

# 900 MHz Wireless Clock System

## Easy to Deploy Synchronized Time Displays



- Leverage a local master clock/network time server to synchronize time throughout a facility
- Wireless battery-powered analog
- 2.5" and 4", 4- and 6-digit clocks
- Each clock receives and transmits the sync signal for a robust wireless mesh network
- Proven 915-928 MHz frequency hopping technology for clear signal and to eliminate any interference issues
- No FCC license required in North America (contact local regulatory authorities for other regions)

Orolia offers a 900 MHz wireless clock system for organizations with time-sensitive operations. The system is compatible with Orolia GPS network time servers as a master clock for traceability to UTC (Coordinated Universal Time). Legally Traceable Time® from the time server is broadcast by a wireless transmitter, synchronizing the displays to all other network systems and devices throughout the facility.

This innovative system offers an easy, cost-effective solution by providing accurate, synchronized time displays without expensive, disruptive installation procedures. Because there are no wiring requirements, install times are drastically reduced, and it is ideal for renovation projects – no need to worry about asbestos issues or messy, in-wall electrical installation work – as well as new construction.

The system uses a rack-mount network-based transmitter with a remote antenna that works much like an IEEE-802.11 wireless router. It receives its time from a network time server via NTP over a network (or from RS-485 from via a twisted pair). It transmits a time signal every minute. Once an analog or digital display clock receives and synchronizes to the signal, it becomes a transmitter, creating a robust and efficient wireless mesh network. Such a system provides significant advantages by improving signal strength and coverage as more clocks are added. The sync signal is transmitted every minute from externally-powered clock and every two hours in normal mode (five-year life) or every four hours in economy mode (eight-year life) from battery powered analog clocks.

The system is easily scalable as additional needs develop in the future. In applications across a large campus, two types of repeaters can be used to maintain the signal. One type receives and amplifies a wireless signal from a clock or main transmitter. Another receives a specially-coded sync signal through the network from the main transmitter.

New features include greater clock sensitivity for longer transmission range, enhanced clock diagnostics, and network-manageable transmitter. All new system components are backwards compatible with previous generations.

## Performance

### Operating Frequency

915-928 MHz frequency-hopping technology.  
No FCC license required

### RF Power Output

**Transmitter:** 30 dBm  
**Repeaters:** 30 dBm  
**Clock:** 8 dBm

### Input Sensitivity

-103 dBm

## Transmitter and Repeater Specifications

### Antenna

Remote (rack-mount transmitter), integral (wallmount transmitters and repeaters)

### Range

6,500 ft. in open space

### Power

**Transmitter:** 85 – 265 VAC, 50 – 60 Hz  
**Repeaters:** 85 – 230 VAC, 50 – 60 Hz

### Size/Weight

**Transmitter:** 11" L x 17.5" W x 1.75" D/6.5 lbs.

### Repeaters and remote Antenna:

11" L x 8" W x 1.7" D/4 lbs.

**Display:** (transmitter only): .56" 6-digit LED

### Temperature Range:

Operating: 0 °C to +45 °C  
Storage: -15 °C to +70 °C

## Warranty

Two-year limited from the manufacturer

<sup>1</sup>The warranty period may be dependent on country.

## Clock Specifications

### Analog

- 12" or 16" diameter clock face
- Dial: Arabic numerals, 12- or 24-hour format, durable polystyrene
- Housing: black smooth surface ABS
- Crystal: shatterproof, side-molded, polycarbonate
- Hands: red second hand; black hour and minute hands
- Time to synchronize hands: 5-minute max.
- Quiet operation
- Diagnostics: rear panel test buttons and LED indicates last sync, signal strength, mechanical test, battery level
- Battery: 2 "D" cell, 5-yr normal mode, 8-yr economy mode, provided good reception

### Digital

- 4 or 6 red digits, 2.5" or 4.0"
- 100 ft. visibility (2.5")
- 250 ft. visibility (4.0")
- 12- or 24-hour mode
- 2 brightness settings
- Loss of communications alert
- Hardwired (power cord not supplied)
- Elapsed Timer Model NWT: dual-function ToD and count-up, count-down capability (See Wireless and PoE Clock Options and Accessories datasheet for more information)

## Analog Clock Size (Housing Dimensions)

**12" Analog:** 12.65" dia. x 2.18" D

**16" Analog:** 16.65" dia. x 2.18" D

## Digital Clock Size (Housing Dimensions)

### 2.5", 4 Digit:

10.31" L x 4.69" W (26.19 cm x 11.91 cm)

### 2.5", 6 Digit:

13.56" L x 4.69" W (34.44 cm x 11.91 cm)

### 4.0", 4 Digit:

13.31" L x 6.75" W (33.8 cm x 17.15 cm)

### 4.0", 6 Digit:

18.31" L x 6.75" W (46.5 cm x 17.15 cm)

## Agency Approvals

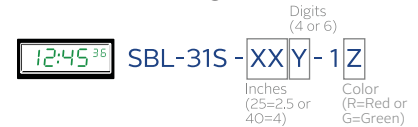
CE, UL, cUL

## Ordering Information



Example:

SAL-4BS-12R-O-M = Battery-operated, 12-Inch, 24-Hour Analog Clock



Example:

SBL-31S-256-1R = 2.5-Inch, 6-Digit, Red Digital Clock

## Transmitter

This wireless transmitter synchronizes the wireless clock system using a network-based time server such as our NetClock GPS NTP Time Server as its reference.

## Model SMA-2XO-1000-1

Mount  
(R=Rack or S=Surface/Wall)

## Repeaters

**Model SMA-1SM-0000-1:** This network wireless repeater is synchronized to a transmitter over LAN.

**Model SMA-1SR-0000-1:** This wireless repeater/transceiver synchronizes the wireless clock system by re-transmitting the signal that it receives from other transmitters, wireless clocks, and/or repeaters in the network

## Master Clock

**Network time server:** Consult Spectracom for options.

## Double-Sided Displays

Mount two analog or two digital clocks back to back for wall or ceiling mounting.



**Digital Clock Mount:**  
Model SAB-1BD-OOS-O  
universal double mount

**Analog Clock Mounts:**  
Model SAH-4BD-XXR-O

## The Wireless Mesh Time Network

The Transmitter wirelessly broadcasts Legally Traceable Time<sup>®</sup> to the clocks. Each clock acts as a repeater and transmitter to the other clocks in the network.

