Smart-Sync™ Repeater (B100-R) Install Guide

Smart-Sync™ Time Synchronization

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Legal Notice

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About this Guide

Audience

This guide is intended for users tasked with installing Smart-Sync™ Repeater for use with the Primex Smart-Sync™ Synchronized Time solution.

Content messaging

This guide includes notes, cautions, and warnings content that highlights important messages.

Typeface	Indicates
Note	Indicates something important or useful.
Caution	Indicates a command or procedure may have an unwanted or undesirable result.
Warning	Indicates a command or procedure that could be dangerous to system or device.
Example	Provides an example of the topic.

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 Industry Canada 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 présentappareilestconforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitationestautorisée aux deux conditions suivantes:

(1) l'appareil ne doit pas produire de brouillage, et

(2) l'utilisateur de l'appareildoit accepter tout brouillageradioélectriquesubi, mêmesi le brouillageest susceptible d'encompromettre 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:

The Primex Smart-Sync Digital LED Clocks/Timers, Smart-Sync Repeater (B100-R).

This equipment is marked with CE 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:

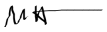
- EN 300 328 – Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband Transmission Systems; Data transmission equipment operating in the 2.4GHz ISM band and using spread spectrum modulation techniques; Harmonized EN covering essential requirements under article 3.2 of the R&TTE directive.
- 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 person.

The technical documentation relevant to the above equipment will be held at: Primex | 965 Wells Street | Lake Geneva, WI 53147 | Phone: (262) 729-4853

Company Representative: Mike O'Brien, General Manager

Signed:



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Specifications - Smart-Sync™ Repeater

A Smart-Sync Repeater is a stand-alone device that extends the range of a Smart-Sync Bluetooth wireless network. Its intended use is to address coverage gaps when a Smart-Sync Clock may reside too far from a Smart-Sync Bridge or other clock to successfully form a communication path to a Smart-Sync Bluetooth Wireless Network.

Enclosure

Enclosure: ABS plastic

Dimension: 11.5 cm W x 4 cm H (115 mm x 40 mm)

Weight: 1.0 lb (455 gram) with 2 D-cell alkaline batteries

Mounting: wall or surface-mount

Power Supply

Typical five (5) year battery life. Battery life is based on operating conditions and may vary due to installed site conditions.

Requires 2 D-cell alkaline batteries (supplied)

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

Bluetooth® Wireless Communication Protocol

Bluetooth® Low Energy (BLE) Wireless Technology, version 4.1

Bluetooth Range: up to 100 feet (30 meters)

Operation

Connects daily to an available Smart-Sync Bluetooth Network; receives UTC time, downloads updates, and sends operating status.

LED Status Indicator

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.

- One blink: device is powered on.
- Two blinks: successful connection to a Smart-Sync Bluetooth Wireless Network; received UTC time.
- Four blinks: low battery level status; battery replacement required.

Environment

Operating Temperature Range: 32° to 95° F (0° to 35° C); indoor use only

Storage Temperature Range: -4° to 158° F (-20° to 70° C)

Certifications

FCC, CE, and IC compliant

Install Smart-Sync™ Repeater

Learn how to install and about its operation within a Smart-Sync Bluetooth Wireless Network.

Install Requirements

Refer to the Important Safety Instructions before installing, operating or performing maintenance.

Installation location requirements

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

You can also measure the Bluetooth signal strength at an installation location to determine if the location has adequate Bluetooth signal strength. For more information, see "Measure Bluetooth Signal Strength at Installation Location" on page 13.

Battery use recommendations

Battery life expectancy is based on common operating conditions and may vary due to installed site conditions and settings. Smart-Sync battery-operated Clocks and Repeaters have up to a five year battery life.

- Use only new high-quality name brand alkaline batteries
- Use batteries with expiration date five or more years beyond the installation date
- Use batteries with the same type and date code
- Do not use heavy duty and zinc carbon batteries as they will not last as long as high-quality name brand alkaline batteries
- Do not use rechargeable NiCad batteries, as their output voltage is too low to assure proper operation
- Do not use standard lithium batteries
- Battery level is monitored by OneVue. Batteries should be replaced promptly upon reaching low battery status to maintain performance and reduce the risk of battery leakage due to excess discharge.

Mount to Ceiling or Wall

Supplied parts

(4) Screws, #8 x 1 1/4" flat head

(4) Anchors

How to mount to wall or ceiling

The 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 Smart-Sync Bluetooth Wireless Network; received UTC time.
    - Four blinks: low battery level status; battery replacement required.

Once the device has been added to OneVue, update its Name from its 12-character Device to its named installation location.

Installation - Smart-Sync Repeater Add a Mode

Upon first-power up at its installation location, a Smart-Sync Repeater enters Add a Mode as described below.

1. Once powered on at its installation location, the Repeater continuously searches for an available Smart-Sync Bluetooth Network.

   It may take up to 15 minutes to authenticate and connect to an available Smart-Sync Bluetooth Network.
2. Once it has authenticated to a Smart-Sync Bluetooth Network, it establishes a communication path either to another Smart-Sync device or directly to a Smart-Sync Bridge available within the network.
3. Once connected, it receives UTC time.
    - During its first connection to the Smart-Sync Bluetooth Network, its unique Smart-Sync Device ID is added to the network.
    - When a Smart-Sync Bridge is in 8-hour deployment mode: within 30 minutes of receiving a new Smart-Sync Device ID, the Bridge connects to your facility's network and sends the new Device ID to OneVue.
    - When a Smart-Sync Bridge is not in 8-hour deployment mode: the new Smart-Sync Device ID is added to your OneVue account within 24 hours to 7 days.

In summary, from the time a Smart-Sync Repeater is first powered on at its installation location and connects to a Smart-Sync Bluetooth Network, it receives UTC time within 15 minutes. If a Smart-Sync Bridge is in a 8-hour deployment mode, the device is added to your OneVue account within 30 minutes, and when not in a 8-hour deployment mode it may take up to 24 hours to 7 days for the device to be added to your OneVue account.

Measure Bluetooth Signal Strength at Installation Location

To determine if a Smart-Sync device location has adequate signal strength, you can measure the Bluetooth signal strength at its installation location.

Primex recommends using the nRF Connect for Mobile - allows you to scan and explore Bluetooth® low energy devices. nRF Connect for Mobile is available for iOS and Android™ devices and can be downloaded from the App Store or Google Play.

- A Smart-Sync Bridge advertises as **Bridge**, Smart-Sync Clocks and Repeaters advertise as a **PrimexClock**. The device's 12-character Device ID is displayed to uniquely identify each device advertising.
- Smart-Sync Clock & Smart-Sync Repeater - the Bluetooth Radio Frequency (RF) signal is required to be **-1 to -85 dBm** at its installation location.
- Smart-Sync Bridge - the Bluetooth Radio Frequency (RF) signal is required to be **-1 to -75 dBm** at its installation location.

> Note:
> During a scan, it may take up to 10 minutes for a clock or repeater to advertise its strength.

Battery Maintenance

To manage and maintain a battery-powered Smart-Sync Repeater, refer to information in this section.

Low battery indication

During each connection to a Smart-Sync Bluetooth Network, the device's current battery level is received by a Smart-Sync Bridge, which is then sent to OneVue.

Batteries should be replaced promptly upon reaching low battery status to maintain performance and reduce risk of battery leakage due to excess discharge.

Battery use recommendations

Battery life expectancy is based on common operating conditions and may vary due to installed site conditions and settings. Smart-Sync battery-operated Clocks and Repeaters have up to a five year battery life.

- Use only new high-quality name brand alkaline batteries
- Use batteries with expiration date five or more years beyond the installation date
- Use batteries with the same type and date code
- Do not use heavy duty and zinc carbon batteries as they will not last as long as high-quality name brand alkaline batteries
- Do not use rechargeable NiCad batteries, as their output voltage is too low to assure proper operation
- Do not use standard lithium batteries
- Battery level is monitored by OneVue. Batteries should be replaced promptly upon reaching low battery status to maintain performance and reduce the risk of battery leakage due to excess discharge.

How to replace batteries

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 batteries and wait 10 seconds.
3. Insert new 2 D-cell alkaline batteries into the battery holder as specified; verify correct polarity.
4. Insert the cover onto the mounting base.
5. Located on the 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 Smart-Sync Bluetooth Wireless Network; received UTC time.
    - Four blinks: low battery level status; battery replacement required.

Warranty

Two Year Limited Warranty

Applies to Smart-Sync devices; excluding Smart-Sync Education Series clocks.

Primex 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 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. This warranty does not cover failures due to misuse, abuse, accidental or unauthorized alterations or repairs.

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 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 guide, you are certain the product is defective, please contact Primex Technical Support to assist with troubleshooting the issue. If the issue cannot successfully be resolved and the product is under warranty, an RMA (Return Material Authorization) will be generated. The RMA form will be provided via email with detailed instructions for the return.

Primex retains the exclusive right to repair or replace the unit at its sole discretion. All merchandise returned must be shipped to Primex Attn: Returns Dept., N3211 County Road H, Lake Geneva, WI 53147. Primex 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.

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 licenses 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 offer 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 inquires.

When contacting 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

Hours 7:00 am to 7:00 pm CST | Monday through Friday

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