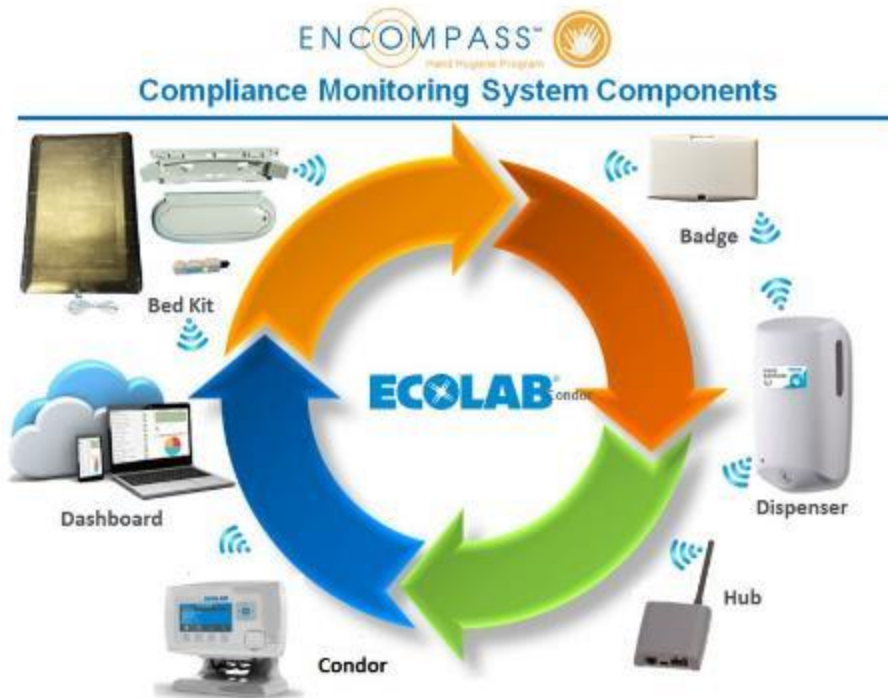# Ecolab® Hand Hygiene Program Compliance Monitoring System

Hub Directions for Use
(92053067, HHCM915 HUB ASSY)

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Figure 1. Ecolab Hand Hygiene Program Compliance Monitoring System Components

1. Introduction to the System

1.1 The Wireless Network

A proprietary wireless network is used to transport event data collected by **Dispenser Beacons** and **Bed Beacons** to the cloud for processing and archiving. The proprietary network composed to two types of devices: **Hub** and the **Gateway (or Condor).**

1.1.1 Hubs

Hubs are installed throughout the healthcare facility and communicate with nearby **Bed Beacons** and **Dispenser Beacons**. When an event is generated by either type of **Beacon**, it broadcasts the event data to the nearest **Hub**. The **Hub** receives the event data and relays it either to the **Gateway (Condor)** via RS485 or to the next nearest **Hub.** This process repeated, with event data being related from Hub to Hub, until the data reaches the **Hub** that is connected to the **Gateway (Condor)**.

1.1.2 Gateway

The **Gateway (Condor)** receives event data generated by **Dispenser Beacons** or **Bed Beacons** from a directly attached (RS485) **Hub**, which acts as receiver for other **Hubs** nearby. The **Gateway** then transmits the event data to a cloud server, via a secure cellular modem connection, for processing and archiving.

1.2 The Dashboard Reporting Portal and Cloud Server

The **Dashboard** is a secure web-based application, which runs in the MicroSoft Azure cloud. The **Dashboard** server is for collecting, processing and archiving onsite **Dispenser Beacon** and **Bed Beacon** event data sent by the onsite **Condor**. The **Dashboard** provides a user-friendly interface, providing access to your hospitals' hand hygiene compliance data, statistics and reports compiled from event data.

2. Hub Kit Contents (Ecolab Part Number 92053067)

1 – **Hub**
1 – Antenna
1 – Power Supply 24VDC 1A Wall Adapter

3. Hub Functionality

3.1 Address

Each **Hub** has a unique address, which is assigned during the manufacturing process. The **Hub** address is transmitted along with the relayed event messages from devices. The **Hub** address label is located on the back surface of the **Hub** (*See Figure 2*).


Figure 2. Hub Address Label

3.2 Heartbeat Signal

All **Hubs** generate a heartbeat signal every hour, if they do not receive any local device data. The heartbeat is sent to the server to indicate that the **Hub** is functioning properly although no device data was generated nearby. Missing heartbeats indicate that a **Hub** has gone off-line due to a possible power outage. The **Dashboard** contains **Hub** meta data (location information), so that the off-line Hub can be easily located and serviced.

3.3 Hub Buffer Capacity

Each **Hub** is capable of buffering (storing) up to 1000 events in case there is a temporary loss of communications with the wider network (for example, the next nearest Hub has been unplugged or removed), to minimize potential data loss.

4. Hub Components
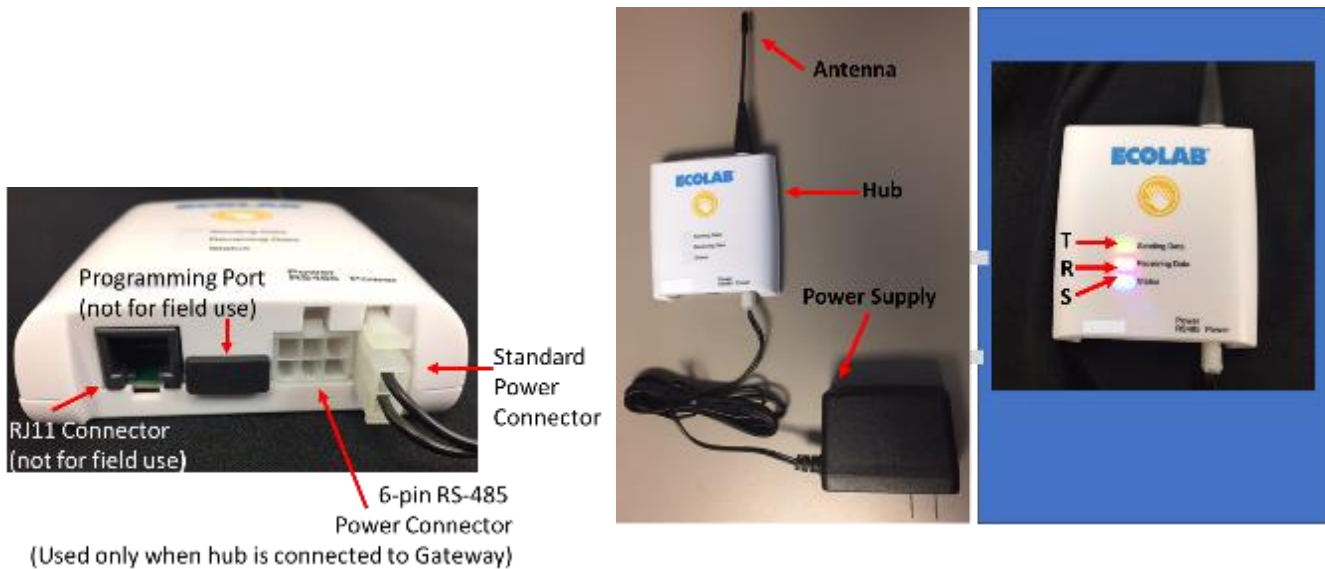
Figure 3. Hub Connectors, Components and Status Lights

- Antenna: Transmits and receives radio messages
- Power Connector: The 24VDC wall adapter powers the **Hub** and is connected here.
- 3 Status LED (Light Emitting Diode): **Status (S)** A solid Blue light indicates that the **Hub** is linked to another **Hub. Receiving (R):** Red flashing light indicates that the **Hub** has received a radio transmission. **Transmitting (T)** a Green flashing light indicates that the **Hub** has transmitted a radio message.

5. Installation

5.1 Power Requirements

Each **Hub** requires a 120VAC outlet. The wall adapter cord is approximately 6' in length and is typically installed with a cord hider/conduit.

5.2 Mounting

A **Hub** weighs 3 oz. and can be mounted anywhere with two anchors, Velcro®, double sided tape or Command™ Strips.

6. Hub Maintenance

The **Hub** typically will not require cleaning. In the rare occurrence that it does need to be cleaned, the **Hub** may be cleaned by wiping with a soft cloth. The cloth may be damp but must not be dripping wet. A pre-moistened alcohol swab or any common hospital cleaner may also be used. Only the exterior of the **Hub** may be cleaned. Do not attempt to clean any interior surface of the **Hub** as this can damage the circuitry. Do not use abrasive cleaners or cleaning products in aerosol cans. The **Hub** is splash resistant but not waterproof.

7. Hub Troubleshooting

WARNING: Do not remove or relocate any Hub(s) in the Network without notifying your Ecolab representative. Doing so could cause a disruption in data transmission and potentially lost data.

- *LED does not light*
  1. Verify that the **Hub** power supply is plugged into the powered outlet.
  2. Use a volt meter to measure 120 volts at the power outlet.
  3. Verify that the **Hub** power supply is properly seated.
  4. Power cycle the **Hub** by unplugging the power supply, waiting 30 seconds and then plugging it back in to the outlet.
  5. If steps 1 – 4 are unsuccessful, an Ecolab service technician will need to replace the **Hub.**

- *Dashboard Software Reports No Hub Heartbeats*
  1. Check that the LEDs light are on, to verify that the **Hub** is powered.
  2. Verify that the antenna is connected.
  3. Power cycle the **Hub** by unplugging the power supply, waiting 30 seconds and then plugging it back in to the outlet.
  4. Verify that there is no large test equipment near the **Hub** that could cause radio interference.
  5. If steps 1 – 4 are unsuccessful, an Ecolab service technician will need to replace the **Hub.**

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: This equipment complies with FCC radiation exposure limits set forth for an Uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Industry 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-92053067) 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-92053067) 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.

RF Exposure: This equipment complies with Industry Canada radiation exposure limits set forth for an Uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Exposition aux radiofréquences : Cet équipement est conforme aux limites d'exposition par rayonnements définies par l'industrie du Canada pour une utilisation dans un environnement non clos. Cet équipement doit être utilisé à une distance minimale de 20 cm entre l'émetteur de radiation et votre corps. Cet émetteur ne doit pas être situe au même endroit qu'un autre émetteur et ne doit pas être connecté à une antenne différente.

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