



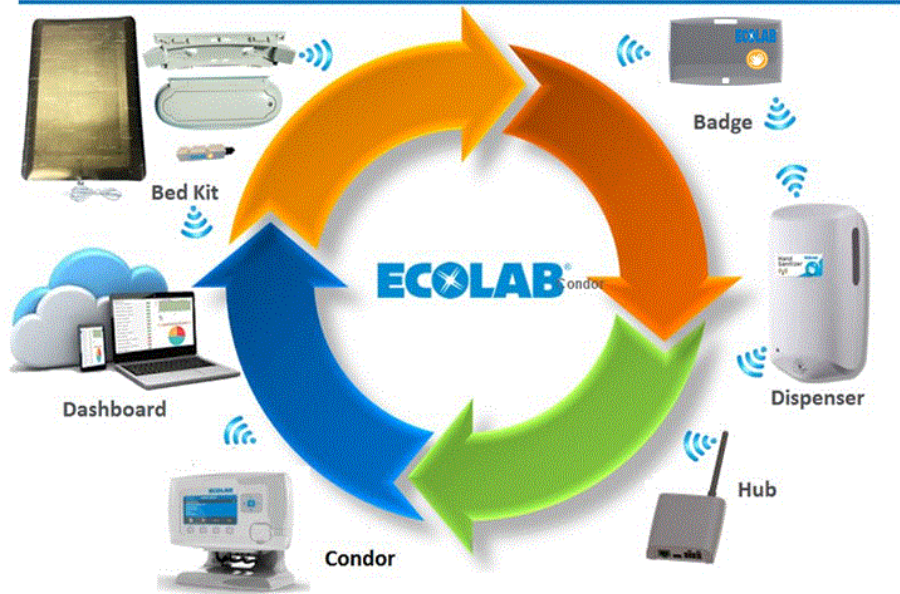
Ecolab®
Hand Hygiene Program

HAND HYGIENE COMPLIANCE MONITORING SYSTEM NEXA MANUAL BEACON (92053071)

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Compliance Monitoring System Components



Hand Hygiene Program Compliance Monitoring System Components

1. Hand Hygiene Compliance Monitoring System Nexa Manual Beacon Overview

The Hand Hygiene Program Compliance Monitoring System (referred to as “the **System**” throughout the rest of this document) is a state of the art wireless hand hygiene reminder **System** designed to encourage best practices for hand hygiene in a healthcare facility. The Nexa **Manual Beacon** (part number 92053071) is an integral component of the **System**. When the **System** is installed, healthcare facilities determine which dispensers they wish to have monitored, and a **Beacon** is installed in those dispensers. Each **Dispenser Beacon** has a unique identification address that is associated to a specific physical location during the install process.

The **Dispenser Beacon** communicates with Healthcare Worker (HCW) **Badges** to obtain **Badge ID** and status information during a dispense event. The dispense event communication sets the HCW **Badge’s** status to “Green” or “State 0” and then both the dispenser and the HCW **Badge ID** information, along with the time and date of the event, is transmitted by the **Dispenser Beacon** to the nearest **Hub**, to be relayed to the offsite server for data compilation. Once the information exchange between the **Dispenser Beacon** and the HCW **Badge** is complete, the module LED (Light Emitting Diode) will light up Blue to indicate that the HCW has been credited with the dispense event.

2. Manual Beacon Set Up

2.1 Installing Batteries

Each **Manual Dispenser Beacon (MDB)** requires 2 AA alkaline batteries for operation. These must be installed prior to initial installation of the **MDB** in the dispenser. The door to the **MDB** battery compartment can be found on the back of the device (see Figure 1).

To install batteries prior to initial installation, complete the following steps:

1. Remove the battery compartment door by gently pulling back on the tab and lifting away from the **MDB**.
2. Once the battery compartment door has been removed, install two (2) AA alkaline batteries, aligning the positive (+) and negative (-) terminals of the batteries with the corresponding signs displayed

within the battery compartment. Ecolab recommends that only Duracell® Coppertop batteries be used to power the **MDB**.

3. Once the batteries have been installed, replace the battery compartment door and make sure that it is firmly in place before installation.

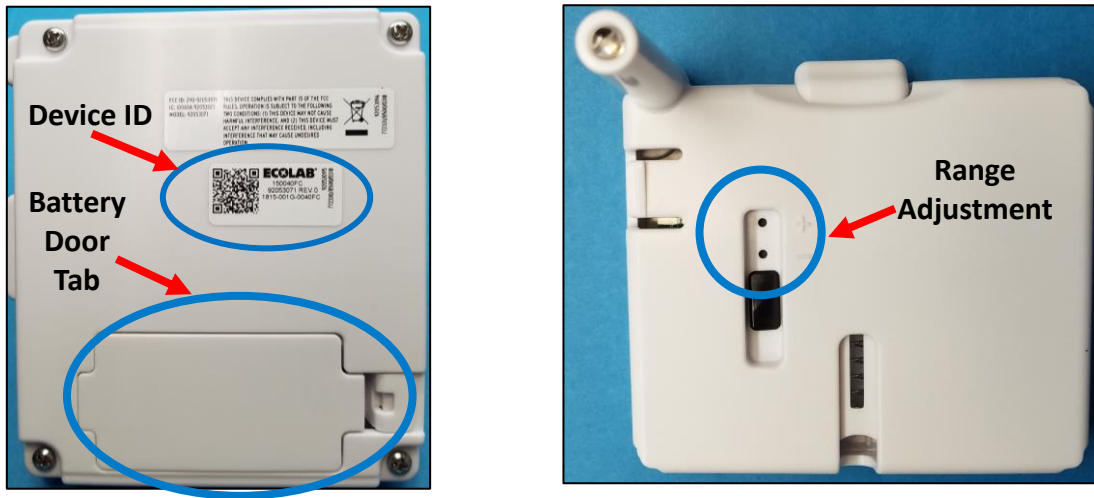


Figure 1. Battery door tab, range adjustment and device ID label location

2.2 Adjusting Communication Range

The range buttons (see Figure 1) are used to increase or decrease the communications distance (range) between the **MDB** and HCW **Badge**. The range buttons are accessed via ports on the back side of the **MDB**. Use a non-electrically conductive (not metal) instrument such as a tooth pick to gently press the buttons. When a button has been pressed, the LED will flash. The “increase range” button is marked with a “+” sign next to the access port. The “decrease range” button is marked with a “-” sign next to the access port.

To increase the communication range, do the following:

1. Press and release the “+” range button. The green LED will flash one (1) time for each push of the switch until maximum range has been reached. The green LED will flash two (2) times when at maximum range.
2. Repeat step 1 until the desired range has been reached.

To decrease the communication range, do the following:

1. Press and release the “-” range button. The red LED will flash one (1) time for each push of the switch until minimum range has been reached. The red LED will flash two (2) times when at the minimum range.
2. Repeat step 1 until the desired range has been reached.

To set the range to the factory default, press and hold both the “+” and “-” range buttons until the LED flashes Blue Three (3) times.

2.3 Installing the Manual Dispenser Beacon in a Nexa™ Manual Dispenser

The **MDB** can be used in either the large (“Classic”) or small (“Compact”) version of the Nexa Manual Dispenser. Only the Compact version is shown in the following figures.

To install the **MDB**, follow these steps:

- (1) Open the dispenser by depressing the top latch button.
- (2) Remove product bottle (if any) from the dispenser and set aside.
- (3) Align the bottom of the **Beacon** with the opening in the back of the dispenser (see Figure 2).
- (4) Gently slide the **Beacon** into the compartment at the back of the dispenser, until a soft click is heard, indicating that the **Beacon** is installed in the compartment.
- (5) Replace the product bottle within the dispenser.
- (6) Close the dispenser.



Figure 2. Installation of Nexa Manual Dispenser Beacon into Nexa Manual Dispenser (Interior View)

2.4 Removal of the Manual Dispenser Beacon from a Nexa™ Manual Dispenser.

The **MDB** can be used in either the large (“Classic”) or small (“Compact”) version of the Nexa Manual Dispenser.

To remove the beacon, follow these steps:

- (1) Open the dispenser by depressing the top latch button.
- (2) Remove product bottle (if any) from the dispenser and set aside
- (3) With one hand, gently depress the retention tab (see Figure 3) to release the **Beacon** and allow it to be removed.
- (4) With the other hand, gently pull the **MDB** out of the compartment at the back of the dispenser.

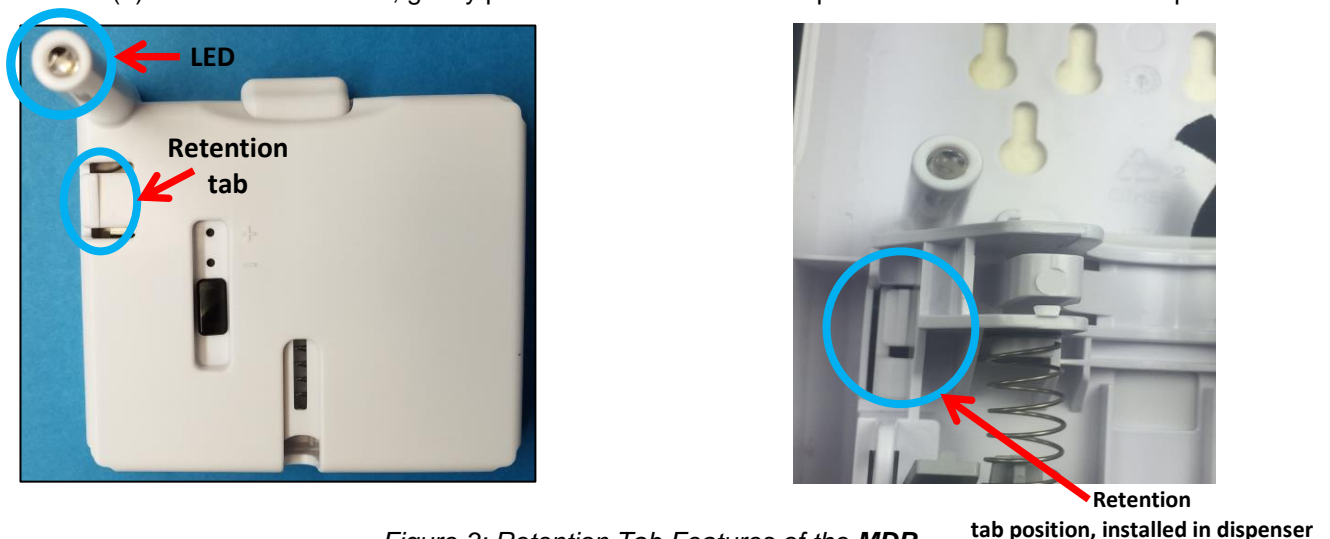


Figure 3: Retention Tab Features of the **MDB**

3. How the Manual Beacon Works.

The **MDB** is a wireless device that detects and communicates with **System HCW Badges** and **Hubs**. The **MDB** communicates with a **HCW Badge** based on its proximity to the device. When the **HCW** dispenses soap or sanitizer by depressing the dispenser push bar, a proximity bubble is created around the dispenser which wakes up the **HCW Badge** and begins the information exchange between the devices. The dispenser then communicates time, date, **Badge** status and ID information (the dispenser ID and **Badge** ID) to a **Hub**, which relays it on to the remote server.

3.1 Interaction with a Healthcare Worker's Badge

When the manual dispenser push bar is depressed, the internal **MDB** will momentarily create a proximity bubble around itself and the dispenser. If the **Badge** worn by the **HCW** activating the dispenser is within the proximity bubble, the **Badge** will communicate with the **MDB** and then change the hand hygiene status level to "Clean". If the **Badge** is not within the proximity bubble, it will not communicate with the **MDB** nor will its hand hygiene status level change. This will result in the **HCW** not receiving credit for using the dispenser.

The default range of the **MDB's** proximity bubble is about 36 inches in all directions but the range can be adjusted if necessary. It is important for the **HCW** to wear their **Badge** in a location that insures it is within the **MDB's** proximity bubble whenever a dispenser is activated. It is also important that only one **Badge** is within the proximity bubble when a dispenser is activated. If more than one **Badge** is within the proximity bubble, the **MDB** may unintentionally communicate with the wrong **Badge** (*i.e.*, a **Badge** belonging to a **HCW** that did not activate the dispenser). If this happens, the wrong **Badge** will change its hand hygiene status level and the wrong **HCW** will receive credit for using the dispenser.

Every **Dispenser Beacon** is equipped with at least one user feedback LED. This LED will only flash when the **MDB** has successfully communicated with a **Badge**. The LED flash will occur during or immediately after dispenser activation. If the LED does not flash, the **Badge** may not have been within the proximity bubble or there was an error in communications.

Please take the following steps to insure proper **Badge** communications and correct **HCW** credit when using a dispenser.

1. Verify that the **Badge** is being worn in a location that will be within a **MDB's** 36-inch proximity bubble.
2. Before activating a dispenser, verify that other **HCWs** are not within the **MDB's** 36-inch proximity bubble. If there are other **HCWs** near the dispenser, kindly ask them to move away before activating.
3. Verify that the **MDB's** LED flashed when the attached dispenser was activated. If the LED did not flash, move closer to the dispenser and activate it again.

3.2 Interaction with a Hub

All **MDBs** are equipped with a longer-range radio that allows them to transmit information to the **System's Hubs**. The **MDB** will transmit to the **Hub** that is closest to it or from which it gets the strongest signal. At time of **System** install, it is verified that all **MDBs** are in range of at least one **Hub**.

When the manual dispenser push bar is depressed, the **MDB** is activated, and will create a proximity bubble and search for **HCW Badges**. If the user is wearing a **Badge**, the **Badge's** HH status will be updated by the **MDB**. The **MDB** will then transmit the **Badge's** hand hygiene status just prior to and immediately after the dispense, to the **Hub**. The **MDB** will also transmit the time, date and location of the event, along with the battery status of the **HCW Badge** and the **MDB**. If the user is not wearing a **Badge**, or is not within the proximity bubble, the time, date and dispenser ID for the product dispense event will be relayed to the **Hub** as a "non-**Badged** dispense".

In addition to communication of dispense event data, all **MDBs** proactively send their ID and battery status information to a **Hub** on an approximately hourly basis.

4. Manual Beacon Status Information

The **MDB** proactively sends its battery level and status information to a **Hub**. This information can be accessed through the **System Dashboard**, to generate a report showing **Dispenser Beacons** with low battery level. If communication to a **Hub** is temporarily lost, each **MDB** has the capability to store events. If this number of events is exceeded before communication to the **Hub** is restored, the oldest events will be overwritten, thus resulting in some loss of data.

4.1 Dispense Event Confirmation LED – Successful Communication Between HCW Badge and Manual Dispenser Beacon.

The **MDB** LED, which flashes once during or immediately after a dispense event, indicates that the HCW **Badge** information has successfully been communicated to the **MDB**. The **Dispenser Beacon** will then send this information to a **Hub**, and eventually to the offsite server for compilation and archiving.

5. Manual Beacon Care and Maintenance

5.1 Handling

The **MDB** is an electronic device and should be handled with care. Like other electronic devices, such as a cell phone, the **MDB** must be protected from extreme heat, cold and moisture. Avoid handling the **MDB** with wet hands or exposing it to water. Dropping or tossing the **MDB** can result in damage to the internal electronics.

5.2 Cleaning

Under normal conditions of use, the **MDB** should not require cleaning. On the infrequent occasions where the **MDB** might become soiled, it should be cleaned by wiping with a soft cloth. The cloth may be dry or slightly damp but not wet. Only the exterior of the **MDB** may be cleaned. Do not attempt to clean any interior surface of the **MDB**, as this can damage the circuitry. Do not use abrasive cleaners or spray cleaning products.

5.3 Battery Replacement

Typical **Manual Beacon** battery life is about 1 year but this may vary depending on use. When a **MDB's** batteries are dead, it will no longer communicate with other **System** devices. The **Dashboard** software also monitors the battery level of each **MDB**. It will send an email alert to a designated maintenance person assigned by the healthcare facility when a **MDB's** batteries are low (20% or less remaining battery capacity). The maintenance person should replace the batteries as soon as possible to prevent loss of data.

5.3.1 Supplies

The following supplies are required to replace the **Manual Beacon's** battery:

1. Two (2) alkaline AA Duracell® Coppertop Batteries

5.3.2 Battery Replacement Steps

The following steps describe how to remove the **MDB** from the Nexa Manual Dispenser, and replace the batteries:

1. Open the dispenser by depressing the top latch button.
2. Remove product bottle (if any) from the dispenser and set aside.
3. With one hand, gently depress the retention tab (see Figure 3, above) to release the beacon and allow it to be removed.
4. With the other hand, gently pull on the top of the **MDB** to lift it out of the compartment at the back of the dispenser.
5. Holding the **MDB** so that the rear side is facing up, remove the battery compartment door by gently pulling back on the battery door tab.

6. Once the battery compartment door has been removed, install two (2) AA alkaline batteries, aligning the positive (+) and negative (-) terminals of the batteries with the corresponding signs displayed within the battery compartment (Ecolab recommends that only Duracell® Coppertop batteries be used to power the module.)
7. Once the batteries have been installed, replace the battery compartment door and make sure that it is firmly in place before replacing the **MDB** in the dispenser.
8. To replace the **MDB** in the Nexa Manual Dispenser, align the bottom of the **Beacon** with the opening in the back of the dispenser (see Figure 2, above).
9. Gently slide the **Beacon** into the compartment at the back of the dispenser, until a soft click is heard, indicating that the **Beacon** is installed in the compartment.
10. Replace the product bottle within the dispenser.
11. Close the dispenser.
12. Dispose of the old batteries. Check with the healthcare facility for the proper disposal procedure.

Appendix A - Certification and Safety Approvals

FCC Statement

NOTE: 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 causes harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and 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.

WARNING: Changes or modifications not expressly approved by Ecolab could void the user's authority to operate the equipment.

RF Exposure: In order to comply with FCC and ISED Canada RF Exposure requirements, this device must be installed to provide at least 20 cm separation from the human body at all times.

Afin de se conformer aux exigences d'exposition FCC et d'ISED Canada cet appareil doit être installé pour fournir au moins 20 cm de séparation du corps humain en tout temps

ISED Canada

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

This device complies with Industry Canada license-exempt RSS standard(s). 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.

This radio transmitter (IC: 10060A-92053071) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio (IC: 10060A-92053071) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

FCC & IC Label Information

The FCC & IC label information that contains the FCC ID Number, IC ID Number, Device Model Number, and FCC Statement “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 UNDESIRE OPERATION.” is located on the back portion of the HAND HYGIENE COMPLIANCE MONITORING SYSTEM NEXA MANUAL BEACON.

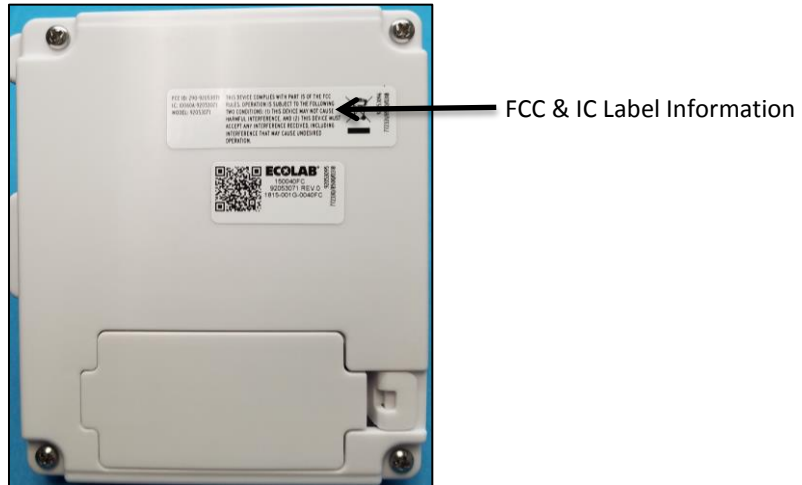


Figure 4: FCC & IC Label Information