OneVue™ 72MHz Sync Wireless Clock System

Technical Overview

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Primex is the leading provider of solutions to automate and maintain facility compliance, increase efficiencies, enhance safety and reduce risk for enterprise organizations in the healthcare, education, manufacturing and government vertical markets. Primex delivers solutions that utilize a facility's existing network infrastructure to automate, monitor, document and report essential activities performed by facility staff. Our solutions include synchronized time, automated critical notifications and bell scheduling, and environmental and event monitoring.

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OneVue Sync 72MHz system overview

This content is intended to provide information to answer the questions you or your staff may have regarding the Primex OneVue Sync 72MHz system and devices.

Key technical details

Primex recognizes today's organizations have complex network infrastructures, a division of responsibilities, and standard information security policies associated with data confidentiality, network bandwidth, and security of the systems deployed at their facilities.

- **Architecture:** OneVue is a multi-tenant solution built on top of Amazon Web Services (AWS). AWS is designed with multiple layers of protection, including secure data transfer, encryption, network configuration, and application-level controls distributed across a scalable, secure infrastructure.
- **72MHz licensed frequency:** Transmitters operate on channels with 20kHz bandwidths and 72MHz radio frequency, and are preset to one of the channels licensed by the FCC U.S. / ISED Canada to minimize interference on these frequencies and channels.
- **Network communication:** Transmitters are equipped with Ethernet technology to communicate over your facility's network to OneVue by way of the HTTPS communication protocol.
- **Time source:** The main Transmitter can either receive Universal Coordinated Time (UTC) from a GPS Receiver mounted to the facility's rooftop or through an Ethernet connection to a Network Time Protocol (NTP) Server. Can be configured for up to three internal or external NTP Servers. The use of an external NTP server requires port 123 to be open.
- **Network Profiles:** Represents a network at your facility that each Transmitter will connect to. Allows for DHCP or Non-DHCP networks. Once assigned the network settings are downloaded to the Transmitter, which allows its connection to your facility's network to transmit data to and download settings from OneVue. For a Transmitter that connects to an NTP time source, the assigned network also allows its connection to an external NTP time source.
- **OneVue Device Configurator (ODC) app**: This Primex app configures a OneVue Sync Transmitter during a new system deployment or when adding a new Transmitter. During configuration, the Transmitter is added to OneVue to allow it to be monitored and managed from OneVue.

  The ODC app is available for both iOS and Android mobile devices. Download the app from the App Store or Google Play™ store (it's free).
- **Migrating devices to another network:** When the network assigned to a Transmitter is required to be updated or changed, there is a required migration procedure - to ensure the device does not lose its network connection. There are two options to migrate a Transmitter to another network, either directly from OneVue or from ODC app.
- **Access to network profile settings:** Who has access to view and manage network profiles and device network settings is controlled by the Role assigned to a user.

Network communication protocols

- Transmitters connect to OneVue over an Ethernet connection using the Hypertext Transfer Protocol Secure (HTTPS) protocol (port 443); all communication is encrypted and secure at rest and in transit.
- Transmitters and the OneVue web browser interface only initiate outbound network connections and do not initiate inbound network connections.
- OneVue client and device data is encrypted in transit and all sensitive data is encrypted at rest.
- Users can access OneVue from a supported web browser on any internet-enabled device, improving flexibility and mobility.
- User access to the OneVue user interface is through a web browser by way of the HTTPS protocol (port 443).

How it works

- The main Transmitter receives accurate UTC time from a roof mounted GPS Receiver or optionally from an NTP Server over its Ethernet network connection.
- The main Transmitter broadcasts its local time (set by its time zone) that is received by the analog and digital clocks and Repeater Transmitters over the 72MHz radio frequency.
- Adjustments for Daylight Saving Time are stored in a Transmitter and automatically broadcast at the time of the change.
- Transmitter connects to the local network to send its current operating status and download pending setting updates to OneVue. Allowing remote monitoring from OneVue.
- Transmitter settings are managed from OneVue. When a setting change is made a Transmitter downloads the settings during their next check-in to OneVue. Allowing remote setting management from OneVue.

Transmitter broadcast schedule

The type of antenna determines when a Transmitter transmits synchronized time updates, which should be taken into consideration when installing new devices.

- **1 Watt Transmitter with an internal antenna:** Transmits (broadcasts) a time signal continuously, 24 hours a day.

  A Repeater Transmitter transmits the time received from the main Transmitter, which is then received by clocks within its range.
- **1, 5, or 30 Watt Transmitter with an external antenna:** Transmits a time signal 24 hours a day ONLY between the 39th to the 6th minute of each hour, and changes to a standby mode and does NOT transmit a time signal during the 7th to the 38th minute of each hour (per FCC requirements). This transmit schedule can only be adjusted by Primex when necessary for additional compliance with FCC/ISED requirements.

Clock signal search schedule

Clocks turn on their receiver to search for a signal from a Transmitter to receive a time update and synchronize their time.

The scheduled search frequency varies by clock model as defined below.

Analog Clock signal search frequency: at six pre-scheduled times a day, at 2:01 AM/PM, 6:01 AM/PM, and 10:01 AM/PM clock time (not the actual time of the day), a clock's receiver turns on to search for a Transmitter signal to receive a time update, starting with the previously stored channel number. If a signal is not received from the first channel, the clock scans all channels to search for a signal.

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.

OneVue monitoring

Access OneVue at anytime from anywhere

OneVue is a cloud-based solution that can be accessed from any web browser on a tablet, smartphone, laptop, or desktop computer with an internet connection. The system requirements do not require you to install any software.

Continuous monitoring

OneVue continuously monitors the operating status of OneVue Sync Transmitters. A Transmitter connects to the facility's Ethernet network to check-in to OneVue. By default a Transmitter checks-in every 5 minutes and can be set to every 10, 15, 30, or 60 minutes.

During each check-in, a Transmitter sends its current operating status to OneVue and downloads pending settings updates. When a Transmitter reports a status that is not within its normal operating condition, OneVue sets the

Transmitter to a Warning state. When it remains in a Warning state for longer than the time period set in its Alarm Delay, it is then set to an Alarm state and alerts are sent to staff to notify them of the alarm condition.

System deployment diagram