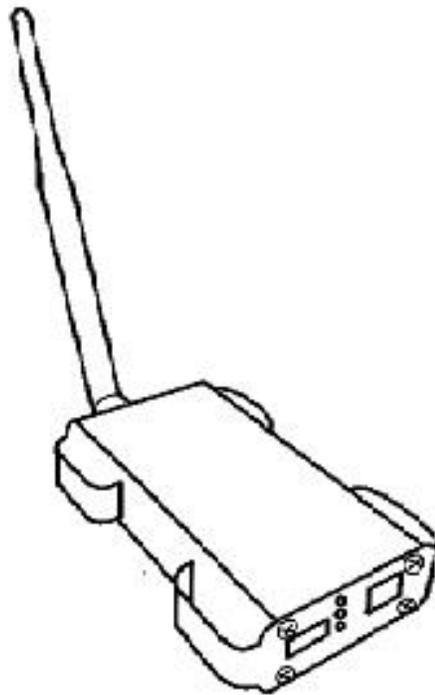


# DATASHEET-USER GUIDE HUB2

Version 1.3, 02-01-2020



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## 1. HUB2 presentation and characteristics

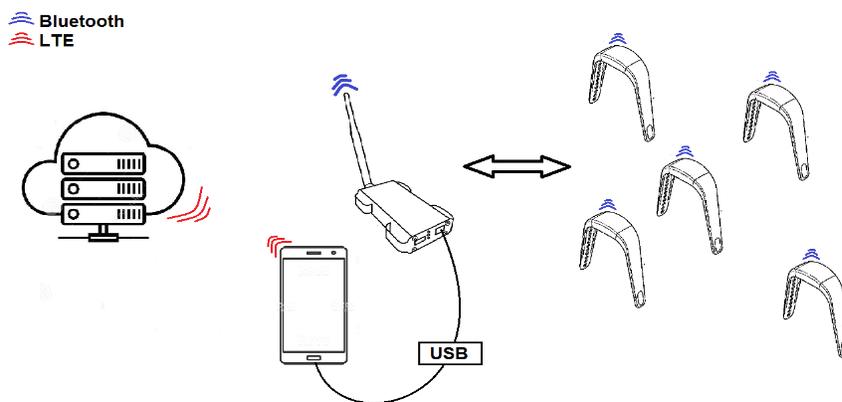
### 1.1 Description use

The Pixmob HUB2 is an improvement from the last version of the HUB. It doesn't need anymore a hard line wire for ethernet either an AC plug, smartphone as screen, battery powered, etc. The HUB2 can be place in hard access position and with the integrated battery, it will last around a half of the day if it always used.

### 1.2 Electrical characteristics

#### 1.2.1 Description

The Hub2 detect will take all the information around him via Bluetooth and will transmit it via WIFI or LTE to the server.



#### 1.2.2 Key features

- Small equipment
- Battery powered
- Easy to recharge
- Same protocol as Klik gear

#### 1.2.3 Working temperature

- 20 ° to 60 °C
- 5 ° to 140 °F

#### 1.2.4 Water/Dust protection

NONE

#### 1.2.5 Physical and body

Both of HUB have aluminum casing, one is custom (HUB1) and the other is from BUD IND. (Manufacturer part#: EXN-23352-BK)

### 1.2.6 Electrical specs

FREQUENCY BAND: 2400–2483.5 MHz

RF POWER MAX(W): Conducted 115mW

TYPE OF MODULATION: GFSK

POWER REQUIREMENTS: USB 5V with a battery 3.7V 5000mAh inside

MAXIMUM TRANS DUTY CYCLE: 10% of duty cycle

ANTENNAS INFORMATION: Bluetooth antenna RPSMA, 2.4 GHz Gain 4.9 dBi. The EUT is professionally installed.

### 1.2.7 Communication protocol

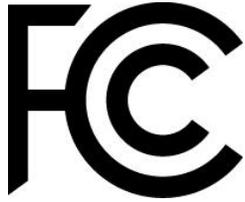
-BLUETOOTH: 4.0 LE Compliant, Support for Bluetooth v4.1 host stack including ATT, GATT, SMP, L2CAP, GAP

-WIFI/LTE: From Phone to the server

### 1.2.8 Coverage

Depending the environment where the HUB2 is installed, it can reach more than 300m in an open space without obstacle, and between 50 to 150m with thick wall.

## 2. FCC Statements



FCC ID: 2ADS4HUB2

### § 15.19 (a)(3)

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.

### § 15.21

Important! Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### § 15.105 (b)

Notes: 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.

### § 2.1091 (b)

For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. In this context, the term "fixed location" means that the device is physically secured at one location and is not able to be easily moved to another location. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal computer, are considered to be mobile devices if they meet the 20 centimeter separation requirement.

DO NOT operate the transmitter when someone is within 20 cm of the antenna.

### 3. IC Statements

# IC

IC: 7254A-HUB2

This device complies with Industry Canada license-exempt RSS 247 standard. 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.

DO NOT operate the transmitter when someone is within 20 cm of the antenna.

This radio transmitter 7254A-HUB2 has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

*Antenna authorized:*

Termination: RP-SMA Male  
RF Family/Standard: 802.15.4, Bluetooth, WIFI  
Frequency Range: 2.4GHz-2.5GHz  
Impedance: 50  $\Omega$   
Gain: 3.8dBi Straight, 4.7dBi Bent 90 degrees

Cet appareil est conforme avec Industrie Canada exempt de licence standard RSS 247. Son fonctionnement est soumis aux deux conditions suivantes: (1) cet appareil ne doit pas provoquer d'interférences et (2) cet appareil doit accepter toute interférence, y compris celles pouvant causer un mauvais fonctionnement de l'appareil.

NE PAS utiliser l'émetteur quand quelqu'un est à moins de 20 cm de l'antenne.

Le présent émetteur radio 7254A-HUB2 a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste sont interdits pour l'exploitation de l'émetteur.

*Antenne autorisée:*

Connecteur: RP-SMA Male  
RF Famille/Standard: 802.15.4, Bluetooth, WIFI  
Gamme de Fréquence: 2.4GHz-2.5GHz  
Impédance: 50 $\Omega$   
Gain: 3.8dBi Droite, 4.7dBi Pliée 90 degrés

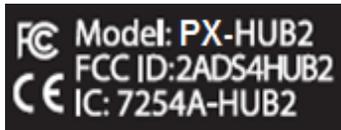
This class B digital device complies with Canadian ICES-003  
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

## 4. Warning

### 4.1 Security

- Do not OPEN the HUB2
- Do not submerge it
- The HUB2 is not waterproof or dust proof.
- Do not place it direct to sun light

### 4.2 Label



## 5. Material needed

- 1 USB-B cable to USB-A (Power and recharge the HUB2)
- 1 USB-A cable to USB micro (Communicate and recharge the Phone)
- 1 antenna 2.4 GHz
- 1 phone with the Klik app

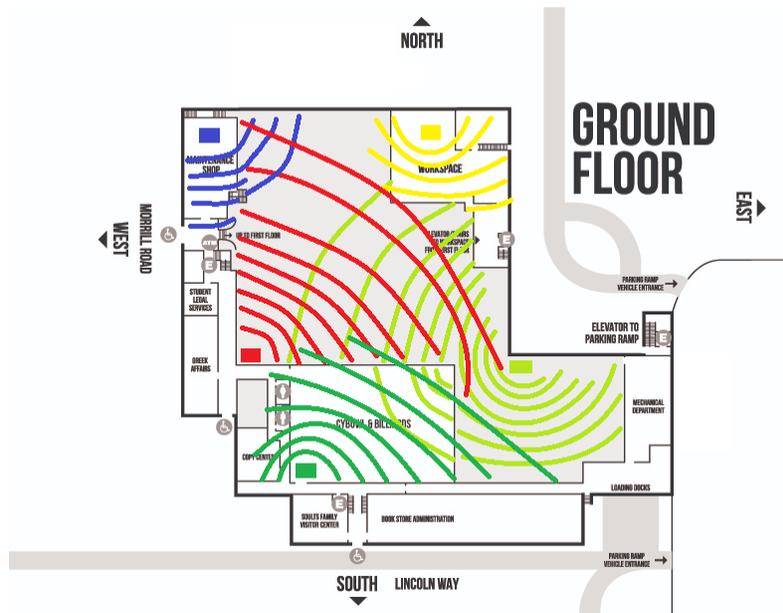
## 6. Installation

### 6.1 Installation

The HUB2 might be install near a wall or an AC outlet for big event. The battery can run less than a day without charging (depending on the usage of these). The HUB2 also need to be out of sight of people and not in a restricted place to be sure that the data is correctly send to the server. The HUB2 can always be plug.

### 6.2 Orientation

The HUB2 orientation depends on the Antennas orientation. The HUB2 can be placed on the floor, on the wall or under object, but the Antenna must always be placed in vertical position for a maximum coverage. To have a good coverage, the HUB2 must be place in the center of a pieces, unfortunately in realistic event, it may not be possible due to the AC outlet and the need to be out of sight of people. So it is recommended to place it in a hidden place near a wall. A place than will have the maximum coverage with or without thick wall. See image below for an exemple.



### 6.3 Connections

The user only need to be sure the phone is correctly plug on the HUB2, the antenna is there and the battery is charged.

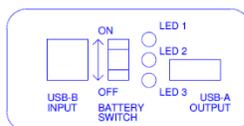
## 7. HUB2 Button control and light

### 7.1 Home screen

When the HUB2 is open (switch in UP position), it will automatically open the phone and the Klik app. You will need after to setup the WIFI configuration and some parameter to be sure that the HUB2 is connected to the good server.



### HUB RF PA V5.3 LED INDICATIONS



	LED 2	OFF	ON
LED 1			
OFF		DEVICE OFF	USB POWER, BATT OFF
FLASHING		BATT POWER	USB POWER, CHARGING
ON			USB POWER, BATT FULL OR FAULT

LED 1 COLOR	BATT LEVEL
GREEN	100 - 70 %
YELLOW	70 - 40 %
ORANGE	40 - 10 %
RED	10 - 0 %

LED 2 COLOR	USB SOURCE	MAX CURRENT
RED	CHARGING PORT OR D+D- SHORT	2.0A
ORANGE	APPLE/SAMSUNG 2.0/2.4A DIVIDER	2.0A
GREEN	STANDARD PORT OR D+D- OPEN	0.5A

## 8. Troubleshooting

### 8.1 BLE-Devices

#### **-RFPA test levels (part I) are within [1000, 1100] mV?**

If antenna connector has bad soldering, add solder to the antenna connector Else replace C42 from 0.5 pF to 0.4 pF.

#### **-RFPA test levels (part I) are below 1000 mV?**

The shell cmd not sent at the end. Make sure you sent a shell cmd to the board: `i2c-write 02 01 shell`.

#### **-Switch is put to on, RX-TX led is not blinking green?**

The shell cmd not sent at the end. Make sure you sent a shell cmd to the board: `i2c-write 02 01 shell`.

### 8.2 PHONE (HUBDROID)

#### **-Android bluedroid is displayed as HUBID in the app?**

Uninstall - reinstall klik app.

#### **-Hubdroid-xxxx has a typo / is misspelled?**

Go to BT settings and change the bluetooth name of the device. Then uninstall and reinstall the app.

#### **-Phone is "stuck" in kiosk mode?**

Follow procedure in the link on the right

### 8.3 PHONE (HUBDROID) software update

#### **-Some apps (chrome, hexnode, ...) keep auto updating, killing the focus of Klik app...?**

No solution for the moment.

### 8.4 IP NETWORKING

#### **-Hub2 gets disconnected from event, or jumps on/off?**

Switch phone's data mode (LTE \ WiFi) or reboot phone, disconnect from hubamp, and reboot hubamp too. Reconnect all.

#### **-Hub2's amp status disappears from CP or Tech APP**

Check connection cable or swap the hubamp for a spare one