
eDoctor

User Guide

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Revision History

| Revision | Issue Date | Editor | Comments |
|----------|--------------|----------------|--|
| 0.1 | Nov 4, 2020 | Reza Nikjah | Initial release. |
| 0.2 | Feb 2, 2021 | Reza Nikjah | Minor edits. Added Mobile Application view. |
| 0.3 | June 6, 2023 | Shania Stewart | <ul style="list-style-type: none">• Updated product name and product code.• Expanded on product specifications and added product images.• Updated the instructions for use and added troubleshoot information. |
| 1.0 | Aug 4, 2023 | Shania Stewart | <ul style="list-style-type: none">• Updated product code to support Rev C modules.• Corrected T-code in document footer.• Added additional setup information and safety precautions.• Added regulatory compliance statements. |

1 Product Description

1.1 Overview

The eDoctor, formerly known as the Respiratory Rate Sensor, is a small, light, battery powered LoRaWAN sensor that is worn around the chest (upper torso) to monitor and periodically report the user's skin temperature, heart rate, respiratory rate, chest expansion, body position, and their physical activity status. The eDoctor also measures and periodically reports the remaining battery lifetime.

The eDoctor is configured to send uplinks every 5 minutes by default while the device is being worn. For more information on all the available Over-the-Air configuration options, see the eDoctor Technical Reference Manual located on the TEKTELIC support portal.

1.2 Specifications

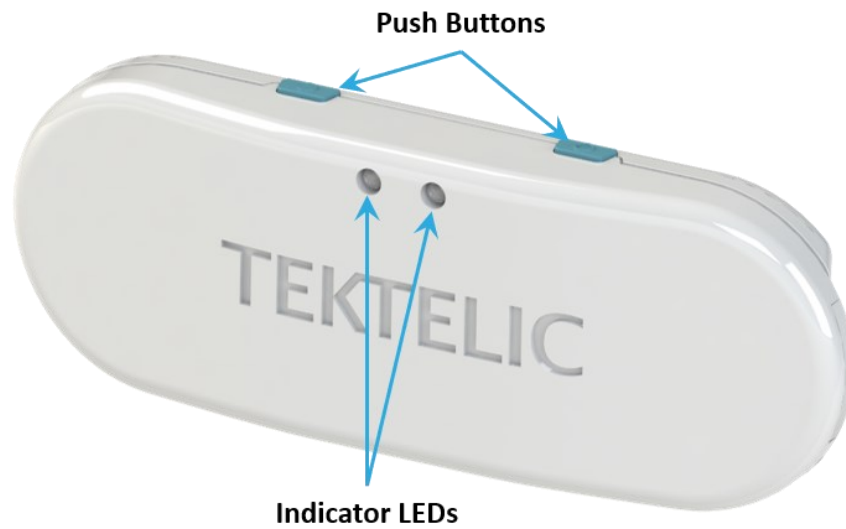
The eDoctor specifications are listed in Table 1-1.

Table 1-1: eDoctor Specifications

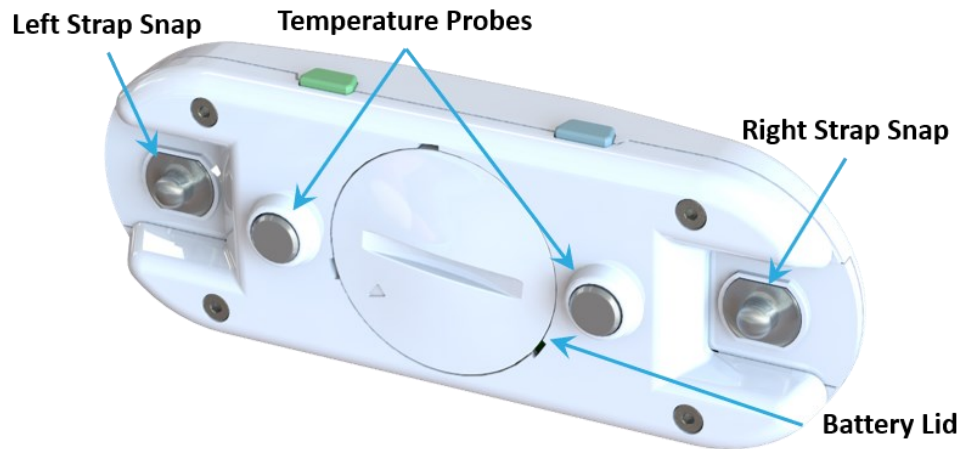
| Parameter | Specification |
|-----------------------------------|--|
| Use environment | Indoor professional and home healthcare environments |
| Size | eDoctor: 105 mm x 38 mm x 18 mm Chest Band: up to 1450 mm x 2 mm x 30 mm |
| Weight | eDoctor: 53.8 g (with battery) Chest Band: 28.8 g |
| Power source | Battery operated (Panasonic CR2477) with reverse polarity protection |
| Network technology/Frequency band | LoRaWAN with different regional variants |
| Air interface | LoRa |
| Sensor lifetime | 2-3 months |
| Maximum transmit power | 14 dBm |
| Number of indicator LEDs | 2 (one red and one green) |
| Number of push buttons | 2 (one blue and one green) |
| Sensing functions | Skin temperature, heart rate, respiratory rate, chest expansion, body position, and physical activity status |

1.3 Interfaces

Figure 1-1 shows the enclosure and external interfaces of the eDoctor. Two indicator LEDs (one green and one red) are present on the front of the enclosure, while two push buttons (one blue and one green) are accessible on the top of the enclosure. There are two strap snaps on the back of the enclosure so that the device can be attached to an adjustable strap for different chest sizes.



(a) Front View



(b) Back View

Figure 1-1: eDoctor External Interfaces

2 Setup and Operation

2.1 Included Product

The following items are included with each sensor:

- An eDoctor
- Adjustable chest strap
- Quick start guide

2.2 Safety Precautions

The following safety precautions should be observed:

- The eDoctor strap is intended to be worn around the chest only.
- The eDoctor contains a lithium coin cell battery.
- NEVER allow small children near batteries: if a battery is swallowed, immediately seek medical attention.
- To reduce risk of fire, explosion or chemical burns: replace only with an approved 3 V CR2477 batteries; DO NOT recharge, disassemble, heat above 100°C (212°F) or incinerate battery.

2.3 Unpacking and Inspection

The following should be considered during the unpacking of a new eDoctor:

1. Inspect the shipping carton and report any significant damage to TEKTELIC.
2. Unpacking should be conducted in a clean and dry location.
3. Do not discard the shipping box or inserts as they will be required if a unit is returned for repair or re-configuration.

2.4 Required Equipment

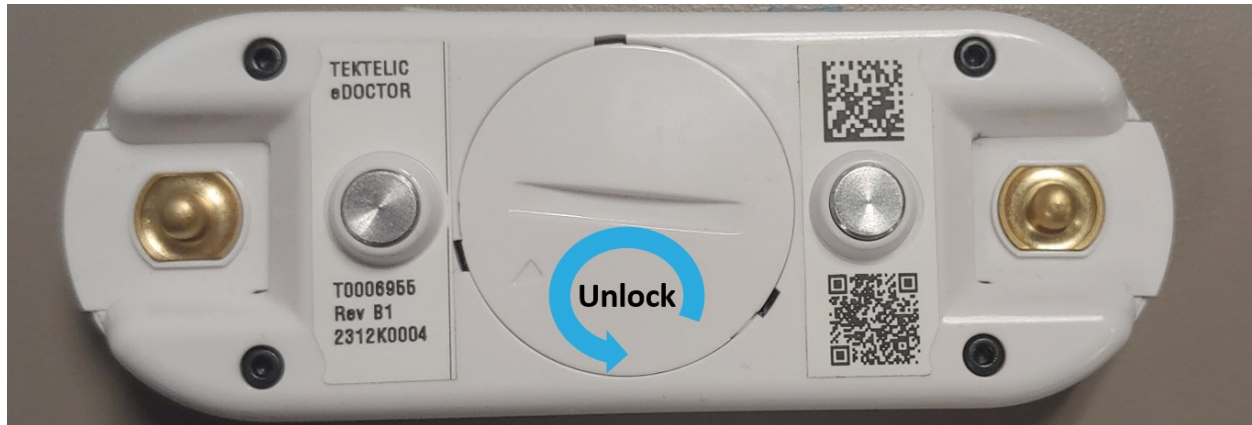
No special equipment or tools are required to power or operate the eDoctor.

2.5 Instructions for Use

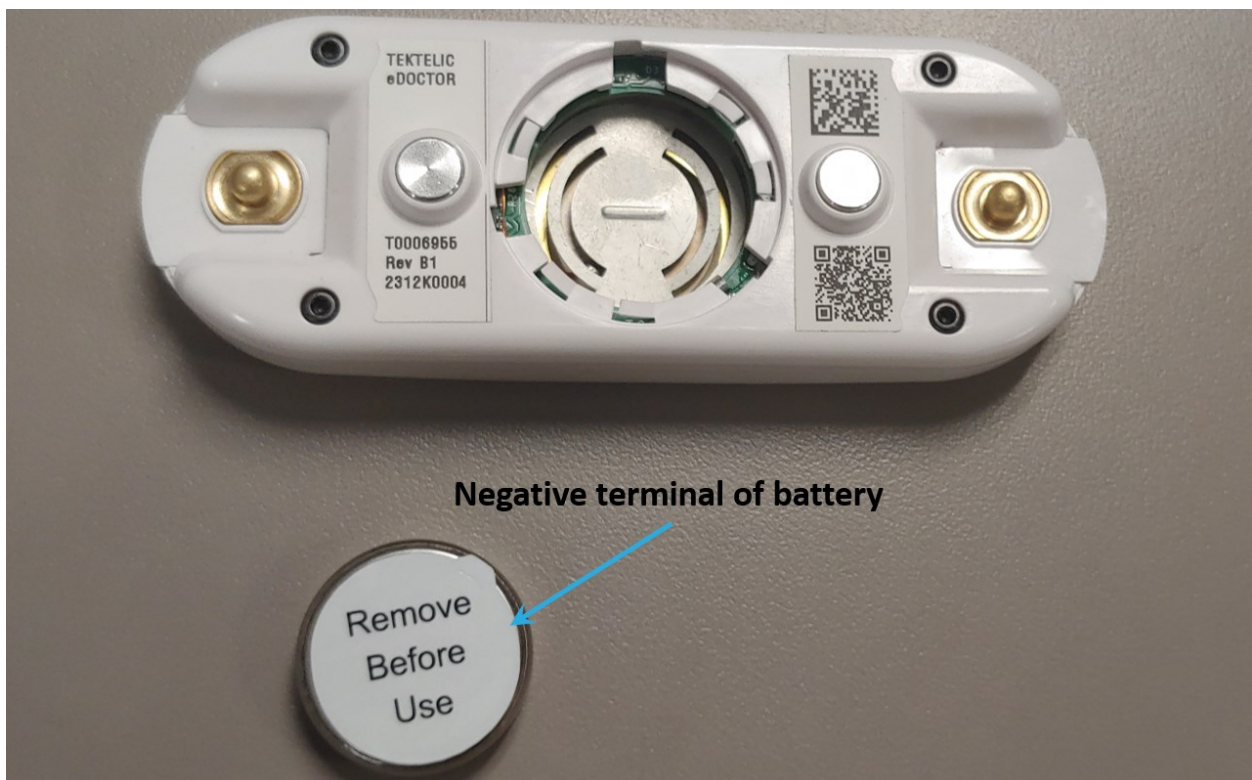
The eDoctor is shipped with a battery installed and a sticker on the negative terminal of the battery. Removing the sticker and re-inserting the battery will activate the device. After the sticker has been removed, the battery must be removed to turn off the device.

Before activating the device, ensure that the eDoctor is provisioned on your LoRaWAN Network Server before proceeding with the instructions below. One way to provision your device is by downloading the TEKTELIC eDoctor Mobile App available on iOS and Android and following the app's setup instructions.

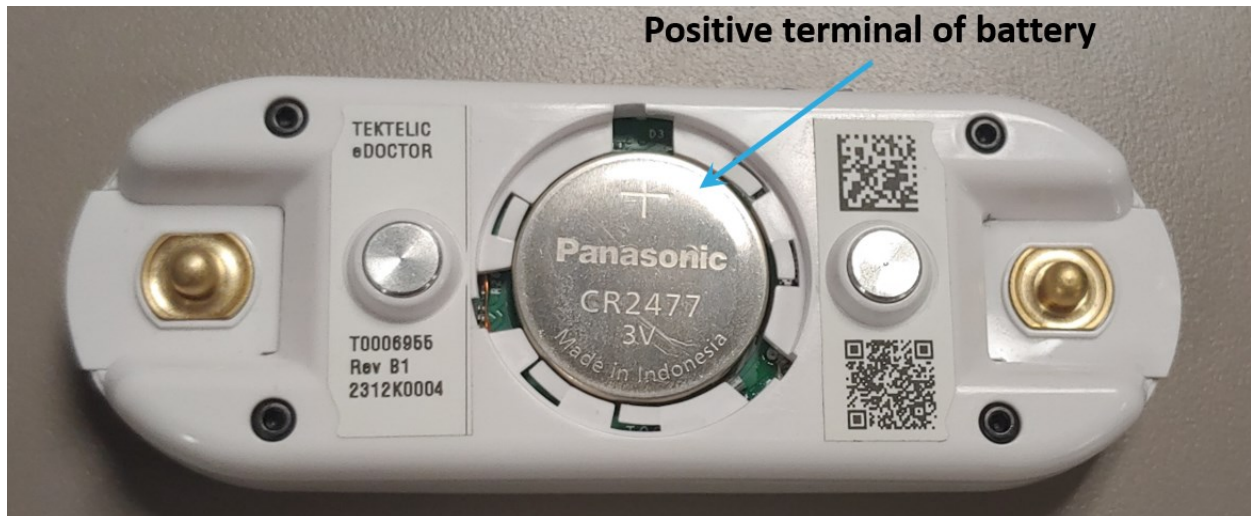
1. Locate the battery lid on the back of the eDoctor. Rotate the lid counter clockwise using your hands or a small object (e.g., a coin) to unlock it, and then remove the battery lid from the device.



2. Remove the battery from the battery holder. Peel the sticker off the negative terminal of the battery.



3. Place the battery back inside the eDoctor so that only the positive terminal of the battery is visible. Align the battery lid so that the arrow is pointing to the bottom left, and turn the lid clockwise to lock it in.



4. After a few seconds, the LEDs on the eDoctor should start blinking, showing that the eDoctor is trying to join the LoRaWAN network. The LEDs will stop blinking once the eDoctor has joined the LoRaWAN network, but you do not need to wait for this to happen before proceeding to step 5.
5. Attach the eDoctor to the adjustable chest strap using the snaps located on both the device and the strap. Make sure that the two metal probes in the middle of the device go through the holes in the strap.



6. Wear the eDoctor with the strap around the chest. It is meant to be worn on the upper torso with the device centered on the patient's chest. Make sure to wear the device so that the two push buttons face upwards.



Note: Adjust the strap length so that the eDoctor sits comfortably on the chest without sagging. Try taking shallow and deep breaths to ensure that the strap is adjusted properly.

2.6 Troubleshooting

If the device remains blinking for more than two minutes (see step 4 in Section 0), then follow these troubleshooting actions:

- Ensure the device is provisioned on the Network Server
- Ensure the local LoRaWAN Gateway has also been provisioned on the Network Server
- Ensure the local LoRaWAN Gateway is online and within range of the device

If you have questions about using this device, please refer to the support portal:

<https://support.tektelic.com/portal/en/>

3 Compliance Statements

Federal Communications Commission

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.

To comply with FCC exposure limits for general population / uncontrolled exposure, this device has lowered its maximum power to comply with SAR limits for wearable devices and must not be co-located or operating in conjunction with any other transmitter.

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

Innovation, Science and Economic Development Canada

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:


- (1) This device may not cause interference.

- (2) 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:

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

California Proposition 65:

 **WARNING:** This product can expose you to chemicals including lead, nickel, and carbon black, which are known to the State of California to cause cancer, birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.