ASSA ABLOY
Logistic Security Solutions

Biometric Wristband- User Manual

BWB01 - V0.4

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1 Overview

This document is a user manual for Assa Abloy's Biometric Wristband. The Biometric Wristband is a wearable device designed to hold a set of credentials allowing a user identified with a fingerprint scan to open locks supporting Assa Abloy's PoT protocol for BLE (Bluetooth Low Energy) enabled locks.

Credentials are temporary keys delegated by the lock owner to the user of the Wristband. The set of credentials, or PoT Delegations, onboard the Wristband is automatically updated from the supporting Assa Abloy Service Backend system.

Delegations can be used to open a lock when the Wristband and lock are within range for Bluetooth communication. The Wristband will connect with any lock that it has a valid Delegation for. It will be up to the lock to validate the Delegation and decide if it is ok to open or not.

Figure 1 The Biometric Wristband - BWB01

The Wristband is "always on" and requires minimal interaction. It includes two LED indicators, a buzzer and a fingerprint sensor. LEDs and buzzer are used to provide feedback to the user about successful/unsuccessful fingerprint scans, lock openings, low battery and other actions and states.

The Wristband will periodically connect to the Service Backend and check for changes in the set of Delegations. The communication with the Service Backend is managed by Wristband Connect, a required BLE Gateway App for Android available on Google Play. The Wristband Connect app must be installed on an Android smartphone that is connected to the Internet using 3G/4G or Wi-Fi.

1.1 Document History

Version	Date	Editor(s)	Description	Reviewed by
0.1	2018-05-21	Ulf Wingstedt	First version	-
0.2	2018-06-14	Ulf Wingstedt	Added product model, battery/charging requirements.	-
0.3	2018-08-20	Ulf Wingstedt	Updated battery capacity. Added Compliance and battery handling sections.	-
0.4	2018-09-07	Ulf Wingstedt	Added compliance text for Canada.	-

2 Getting to know your Wristband

The Wristband has a durable and weatherproof construction consisting of an IP67 sealing for the electronics and an adjustable wristband. It is designed to be carried on choice of left or right arm, on the outside of the user's clothes for easy access.

2.1 Use of LEDs and vibrations

The Wristbands use LED indications and motor vibrations to provide feedback of successful or failed events.

2.2 Compliance

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.

This Wristband 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 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.
- When charging, 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.

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

This device contains license-exempt transmitter/receiver that comply with Innovation, Science and Economic Development Canada's license-exempt RSS.

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

3 Setting up your Wristband

In order to be used to receive digital keys and open locks, Wristbands must

1) Be deployed for the user's organization account
2) Be assigned by the account administrator to a particular user.

3.1 Deployment of new Wristbands

New Wristbands are delivered to customers in virgin mode and must first be registered for an account by an authenticated account administrator. The administrator will use the Wristband Connect smartphone app to claim ownership of new Wristbands which will enable them for assignment.

The next step is to make them operational for users.

3.2 Assign Wristband to User

Authenticated account administrators using the Wristband Connect app can select a Wristband for a user and initiate an assignment process. This process includes storing name and user id in the Service Backend, and enrollment of two finger prints for biometric identification.

1) Account admin selects a Wristband in the Wristband Connect app.
2) The Wristband must be placed within Bluetooth range from the smartphone.
3) Provide name and user id for the user. The required user id is used to connect the requested digital keys to a particular user.
4) The Account admin initiates the assignment process using the app.
5) The Wristband picks up that an assignment is pending and starts the finger print enrollment process.
6) Completion of the enrollment requires 5 successful finger prints per finger. If a scan fails, try again.
    a. Waiting for next finger: 5 yellow blinks
    b. Fingerprint accepted: 1 green blink, short vibration
    c. Fingerprint failed: 3 red blink, long vibration
    d. Full enrollment sequence completed: 10 green blinks
    e. Enrollment sequence failed: 10 red blinks
7) With the full enrollment sequence completed, the Wristband is operational and ready to be used with digital keys.
    a. Note that the user must have the Wristband Connect app installed to enable sync with Service Backend. See section below about installation of Wristband Connect.

3.3 Re-assign Wristband to new user

A Wristband that has already been assigned to a user can be re-assigned to another user.

1) Account admin selects a Wristband in the Wristband Connect app.
2) Place the Wristband within Bluetooth range from the smartphone.
3) Account admin clears currently assigned user from the Wristband from the app.
    a. The Wristband is now ready for a new assignment, following the procedure described above.

Note: This method must also be used if a user needs to enroll another finger for improved biometric identification.

4 Wristband Connect – The Companion Smartphone App

The Wristband's communication with the Service Backend is managed by Wristband Connect, a required Bluetooth Gateway App for Android.

Figure 2: The Wristband Connect app establishes a Bluetooth hotspot for the Wristband's communication with the Service Backend.

4.1 Installation

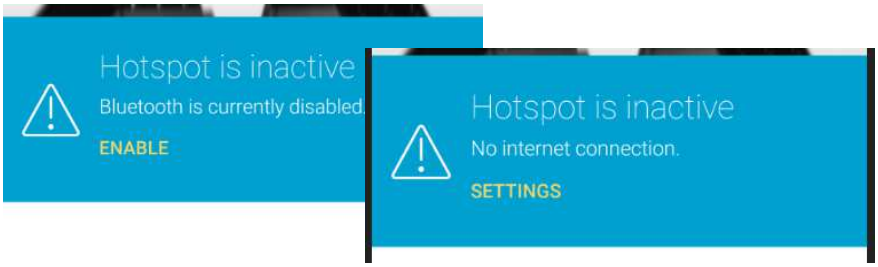
Wristband Connect is available on Google Play. It must be installed on an Android smartphone that is connected to the Internet using 3G/4G or Wi-Fi.

4.2 Verification of Wristband to App Connectivity

1) Enable Bluetooth on the smartphone
2) Open the Wristband Connect app
3) Put the Wristband within Bluetooth range for the smartphone (less than 5 m)
4) Check the LED status light on the Wristband
    a. Slow blue blink indicates that the Wristband is scanning for a Bluetooth connection
    b. Fast blue blink indicates that the Wristband is connecting to a device
    c. A fixed blue light indicates that the Wristband has connected to a device
5) Check the blue status area in the Wristband Connect home screen. If connected, it will show the MAC address of the connected wristband (see Figure right)

4.3 Verification of App to Internet Connectivity

The blue status area in the Wristband Connect shows if Bluetooth and/or Internet is not available on the smartphone. It includes a link to adjust the settings on the phone.



5 Battery Life and Charging

The Wristband includes a Li-ion battery that must be charged using the supplied battery charger.

The charging clip attaches to the pins located on the backside of the device.

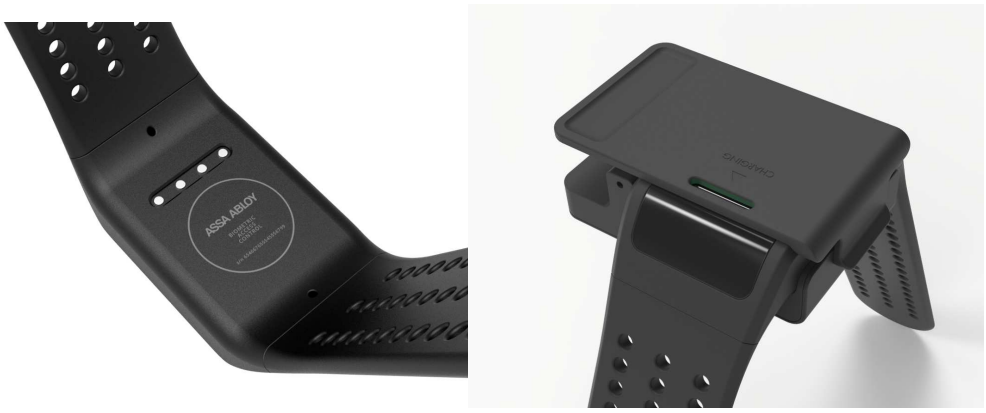


Figure 3: Wristband with pins for charging (left) and with charging clip attached (right)

The battery will support the Wristband up to 168 hours (one week) in standby mode, and more than 30 lock openings during a 12-hour period.

The Wristband must be charged using the supplied charger. The charging time is typically less than 60 minutes. Note that the battery should not be charged in higher temperature than 60 degrees C.

A fully charged Wristband is indicated by a green LED light. When charging, the Wristband's LED shows a blinking turquoise light.

6 Care

6.1 Replacing a wristband

The wristband has two separate straps (top and bottom) that you can swap with accessory bands sold separately.

1. Turn over your Wristband and find the strap screws—there's one on each end where the strap meets the frame.
2. Use a screw driver to remove each strap

6.2 Updating your Wristband

Firmware upgrades are pushed automatically when available from the Service Backend and the Wristband is connected via the BLE Gateway app. The upgrade will eventually take place during charging when download of a new image has been fully completed, no user interaction is required.

7 Troubleshooting

7.1 LED indicators are off

1) Charge the Wristband for 60 minutes.

7.2 Red blinking LED

A red blinking LED indicates that the Wristband is not configured for a particular user and cannot be used to retrieve digital keys from the Service Backend.

1) See section above on “Assignment to User” on how to set up the device.

7.3 Fingerprint not recognized

When a fingerprint cannot be verified, the Wristband LED shows three fast red indications. A successfully identified finger is confirmed by three fast green indications.

1) Ensure that the finger is presented within the fingerprint sensor’s frame
2) Try to present the finger in a different angle.
3) Ensure that your finger is clean and dry
4) Try the second enrolled finger.
5) If the Wristband continues to not recognize the fingers, it needs to be reassigned by the Wristband administrator.

7.4 Cannot open lock

1) Ensure that the Wristband and Lock are within acceptable range, i.e. < 5 meters.
    a. A Wristband that is scanning for lock will show a blue blinking LED.
    b. A connected Wristbands shows a green LED
2) Ensure that the Wristband has been recently synced using the Wristband Connect app.

7.5 Wristband is not charging

When charging, the Wristband LED shows a turquoise indicator.

1) Ensure that the charging clip is correctly positioned and fixed over the Wristband.

8 General info and specifications

8.1 Sensors

The Wristband includes a fingerprint sensor for biometric verification and activation from standby. It has an accelerometer for detection of movements.

8.2 Materials

The strap that comes with the Wristband is made of Nitrile rubber (NBR), a durable form of synthetic rubber that is generally resistant to oil, fuel, and other chemicals. The sealing is made of glass fiber reinforced polycarbonate.

8.3 Wireless Technology

The Wristband includes a Bluetooth 4.2 radio transceiver.

8.4 Haptic feedback

The Wristband includes a vibration motor for feedback and notifications.

8.5 Battery

The Wristband includes a rechargeable Li-ion battery with a capacity of 200 mAh. The battery will support the Wristband up to 168 hours (one week) in standby mode, and more than 30 lock openings during a 12-hour period.

The Wristband must be charged using the supplied charger. The maximum charging temperature is +60 C.

The built-in battery cannot be replaced. A device that cannot be charged should be sent back to the manufacturer or be subject for electronic recycling according to local regulations.

8.6 Memory

The Wristband stores delegated digital keys for a given validity period. It stores an audit trail of usage digital keys that are periodically synced with the Service Backend.

8.7 Operating Conditions

The Wristband is designed to be used outdoors in all weather conditions. With IP-code 67 and temperatures ranging from -40 to +60 C.

The Wristband with the built-in non-replaceable battery needs to be handled with care:

1) Disposals of the device into fire or a hot oven, or mechanically crushing or cutting the built-in battery, can result in an explosion.
2) Leaving a device with a battery in an extremely high temperature surrounding environment may result in an explosion or the leakage of flammable liquid or gas.
3) A device with a battery subjected to extremely low air pressure may result in an explosion or the leakage of flammable liquid or gas.

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Model: BWB01
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Manufacturer: ASSA ABLOY
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