BAC31 Bluetooth Access Controller - EZSmart App User Manual (Version 2)

Introduction and Features:

BAC31, Bluetooth Low Energy (BLE) Controller, is a secure and convenient for Mobile App to access control your office, factory, warehouse or home entrance door, garage door. BAC31 has very wide operating voltages range (**+12V - +24V, DC**) to work with various electric locks and easy to install. Normally it only requires 5-6 wires (Ground / Vin / Sel_Vsource / DO/DI/SI_sensor) connection to work with most of the Electric Lock.

You can easily upgrade your existing “Fail-Safe / Fail-Secure

/ Electric Lock" to use "BAC31 Access Control System" from your smartphone for higher security and efficiency. The BAC31 and the powerful free stand-alone ***EZSmart App*** can issue and revoke up to 40 virtual keys to new users and review the access log to know who comes.

Or **ezSmartCloud App** use cloud base service for smart lock application, the ezSmartCloud App has unlimited virtual key to share and manage by cloud server for instant access through your smart phone. But cloud base App may has additional service due to the Cloud Sever and Two-Factor Authentication message fee.

The BAC31 does support BLE Key Fob (remote control, an alternative optional for smartphone is not present) for office manager to unlock the entrance door up to 10 meters distance after visitor ringing a doorbell. The BAC31 is not only let you to unlock your existing Electric lock by conventional Electric lock methods and provide digital access and monitoring capabilities, in other word, it is perfect add-on Item to most of the Electric Lock.

The EZSmart App allows you to grant or revoke access to a third party's smartphone by secure QR Code or email. This virtual ekey cannot be duplicated or transferred to other devices. With GPS function and correctly calibrating with the EZSmart App, the App can identify indoor and outdoor areas. This will prevent the possibility of accidentally unlock by "Near-Field unlock function".

(Or ezSmartCloud App, which will has separated user manual, only one of these App can be used for your access control system).

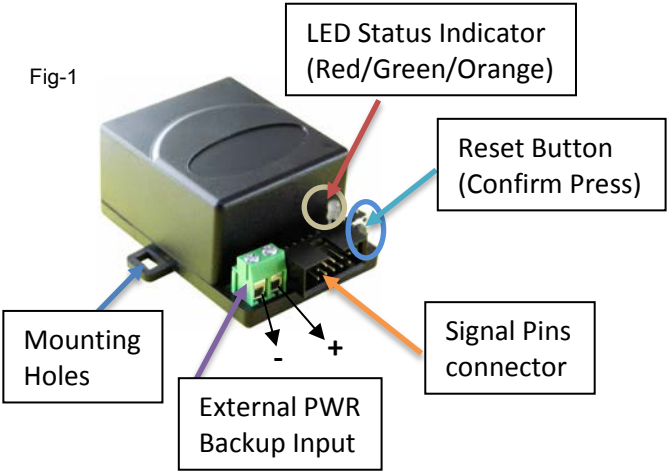
BAC31 BLE Controller Specification:

1. Connectivity: Bluetooth 4.0/4.2 (Bluetooth Low Energy)
    - Effective Distance: 10 – 20 meters
    - Current: Start 8 mA, Standby 4 mA
    - App Support: iOS (10+; 64 bits OS) and Android (5.0 - 8.0+)
    - Compatible Devices: the current iPhone / iPads models
    - Popular Android Devices with OS 5.0+
2. Dimensions: 62 x 44 x 30 mm
3. Weight: 30 g
4. Operation Voltage: +12V - +24V DC
5. Relay Out Pin current: 3 A maximum
6. One Relay Out Port (Dry Contact): NO; NC; Common
7. Exit Door Button Detection input. (For Unlock function)
8. Door position sensor input. (For Lock / Unlock State)
9. Battery Backup Input pin.
10. Auto Lock Timer will trigger when Door is in close position. (Default setting is 6 seconds)
11. Fail-Safe and Fail Secure compatibility: Software selectable.
12. Bluetooth Key Fob available.
13. Application: Any Electric Locks type (Included Fail-

Safe/Fail Secure). Garage door through Exit Button connection.

14. EZSmart App for Android / iOS are available (40 ekey/users).
15. ezLockCoud App has unlimited eKeys and users.

Fig-1



LED Status Indicator:
Red – Electric Lock/Strike/Bolt in **Lock State**.
Green -- Electric Lock/Strike/Bolt in **Unlock State.**
Orange – In registration mode or reset to **Default State ("000000" passcode).**

Signal pins assignment:

Wiring Gage is 22 AWG. BAC31 module need to be near to Electric Strike or Push-Exit Button. Make sure you can have good Bluetooth signal when you standing in front of the door or gate.

Pin	Description		Color
1	Ground : Input		Brown
2	Vin : Input (+12V ~ +24V DC)		Red
3	V+: Output		Orange
4	Sel_Vsource: DO option. ***DO: V-, connect to Ground Pin 1.*** ***DO: V+, connect to V+ Pin 3.***		Yellow
5	DO: Output (V+ / V-)		Green
6	DI-PB: Exit Door button input (Active Low, reference to ground)		Blue
7	Sin_Sensor: Door position sensor input		Violet
8	NO:	Extra Relay Output Port (Dry Contact)	Grey
9	NC:		White
10	COM		Black

Note: Depends on target Electric Lock's input requirement, "DO pin" could output "V+ or V- signal". But most of Electric Strike/Bolt/Lock use "V-"as lock/unlock state trigger.

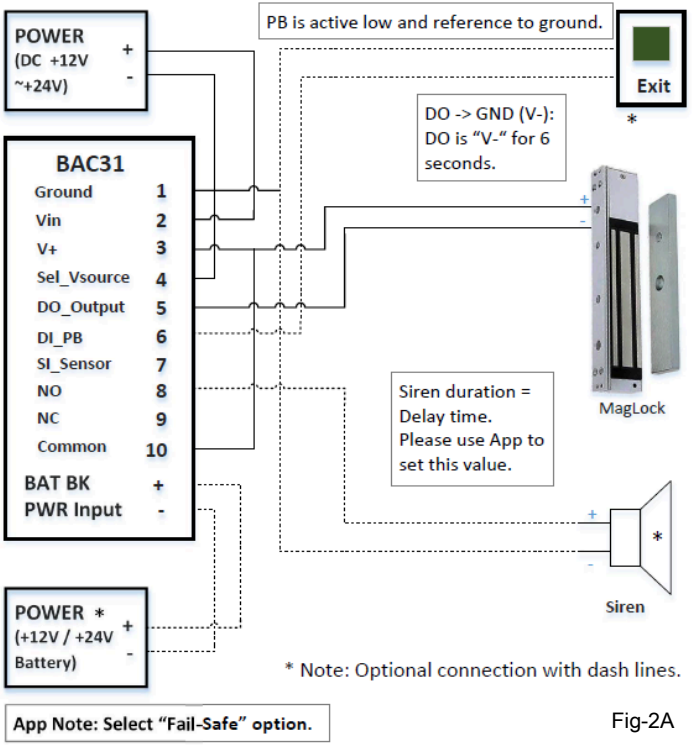
External Backup power input terminal:

1	V+	Red (Right Side)
2	Ground	Black (Left Side)

Output note: DO has max load 1 A / STD 250ms with 0.8A DC. NO / NC has max load 3 A.

Bluetooth Access controller – BAC31

With Electromagnetic Lock (Fail Safe)

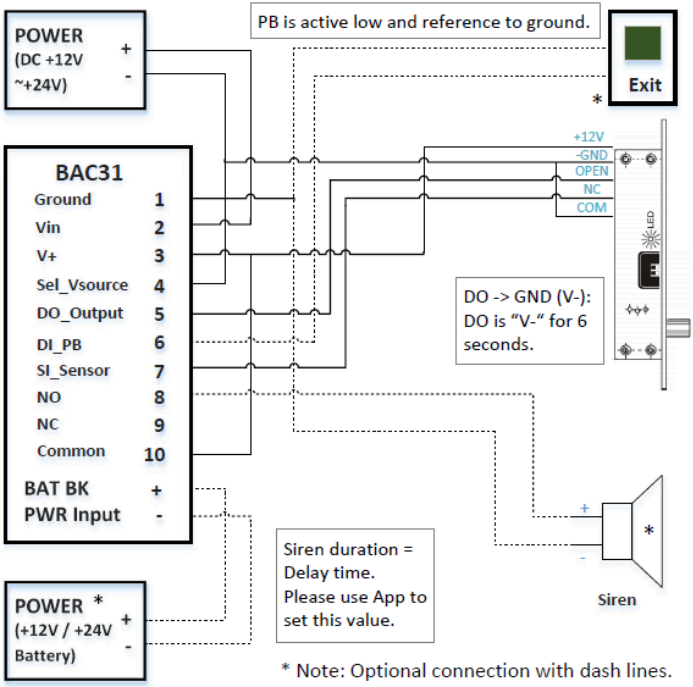


App Note: Select "Fail-Safe" option.

Fig-2A

Bluetooth Access controller – BAC31

With Electric Bolt Lock (Fail Safe with door sensor)



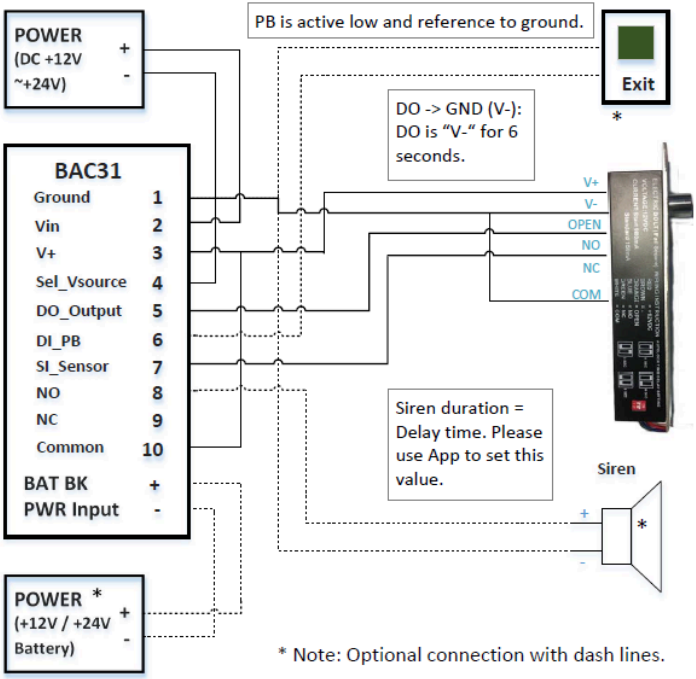
* Note: Optional connection with dash lines.

App Note: Select "Fail-Safe" option.
This type of lock has "Reed Sensor". Lock's hardware uses DIP Switch to select Auto Lock timer.

Fig-2B

Bluetooth Access controller – BAC31

With Electric Bolt Lock (Fail Secure with door sensor)

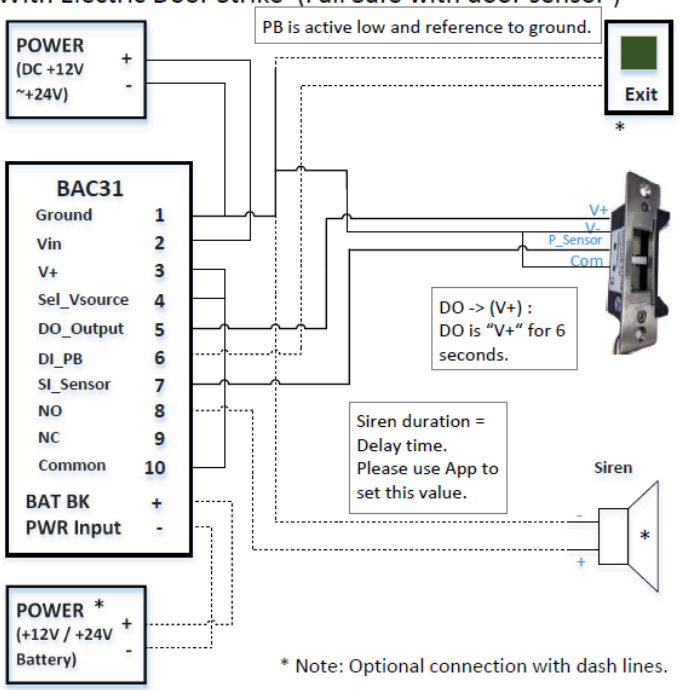


App Note: Select "Fail-Secure" option.
This type of lock has "Reed Sensor". Lock's hardware uses Dip Switch to select Auto Lock timer.

Fig-2C

Bluetooth Access controller – BAC31

With Electric Door Strike (Fail Safe with door sensor)

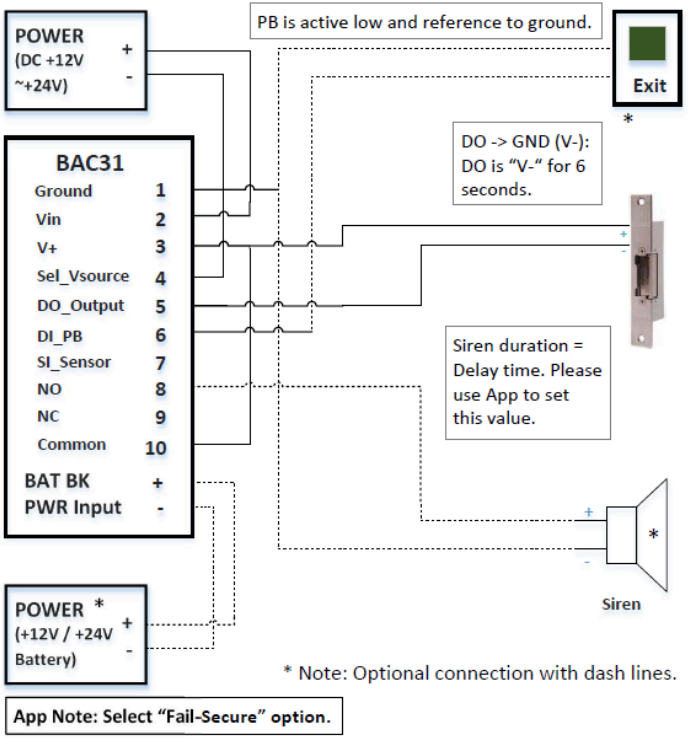


App Note: Select "Fail-Safe" option.
This type of lock has "Position Sensor". When BAC31 detect door in close position, the default Auto Lock timer is 6 seconds.

Fig-2D

Bluetooth Access controller – BAC31

With Electric Door Strike (Fail Secure)



Note 2: Sin_Sensor pin could read Door Status.

Fig-2E

Door is in close position: Sin = High.
Door is in open position: Sin = Low.

Note: If you have "EXIT Button", BAC31 module can be connect to "Electric Strike/Bolt/Lock" or "Exit Button". Whichever is easier and shorter distance to install. External Backup battery and Siren is optional.

Bluetooth Key Fob Specification (Option item):

Connectivity: Bluetooth 4.2, Require Paring with BAC31

Effective Distance: 5 -15 meters (depend on environments)

Voltage: +3VDC

Battery Type: CR2032 X 1

Battery Life: 9 - 12 Months

Energy Saving Mode: Normal in deep sleep, press to wake up

Current: Active 20 mA, Sleep 2 uA

Dimensions: 62 X 36 X 11 mm Weight: 9 g

Note 1: Key Fob has the same security requirement as smartphone. It requires the paring in front of the BAC31. Each Key Fob can only control one BAC31 BLE Controller and up to 10 meters remote

access range. You cannot duplicate this Key Fob without paring with BAC31. Owner's App has full control over all eKey activities. Unlike the RF ID eKey, any RF ID reader can read it and duplicate its eKey code. In other words, Key Fob will be a better and safer option for security concern.

Note 2: Fail-Save or Fail-Secure is software selectable during the installation.

Note 3: "BAC31-N" has 6 seconds auto relock function when "Input pin" detect door is in closed position. (SI_sensor pin must connect to the lock door position sensor; i.e. Reed Sensor)

CAUTION! Incorrect supply voltage may cause damage not covert by warranty. Please check supply voltage with a suitable meter to ensure it is within voltage ranges.

Wiring Instructions: BAC31 is an add-on to your existing Access Control System, please connect these wires as show on "Fig-2A ~ Fig-2E" to your each Electric Lock.
BAC31 "+V" and "Ground" must connect to Power Source and "DO_Output" must connect to Electric Lock.

BAC31 Access Control System App Features and options:
EZSmart App, stand-alone App, has 40 ekys. The sister's Cloud based App, *ezSmartCloud App*, has unlimited ekys. But it requires registration and text message, this may have

additional cost depends on each cell phone plan. You can only choose one type of App to run. EZSmartCloud App will have separate documentation.

1. EZSmart Lock contains 40 sets of unique ID keys:

   ◢One set of Owner eKey, which can assign 9 sets of Permanent (employees) eKeys and 24 sets of Guest (temporary) eKeys. The Guest eKey be deleted and reassigned.

   ◢ Owner eKey and Employee eKeys are available permanently and have unlimited usages. The Owner can grant / revoke the authorization of all eKeys. For the Guest eKey has expiration date / time for weeks, hours and minutes.

   ◢Guest eKeys can be assigned with expiration dates **via email** *(for long distance sharing)* or **QR Code** *(for face-to-face sharing).* Each eKey will be deleted automatically from BAC31 system when it is expired.

   ◢Up to six of Key Fobs were supported by EZSmart, It is designed for non-smart phone user. This Bluetooth Key Fob has to pare with BAC31 system, which cannot be duplicated and does not have expiration dates. Key Fob is optional item, you can order from the authorized dealers.

2. There is a unique ID code for each eKey, which cannot be duplicated or transferred. Each eKey can only be registered once to the APP. Only Owner can issue a shared eKey to all

users (Employee / Guest / Key Fob).

How to setup:

1. Hardware installation

In order to avoid errors and abnormal behaviors of BAC31, please read the electric lock hardware's installation manual carefully before installing. You have to apply DC power to the Electric lock and downloading the App for testing electronic unlock function. ***(The following pictorial is only for reference, the actual application maybe difference. The BAC31 Bluetooth Access Controller is an add-on item for your existing system).***

Because the BAC31 is a miniature size add-on item, please place next or near to "Fail-Safe / Fail-Secure / Electric Locks", the BAC31 is a 2.4 GHz Bluetooth Low Energy device. Please avoid following source of interference: Microwave ovens / Power Sources / 2.4GHz or 5 GHz Wireless routers / 2.4 GHz Wireless Camera…

Installation instructions:

- **a)** Use the Fig-3 as a reference and cut the hole for Lock Body and install the Lock Body and Strike Plate.
- **b)** (How do you mount the Lock's type or Body may

different than this picture. Please apply the good judgment for your application).

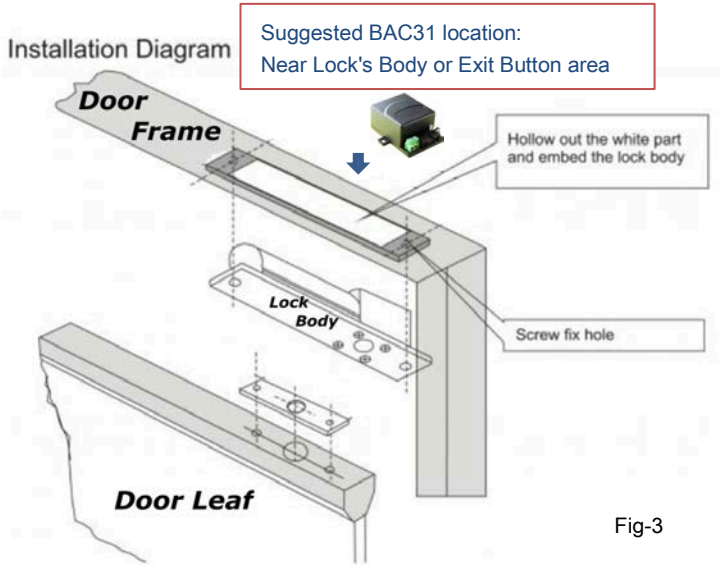


Fig-3

c) Please connect "Fail-Safe / Fail-Secure / Electric Lock" wires to your system and apply the power for Electric Lock test before connect BAC31 BLE Controller. Make sure the Electric Lock works as it should.

d) Use the Fig-2A through Fig-2E, BAC31 wiring diagram, to connect with Electric Lock.

e) Then download the App and follow the BAC31 installation to test with the owner's smartphone.

f) Once the BAC31 can lock and unlock with owner's smartphone without issues. Please use the VELCRO to secure BAC31 or two screws to secure BAC31.

g) Please use “Electric Lock” delay time from lock body to select correct delay time. The BAC31 has 6 seconds auto lock timer after detect door in closed position.

2. Download the APP

(Demo Video Link: EZSmart lock Demo Videos)

BAC31 Mobile App is available from both the Apple App Store and the Google Play Store. Simply download the App and register the ‘Owner Key’ with BAC31 to initiate the system. During the App installation, please accept (iOS App) ‘Access Location’ (Fig-4) and ‘Access Notification’ (Fig-5 / 5a) services option. (Android App has similar terms, please “Allow” and “OK” the request) Without these services, EZSmart lock may not function properly (or limited functions). Both iOS App and Android App follow the UI guideline by the Apple and Google. This user guide will use iOS style for illustration purpose. Either App’s functions have the same or equivalent name/symbol will behave the same as hardware vendors (Android’s device) allow. On Android device we can only test against major vendors. Full compatibilities and performance may vary on each device. Not all Android phone can provide background mode

service. When Android phone has power management utilities, it may turn-off Bluetooth from the background. In this case, the EZSmart App cannot provide background unlock service. You can try to enable / allow "Auto-Start the EZSmart App". This may resolve

Step 1

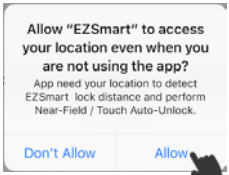


Fig-4

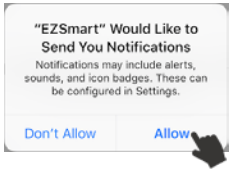


Fig-5

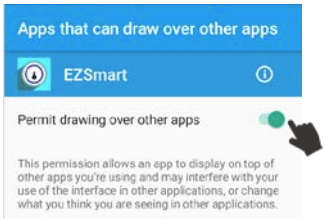


Fig-5a

Step 2: Congratulations! The App has been installed successfully! Please refer to the following steps to operate.

the background mode unlock issue.

3. Register Owner Key to BAC31 System.

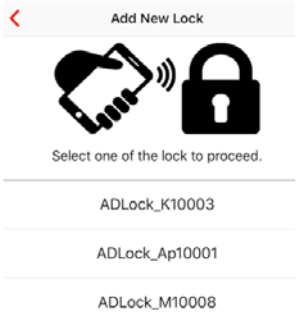
Each EZSmart lock has "**000000**" as default factory's passcode. Please use "000000" for the initial registration. After the initialization processes, the EZSmart lock will automatically generate New Unique-ID and 6-digits passcode. Please keep new passcode in safe place for future reset purpose. ***(Or take a screenshot and email to personal account)***.

Caution Note: Do not share passcode with other people. Anyone knows this passcode can reset and re-register to new passcode. New passcode is for emergency reset, i.e. lost phone / security issues. Use Owner's App to reset the EZSmart lock to New Unique-ID and re-send sharing eKey to existing users.

Once you have done the resting the lock. It will wipe out old encryption key sequence.

a> the following steps are 6-digits passcode (Soft-Reset) registration processes: (All Images shown are for illustration purposes only).

1. From App “+” to Add new EZSmart

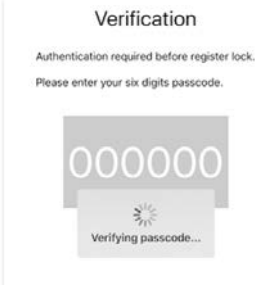


Note 1: Add ADLock_Ap10001 with factory default passcode “000000”.
Note 2: ID as ADLock_**Ap**XXXXX. It will have “V+” signal out for open command.
Note 2: ID as ADLock_**An**XXXXX. It will have “V+” signal out for open command.

2. Request Passcode

Note: Initialized with factory default passcode “000000”.

3. Verify “Passcode”.

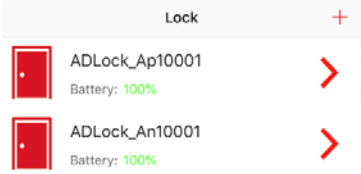


4. Registration with new Passcode

5. Unique Passcode – Important / Save

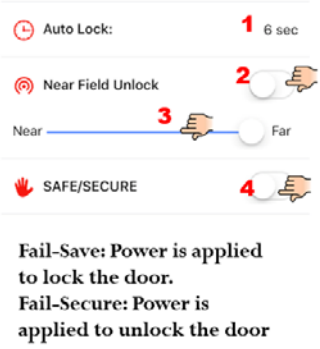
Note: Change New Passcode to "911519".
This passcode is fixed and please keep it in safe place or take a screen shot.
You can only use this passcode to reset the EZSmart or use the hardware reset to change back to "000000" factory default.

6. Registration successful



Note: ADLock_Ap1001 is ready to use.
The battery level is always 100%, because it use power adapter

7. Use “Lock Setting” option



Note 1: Auto Lock Timer is 6 seconds.
Note 2/3: You can use “Near Field Unlock” option to adjust distance between Lock and smartphone. The prefer distance (safe range) < 3.5 feet / 1 meter. But you can use slider to optimize and meet your personal preference. You have to test this feature before you use it.
Note 4: ”Fail-Save / Fail-Secure” is field selectable. You only change this once.
“Disable”: Fail-Secure Option.
“Enable”: Fail-Save Option.

b> the following information provides a more detailed explanation how dose EZSmart lock works.

◢Press ‘+’ to add the Lock to the App. The App will auto scan available EZSmart locks in the vicinity. This may take up to 15 seconds to complete this task (the ‘>’ will appear as shown on Fig-6).

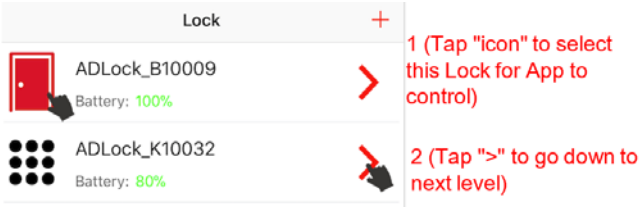


Fig-6

Tip 1: *If you have done the "EZSmart soft reset / hardware reset", you have to delete lock from App first for all known devices, and this will prevent previous devices try to pair with BAC31 by using the old encrypted eKey. This can lockup the system from Registration.*

◢ Use passcode registration steps to complete the EZSmart lock registration. If Owner registration is successful within 10 seconds (some Android may take longer time); EZSmart Lock will beep once to complete registration.

Tip: *If registration fails the first time, please use Hardware Reset procedure and start over again. Or use correct passcode to register again as shown on "Soft Reset with New Passcode" steps.* **Caution note: Incomplete hardware reset will go to "Auto Testing Mode", which will indicate by continuously beeping sound. Please try it again.**

◢ **Lock Setting (Fig-7):**

1. Update the Name Field.

2. Auto Lock period (Predefine by hardware delay time or BAC31 will use 6 seconds auto relock timer after detecting door's in closed position).

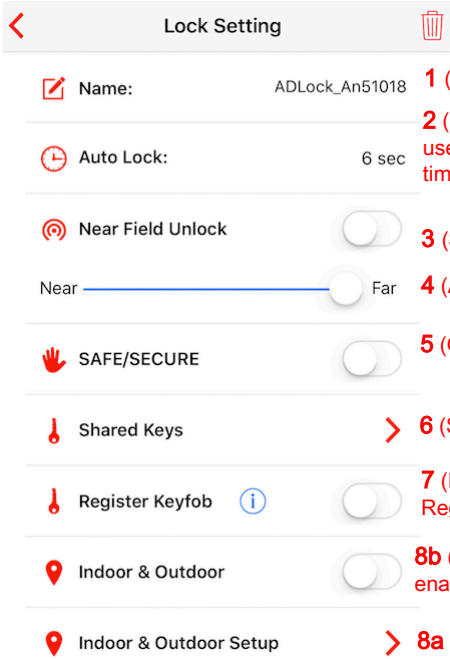


Fig-7

3. "Near Field Unlock" option and unlock distance slider for "Near / Far". ***If you enable this option, EZSmart App has to run in the foreground or background to provide "authentication". When smartphone with protection case, this will affect Bluetooth Low Energy signal strength. You have to manual adjust "Near /***

Far" once to match your "unlock distance preference".

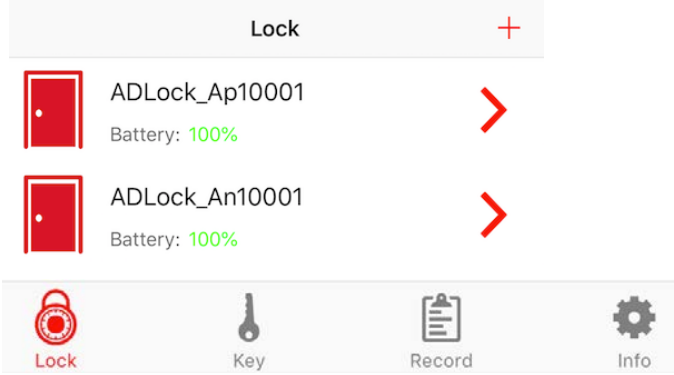


Fig-8

◢ Select **'Lock'** option: To view all paired EZSmart locks (Fig-8)

◢ Select **'Lock-icon'** option: To allow App to control selected EZSmart lock (Fig-9). ***Only in this selection, the App can do "Authentication".***

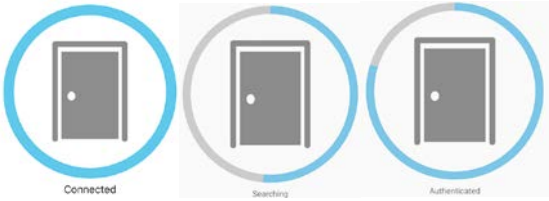


Fig-9

Searching

Authenticated

*Failed Authentication

*Unknown Connection State

Connected
Lock State

Connected
Unlock State

4. EZSmart Mobile App's icon / symbols (Fig-9):

◢**Lock -** Top-level Lock view. It shows available Locks and selection menu. Use '+' to add a new lock.

◢**Key -** Top-level Key view, it shows available key status and selection menu. Use 'Request Key' to send the email to Owner or 'Scan QR Code' for new key. Owner uses 'Share Keys' option to send the 'encrypted key code file' or 'generate QR code' to the requester.

◢**Record / Log -** EZSmart activities log. Only Owner Key can view this log (Activities status only update one per minute).

◢**Info -** EZSmart App's version and App Guide (Fig-10).

Please download "Google Drive" App and Tap "App Guide" to access more EZSmart Lock Web Resources: Demo Video; User Guide and FAQ ….

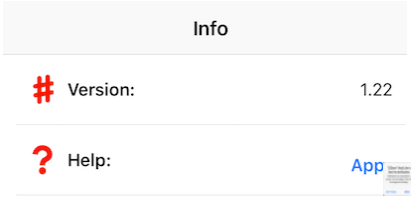


Fig-10

5. Owner Key functions:

Lock-icon: The App only dedicates its effort to control selected lock. Do not swipe-off App from the background, if you want to use Touch-Button Unlock feature without bringing up smartphone and tap EZSmart App. To lock your door, tap the green symbol or Auto-Lock timer countdown is reached, your door will automatically lock.

Lock: Found available EZSmart Locks and option. (Fig-6)

Lock Setting: Each lock detail setting option and battery status. (Fig-7)

Shared eKeys: New User has to download and use the App. (Fig-11)

a> For long distance share ekey uses “**By *Email Method”***.

b> For “Face to Face” uses ***“Scan QR Code Method***”.

Only Owner can generate one time use of new encrypted key code to new users.

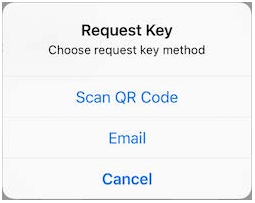


Fig-11

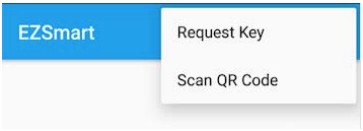


Fig-11a

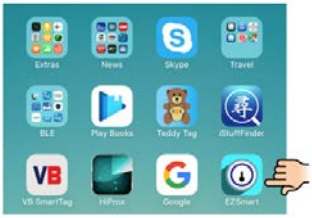
Scan QR Code method (prefer way to share your eKey): QR Code is popular and to use for smart phone equips with camera function. EZSmart App can generate QR Code to send eKey to new user’s smart phone with EZSmart App (Android and iOS). This QR Code has only 5 Minutes Timer. ***For security reason: please do not share this QR Code image for more than one user. After 5 minutes, it will automatic expired for usage.***

Caution Note: Because Bluetooth connection is one-to-one relationship. After eKey sharing step, the Owner's phone should exit from the background (swipe-off) to allow the EZSmart Lock device to connect to New User's Bluetooth device for registration. If you have shared more than one ekey, make sure all phone is

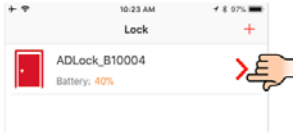
in Airplane mode or swipe-off the EZSmart App during registration new eKey.

From Owner EZSmart App:

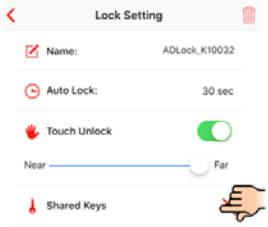
1. Access to EZSmart App



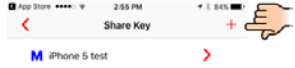
2. Access to LOCK SETTING



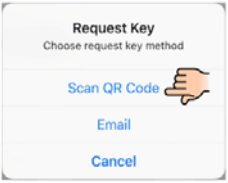
3. Access to SHARED KEYS



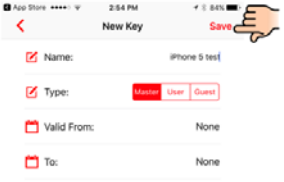
4. ADD(+)



5. GENERATE QR CODE



6. Finish NEW KEY SETTING



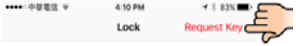
7. Now You got the QR Code

Multi-Users Caution Note:

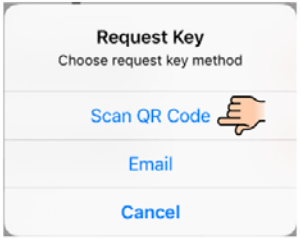
In order to allow multi users coexisting with Bluetooth connection condition, only Owner's smartphone will have Bluetooth connection all the time. All other users (family / guest) allow to instantly access Bluetooth connection from App the first time, after that the App will delay 15 seconds and yield to owner and other users to access the ADLock.

From New User's EZSmart App:

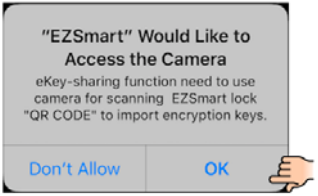
1. REQUEST KEY



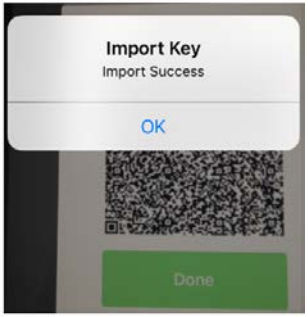
2. SCAN QR CODE



3. OK for Accessing Camera



4. Scan, Import & Done



By Email Method: This method is designed for long distance ekey sharing condition. It is useful for temporary usages by

inviting the guest. New User (guest) has to initiate the request by email ***(provides unique smart phone "ID Code" to Owner)*** and owner can use this "ID Code" from the email and generate the unique bonding code for this phone only and send the secure **"Lock Key"** to the user. New User has to import **"Lock Key"** to the App. Please refer to the next section "Add new EZSmart users: "Sharing eKey by email" for detail steps.

Key Info: The content shows the detail information of individual eKey. Only the Guest eKeys are with expiration period. (Fig-12/13)

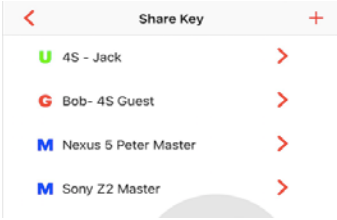


Fig-12

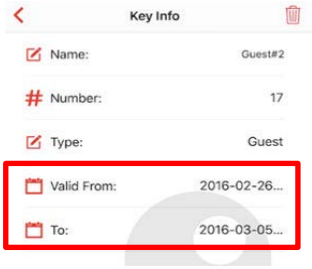


Fig-13

Caution Note 1: Because Bluetooth connection is one-to-one relationship. After eKey sharing step, the Owner's phone should

exit from the background (swipe-off) to allow the EZSmart Lock device to connect to New User's Bluetooth device for registration. If you have shared more than one ekey, make sure all phone is in Airplane mode or swipe-off the EZSmart App during registration new eKey.

Caution Note 2: You are in control: With the Owner's account and Mobile App, you can use the top right icon  to revoke any key from the system.

Your Physical Key is your lifesaver; please keep it in save place for emergency usage.

Multi-Users Caution Note:

In order to allow multi users coexisting with Bluetooth connection condition, only Owner's smartphone will have Bluetooth connection all the time. All other users (family / guest) allow to instantly access Bluetooth connection from App the first time, after that the App will delay 15 seconds and yield to owner and other users to access the ADLock.

How to use EZSmart Lock:

1. To unlock / Lock

There are 3 different unlock methods: App Unlock (Near Field Unlock) / Key Fob Unlock / Physical Key Unlock.

a> App Unlock Select of the "Lock-icon":

- **RED color, means the door is locked state;**
- **GREEN color, means the door is unlocked state.**

Near Field Unlock

Pre-requirement: The ***EZSmart App must run in the background (provide authentication to the EZSmart Device)*** and the distance between ***EZSmart*** and smartphone is **less than *3-5 cm/ 2 inch or control by "Far/Near" slider.** You can unlock the door within 3-5 seconds. **Estimated distance is based on mid-range of Android phone. The distance may vary, because newer smart phone has better BLE range.*

Tips: ***Bring the Smartphone screen-up can speed up BLE connection. You can remove the App from background to disable this function or switch off this feature.***

b> Key Fob Unlock (Optional item)

Once Key Fob has been registered with the EZSmart lock, you

can press key button of Key Fob to unlock / lock. The Key Fob will beep to confirm the action. Use Fig-14 to replace the battery.

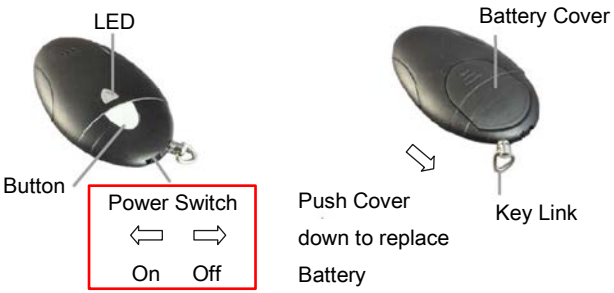


Fig - 14, Key Fob configuration and battery replacement: Before inserting the new battery, please make sure CR2032 battery "**+**" polarity symbol is facing up.

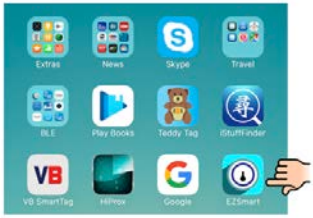
2. Adding new EZSmart users: Sharing eKey by email

New user of BAC31 must install EZSmart App and initiate the 'Request Key' by email. Owner can generate an encrypted key ID Code and email 'Lock Key" back to the user. User will import 'Share Key' file into the App.

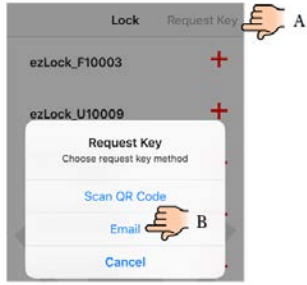
Step 1: New User initiates "Key Request" email

From New User's EZSmart App:

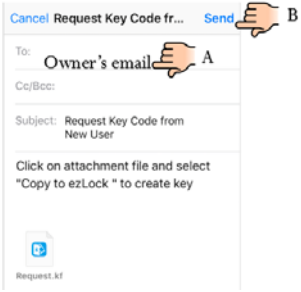
1. Access to EZSmart App



2. Access to Request Key



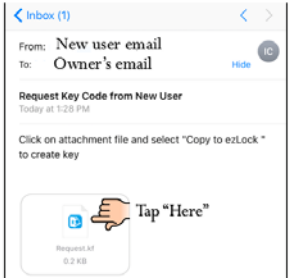
3. Access to SHARED KEYS



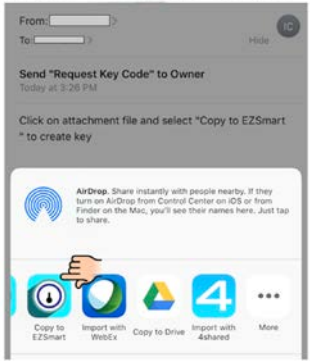
Step 2: Owner imports "Key Request" from email and generates unique ID eKey code.

From Owner's EZSmart App:

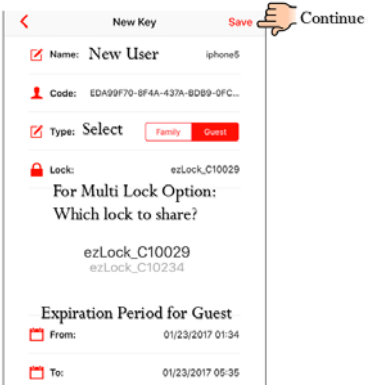
1. Import New User's email attachment



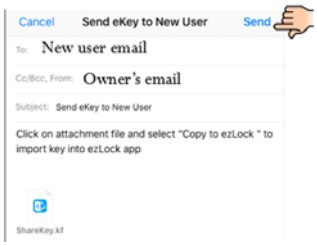
2. Select "EZSmart App" to import



3. Finish NEW KEY SETTING with "Save"



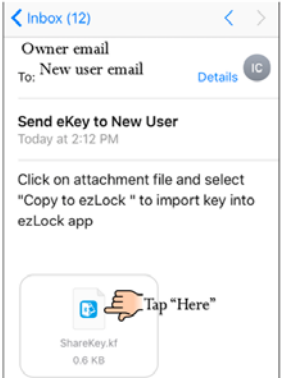
4. New eKey is ready to send



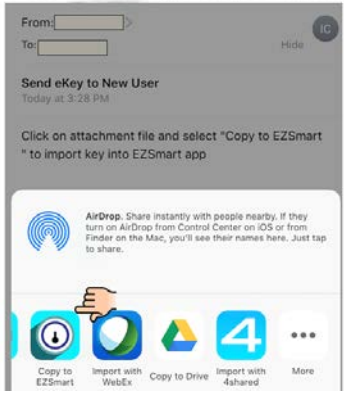
Step 3: New user imports "eKey code" from email

From New User's EZSmart App:

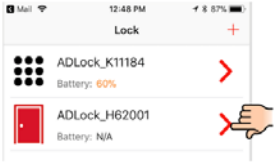
1. New User import eKey from Attachment



2. Use "EZSmart App" to open attachment



3. Finish import eKey and registration



3. Trouble shooting: Hardware Reset and Miscellaneous error messages

(Demo Video Link: EZSmart Lock Demo Videos)

If you lost your Owner Key; Employee Keys or Key Fobs for any reason, you can do a hardware reset to prevent any illegal entry. After resetting the hardware, BAC31 system will generate new sets of unique IDs for all Keys. **Hence, please delete the "Lock" from the App first and then go through the registration process to enable each key as described in previous steps.**

Reminder: ***You have to delete the "Lock" from all user's App within 10 meter (30 feet) radius around BAC31 or turn-off Bluetooth option. The App will prevent previous devices try to pair with BAC31 by using the old encrypted eKey. This can lockup the system from Registration.***

(1) Miscellaneous warning and error messages and solution

If you have following warning and error messages, please follow the suggestion steps to resolve the issue.

① When EZSmart lock is in low battery (less than 10%), the App will pop up ‘Low battery message’ (Fig-15). Please change the battery ASAP. (Standard Electric lock use 10VDC - 15VDC power adapter, if you use battery pack. You will got this message)

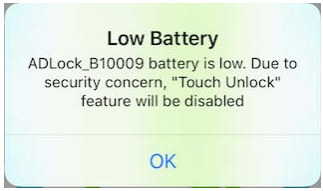
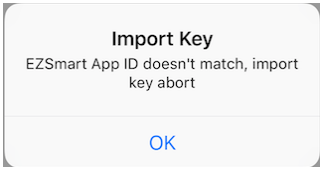


Fig-15

② The following messages come after relative operating errors (Fig-16). You can resolve the most of the issue by deleting ‘Lock’ or ‘Key’ and start over again. Please watch the YouTube Demo Video before the installation.



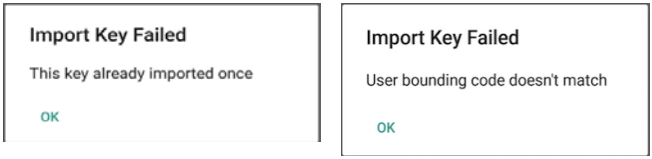


Fig-16

(2). Hardware Reset option for emergency use. (This is not easy to operate, please use the 6-digits passcode from the first registration step for software reset)

In some condition (lost owner's phone or new phone and forgot you 6-digits passcode from setting steps), you can use physical key to unlock the Electric Lock and do the Hardware Reset. After hardware reset, it will reset passcode to default "000000".

Here are steps for these procedures:

Option 1: BAC31: Input Pin connect to sensor.

(Input Pin can detect the door position status)

Step1: Use the physical key to unlock the Electric Lock. (Allow you to access power source of BAC31 BLE Controller from the inside)

Step2: Remove power (unplug power adapter) in unlock position and Apply power back within few seconds time period.

Step3: **After power up the BAC31,** You will **hear a long beeping sound** for 2-3 seconds from BAC31 BLE Controller. **The Red LED will start flashing. You have to lock and unlock the "Fail-Safe / Fail-Secure / Electric Lock" at least twice within 2-3 seconds (Has to finish before beeping sound stop).**

Step4: The BAC31 will perform "Hardware Reset" for you and you will hear confirm beep; beep sound two times for completing the Hardware reset. (The Hardware Reset only has 3 seconds time window, if you do not complete within this time. The BAC31 BEL Controller will abort this procedure. You have to repeat these steps again).

Option 2: Prefer Method. BAC31: Use the "Reset Button" from BAC31.

(It will work with SI_Sensor pin connect or not)

Step1: Use the physical key to unlock the Electric Lock. (Allow you to access power source of BAC31 BLE Controller from the inside)

Step2: Remove power (unplug power adapter) in unlock position and Apply power back within few seconds time period.

Step3: **After power up the BAC31,** You will **hear a long beeping sound** for 2-3 seconds from BAC31 BLE Controller. **The Red LED will start flashing.** ***You can press "BAC31's Reset Button" at least twice within 2-3 seconds (Has to finish before beeping sound stop).***

Step4: The BAC31 will perform "Hardware Reset" for you and you will hear confirm beep; beep sound two times for completing the Hardware reset. (The Hardware Reset only has 3 seconds time window, if you do not complete within this time. The BAC31 BEL Controller will abort this procedure. You have to repeat these steps again).

(3) Key Fob's Registration:

(Note: To avoid the Bluetooth interference, all smartphones have been registered with this "Electric Lock" before. Set them into the "Airplane Mode".)

Key Fob registrations steps:

Step 1: From EZSmart App select this lock and go to "Lock Setting" page and enable "Register Key fob" option.

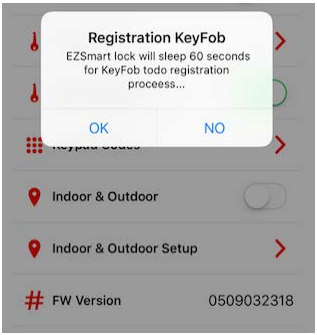


Fig-17

Step 2a: Allow EZSmart App to register (paring with lock from App). During this time App will go to sleep for 60 seconds, stop Bluetooth connection, Key Fob will use this time to do the paring process.

Step 2b: Make sure Key Fob is on "OFF" position (Fig - 14).

Step 2c: In front of the EZSmart Lock (less than one inches, two centimeter), press and hold Key Fob's button (Fig-17) and turn 'Power Switch' to the left (on) at the same time. A rapid RED flashing LED comes up (about 3 seconds), Key Fob is ready to register with the EZSmart Lock.

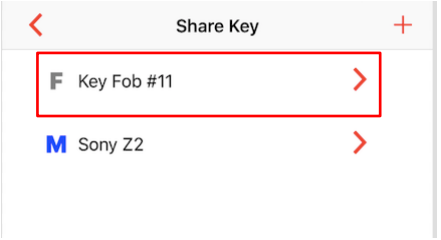
Step 2d: Continue to hold the button and an Orange LED comes up from EZSmart lock. The Key Fob's LED will turn Orange (Fig-17). You are in Registration mode now. **Release the Key Fob button at this time. EZSmart lock will provide a unique ID for the Key Fob to register with smart lock.**

Step 2e: **If Key Fob registration is successful within 30 seconds, the EZSmart Lock and Key Fob will have confirmation beep sound and turn off both LED.** If you do not hear 'Confirmation Beeps' from Lock and Key Fob at same time, please switch off the 'Key Fob' power and repeat these steps again. (The 'Key Fob' is add-on item, EZSmart Lock can support up to 6 Key Fobs. You can order "Key Fob" from the distributors).

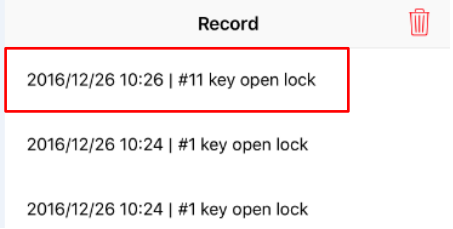
Step 3: Key Fob registration is complete now and press Key Fob button to unlock / lock the door.

(4) Key Fob's features:

①Add Key Fob to EZSmart lock, it will assigned Key# 11 -17 to the App. The App can rename / delete and show up on activities log.



② Key Fob (Key# 11- 17) activities log.



③ Key Fob beeping notifications means:

Function	Beeping Notification
Unlock	One long beeps within 2-3 seconds. Green LED on.

Lock	One long beeps and follows with two beeping sound within 2-3 seconds. Red LED on.
Error	One long beeps after 10 seconds Red LED on.

Appendix A: Advanced Automatic Unlock Once feature.

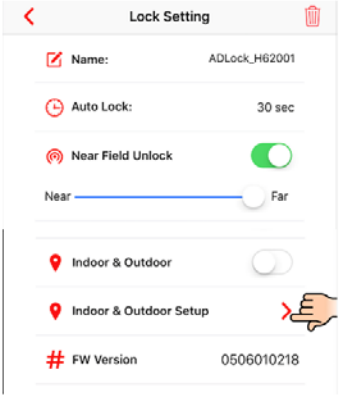
Objective: In order to achieve secure and convenient to unlock your front door / office door when you comes back from the outside of house / office. This feature only allow unlock once from lock's original owner's App.

Pre-requirements:

1. Owner's smart phone with original EZSmart App running on the background. The App will provide unlock authentication purpose. (This version of App only allow Owner has Near-Field Unlock function).
2. Smartphone should enable Bluetooth / Wi-Fi / cell phone network communication functions. The App use GPS function to detect Geo Fence (safe zone) from Indoor and Outdoor setting procedures.
3. You have to walk away from the lock location at least 30 meters / 100 feet. This will use GPS to trigger out of the save zone and enable once unlock function by "Near-Field / Touch" from Owner's smart phone and App.

Indoor and Outdoor boundary setup procedures:

1. Indoor & Outdoor Initialization



Please stand inside of the House / Office and in front of the Lock. Away one meter / 3 feet from the Lock. The App will use GPS and Map to setup Geo Fence and identify indoor and outdoor boundary for Indoor (Save Zone, disable Near-Field / Touch unlock function). Outdoor (away 30 meters / 99 feet, allow unlock once when you approach the Lock from outdoor).

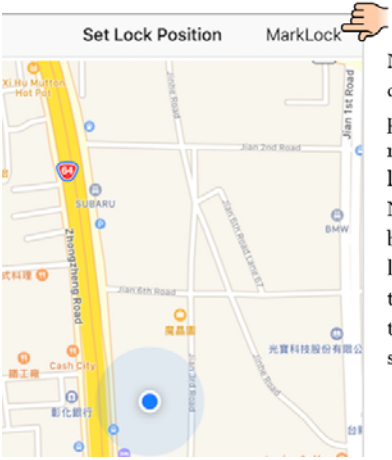
2. Indoor & Outdoor calibration steps:

Note: The App use GPS and Map to guide you through calibration steps. You have to use Wi-Fi and /or smartphone's data plan to get accurate location. This is very important to define indoor (save zone).
Within the save zone area, it only allow you do unlock once. This will prevent from accidentally unlocking. You can turn-off "Near-Field/Touch" unlock function from App, if do not wish to use this advance feature.

3. Symbol definition:

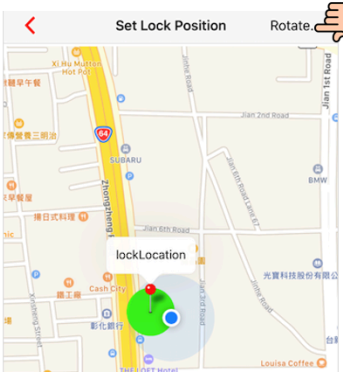
- Red Drop Pin: the current Lock proximity location.
- Blue Dot: your smartphone proximity location. The prefer position is on the outer edge of the safe zone (Big Green Area)
- Big Green Area: Save Zone area, the diameter about 30 meters / 99 feet.
- Background Map should represent you current geolocation.

4. Use "MarkLock" Button



Note 1: Blue Dot is your current position. Rotate your phone to align the Map to match the House / Office location.
Note 2: Use "MarkLock" button to mark current lock location. You can rotate as many time as you wish, the App only take the last one for final setting.

5. Initial DropPin

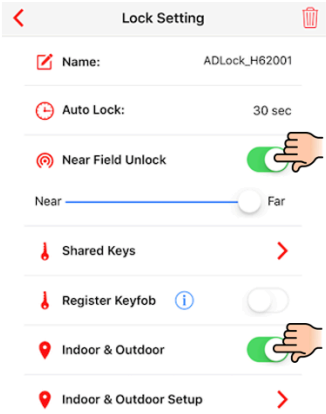


Note : Use “Rotate” button to do the “fine-tune” for setting up the lock’s position in the “Save Zone Area” .
“Rotate” button will turn 90 degree each time, make sure “Big Green Area” can cover your indoor area and “Blue Dot” is represent the person standing outside of the door.

6. Adjust position use “Rotate”

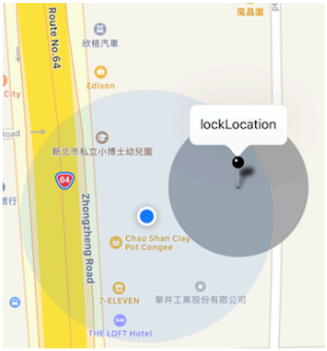
Note : The Big Green Area is your save zone, the Blue Dot is your position from outdoor and Red DropPin is your lock.
You can use this page as testing guide. When you walk away, the Blue Dot will move away.
Note: Once finish the setting, use **“>”** to complete the setting.

7. Finished the calibration



Note 1: You should see "Indoor & Outdoor" switch is in On (Green) state. You can switch off at any time.
Note 2: "Indoor & Outdoor" function only work with "Near-Field / Touch" unlock function.
Note 3: Turn on "Indoor & Outdoor" function will use GPS and it will use more battery energy, you can turn-off while not use this function to conserve the battery life.

8. Out of save zone image



Note 1: If you walk away from save zone area and does not have BLE connection, the Black DropPin will show.
Note 2: You have to out of the save zone for over 30 seconds time to trigger "Unlock Once" function when smart lock can reconnect with BLE.

Rev 1.10 (11/27/2018)

Federal Communication Commission Interference Statement

This equipment 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 Caution: 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. (Example - use only shielded interface cables when connecting to computer or peripheral devices).