LORIKEET ENCODER - User Manual

Revision History

Revision	Date	Details	Author
1.0	10-11-2020	Initial Daft	S.Weste

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1) Scope of this Manual

This manual contains installation instructions for the Taggle Systems LORIKEET endpoint.

Taggle LORIKEET endpoints installation must comply with all the applicable federal, state and local rules, regulations and codes.

Failure to read and follow these instructions can lead to misapplication or misuse of this product, resulting in personal injury and damage to equipment.

Proper performance and reliability of Taggle LORIKEET endpoints depend upon installation in accordance with these instructions. Endpoints not properly installed may not be covered under warranty.

Any changes or modifications not expressively approved by Taggle Systems Pty Ltd could void the user's authority to operate this equipment

2) 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.

To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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.

FCC Radiation Exposure Statement:

The 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.

3) ISED Canada Statement

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- This device may not cause interference.
- This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- L'appareil ne doit pas produire de brouillage;
- L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

4) Compatible Encoders/Registers

The following Encoders/Registers represent some of the many devices that connect to the LORIKEET ENCODER endpoint

Honeywell SM700

Badger Meter High Resolution LCD Encoder

5) LORIKEET Endpoint connector variations

Endpoint Configurations	Encoder Connection
Endpoint only with in-line connector	Connect the endpoint to an encoder using the in-line connector.
Endpoint/Encoder assembly with inline connector	Factory pre-wired; no splicing necessary

6) Installation Guidelines

Install the endpoint/encoder assembly according to these guidelines:

- Indoor/Outdoor installation:
  - Indoor installation is **recommended**. Mount endpoints indoors, in the floor joist near an outside wall and away from large metal objects.
  - Outdoor installation is acceptable and may be required where signal strength does not support indoor installation
  - Pit installation: It is preferred that the LORIKEET Endpoints are mounted through a non-metal pit lid. Otherwise, mount it as close to the underside of the lid as possible (See Page 8 - Mounting Instructions).

NOTE: Incorrectly installed endpoints may not be covered under warranty.

7) Out of the Box

The endpoint is shipped in Flight Mode whereby it does not transmit. This serves multiple purposes including ensuring maximum battery life and meeting safety and regulatory restrictions relating to shipping radio transmitters.

8) Radio Test Mode

Radio Test Mode is essential for confirming radio performance at installation. The LORIKEET ENCODER can be set into Radio Test Mode by one of two methods.

The first method involves activation of an internal reed switch using a magnet presented over the indicated label below - referred to as a "Swipe". The second method is triggered by presenting an NFC reader over the labelled area – referred to as a "NFC Tap". Both these locations are marked below   on the endpoint housing.

Swipe circled area with a magnet

Tap device over labelled area containing the Endpoint ID. Ensure NFC is enabled on the reader/device.
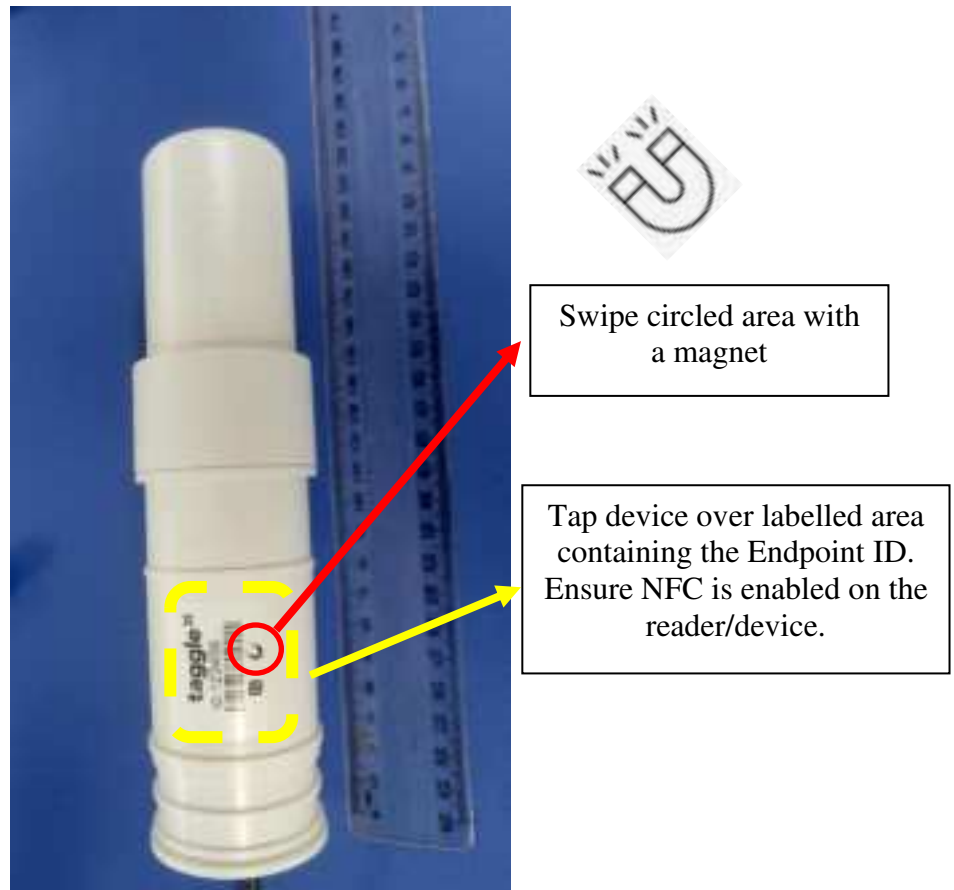
Figure 1: Magnet Swipe and NFC Tap locations

A Swipe or a Tap will cause the device to immediately transmit a burst of packets, to aid field testing during device installations and PRIOR to the connection of the Encoder/Register. This means that every endpoint can be used as a Taggle network Survey Tool to test connection quality within the Taggle Network. Access to this survey tool page will be granted by Taggle Systems.

NOTE – If no Sensus protocol enabled Encoder/Meter has been attached to the LORIKEET ENCODER device, prior to or during the triggering of Radio Test Mode, the device will return to Flight Mode as described in (7) - Out of the Box.

9) Activating the LORIKEET ENCODER Device

At the time of installation connect the LORIKEET ENCODER to a Sensus protocol enabled Encoder/Meter and trigger the device Radio Test Mode as previously described via a Swipe or NFC Tap. Triggering Radio Test Mode while a compatible Sensus protocol Encoder/Meter is attached sets the device into Operational Mode for the serviceable life of the LORIKEET ENCODE.

NOTE - If a LORIKEET ENCODER is disconnected from a Sensus protocol sensor at any point, the LORIKEET does **not** return to Flight Mode, instead reporting communication errors.

10)   Confirming an Installation

Reading a LORIKEET ENCODER endpoint immediately after installation verifies proper operation and reading performance. Before leaving the installation site, the installer can use a web-app to confirm the endpoint wiring is correct and that the endpoint is broadcasting end-to-end data from the Encoder/Meter to the Taggle data platform. Access to this page will be granted by Taggle Systems to authorised persons.

11)   Configuration via NFC

NFC interactions that modify the behavior of the device require an approved Taggle NFC application. All communications are encrypted using AES-128 with a unique key per device.

Contact Taggle for further information.

12)   In-line connector instructions

The LORIKEET ENCODER is shipped preconfigured to work with most Sensus protocol encoders and ships as standard with Nicor AMR-III Connector but other connector types such as 308 and Twist Tight can be supplied.

⚠️ **Warning:** BEFORE JOINING, MAKE SURE ALL SURFACES OF THE CONNECTOR ENDS ARE CLEAN, DRY, AND FREE OF ANY DEBRIS OR DIRT. THIS STEP IS IMPORTANT TO MAKE SURE THE CONNECTOR REMAINS WATER TIGHT AND SUBMERSIBLE.

Nicor AMR-III Connector

1. Pull the dust cap(s) off.
2. Locate the arrow on each connector. With the arrows pointed toward each other, push the ends together until the encoder side connector is fully seated into the endpoint side connector. There should be no visible gap. See the lower section of the following image.

Figure 2: Nicor AMR-III connector detail

13)   Mounting Instructions

Pit Installations.

The LORIKEET Transmitter works best when positioned as close to the top of the pit lid as possible. While mounting vertically just underneath OR through the lid is preferred. Taggle also recommends placing the endpoint horizontally under the lid as shown below, provided the modification is acceptable with local and state laws.

NOTE: If possible, ensure the Antenna end of the endpoint is positioned close to end of the lid from which it is opened.

Figure 3: shows LORIKEET with Antenna positioned closest to lid opening point

1. Remove the pit lid and make TWO 5 mm size holes ① and ② as shown in the figure below, spaced 80 mm apart. Feed a high-quality cable tie through each of the holes so that they loop through and around the locating grooves in the LORIKEET. Securing it so it does not move.

Figure 4: Drill hole spacing

2. Tighten the cable ties so that the endpoint is secured to the top of the lid. Trim the excess length of cable tie and keep a tidy site.

Figure 5: Trim excess cable ties length and discard appropriately

Other Installations.

The LORIKEET is suitable for both below ground installation in meter and irrigation pits, as well as above ground mounted on posts or other non-metallic structures such as fences. As with all radio devices superior range and reliability will be achieved with above ground deployments.

The device should be at least 15cm away from nearby solid objects to avoid de-tuning the antenna. Fixing directly to metal structures is not recommended.

Note that a provision has been made in the base of the LORIKEET device housing that accepts 32 mm (1 ¼ inch) OD conduit or similar. This can be utilised if cable protection is required.

Figure 6: LORIKEET base detail