

suprema

# BioLite Solo

Standalone Outdoor Fingerprint Lock

## User Guide



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# Safety Instructions

## Installation



Do not arbitrarily install or repair the product.

The warranty does not apply to any product damage caused by an arbitrary installation or repair.



## In Use



Ensure that password does not exposed to unauthorized individuals. Frequent change of password is recommended.

Any illegal access to your product may happen.



Do not operate the product with wet hands and keep the device away from any liquid contact.

It may cause a damage or a failure to the product..



Do not forcibly press the buttons of the product and avoid any contact with sharp object to the device.

It may cause a failure.



Do not clean the device with any form of liquid. Use soft and dry cloth only.



# 1. Before Use

## 1.1 Components

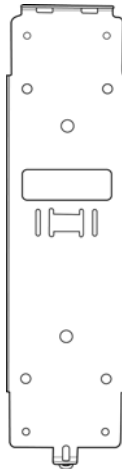
BioLite Solo



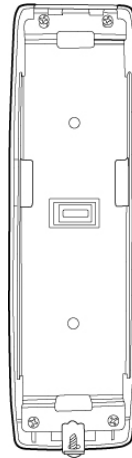
Before Use



**Main Body**



**Wall mounting bracket**



**Extended bracket  
(Option)**



**Fixing Screws  
(2 EA)**



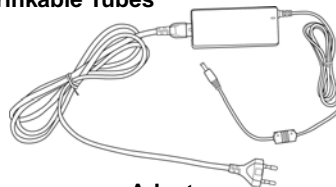
**Knife Blocks  
(2 EA)**



**Shrinkable Tubes**



**Star-shape wrench  
(For fixing bracket)**



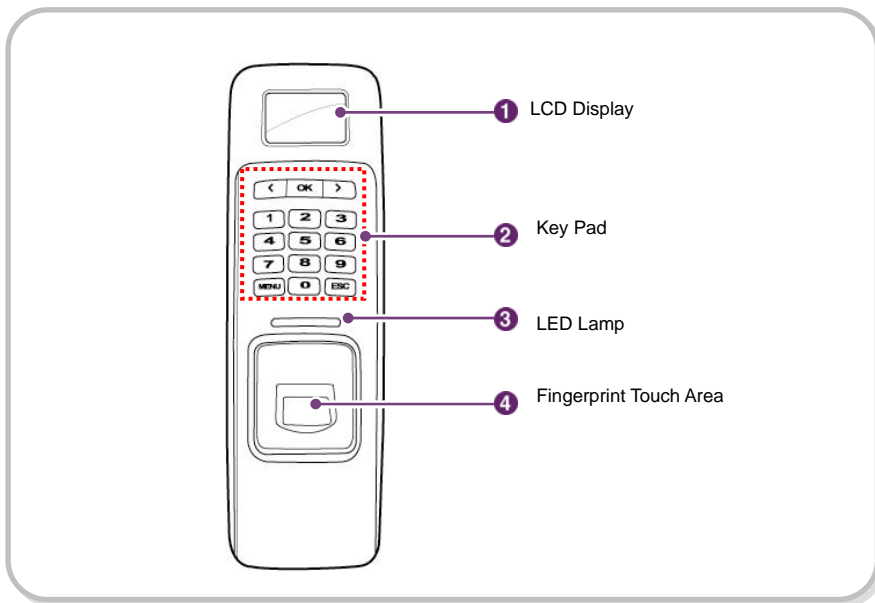
**Adapter  
(Option)**



**Note**

The components shown above may differ depending on the installation environment.

## 1.2 Body



No.	Name	Description
1	<b>LCD Display</b>	The operation status is displayed.
2	<b>Key Pad</b>	0-9 Buttons: Used to enter the ID and password. < > Arrow Buttons: Used to move the selected item. OK Button: Used to select the desired function. MENU Button: Used to enter the menu. ESC Button: Used to exit from the menu or cancel the desired action.
3	<b>LED Lamp</b>	The operation status is displayed with an alert sound. - Green (Sound: beep beep beep beep!): Authorization success - Red (Sound: beep beep beep!) : Authorization failure - Pink (Sound: beep!) : Processing - Blue and Sky Blue blink in turn at an interval of 2 seconds (No sound): Normal operation - Red and Pink blink in turn at an interval of 2 seconds (No sound): Device locked or no administrator - Blue and Red blink in turn at an interval of 2 seconds (No sound): The time is reset due to battery discharge. - Red blinks at an interval of 2 seconds (No sound): Device initialization failure. Please contact with the manufacturer. - Yellow blinks shortly (No sound): Input ready status
4	<b>Fingerprint Touch Area</b>	Used to input a fingerprint for authentication.

## 1.3 Methods for fingerprint input

BioLite Solo can easily recognize fingerprints even though the angle and location of the pattern change. However, it is recommended to properly input fingerprints for more precise recognition.

BioLite Solo



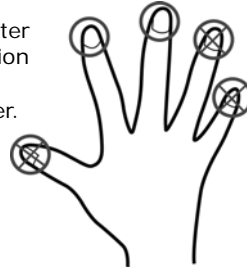
Before Use

### Selecting a finger on fingerprint enrollment

Up to two fingerprints can be enrolled for each user in preparation of any abnormal situation like having a wounded finger or carrying an object with a hand.

In the case of a low recognition, the user can register the same fingerprint twice to increase the recognition rate.

It is recommended to use the index or middle finger. In case of other fingers, the recognition rate decreases because it tends to be more difficult to place the finger in the center of the sensor area.



### How to properly place a fingerprint

Place your finger firmly on the sensor area.

Adjust the finger so that its middle position can be located in the center of the sensor.

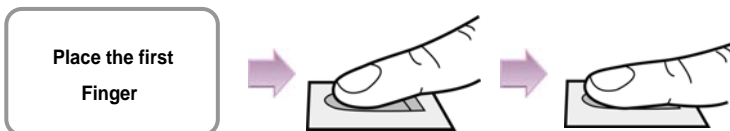
When the finger is vertically placed or its angle goes astray, the recognition may be a failure.



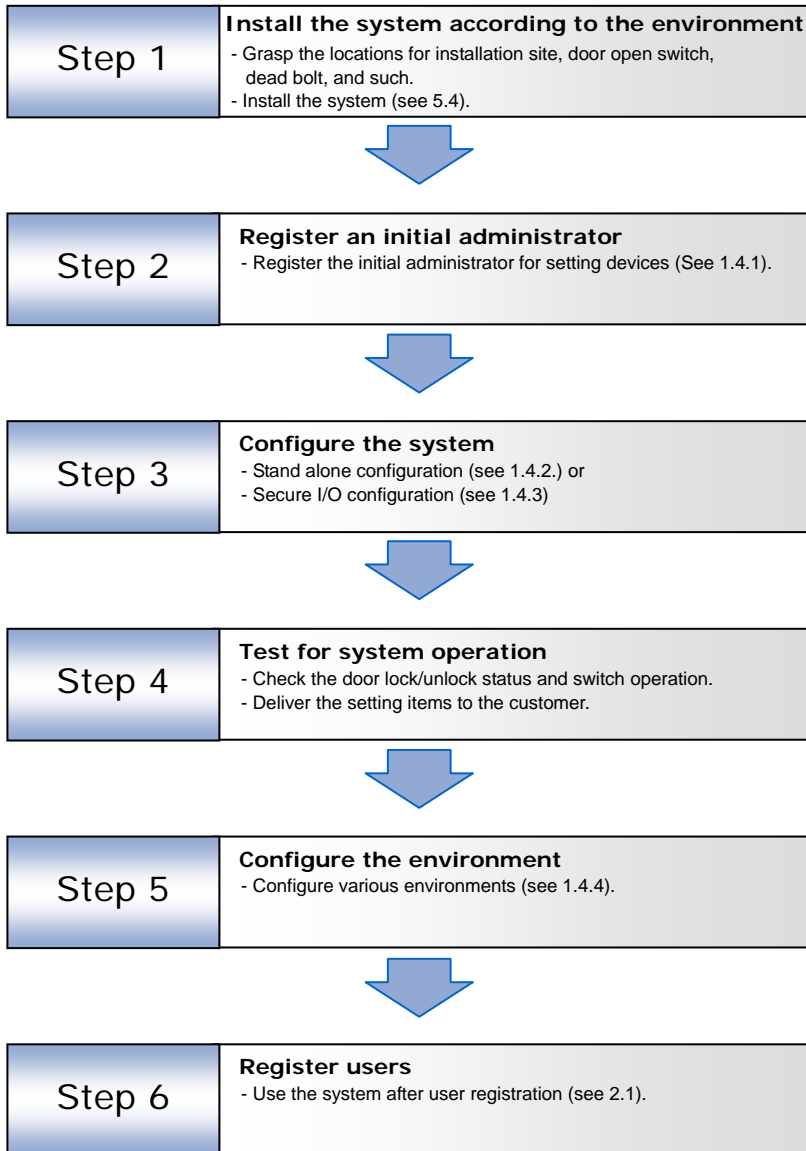
When enrolling your fingerprint, the first finger input window prompts. Then register the desired finger on the terminal as shown in the figure below.

When the re-entry window appears with a "tick" sound, re-enter the previously enrolled finger. The fingerprint input is made twice.

(Gently push your finger on the sensor to have a full fingerprint.)



## 1.4 System setup procedure





### 1.4.1 Registering the initial administrator

There is no administrator set for the product in the initial status. So register an administrator for configuring the environments for relay, door open switch, door open detection sensor, and such.

BioLite Solo



Before Use

1. When the product is connected, a window appears as shown in the right figure. Enter an ID and press **OK**.

Enter ID

1

Enroll Admin

2. When the authorization mode window appears, use ►/◄ buttons to move to **PIN Only**, and press **OK**.

Operation Mode

◄ PIN Only ►

Enroll

3. When the password entry window appears, enter the desired password and press **OK**.

Enter PIN

\*\*\*\*

Enroll

4. When the password re-entry window appears, enter the previously input password again and press **OK**.

Confirm PIN

\*\*\*\*

Enroll

5. The completion message window appears.

Completed



Note

This procedure is necessary to temporarily configure the installation-related settings. Modify the administrator information after the installation is complete.

## 1.4.2 Stand-alone configuration

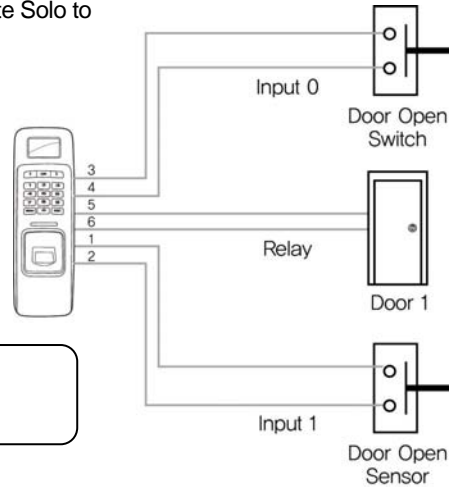
This configuration is the most common installation method.

1. As shown in the figure, connect BioLite Solo to respective switches.

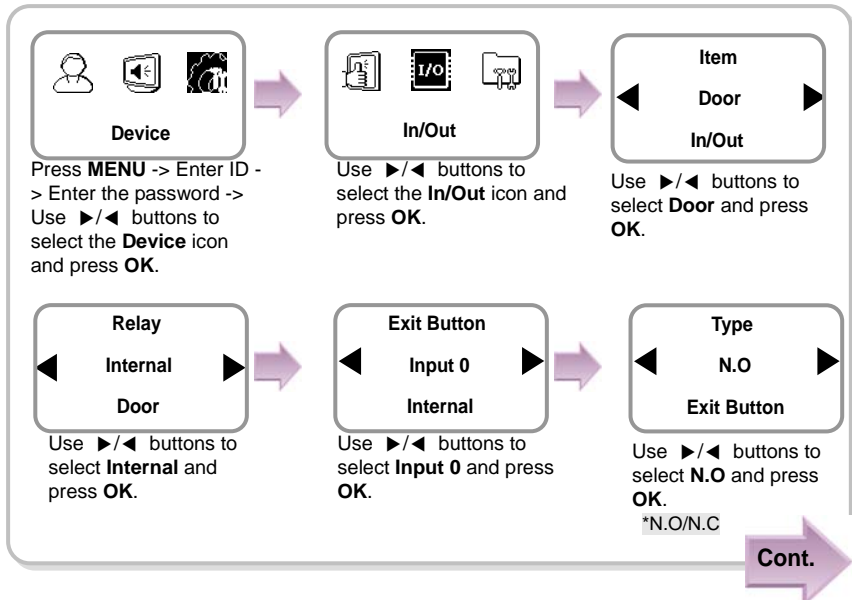
※ See "5.4.6 Installing the bracket."

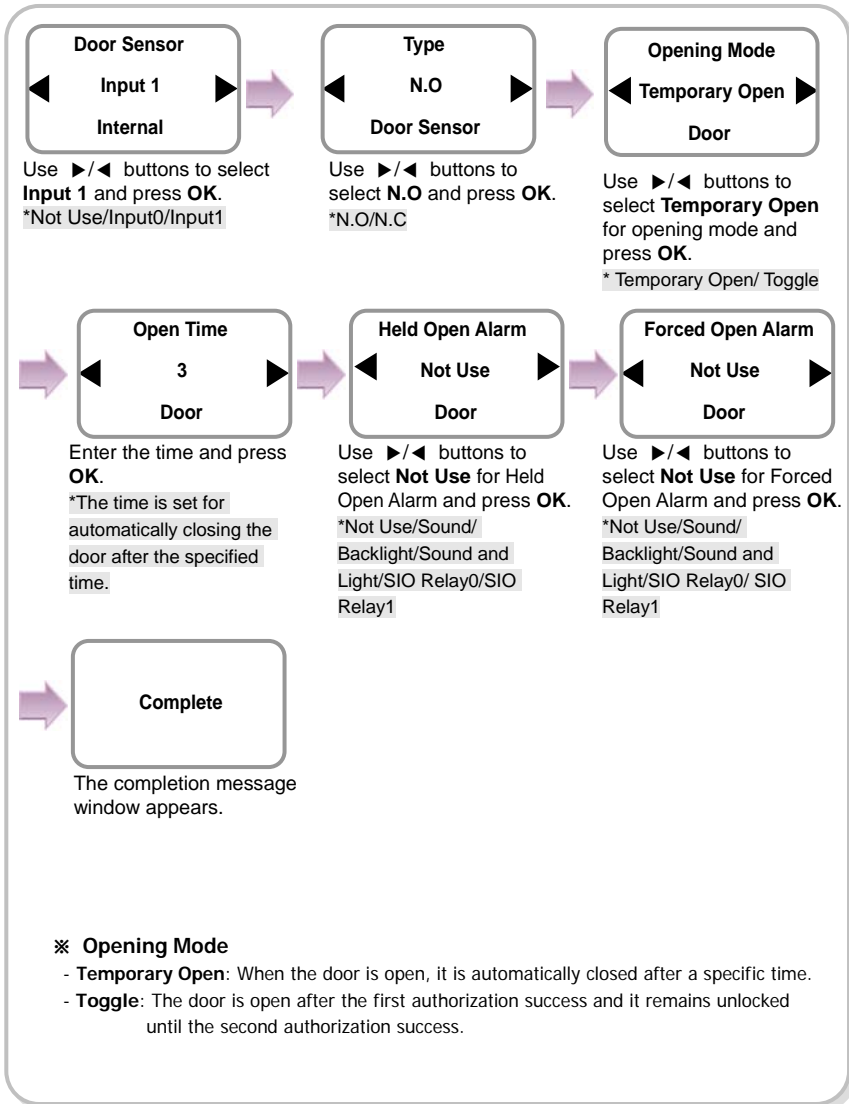


For actual wiring method, see "5.4 System Installation."



2. Configure the internal relay settings as shown below. (It is explained based on the figure above.)





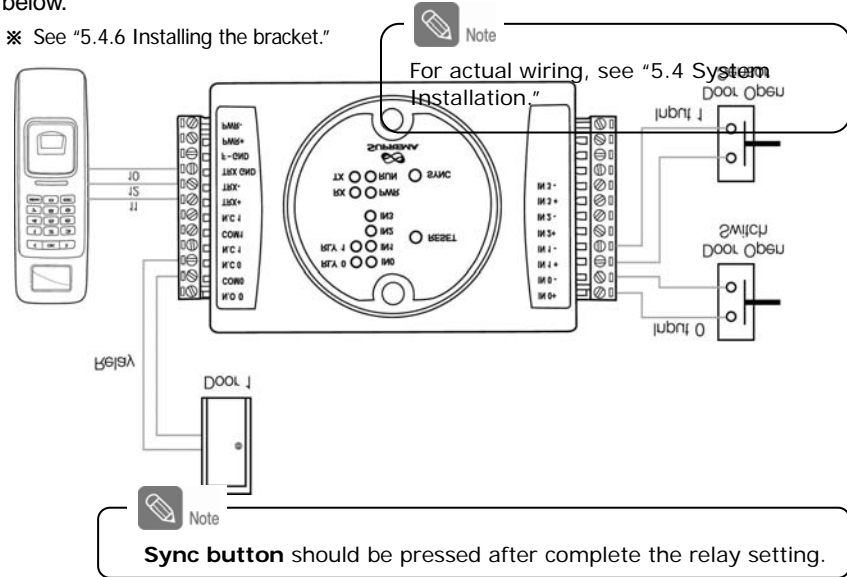
Note

When you exit from the menu before completing the relay setup, the configuration is not stored so please finish configuration until the message "Complete" appears.

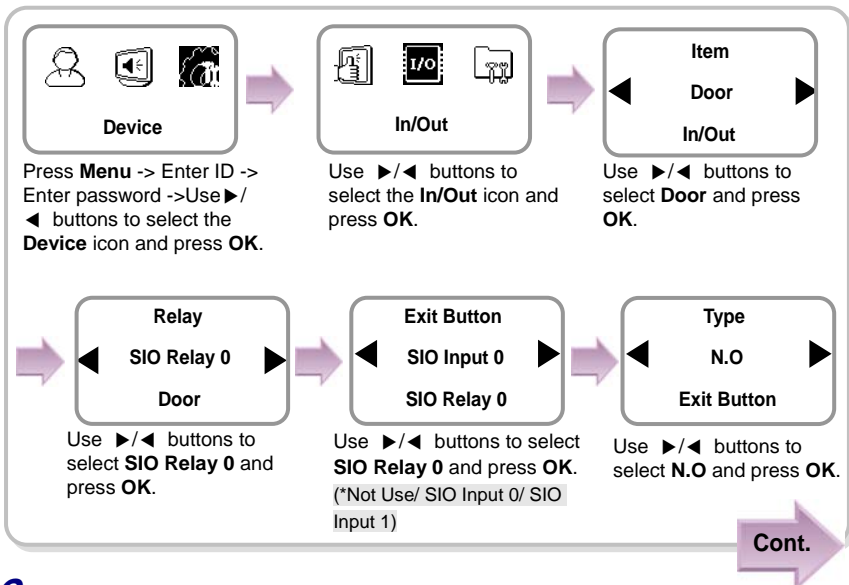
### 1.4.3 Configuring Secure I/O

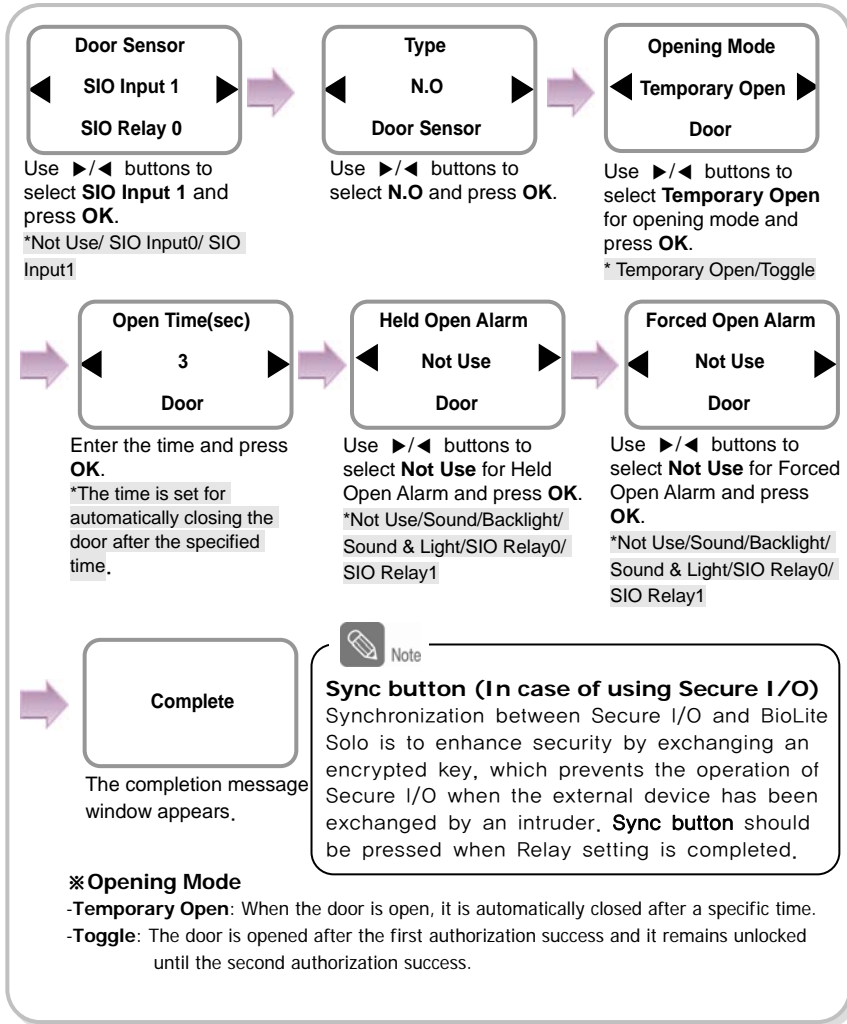
This connects BioLite Solo to Secure I/O.

1. Connect wires between BioLite Solo, Secure I/O, and respective switches as shown below.



2. Configure the relay settings as shown below. (Based on the figure above)





Note

When you exit from the menu before completing the relay setup, the configuration is not stored so please finish configuration until the message "Complete" appears.

#### 1.4.4 Configuring environment settings

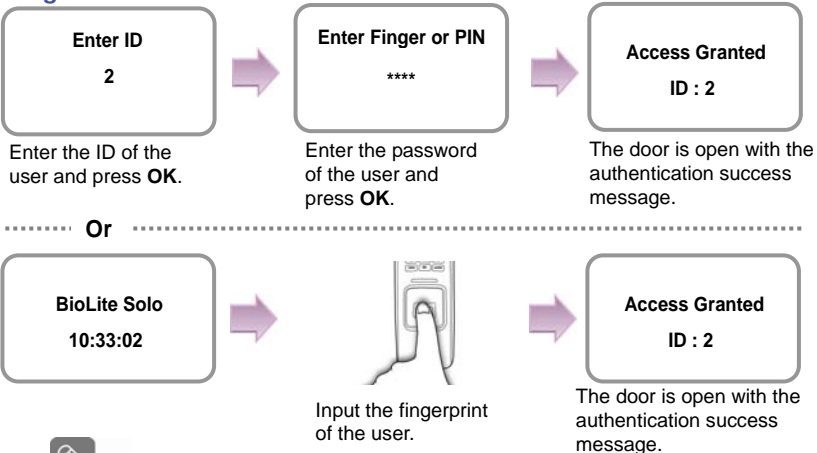
- ◆ Settings for date and time: Set the values as “3.1 Date, Time.”
- ◆ Setting for authorization period: Set the value after reading the case of authorization period selection in “4.1 Authorization,”
- ◆ Fingerprint authorization related settings: Set the values after reading the case of fingerprint selection in “4.1 Authorization.”
- ◆ Setting for fingerprint sensor mode: Set the value after reading the case of fingerprint sensor mode selection in “4.1 Authorization.”

### 1.5 Authorization methods

#### Finger Only



#### Finger or PIN

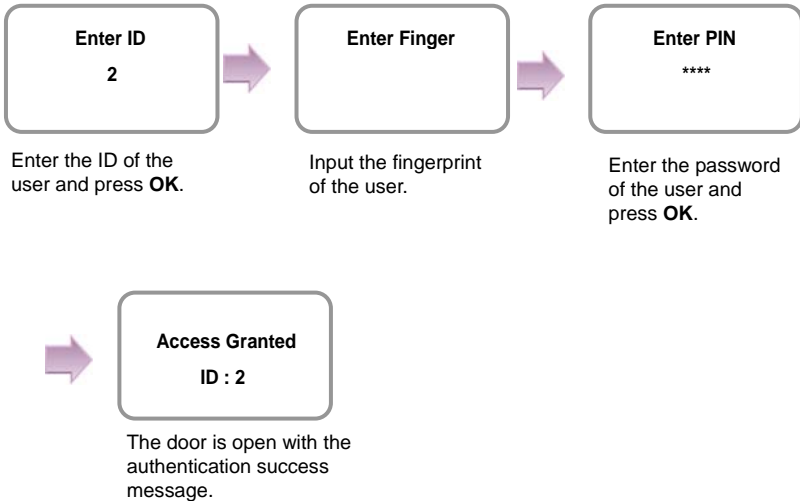


Note

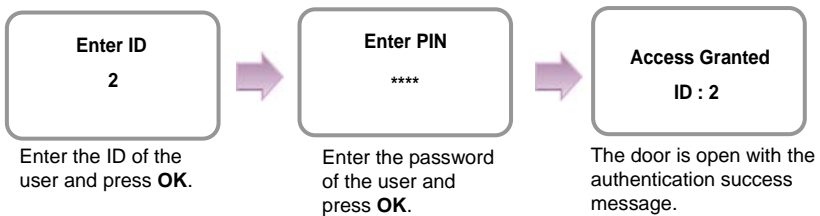
In case of the user registration by Finger or PIN, you can open the door by entering the fingerprint only.



### Finger and PIN



### PIN Only



## 2. User Management

This chapter explains how to enroll, modify, and delete user data.

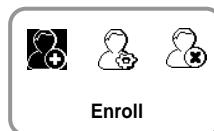
### 2.1 Enrolling a user

You can enroll a new user as shown below:

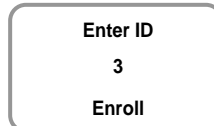
1. Use ►/◄ buttons to select the **User** (👤) icon and press **OK**.



2. Use ►/◄ buttons to select **Enroll** (👤+) icon and press **OK**.



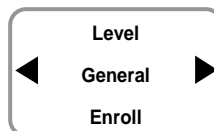
3. The ID that can be used appears. Use it or enter another ID and press **OK**.  
(1–8 digit number)



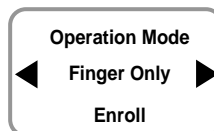
Note

ID is used to edit or delete the user data so please keep it carefully.

4. Use ►/◄ buttons to select Level and press **OK**.  
(Level: General /Administrator)  
※The user enrollment and environment configuration are enabled only in Administrator level.



5. Use ►/◄ buttons to select **Operation Mode**.  
(Finger Only /PIN Only/Finger or PIN/Finger and PIN)  
※ Refer "1.5 Authorization methods."

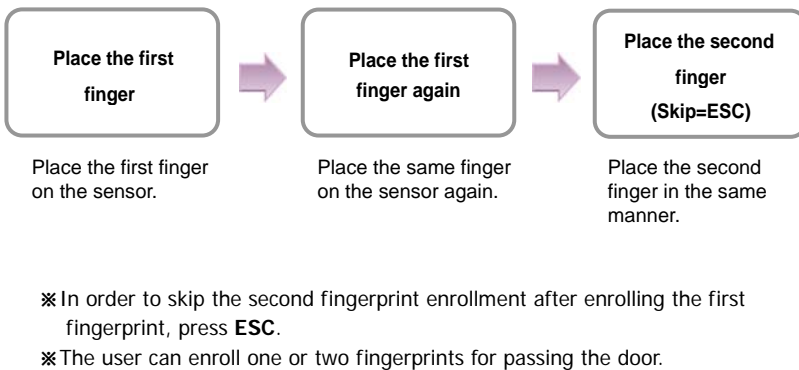




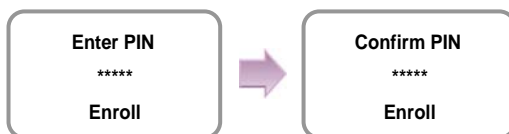
6. Enter the finger or PIN depending on the **operation mode**.

(Password: 4–8 digit number, Fingerprint: 1<sup>st</sup> finger/1<sup>st</sup> + 2<sup>nd</sup> fingers)

#### Finger Only/Finger or PIN/Finger and PIN



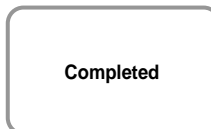
#### PIN Only/ Finger and PIN



※ For password, it is recommended to enter 4 to 8 digit number not to be easily exposed.

7. When the user enrollment is successfully done, the completion message window appears.

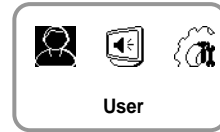
※ User can be enrolled up to maximum 200.



## 2.2 Editing a user data

You can modify the data of the previously enrolled user.

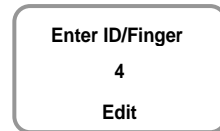
1. Use ►/◄ buttons to select the **User** (👤) icon and press **OK**.



2. Use ►/◄ buttons to select the **Edit** (👤✎) icon and press **OK**.



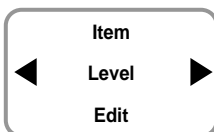
3. Enter the ID or fingerprint of the desired user and press **OK**.



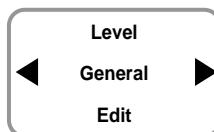
4. Use ►/◄ buttons to select the desired item and press **OK**.

※ Select any of Level, Operation Mode, Security Level, Fingerprint, PIN, and Access Timezone.

### Changing the user level



Use ►/◄ buttons to select **Level** and press **OK**.



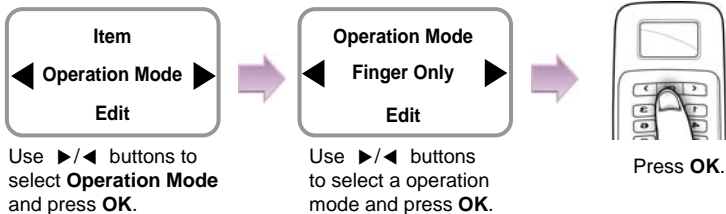
Use ►/◄ buttons to select **General** or **Administrator**.



Press **OK**.

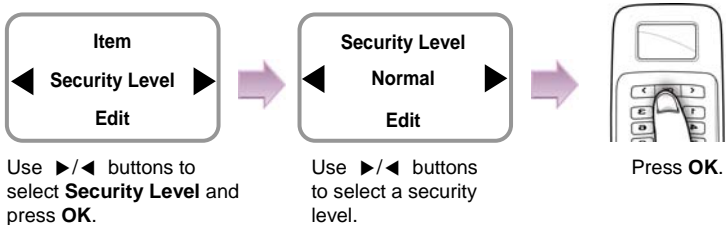
※ The user registration and environment configuration are enabled only in Administrator level.

## Changing the operation mode of the user



※Operation: \*PIN Only/Finger or Pin/Finger and PIN/Finger Only

## Changing the security level of the user



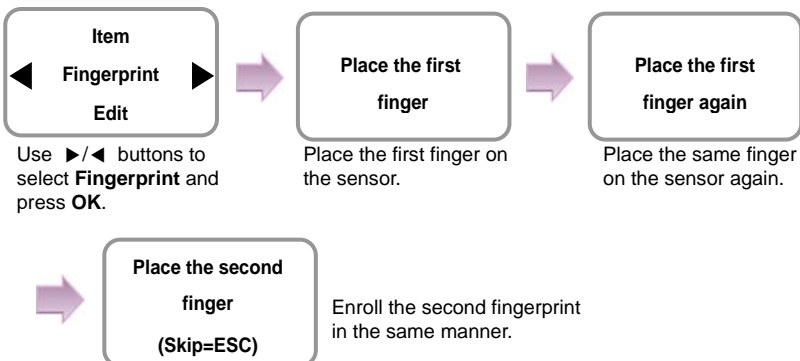
※ **Security Level:** \*Per Device/Lower/Low/Normal/High/Higher

-Per Device: The security in "Device>Authorization>Fingerprint>" on page 25 is applied.

-The higher the security level, the more sensitive the fingerprint recognition.

But the authorization failure rate can increase.

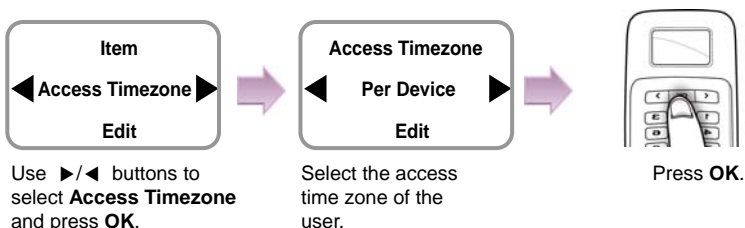
## Changing the fingerprint of the user



## Changing the PIN of the user

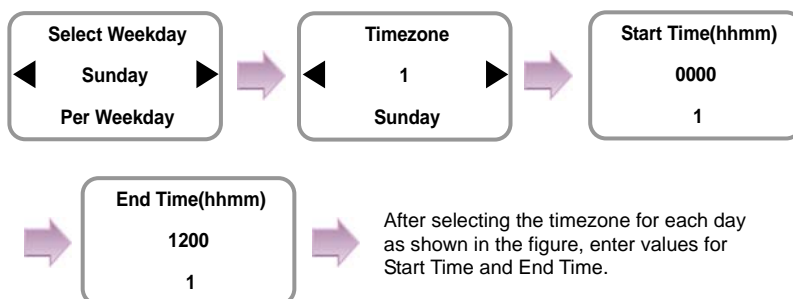


## Changing the access timezone (authorization trial is enabled) of the user



- ※ **Access Timezone:** \*Per Device /Always Allowed/Always Blocked/Per Weekday  
 - **Per Device:** The access timezone set in "4.1 Authorization" is applied.

### [In case of selecting Per Weekday]



- ※ **Select Weekday:** You can select maximum of 5 timezone for each day.



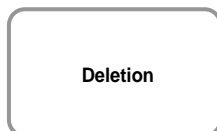
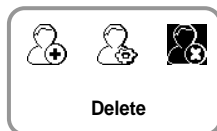
#### Caution

When you exit without setting the time after selecting **Select Weekday** only, the start time and end time are set to "00:00" and Timezone is set to "Always Blocked."

## 2.3 Deleting a user data

You can delete unnecessary user data.

1. Use ►/◀ buttons to select the User (👤) icon and press **OK**.
2. Use ►/◀ buttons to select the Delete (👤✖) icon and press **OK**.
3. After entering the ID or finger to delete and press **OK**.
4. When the action is successfully made, the message Deletion appears.  
※The deleted user cannot be recovered.  
If necessary, enroll it again.



Note

If all the users including the administrator are deleted, you must register the initial administrator again (see 1.4.1).

BioLite Solo




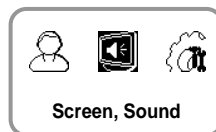
User Mgmt


## 3. Configuration for Screen and Sound

### 3.1 Date, Time

You need to set the current system date and time. Based on these settings, the values are correctly stored when you save data for “Select Weekday” or log data.

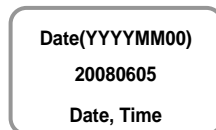
1. Use ►/◄ buttons to select the **Screen, Sound**  icon and press **OK**.



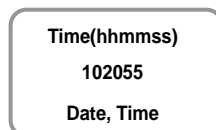
2. Use ►/◄ buttons to select the **Date, Time**  icon and press **OK**.




3. Enter the current date by following the suggested format and press **OK**.

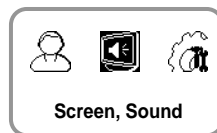



4. Enter the current time by following the suggested format and press **OK**.

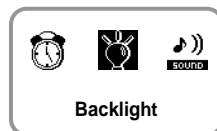


## 3.2 Backlight

1. Use ►/◄ buttons to select the **Screen, Sound**  icon and press **OK**.



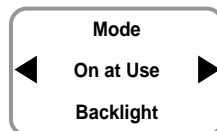
2. Use ►/◄ buttons to select **Backlight**  icon and press **OK**.




3. Use ►/◄ buttons to select a backlight operation status and press **OK**.

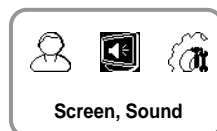



Or

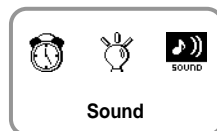


## 3.3 Sound

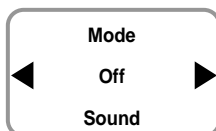
1. Use ►/◄ buttons to select the **Screen, Sound**  icon and press **OK**.



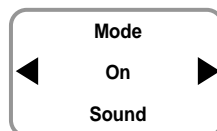
2. Use ►/◄ buttons to select **Sound**  icon and press **OK**.



3. Use ►/◄ buttons to select the sound operation status and press **OK**.



Or




BioLite Solo

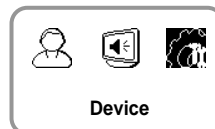



Screen & Sound

## 4. Device Configuration

### 4.1 Authorization

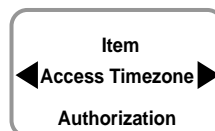
1. Use ►/◄ buttons to select the **Device**  icon and press **OK**.



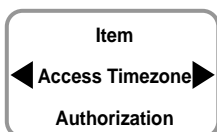
2. Use ►/◄ buttons to select the **Authorization**  icon and press **OK**.



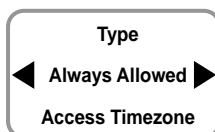
3. Use ►/◄ buttons to select any of Access Timezone, Fingerprint, and Sensor Mode and press **OK**.



#### In case of Access Timezone



Use ►/◄ buttons to select **Access Timezone** and press **OK**.



Select the desired access time zone.

\* Always Allowed /Always Blocked/Per Weekday



Press **OK**.

#### [In case of Per Weekday]

※ See the description of [In case of selecting Per Weekday] on page 20.



Note

The users can use the access time zone specified here. (See the description in Per Device on page 20.) In order to apply the setting directly to each user, select one of Always Allowed, Always Blocked or Per Weekday in user's access Timezone setting. (refer page 20)

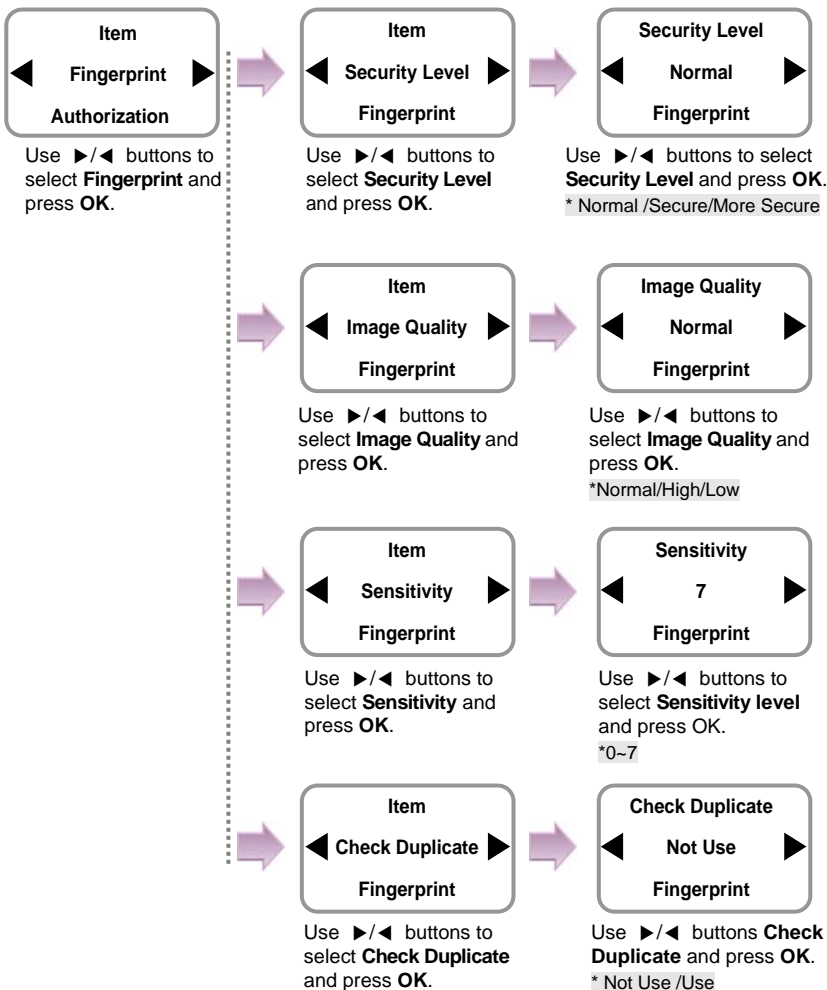


Caution

When you exit without setting the time after selecting Select Weekday only, the start time and end time are set to "00:00" and Timezone is set to "Always Blocked."



## In case of Fingerprint



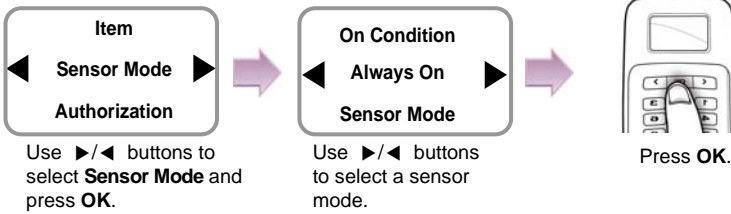
- ※ Security Level: The higher the security level, the more sensitive the fingerprint recognition. But the authorization failure rate can increase.
- ※ Image Quality: It is the image quality level used when entering the fingerprint data.  
In case of Low, the fingerprint can be easily input but the correct authorization is not guaranteed.
- ※ Sensitivity: The higher the value, the more sensitive the sensor.
- ※ Check Duplicate: When enrolling a user, it determines whether or not to check the fingerprint data is already enrolled.

BioLite Solo



F  
A  
Q

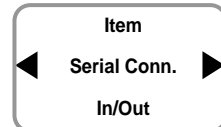
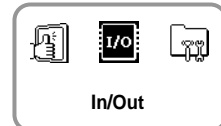
### In case of Sensor Mode (operates the fingerprint sensor)



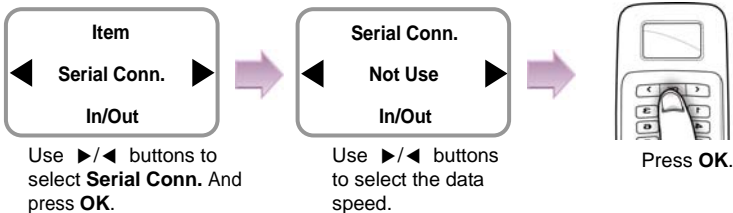
- ※ Sensor Mode: \*Always On/ID Entered/OK Pressed
- Always On: The sensor always waits for a fingerprint input.
- ID Entered/OK Pressed: It requires entry of ID or OK before a fingerprint input.

## 4.2 In/Out

1. Use ►/◀ buttons to select the **Device** (👤) icon and press **OK**.
2. Use ►/◀ buttons to select **In/Out** (I/O) icon and press **OK**.
3. Use ►/◀ buttons to select any of Serial Conn., Tamper On, and Door and press **OK**.

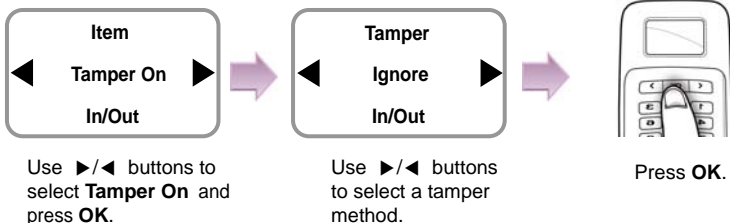


### In case of Serial Conn.



- ※ **Serial Conn. Speed** : Not Use/9600/19200/36400/57600/\*115200
- It is used only when the log data is retrieved after connecting the PC.

## In case of Tamper On

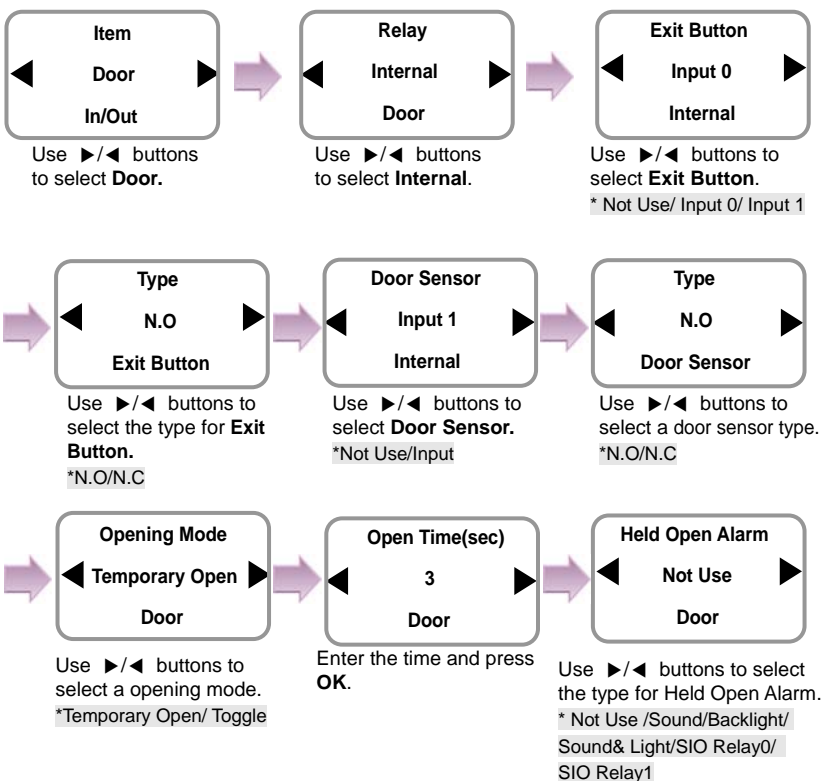


※ **Tamper**: \*Ignore/Locked

-Locked: When the device is forcibly removed, the Device is locked.

(To release the lock, the administrator must perform authorization.)

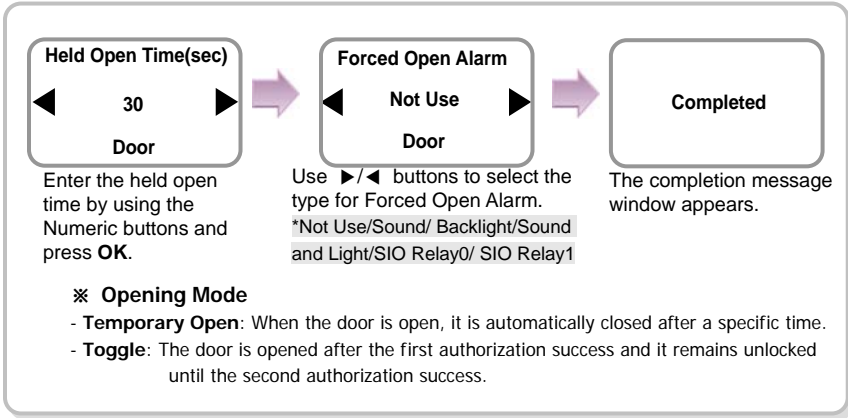
## In case of Door (When using the internal relay)



※Opening Mode: When a specific time elapses after the door is open, the door is automatically closed.

Cont.

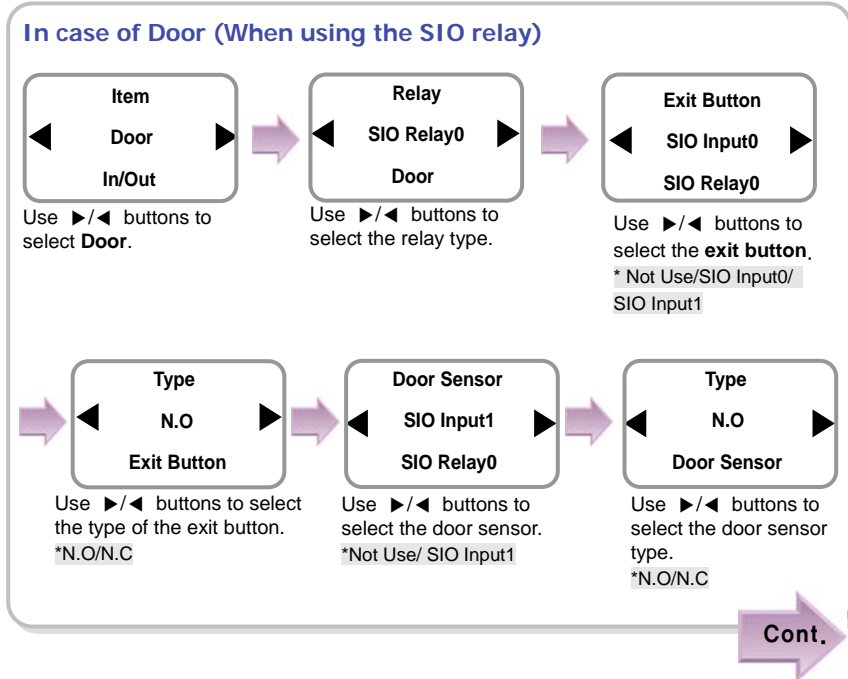


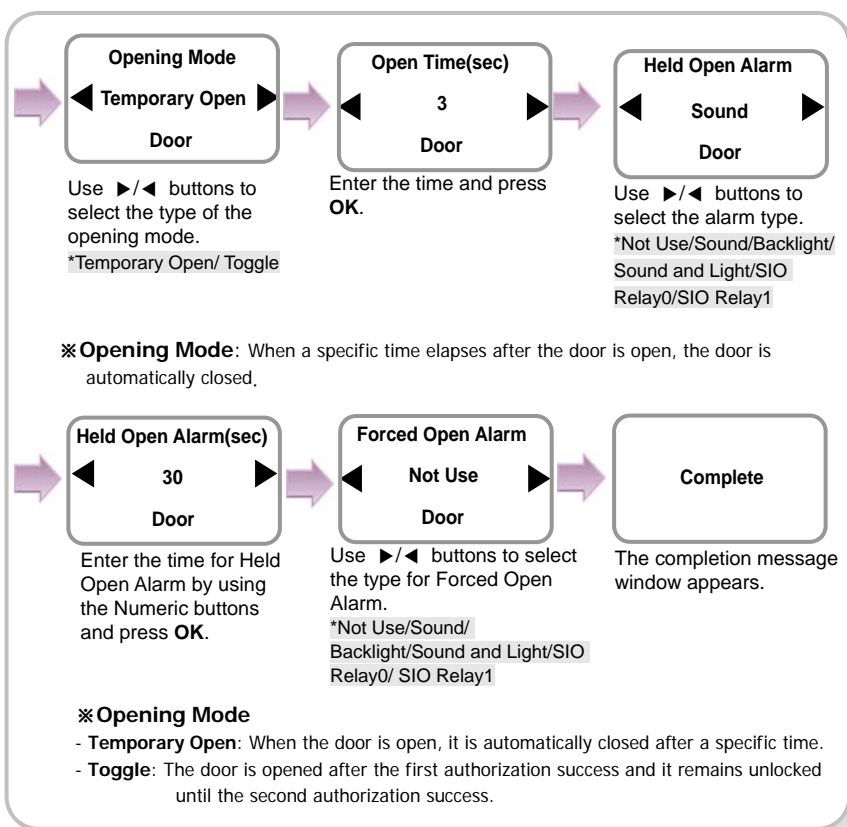


Note


When you exit from the menu before completing the relay setup, the configuration is not stored so please finish configuration until the message "Complete" appears.

### In case of Door (When using the SIO relay)




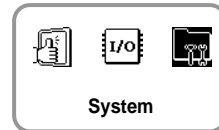


## 4.3 System

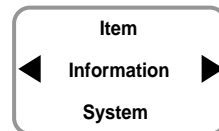
1. Use ►/◄ buttons to select the **Device**  icon and press **OK**.



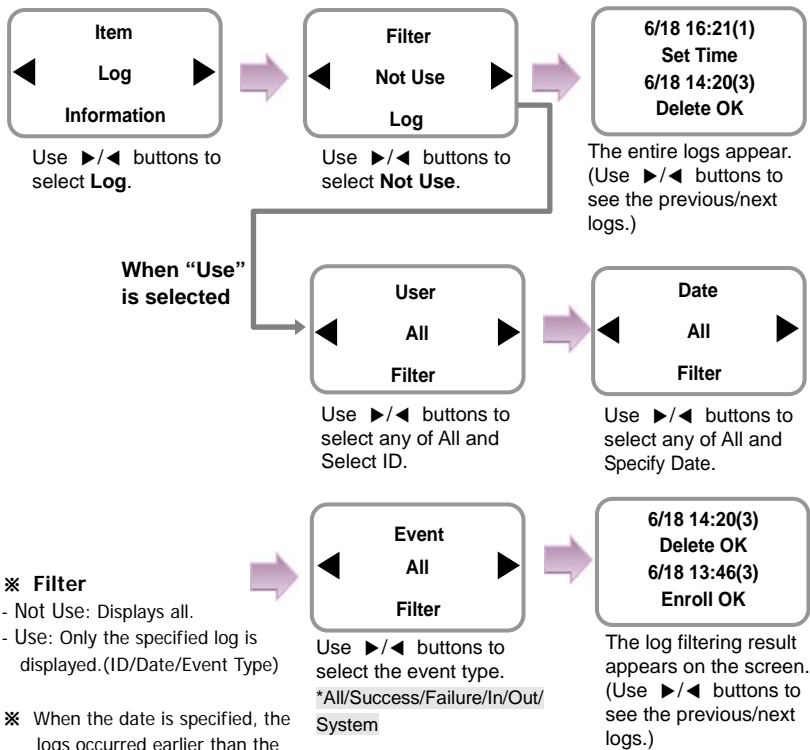
2. Use ►/◄ buttons to select the **System**  icon and press **OK**.



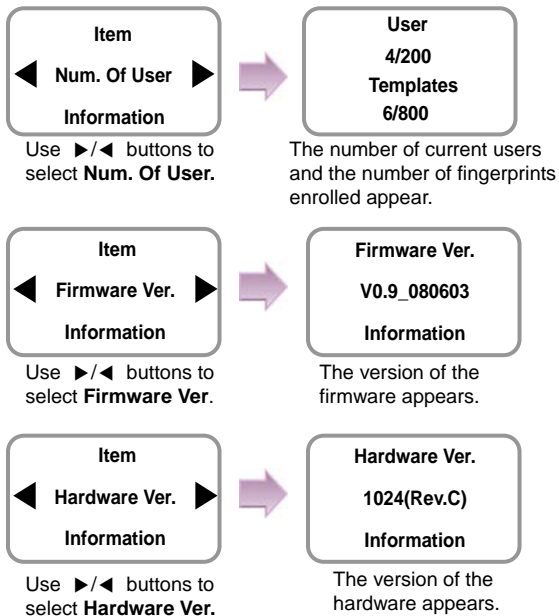
3. Use ►/◄ buttons to select any of Information, Factory Default, Delete All Log, Delete User DB, and Language and press **OK**.



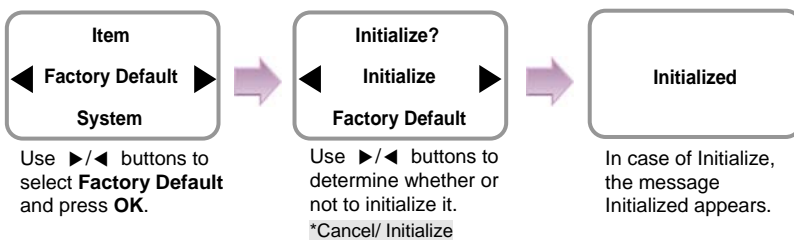
### In case of Information



## In case of Information — Continued



## In case of Factory Default



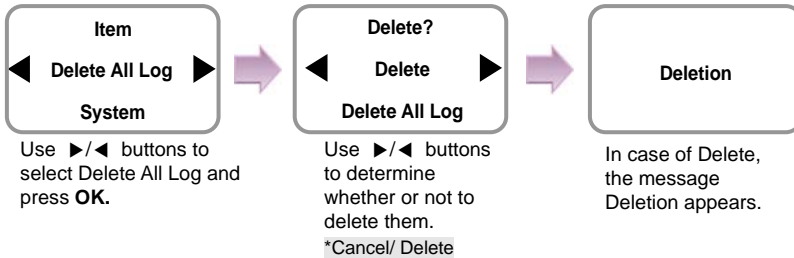
※ In case of Initialize, the settings are deleted but the log data and user DB are not deleted.

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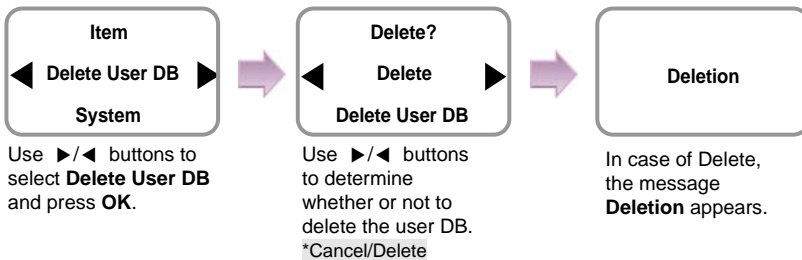
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### In case of Delete All Log



※ In this case, all users' in/out data are deleted and they cannot be recovered.

### In case of Delete User DB



※ In this case, the users' DB is completely deleted so you must immediately register the initial administrator (see 1.4.1).

※ When the user DB is deleted, it cannot be recovered.

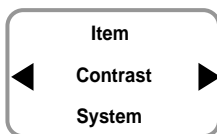
### In case of Language



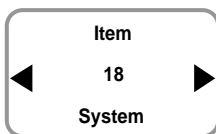
※ To use custom language, desired language resource file needs to be downloaded to the device using **AdminLite program** on PC. Please contact Suprema for details.



### In case of Contrast



Use ►/◄ buttons to select **Contrast** and press **OK**.



Use ►/◄ buttons to adjust contrast parameter.  
\* Default value is 18



Press **OK**.

※ Contrast value is not affected by Factory default.

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## 5. FAQ

### 5.1 Error messages

Error Message	Solution
<b>!Unknown ID</b>	The user ID that does not exist in the device is entered.
<b>!Not Matched</b>	The entered fingerprint or password is not matched to the enrolled one.
<b>!Duplicate Finger</b>	When enrolling a user fingerprint, the fingerprint that has been input already exists in the device (when checking the duplicated case).
<b>!Failed</b>	The number of users exceeds 200, so you cannot enroll more users.
<b>!Not Administrator</b>	A normal user tries to enter the menu.
<b>!Not Authorized</b>	The fingerprint authentication for the administrator fails when entering the menu.
<b>!Wrong PIN</b>	The entered password for authentication is not matched the enrolled one.
<b>!ID In Use</b>	The user ID to enroll already exists.
<b>!Invalid Value</b>	An invalid value is entered.
<b>!Failed</b>	The user ID to delete does not exist.
<b>!Unknown Finger</b>	The entered fingerprint for entering the menu or editing/deleting a user data does not exist.
<b>!Access Restricted</b>	The authentication trial happens except for the allowed time zone.
<b>!No Log</b>	There is no log data.
<b>!Not Recognizable</b>	The fingerprint data cannot be extracted due to wrong finger input.
<b>!Device Locked</b>	The device is locked because the case has been open.

## 5.2 Troubleshooting


Category	Trouble	Solution
Power	The power is supplied but the device does not operate.	<ul style="list-style-type: none"> <li>- When the device is disconnected from the bracket, it may not work when using the tamper switch.</li> <li>- Check the adapter or power cable.</li> </ul>
Password	The password is lost.	<ul style="list-style-type: none"> <li>- Enter the queried password after contacting the administrator in case of a normal user.</li> <li>- When the administrator password is lost, contact with the installation agency.</li> </ul>
	The locked door is not open after entering the password and pressing <b>OK</b> .	<ul style="list-style-type: none"> <li>- Check whether the correct password is input.</li> <li>- Check whether you have changed the password recently.</li> <li>- If you cannot find the password, contact the administrator.</li> </ul>
Fingerprint	The fingerprint has been enrolled but its recognition encounters an error.	<ul style="list-style-type: none"> <li>- BioLite Solo has the technology of Suprema that won the first award in FVC2004 and FVC2006 because it has world number one quality in recognition.</li> <li>- For better performance in fingerprint recognition, correct registration is a must.</li> <li>- Enroll the fingerprint again after seeing "1.3 Methods for fingerprint input"</li> <li>- The recognition rate may vary due to the characteristic of each finger so enroll the fingerprint of another finger.</li> </ul>
	It was good at recognizing fingerprints but suddenly it fails in recognition.	<ul style="list-style-type: none"> <li>- Check whether the finger or the sensor is covered with sweat, moisture, or dust.</li> <li>- In case the fingerprint has any damage, the device may consider it as the one of wrong person.</li> <li>- Wipe the finger or sensor with a dry cloth and retry.</li> <li>- When the fingerprint is so dry, blow your steam of breath into it and retry.</li> </ul>
Door lock	Even if you close the door, the door is not locked.	<ul style="list-style-type: none"> <li>- The electric lock failure is most likely to happen. Check it after contacting the installation agency.</li> </ul>
Time	The time is not correct.	<ul style="list-style-type: none"> <li>- BioLite Solo has an embedded battery but it can be discharged by a long time use. Accordingly the time may not be correct. Correct the time after seeing "3.1 Date, Time."</li> </ul>
Administrator connection	The administrator mode cannot be entered because of losing the administrator password or resignation.	<ul style="list-style-type: none"> <li>- BioLite Solo allows the administrator to give access rights so only the administrator can enter the menu.</li> <li>- When you have no choice but to enter the administrator menu, you can be granted an administrator password after following the predefined procedure. (Contact with the installation agency.)</li> </ul>

















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## 5.3 Usage summary

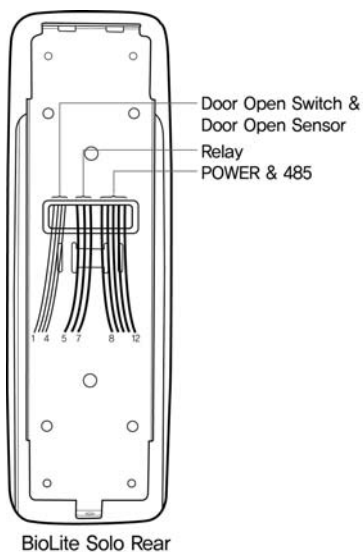
- ※ It provides the mainly used functions.
- ※  button: Used to select the desired function.

Function	Method for setting (Sequentially perform the following items.)
Initial administrator registration	Enter ID → Select <b>PIN Only</b> for authorization method → Enter password → Enter password again
Date & time setting	Select <b>Screen, Sound</b>  icon → Select <b>Date, Time</b>  icon → Enter date → Enter time
User registration	Select <b>User</b>  icon → Select <b>Enroll</b>  icon → Enter ID → Select <b>General</b> or <b>Administrator</b> in Level → Select authorization method → Enter fingerprint or password
User password modification	Select <b>User</b>  icon → Select <b>Edit</b>  icon → Enter ID or fingerprint → Select <b>PIN</b> → Enter the desired password → Enter it again
User fingerprint modification	Select <b>User</b>  icon → Select <b>Edit</b>  icon → Enter ID or fingerprint → Select <b>Fingerprint</b> → Enter the fingerprint of the user → Enter it again
User authorization method modification	Select <b>User</b>  icon → Select <b>Enroll</b>  icon → Enter ID or fingerprint → Select <b>Operation Mode</b> → Select an authorization method
User deletion	Select <b>User</b>  icon → Select <b>Delete</b>  icon → Enter ID or fingerprint to delete
All user deletion	Select <b>Device</b>  icon → Select <b>System</b>  icon → Select <b>Delete User DB</b> → Select <b>Delete</b>
Initialization (Environment settings deletion)	Select <b>Device</b>  icon → Select <b>System</b>  icon → Select <b>Factory Default</b> → Select <b>Initialize</b>

## 5.4 System Installation

### 5.4.1 Cable specifications

Type	No.	Name	Color
Door open switch & Door open sensor	1	GND	Black
	2	SWIN 1	Brown
	3	GND	Black
	4	SWIN 0	Purple
Relay	5	Normal Close	Orange (White String)
	6	Common	Green (White String)
	7	Normal Open	Gray (White String)
Power & 485	8	Power + (12Vdc)	Red
	9	Power GND	Black
	10	485 GND	White (Black String)
	11	485 +	Blue (Black String)
	12	485 -	Yellow (Black String)

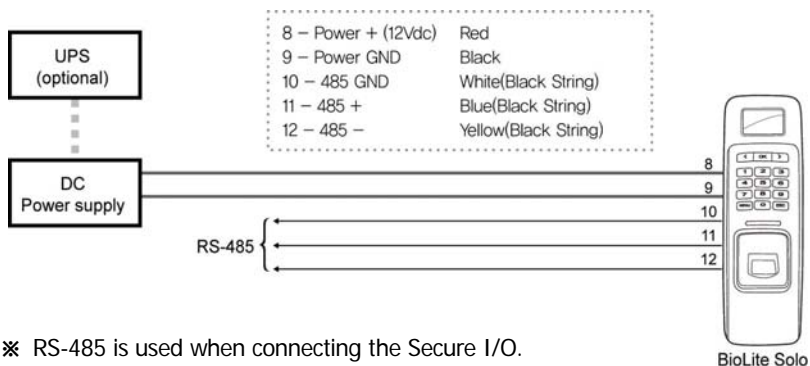


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## 5.4.2 Connecting Power & 485

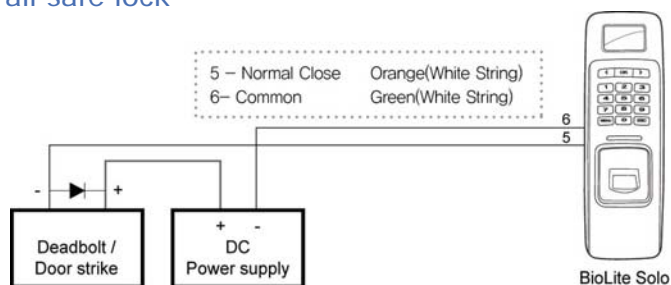


Note

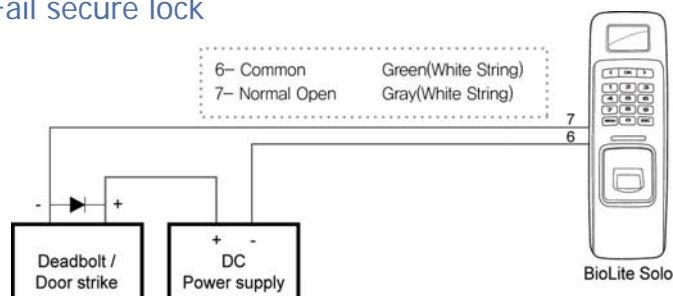
For power supply, use a product of DC 12V ( $\pm 10\%$ ) and minimum 500mA.  
(To share the power with other devices, use a power supply with higher current ratings.).

### 5.4.3 Connecting the relay

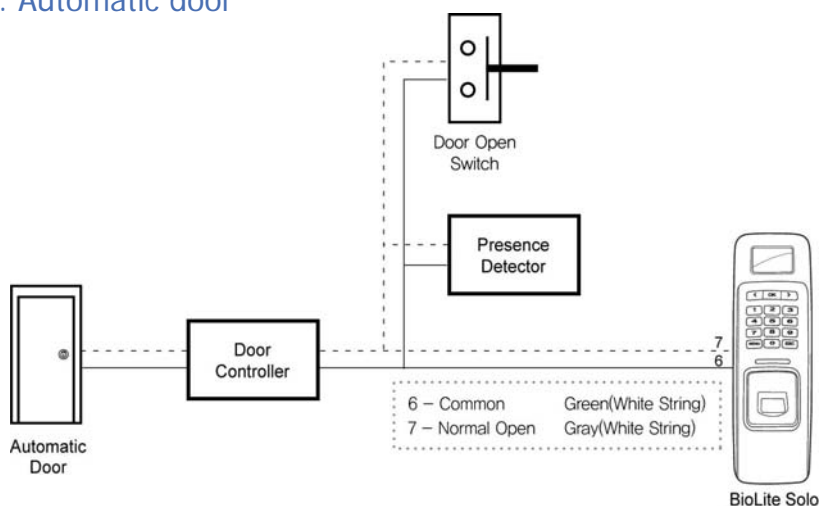
#### 1. Fail safe lock



#### 2. Fail secure lock



#### 3. Automatic door

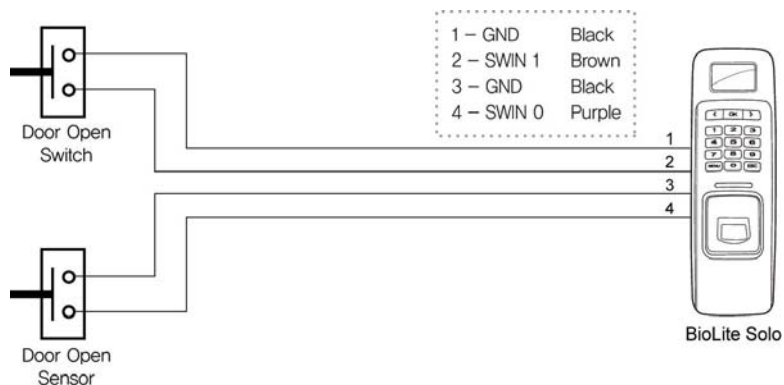


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### 5.4.4 Connecting the switch



### 5.4.5 Electrical specifications

Type	Name	Min.	Typ.	Max.	Notes
Power	Voltage (V)	10.8	12	13.2	Use regulated DC power adaptor only
	Current (mA)	-		250	
Switch Input	VIH (V)	-	TBD	-	
	VIL (V)	-	TBD		
	Pull-up resistance ( $\Omega$ )	-	4.7k	-	The input ports are pulled up with 4.7k resistors
Relay	Switching capacity (A)	-	-	1 0.3	30V DC 125V AC
	Switching power (resistive)	-	-	30W 37.5VA	DC AC
	Switching voltage (V)	-	-	110 125	DC AC



### 5.4.6 Installing the bracket

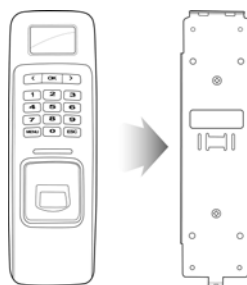
1. Fix the bracket to the place where BioLite Solo is to be installed using the fixing screws.



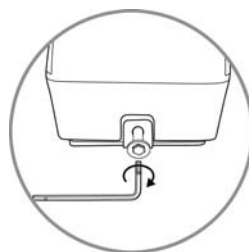
Note

If the installation place is on concrete, drill holes, insert knife blocks into the holes, and fix them by using fixing screws.

2. Install BioLite Solo on the bracket.



3. Fix BioLite Solo and the wall mount bracket by rotating the star-shape screw by the hexagonal wrench.



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## 5.5 Specifications

Item	Specification
CPU	400MHz DSP
Memory	4MB Flash and 8MB RAM
Fingerprint sensor	500dpi optical sensor
User capacity	200 users (2 fingerprints per user)
Matching speed	Less than 1 second
Operation mode	Fingerprint, Password, Fingerprint + Password
LCD	128 x 64 Graphic LCD (Monochrome)
Keypad	3x4 keypad, 3 navigation keys
User interface	Multi-color LED and Multi-tone buzzer
TTL I/O	2 inputs for exit switch and door sensor
Internal relay	Deadbolt, EM lock, door strike, automatic door
IP rate	IP65 class
Log capacity	5,000 events
Timer	RTC Charge-type Backup Battery Embedded
Rated Voltage	DC 12V (Min. 500mA and above)
Size	60 x 185 x 40 mm (Width x Height x Depth)



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