

# Repeater

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## Install Guide

OneVue Sync Bluetooth

Product models B100-R

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## SPECIFICATIONS: SYNC BLUETOOTH™ REPEATER

Enclosure	<p>Enclosure: ABS plastic</p> <p>Dimension: 11.5 cm W x 4 cm H (115 mm x 40 mm)</p> <p>Weight: 1 lb. (455 g) with 2 D-cell alkaline batteries</p> <p>Mounting: wall or surface-mount</p>
Power Supply	<p>Typical five (5) year battery life. Battery life is based on operating conditions and may vary due to installed site conditions.</p> <p>Requires 2 D-cell alkaline batteries (supplied)</p> <p>Optional AC power accessory: 5V DC USB Mini B (5 pin) connector interface, 5 ft. (1.5 m) cable, Input: 100-240 VAC, 50/60 Hz, 0.4A, Output: 5V DC, 1.0A max</p>
Bluetooth® Wireless Communication Protocol	<p>Bluetooth® Low Energy (BLE) Wireless Technology, version 4.1</p> <p>Bluetooth Range: up to 100 feet (30 meters)</p>
Operation	<p>Connects daily to an available Sync Bluetooth mesh network; receives UTC time, downloads updates, and sends operating status.</p>
LED status indicator	<p>When its status button is pressed a visual LED blinking sequence indicates its current operation status. The status button is located on the front of the device.</p> <ul style="list-style-type: none"> <li>• One blink: device is powered on.</li> <li>• Two blinks: successful connection to a Sync Bluetooth mesh network; received UTC time.</li> <li>• Four blinks: low battery level status; battery replacement required.</li> </ul>
Environment	<p>Operating Temperature Range: 32° to 95° F (0° to 35° C); indoor use only</p> <p>Storage Temperature Range: -4° to 158° F (-20° to 70° C)</p>
Certifications	<p>FCC, CE, and IC compliant</p>

# INSTALL AND OPERATION OVERVIEW: SYNC BLUETOOTH REPEATER

Sync Bluetooth repeaters are designed to provide ease of installation, requiring no end user configuration, simply take out of the box and install. The only operation dependency is its connection to an available Sync Bluetooth mesh network.

## About Sync Bluetooth Devices

- Each device is equipped with a Bluetooth Low Energy (BLE) Wireless Technology radio component that allows it to establish a wireless connection to a Sync Bluetooth mesh network.
- Each device is identified by a unique Device ID, allowing it to receive its unique settings managed in OneVue, and authenticate and connect to the mesh network.
- A Bridge is the only system device that connects to an Ethernet or Wi-Fi network. Upon its network connection, it connects to a NTP Server to receive UTC time and checks-in to OneVue. During each check-in, it sends device data received from its last connection to the mesh network and downloads any pending setting updates. Pending setting updates are then transmitted to devices during its next connection to the mesh network.

## Add a Clock Mode

Upon first-power up at its installation location, a clock and repeater enters Add a Clock mode as described below.

1. Once powered on at its installation location, the device continuously searches for an available Sync Bluetooth mesh network.  
It may take up to 15 minutes for a device to authenticate and connect to an available mesh network. We recommend to continue installing additional devices, while other devices establish their connection to the mesh network.
2. Once a device has authenticated with the mesh network, it establishes a communication path either to another Sync Bluetooth device or directly to a Bridge available within the mesh network.
3. Once connected, the device receives the New Clock Time Zone and sets its time. For an analog clock, its hands perform one full revolution past 12:00 and then sets its time.
  - During its first connection to the mesh network, its unique Device ID is added to the mesh network.
  - If a Bridge is in 8-hour deployment mode, within 30 minutes of receiving a new Device ID, the Bridge connects to your facility's network and sends the new Device ID to OneVue. The new device is added to your OneVue account.
  - If a Bridge is not in 8-hour deployment mode, the new device is added to your OneVue account within 24 hours to 7 days.
4. When the Bridge connects to OneVue, the new device default settings are downloaded to the Bridge.
5. Upon its next connection to the mesh network, the Bridge automatically sends updated device settings received for each device based on their Device ID.

In summary, from the time a clock or repeater device is first powered on at its install Location and connects to the mesh network, it receives and sets its time within 15 minutes. If a Bridge is in 8-hour deployment mode, a new device is added to your OneVue account within 30 minutes, and when not in 8-hour deployment mode it may take up to 24 hours to 7 days.

Battery-operated clock only: When a clock cannot establish a connection to a mesh network to receive time, its estimated battery life is reduced to 90 days.

## Update Repeater Name

### Update the name of a clock, bridge or repeater

The name of a clock, bridge or repeater commonly identifies its install location. It's recommended to develop a standard naming convention to allow devices to be located if maintenance should be required.

1. Go to **Devices > Clocks**.
2. From the list, select the **Name link** of the device. Its profile is displayed.
3. From the **Name** field, enter its name. Allows up to a maximum of 50 characters.
4. Select **Save**.



### NOTE

Tip: If naming a Bluetooth Bridge, select Bridge instead of clocks in step 1 (above)

Primex Bluetooth products are shipped with a MAC address label that can be removed and placed on building plans or a list of building locations that can be added to OneVue at your convenience.

The screenshot shows the OneVue web interface. At the top, there is a navigation bar with the OneVue logo on the left and 'Production' and 'A Support Test Account (13507)' on the right. Below the navigation bar is a menu with 'Dashboard', 'Monitoring', 'Scheduling', 'Devices', 'Reports', 'Admin', and 'Help'. The 'Devices' menu item is highlighted. Below the menu, there is a breadcrumb 'Devices > Clocks'. A dropdown menu for 'Items per Page' is set to '100'. The main content area is titled 'Clocks' and contains a table with the following data:

<input type="checkbox"/>	Name	Clock Type	Business Unit	Last Check-in	Gateway ID	State
<input type="checkbox"/>	<a href="#">CT1 - FD:D2:95:2E:29:7A</a>	BC LED Digital	btTest	2021-12-21 1:34 PM	<a href="#">00:1E:B3:8F:CA:53</a>	● Normal
<input type="checkbox"/>	<a href="#">CT2_South Tower</a>	BC LED Digital	btTest	2021-12-21 1:34 PM	<a href="#">00:1E:B3:8F:CA:53</a>	● Normal

## Post-install operation

Once a Bridge has connected to OneVue and the Bluetooth clocks and/or repeaters have authenticated and connected to a Sync Bluetooth mesh network, the devices operate as described below.

1. Once a day, at a system-defined time, each Bridge connects to your facility's network to receive UTC time from an NTP Server and check-in to OneVue to download device setting updates.
2. Once a day, at a system-defined time, each Sync Bluetooth device automatically establishes a wireless communication path to either another Bluetooth device or directly to a Bridge to build the Sync Bluetooth mesh network.
  - Clock and repeater statuses are forwarded to a Bridge either by its communication path to another clock, repeater, or directly to a Bridge.
  - Clocks and repeaters receive setting updates and synchronize received UTC time to its Time Zone offset and DST rules.
3. Once the Sync Bluetooth mesh network has completed its daily build, a Bridge connects to your facility's network to send all received device status data to OneVue.

### Install Repeater: add a clock mode

Upon first-power up at its installation location, a clock and repeater enters Add a Clock mode as described below.

1. Once powered on at its installation location, the device continuously searches for an available Sync Bluetooth mesh network.

It may take up to 15 minutes for a device to authenticate and connect to an available mesh network. We recommend to continue installing additional devices, while other devices establish their connection to the mesh network.
2. Once a device has authenticated with the mesh network, it establishes a communication path either to another Sync Bluetooth device or directly to a Bridge available within the mesh network.
3. Once connected, the device receives the New Clock Time Zone and sets its time. For an analog clock, its hands perform one full revolution past 12:00 and then sets its time.
  - During its first connection to the mesh network, its unique Device ID is added to the mesh network.
  - If a Bridge is in 8-hour deployment mode, within 30 minutes of receiving a new Device ID, the Bridge connects to your facility's network and sends the new Device ID to OneVue. The new device is added to your OneVue account.
  - If a Bridge is not in 8-hour deployment mode, the new device is added to your OneVue account within 24 hours to 7 days.
4. When the Bridge connects to OneVue, the new device default settings are downloaded to the Bridge.
5. Upon its next connection to the mesh network, the Bridge automatically sends updated device settings received for each device based on their Device ID.

In summary, from the time a clock or repeater device is first powered on at its install Location and connects to the mesh network, it receives and sets its time within 15 minutes. If a Bridge is in 8-hour deployment mode, a new device is added to your OneVue account within 30 minutes, and when not in 8-hour deployment mode it may take up to 24 hours to 7 days.

Battery-operated clock only: When a clock cannot establish a connection to a mesh network to receive time, its estimated battery life is reduced to 90 days.

# INSTALL REPEATER

Follow the instructions below to mount a Sync Bluetooth Repeater.

## Step 1: Verify supplied components

Quantity	Component
4	Screws, #8 x 1 1/4" flat head
4	Anchors

## Step 2: Verify Bridge location and connection

Verify the Bridge, designated to support the clock or repeater install area, has established a network connection to OneVue and an NTP Server. If a Bridge is set to no network mode due to a network is not available, this step is not required.

## Step 3: Verify mounting location meets guidelines

Where the repeater is mounted impacts its use and operation. The guidelines below should be taken into consideration to ensure the installation location provides optimal performance.

If a Site Survey was completed, install devices at each designated location. Start by installing devices that are located closest to the Bridge and then work outward. A device should always be first powered on at its designated install location.

- 100 ft. (30 m) when in clear-line-of sight to another Sync Bluetooth device
- 50 ft. (15.2 m) when there is 1 internal wall between Sync Bluetooth devices
- 30 ft. (9.1 m) when there are 2 internal walls between Sync Bluetooth devices

## Step 4: Mount repeater to wall or ceiling

The repeater's mounting base has four key-shaped screw holes and two standard screw holes for a wall or ceiling mount.

1. Separate the unit from its mounting base: From the side of the unit, insert the top of a standard screwdriver into an insert opening and gently push up to remove the cover.
2. Remove the pull-off tab (12-character Device ID) and affix to a floorplan to identify its installation location.
3. Use the mounting base to mark the hole locations on the ceiling or wall.
4. Drill holes where marked and tap plastic screw anchors provided into the drilled holes.
5. For mounting with the key-shaped screw holes, drive the supplied screws partially into the ceiling or wall and line up the mounting base. Place and twist the mounting base into position under the screws, tighten screws to secure base to the mounting surface.
6. For mounting with the two standard screw holes, align base to holes and drive the supplied screws into the ceiling or wall, tighten screws to secure base to the mounting surface.

7. Insert 2 D-cell batteries into the battery compartment.
8. Insert its cover onto the mounting base.
9. Apply AC power (optional accessory). AC power adapter 5V DC USB Mini B (5 pin) connector interface, 5ft (1.5 m) cable, Input: 100-240 VAC, 50/60 Hz, 0.4A, Output: 5V, 1.0A max
10. Located on its cover, press and release the Status button. The LED blink sequence indicates its current status.
  - One blink: device is powered on.
  - Two blinks: successful connection to a Sync Bluetooth mesh network; received UTC time.
  - Four blinks: low battery level status; battery replacement required.
11. Once the device has been added to OneVue, update its Name from its 12-character Device to its named install location.

## TECHNICAL SUPPORT

You may require Technical Support when you have questions about product features, system configuration, or troubleshooting. Support services are delivered in accordance with your organization's support agreement, end-user license agreements, and warranties, either with a Primex Certified Sales and Service Partner or directly with Primex.

### Support through Primex Certified Sales and Service Partners

Ensuring our customers experience excellent service is of utmost importance to Primex. Our network of Certified Sales and Service Partners offers technical support services for Primex products.

If you have purchased Primex products or have a service agreement with a Primex Partner, they are your primary contact for all Technical Support inquiries.

### Primex Technical Support

Make sure you have satisfied the system requirements that are listed in your product documentation. Also, you should be at the computer or device on which the problem occurred, in case it's necessary to replicate the problem.

When you contact Primex Technical Support, please have the following information available:

- Customer ID/Account Name
- Problem description/error messages
- Device hardware information
- Troubleshooting performed before contacting Primex
- Recent network changes

#### **PRIMEX TECHNICAL SUPPORT**

Monday through Friday from 7:00 AM to 7:00 PM CT

Phone: 1-262-729-4860

Email: [service@primexinc.com](mailto:service@primexinc.com)

# IMPORTANT SAFETY INSTRUCTIONS

READ ALL INSTRUCTIONS BEFORE INSTALLATION, OPERATION, OR MAINTENANCE OF PRODUCT.

Some of the following information may not apply to your particular product model; however, as with any electronic product, precautions should be observed during installation, operation, and maintenance.

- Installation must conform to state or local building codes and ordinances.
- Installation or maintenance should be performed only by qualified personnel as defined in the Local Electrical Code. Mount in location where device will not readily be subject to tampering.
- Any wiring instructions must be followed precisely. Failure to do so could cause permanent equipment damage.
- To avoid possible electric shock or damage to the device, disconnect power source before installation or servicing.
- Do not install or use device near water. To reduce the risk of electrical shock, do not expose device to rain or moisture. Device must not be exposed to dripping or splashing and no objects filled with liquids, such as vases, must be placed on the device.
- Device is designed for indoor use only. Operating outdoors, or in wet areas, is an electrical hazard and may damage the equipment while nullifying the warranty.
- Device is cleanable with a cloth moistened with water or a common disinfectant. Be sure to test any cleaning solutions on a small area of the clock before using it on the entire device. Do not use caustic cleaners or abrasives.
- Keep away from dust, dirt and moisture.
- For healthcare facilities, devices are not intended for patient use and must not be installed within 6 feet (2 m) of patient contact.

## **AC power Models**

- AC main power supply must be disconnected while installing or performing maintenance of any device. To completely disconnect the power input, the main plug should be disconnected from the main socket outlet completely.
- The main socket outlet must provide a protective earthing connection where the outlet has a protective earth (ground) connection.
- Main plug is used as disconnect device and it should remain readily operable during intended use.
- If power cable is connected directly to junction box without an outlet, AC power must be supplied from a circuit that has a resettable circuit breaker. AC mains power supply must be disconnected while installing or performing maintenance of any device. Open the circuit breaker supplying the device before attempting installation, maintenance, or repairs.

## REGULATORY APPROVALS

### FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### FCC Radiation Exposure Statement

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this Transmitter must be installed to provide a separation distance of at least 20 cm from all persons.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

### Caution!

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### RADIO STANDARDS SPECIFICATION (RSS)

This device complies with the Innovation, Science and Economic Development Canada (ISED) licence-exempt RSSs.

Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

The device meets the exemption from the routine evaluation limits in section 2.5 of RSS 102 and compliance with RSS-102 RF exposure, users can obtain Canadian information on RF exposure and compliance.

Le dispositif rencontre l'exemption des limites courantes d'évaluation dans la section 2.5 de RSS 102 et la conformité à l'exposition de RSS-102 rf, utilisateurs peut obtenir l'information canadienne sur l'exposition et la conformité de rf.

This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

Cet équipement devrait être installé et actionné avec une distance minimum de 20 centimètres entre le radiateur et votre corps.

## EUROPEAN UNION DECLARATION OF CONFORMITY AND RESTRICTIONS

Hereby, Primex Inc. declares that this equipment complies with the essential requirements and other relevant provisions of Directive 1999/5/EC: 1999/5/EC: Primex OneVue Digital LED Clocks/Timers (B200), Repeater (B100-R).

This equipment is marked with  and can be used throughout the European community.

This indicated compliance with the R&TTE Directive 1999/5/EC and meets the relevant parts of following technical specifications:

- EN 300 328 – Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband Transmission Systems; Data transmission equipment operating in the 2.4GHz ISM band and using spread spectrum modulation techniques; Harmonized EN covering essential requirements under article 3.2 of the R&TTE directive.
- EN 301 489-17 – Electromagnetic Compatibility and Radio Spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 17 Specific Conditions for Wideband Data and HIPERLAN Equipment.
- EN 60950 – Low Voltage Directive (Safety).
- EN 50385 – Product standard to demonstrate the compliances of radio base stations and fixed terminal stations for wireless telecommunication systems with the basic restrictions or the reference levels related to human exposure to radio frequency electromagnetic fields.
- Indoor use: maximum power (EIRP\*) of 100 mW for the entire 2400-2483.5 MHz frequency band.
- Outdoor use: maximum power (EIRP\*) of 100 mW for the 2400-2454 MHz band and with maximum power (EIRP\*) of 10 mW for the 2454-2483 MHz band.

NOTE: Exposure to Radio Frequency Radiation To comply with RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.

The technical documentation relevant to the above equipment will be held at Primex, Inc., 965 Wells Street, Lake Geneva, WI 53147.

Signed:



Mike O'Brien | Primex, Inc. | Vice President, Channel Sales



## TWO YEAR LIMITED WARRANTY

Warranty applies to: Sync Bluetooth Bridge, Repeater, Analog Clocks (non-education series), Digital Clocks, and Digital Timers (B100, B200, BC100)

Primex, Inc. warrants this product to be free from defects in materials and workmanship for a standard of two (2) years from the date of purchase. Primex, Inc. will at its sole option, repair or replace any components that fail in normal use. Such repairs or replacements will be made at no charge to the customer for replacement parts. The customer will be responsible for any transportation costs. All product accessories are warranted for a period of one (1) year against material or manufacturing defects from the date of purchase.

### **THIS WARRANTY DOES NOT COVER**

(1) Physical damage to this product; (2) Product failure or damage caused by improper installation, lack of periodic maintenance, improper or abnormal use, misuse, neglect or accident (3) Damage caused by another device or software used with this product (including, but not limited to, damage resulting from use of non-Primex brand or approved parts, consumables or accessory items); (4) Problems arising from anything other than defects in materials or workmanship; and (5) Consumables or other items requiring periodic maintenance or replacement with ordinary wear and tear, including, but not limited to, product batteries and cables. This warranty is VOID if this product has been altered or modified in any way (including, but not limited to, attempted warranty repair other than by Primex or an authorized service partner).

### **LIMITATION OF LIABILITY**

The warranties and remedies contained herein are exclusive and in lieu of all other warranties express or implied or statutory, including any liability arising under any warranty or merchantability or fitness for a particular purpose, implied, statutory or otherwise. In no event shall Primex, Inc. be liable for any incidental, special, indirect or consequential damages, whether resulting from the use, misuse or inability to use this product or from defects in the product. Some states do not allow this exclusion or limitation of incidental or consequential damages so the above limitations or exclusion may not apply to you.

### **TO OBTAIN WARRANTY SERVICE**

If, after following the instructions in the product manual, you are certain the product is defective, contact Primex Technical Support to assist with troubleshooting the issue. If the issue cannot successfully be resolved and the product is under warranty, a RMA (Return Material Authorization) will be generated. The RMA form will be provided via email with detailed instructions for the return. All merchandise returned must be shipped to Primex, Inc. Attn: Returns Dept., N3211 County Road H, Lake Geneva, WI 53147. Primex, Inc. retains the exclusive right to repair or replace the unit at its sole discretion. Such shall be your sole exclusive remedy for any breach of warranty.