IsoLynx

02050492

IsoLynx II UWB Tracking Tag

IL0401 - User Manual

August 2019

IsoLynx

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Introduction

The IsoLynx Tracking Tag (IL0401) is a small, battery-powered RFID device that produces ultra-wideband pulses that are used to generate real-time location and movement data. IsoLynx tags are fixed to athletes, equipment, and other objects of interest and transmit UWB "pings" to reference nodes placed around the venue. Its small size and low power consumption make the IsoLynx tag an ideal UWB tracking apparatus for large venues and multiplayer sporting events. The IsoLynx tags also allow for remote activation, easy attachment/removal, convenient charging, and have an onboard LED indicator for real-time feedback of tag state.

Regulatory Information for the United States

FCC Notice (For US Customers):

FCC ID: 2AHCQ-IL0401
Model: IL0401

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.
    2. This device must accept any interference received, including interference that may cause undesired operation.

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 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/television technician for help.

Changes and modifications not expressly approved by IsoLynx LLC can void your authority to operate this equipment under Federal Communications Commissions rules.

Hardware & Specifications

IsoLynx Tracking Tags

The battery-powered tracking tags transmit UWB pings at up to 80Hz to allow for real-time location calculation. Tag pulse rates can be programmed for rates between 0.1Hz and 80Hz depending on their use or the number of other active tags in the venue. Tags remain in sleep mode when not in use and can be activated or deactivated remotely by using a master reference node.
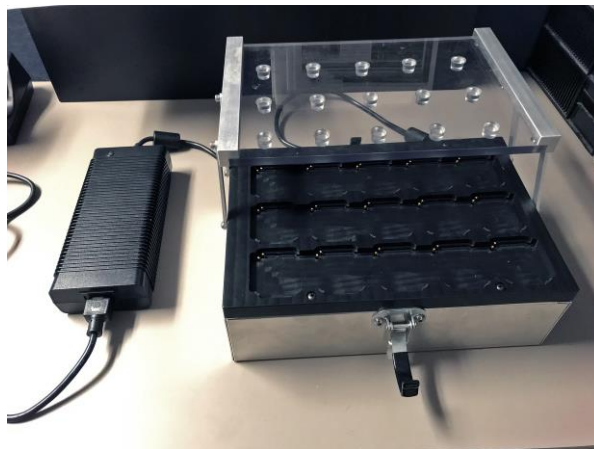
Tag Top   **Tag Bottom**

USB Tag Charger

The IsoLynx tags come equipped with a portable USB charger for convenient, on-site charging and storage. The tag fits securely into the tag charger dock, which can be connected to any compatible USB charger station.

IsoLynx Tracking Tag - 2AHCQ-IL0401

Charging the IsoLynx Tags

To ensure reliability and longevity, all tags should be fully charged before and after their use. The tags can be charged quickly using the charging dock and any compatible USB power station. Charging takes approximately 2-3 hours.

1. Secure the tag inside the charging dock so the metal pins on both devices are aligned.

2. Plug the charging dock into any compatible USB power source.

3. The tag's LED displays **Blue + Solid Red** when actively charging. The LED displays **Blue + Blinking Red** when the tag is completely charged.

Mounting on Race Bibs

One use for IsoLynx Tracking Tags is collecting data from track & field running events. The steps below detail how the tags should be attached to a race bib. Ideally, each bib will contain one tracking tag.

1. Adhere the clear plastic pouch to the back-side of the race bib.

2. Insert the Flex Tag into the clear pouch and press down on the Velcro tab to secure it.

3. Attach the bib to the athlete's uniform.

Mounting on Uniform Shorts

A second use for IsoLynx Flex Tags is collecting data from basketball games. The steps below detail how the tags should be attached to an athlete's uniform shorts. Ideally, each clip will contain one tag.

1. Place the Flex Tag on top of the front-side of the clip.

2. Feed two plastic zip ties through the guide holes on the clip and over the Flex Tag.

3. Secure the tag in place, and pull the zip ties tight, removing any excess ends.

4. Ensure the tag sits snugly on the clip and does not move around.

5. Using the back-side of the clip, attached the tag to the waistband of the athlete's uniform shorts.

Removing the Player Tracking Tags

The IsoLynx tags are designed to be easily removed and powered-down after use. To remove the IsoLynx tags after a game, complete the following steps:

1. Remove the race bib from the athlete's clothing. Open the clear pouch on the back and slide the tag out of the pouch.

2. Recharge the batteries while inactive to prepare for the next use.

3. Inspect all hardware for visible damage before storing the system away after an event.

IsoLynx Tag Hardware Specifications

Main System Components

Microcontroller: Onboard ARM Processor with BLE and NFC-A tag
Accelerometer/Gyroscope/Magnetometer: Onboard 9-Axis Accelerometer/Gyroscope/Magnetometer
Battery: 3.7V 300mAh - Rechargeable in Application
Operating Voltage: 3.0V
Operating Current: 5mA (nominal)
Temperature Range: -40 - 85C

RF Characteristics

UWB IEEE802.15.4-2011 UWB Channel: 5
Bandwidth (Values in GHz):

fM	The highest emission peak	6.2862
fL	10 dB below the highest peak	6.1384
fH	10 dB above the highest peak	6.8247
Bandwidth	Calculated: (fH - fL)	0.6863

Antenna: 0 dBi Omnidirectional
Locate Precision: 10cm
Locate Rate: 0.1Hz - 80Hz
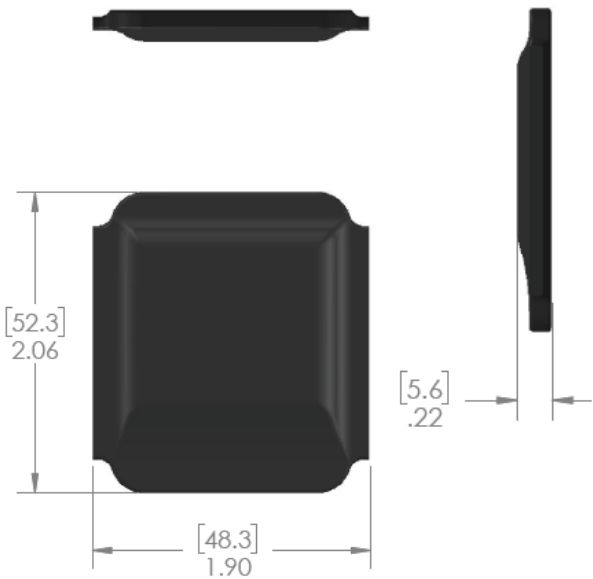
Mechanical

Weight: 9.9 grams
Width: 1.90"
Height: 2.06"

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