is the best information available from numerous installations, a wide variety of facility types, plus hours of testing at sites. Used only for reference. Specify the appropriate transmitter size for installation based on the following chart.

1.5 System Description

5 watt magnetic	10 watt magnetic	10 watt campus	25 watt campus	45 watt campus
1-2 stories	3-5 stories	3-6 stories	6-8 stories	8-12 stories
200k sq ft per floor	100k sq ft per floor	small campus	1 city block	1-2 city blocks
5-10 acres	10-30 acres	30-100 acres	125 acre campus	285 acre campus

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- A. SiteSync IQ Remote Transmitter Timekeeping system shall be capable of synchronizing clocks, intercom, server, computers and other equipment throughout a facility.
- B. The system shall synchronize all clocks to each other. The system shall utilize Ethernet technology to provide atomic time to all its components. The system shall not require any hard wiring for operation (besides AC power for specified components) except for an Ethernet patch cable for Ethernet connection. Analog clocks could be battery operated for full portability if required. Clocks shall automatically adjust for Daylight Saving Time per the settings in the SiteSync IQ Remote Transmitter.
- C. Clocks shall synchronize to ± 1 second of the time displayed on the Remote Transmitter.
- D. The system shall include an internal real time clock reference so that failure of the Ethernet signal shall not cause the clocks to fail to indicate the correct time.
- E. The system shall incorporate a “fail-proof” design so that a temporary power interruption shall not cause failure of the system. Upon restoration of power, the system shall resume normal operation.

1.5 System Description (continued)

- F. **Optional:** The system shall include a signal indicator to notify local supervisor or maintenance personnel when the SiteSync IQ Remote Transmitter transmits to verify signal reception.
- G. Analog clocks to be battery operated for complete portability and relocation freedom, or AC powered for many years of maintenance free operation. Batteries included.
- H. Site survey instruction manual and equipment to be available for building site transmitter signal reception diagnosis.
- I. **Optional:** Remote Transmitter with 6 signal relay circuits available for operating bells, tone generators, lighting circuits, intercom and other electrical equipment. This can be done by using one or more wireless relay modules. Remote Transmitter capable of programming and storing 99 schedules with 9999 events. Events may be programmed for momentary 1-9 second activation or toggled on and off.
- J. The Remote Transmitter uses an Ethernet connection to access the Remote Transmitter Connect Web Interface which allows for event and circuit programming as well as manual circuit activation from a remote location via a web browser. No software required.
- K. **Optional:** Wireless Relay Module (P/N H004296, H004296-2): A remote relay that receives a wireless signal and supplies a contact closure based on the schedule in the Remote Transmitter that is assigned to that circuit.
- L. **Optional:** Wireless Controller
(P/N SSQWCA-2C4T - Clock relays and 4 tones)

1.6 Regulatory Requirements

- A. Equipment and components furnished shall be of manufacturer's latest model.
- B. Remote Transmitter and Receiver shall comply with Part 90 of FCC rules, as follows:
 - 1. This device may not cause harmful interference.
 - 2. Transmitter frequency shall be governed by FCC Part 90.35.
 - 3. Transmitter output power shall be governed by FCC Parts 90 and 74.
- C. System shall be installed in compliance with local and state authorities having jurisdiction.

1.7 Submittals

Specifier Note: FCC Regulations - American Time offers the use of a shared nationwide FCC license, call sign WQFW336. In the U.S. and its territories, this allows nationwide wireless system operation on the following 5 frequencies up to 100 watts of power, except near the Canadian border, which has specific requirements (5 watts maximum):

464.600 MHz 464.625 MHz 464.650 MHz 464.675 MHz 464.700 MHz

For additional information on licensing, contact American Time: 800-328-8996

- A. **Product Data:** Submit complete catalog data for each component, describing physical characteristics and method of installation. Submit brochure showing available colors and finishes of clocks.
- B. **Operating License:** A copy of the shared nationwide FCC license can be obtained from American Time if desired. No special licensing is required for installation or operation.
- C. **Samples:** Submit one clock for approval. Approved sample shall be tagged and shall be installed in the work at location directed. End user logo, mascot or custom artwork on dials is available at no charge. American Time requires approval of custom dial design by end user prior to volume dial printing.
- D. **Manufacturer's Instructions:** Submit complete installation, set-up and maintenance instructions.

1.8 Substitutions

- A. Proposed substitutions to be considered, shall be manufactured of equivalent materials that meet or exceed specified requirements of this Section.
- B. Proposed substitutions shall be identified not less than 10 days prior to bid date.
- C. Other systems requiring wiring and/or conduit between Remote Transmitter and clocks will not be acceptable.

1.9 Quality Assurance

- A. **Permits:** American Time offers the use of a shared nationwide FCC license.
- B. **Qualifications:**
 - 1. **Manufacturer:** Company specializing in manufacturing commercial timekeeping systems with a minimum of 10 continuous years of documented experience.
 - 2. **Installer:** End user technicians or contractor with documented experience in the installation of commercial timekeeping systems.
- C. **Warranty:** Two year warranty on all SiteSync IQ Remote Transmitters excluding batteries.

1.10 Delivery, Storage and Handling

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

1.11 Project Site Conditions

- A. Clocks shall not be installed until painting and other finish work in each room is complete.

Cat 5 or above patch cable with Internet access or connection to a Network Time Server must be available, plus Firewall Port and SNTP Server Address.

Specifier Note: Select from the following product list all the products and options that fit your system design. Consult American Time for additional information regarding product features and options.

Part 2 - Products

2.1 Manufacturer

- A. SiteSync IQ Remote Transmitter timekeeping system and its components shall be manufactured by American Time, Dassel, MN 55325.

2.2 System Operation and Startup Sequence

The Remote Transmitter receives atomic time information from an Ethernet connection via SNTP (Simple Network Time Protocol) or Daytime Protocol. The Remote Transmitter is a powerful multitasking device that is capable of sending precise time information to synchronize all the system wireless clocks and accessories. The system can be monitored and programmed from your PC web browser Remote Transmitter Connect. It's important to follow steps in this order: Install Remote Transmitter, confirm signal reception and then install clocks.

A. **Wireless Remote Transmitter Operation:**

Although the system is essentially plug-n-play if using DHCP, when power is first applied to the SiteSync IQ Remote Transmitter, we recommend that the user complete the Initial Setup to initiate system operation and verify signal transmission. The SiteSync IQ Remote Transmitter looks for the time signal every hour from the network vial SNTP (Simple Network Time Protocol) or Daytime Protocol. Once the Remote Transmitter has received the time synchronization it sets its internal clock to that time. The Remote Transmitter then starts to transmit the internal time. The Remote Transmitter features an on-demand Ethernet sync capability which is initiated by the user/installer to sync the time.

B. **Analog Clock Operation:**

For battery clocks, connect the barrel jack plug of the battery pack to the wireless receiver. For AC powered analog clocks, apply AC power. There is no need for any additional adjustment (the clock movement adjustment is fully automatic).

The LED on the back of the clock will flash red within 30 seconds to indicate receiver is looking for the wireless signal. When the signal is received the LED will flash green and the clock hands will rapid advance to the correct time. The clock will automatically look for valid time signals 4 times each day, and will adjust to the correct time if needed.

C. **Digital Clock Operation:**

Connect the digital clock to the 120vac power source. After several seconds of initial startup, the clock receiver will look for a valid signal transmission and synchronize to the correct time as soon as it receives a valid time from the Remote Transmitter.

Note: Refer to system installation and operation manual for wiring instructions and mounting.

2.3 Equipment

**Specifier Note: Select the right Remote Transmitter to provide full coverage facility wide:
The 5W and 10W transmitter for single buildings
An 25W and 40W, more powerful, transmitter for larger facilities**

- A. General: A basic clock system shall include a Remote Transmitter with Ethernet connection, analog and/ or digital clocks. An expanded system can also include all accessories and options, (such as tone generator, anti-theft brackets, wireless sync relays, wired synchronous clocks, bells, signal reception indicator, tone generators. . . .) as needed.
- B. Wireless Master: The SiteSync IQ Remote Transmitter includes a Remote Transmitter Connect Web based utility to provide the following features:
 - 1. Time zone selection and display for all USA time zones as well as custom time zones. Includes all U.S. time zones: Eastern, Central, Mountain, Pacific, Alaska and Hawaii.
 - 2. Automatic Daylight Saving Time: adjustment can be enabled or disabled from the utility.
 - 3. Ethernet interface.
 - 4. Password protected Remote Transmitter Connect utility to set the date, local time zone, DST and other system parameters as needed.
 - 5. The Remote Transmitter shall contain an internal clock such that failure of reception from the Ethernet network will not disable the operation of the clocks.
- C. Time Synchronization Mode:
 - 1. Ethernet: Plug Cat 5 or higher patch cable into the appropriate receptacle on the back of the system controller. The controller must be linked with a TCP/IP Network with Internet access or connection to a Network Time Server
- D. Transmitter: American Time wireless transmitters may be internal 5, 10, 25 or 40 watts. The transmitter parameters shall be:
 - 1. Frequency Range: 450-470 MHz
 - 2. Transmitter output power: Internal 5, 10, 25 or 40 watts (built into the SiteSync IQ Remote Transmitter)
 - 3. Transmission Range: Up to 50 miles radius (transmitter dependent)
 - 4. Radio technology: Narrowband FM, 12.5 KHz bandwidth
 - 5. Transmission format: POCSAG, digital one-way communication
 - 6. Digital Data rate: 512 baud
 - 7. Operating range: 0 to 60° C / 32 to 140° F

2.3 Equipment (continued)

- E. Transmitting Antenna: Shall be American Time & Signal Co. Part # H001263 or H002978T for indoor or outdoor applications. Antenna polarization shall be vertical.
- F. Power supply: (included with Remote Transmitter)
Input: 120vac 50/60 Hz
- G. Surge Protector/Battery Backup: American Time & Signal Co. Part # H002717A.
Input: 120vac 60 Hz +/- 1 Hz.
Output: 120vac, 550VA, 300-watts
Surge Energy Rating: 700 joules with 10x1000uS pulse
- H. Analog Clocks: American Time plastic analog clocks are round 10.37", 13.375" or 17.25" outside diameter. Additional colors and finishes are available from manufacturer. Metal case clocks are round and 11.125", 13.187" or 16" outside diameter. Square analog clocks are 12.562" square. Wood frame clocks are 11.750" or 17" outside diameter. Analog clocks, whether round or square, shall be wall mounted and surface or semi-flush mount. Plastic clocks shall have polystyrene frame and polycarbonate lens and metal clocks will use metal frames with glass crystals. Face (dials) shall be white (other options available). Hour and minute hands shall be black and sweep (second) hand is red. Analog clocks available as wall or ceiling mount double dial assemblies.
- Other clock features shall be:
1. Analog clocks with no user mechanical adjustments. Run time of a half hour after power loss without losing time for AC versions.
 2. Time shall be automatically updated from the transmitter 4 times per day.
 3. Use battery booster pack with 4 or 6 AA lithium or alkaline batteries or AC power adapter without battery.
 4. The clock shall have an ultra sensitive UHF receiver (better than -110dBm) and integrated internal antenna.
 5. The clock will keep operating using its internal quartz clock in case of signal reception loss due to malfunction of the wireless Remote Transmitter or transmitter.

Specifier Note: Analog clock faces can be made with Owner's logo as an option. If desired, leave in the following and arrange for Owner to provide hard copy or digital copy of logo in format as required by American Time. Contact American Time for details.

6. Analog clock faces shall bear Owner's logo as indicated.

Specifier Note: Where desired for protection of analog clocks, specify the following optional equipment.

7. Wire guards: Provide one for each analog clock as follows:
 - A. Part # 1200, 15 by 15 inch size, for nominal 12" diameter analog clocks.
 - B. Part # 1500, 19 by 19-inch size, for nominal 15" diameter analog clocks.
8. Anti-theft Bracket:
 - A. 12" plastic - Part # H001141
 - B. 15" plastic - Part # H003699

2.3 Equipment (continued)

- I. Digital clocks: American Time SiteSync IQ digital clocks are available with 4 digits (hours and minutes) or 6 digits (hours, minutes, and seconds) and with 1.8", 2.3", 2.5" or 4" or 8" high digits. Digital clocks are available as double dial and wall or ceiling mount. Digital clocks require 120vac or 24vac (optional) for operation. Time signal is received via wireless signal (other options and features available).

Other Digital Clock Features are available. Contact American Time & Signal Company directly for various options.

- J. Digital Elapsed Time Indicators: Multifunction Operating Room/ ICU Elapsed Timers with count up timer with audible alarm and hold or count down timer with audible alarm and hold. Setting and control is by the Timer Control Station (included) which can be mounted up to 30' from the timer. Battery backup (included) is provided by a 9-volt rechargeable ni-cad battery (other options available). Elapsed time indicators require AC power for operation and direct wire to the Timer Control Station.
- K. Wireless Relay (Part # H004296, H004296-2): A remote relay receives a wireless signal and supplies a contact closure based on the schedule in the Remote Transmitter that is assigned to that circuit. Multiple modules are available that operate specifically with 1 of 6 corresponding dry contact circuits in the system controller for wireless communication with multiple products. The wireless relay module is programmable via the Remote Transmitter scheduling capability for a 1-9 second momentary signal or toggled on and off.
- L. Remote Transmitter Connect: The Remote Transmitter Connect Web interface allows for SiteSync IQ Remote Transmitter event and circuit schedule programming, manual circuit activation, time/date settings and other system configuration from your PC.

Remote Transmitter Connect capabilities include triggering wireless events, assigning custom durations to signals, managing programming of up to six circuits, backing up and restoring schedules to and from PC's and activating circuits manually.

Remote Transmitter Connect requires Windows 2000, XP, Vista or Windows 7.

- M. Digital Calendar Clocks (Part # ATS92412V-SQIT(B,R,Y,G = Blue, Red Yellow, or Green LED's): 9.25" high by 13.25" wide by 1.375" deep wireless calendar clocks receive the time and date from the SiteSync IQ Remote Transmitter. These Digital Calendar Clocks require direct connection to 120vac and are available with blue, red, yellow and green LED digits.

Other Digital Calendar Clock features:

1. Super bright LED's for high readability
2. Selectable 12 or 24-hour format
3. 10 year lithium battery maintains correct time during a power failure

- N. SiteSync IQ Signal Indicator w/ 9v Battery Option (P/N H004292): American Time hand held signal indicator runs off one 9v battery or may be powered with an AC power adaptor. The Signal indicator receives data transmission from the Remote Transmitter and indicates signal reception via LED lights. The Indicator LED shows red each time the unit receives signal if it is within range of the transmitter. Blinking green indicates unit has received signal within the past 5 minutes and blinking red indicates the unit has not received signal.
- O. Remote Receiver: Analog clocks may be equipped with remote receivers. This option is for rooms shielded from the radio frequencies, such as hospital X-ray rooms. This option uses common RJ11 connectors on both ends of the included 25' or 50' cable separating the receiver component from the clock. Simply locate the clock where it needs to be, place the receiver in a known area with signal reception, and join the two via the cable. One end of the cable will plug into the remote receiver and the other end will plug into the RJ11 jack on the clock.

2.3 Equipment (continued)

- P. **Wireless LED Message Board:** These Wireless Message Boards display messages throughout a facility. Messaging is controlled via wireless communication through the Remote Connect web interface on your desktop and the SiteSync IQ Remote Transmitter. These Message Boards have a bright red LED display. The SiteSync IQ Remote Transmitter is required to provide messages to the Message Boards. The Wireless LED Message Boards are capable of scrolling one or two lines of messaging and up to 10 messages at one time. The Message Boards require 120vac power for operation.

Part #ATS112 28"w x 6¹/₄"h x 2³/₄"d

Part #ATS120 52"w x 6¹/₄"h x 2³/₄"d

Part 3 - Installation

Specifier Note: Allow for a 120vac outlet for operating power for the Remote Transmitter. This location should be as high and central within a facility as possible. This will allow for positioning the equipment in the best location for optimal signal distribution.

3.1 Site Examination

- A. Verify that construction is complete in the areas where equipment is to be installed and that rooms are clean and dry.
- B. Verify that a 120vac electrical outlet is located within 6 feet of the location of the Remote Transmitter and the outlet is operational and properly grounded.
- C. Verify the Remote Transmitter is located in an area with a network drop, or run an Ethernet data cable to the unit from a network switch or hub.
- D. Verify that all 120vac electrical outlets for the AC powered clocks are located at the exact installation points and the outlets are operational and properly grounded.

3.2 System Installation:

Refer to the manufacturer installation manuals as supplied with the system, to install each one of the system components.

3.3 Inspection

Prior to final acceptance, inspect each system component to function properly and replace parts that are found defective.

3.4 Cleaning

Prior to final acceptance, clean exposed surfaces of all system components, using cleaning methods recommended by the manufacturer.

3.5 Delivery

If needed, provide technical assistance as demonstrated in the manufacturer's system user guide, on product start up and system setup, to owners or installers representatives via phone: 800-328-8996, fax: 800-789-1882 or e-mail: theclockexperts@atsclock.com