Cadenacio Reference Manual

Ver 2.0

-Cadenacio FP/MF, BKS-5000 FP/MF

-Catenaccio Lite

-Cadenacio Lite

-BKS-5100

Bioinsec
Biometrics in Security

Contents

FCC Information to User

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

• Reorient or relocate the receiving antenna.

• Increase the separation between the equipment and receiver.

• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

• Consult the dealer or an experienced radio/TV technician for help.

Caution

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

FCC Compliance Information : 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

Revision History

Version	Date	Description
Ver 1.0.0	April 26, 2010	Release Cadenacio

1. Before You Begin

1. Safety Precautions / Emergency Measures

Do not turn on the power when water or foreign substances went into the power supply.

Do not touch the power with wet hands.

Please use the power on the specification.

Do not install in places where electricity (voltage/current) flows or leaks.

Please do not install in places where there is oil smoke, flammability, explosives, humidity, lots of dust, and places where water(rainwater) splashes.

Do not place candle light or cigarette light on top of the product, or install the product near heating equipment.

Please take care when a customer personally installs or relocates the product.

Do not install in places where there is a lot of direct sunlight or moisture, dust or soot.
There is the cause of electric leakage or electric shock, and it may become the cause of malfunction.

Regarding the location of installation, it is a general rule to install the product indoors. In case of inevitably installing the product outdoors, please make and use a supportive box that can protect the device.

For device installation and wiring, please refer to the attached wiring diagram.

Please install the device and register the administrator ID and administrator fingerprint.

Please do not put foreign substances such as water, benzene, paint thinner, alcohol, adhesive substance, other pins and needles, and other metal substances.

Be careful not to let fluids such as water, beverage, and chemicals inside the terminal.

Do not drop the product or give strong impact.

When cleaning, do not spray water on the product and wipe with soft cloth or washcloth.

Do not disassemble, repair or remodel the product on one's own accord.

※ ***We shall not be held liable for accidents and damages arising from not using the product as directed in the user manual.***

- **Things you must do before installing the product for the first time**

1-1. Please change the system password. There may be security problems because the password is temporarily set to '1111' when CADENACI is shipped out from the plant.

1-2. Please connect the cable when the power is not authorized.

- **When fingerprint is not properly recognized**

  – Please try again after removing moisture or foreign substances from the user's fingerprint.

  – When entering fingerprint, enter the fingerprint by pressing the tip of the finger onto the sensor.

  – Please be careful not to move the finger during fingerprint recognition.

  – When the fingerprint image is not clear, please adjust the exposure value of the fingerprint sensor.

- **When Cadenacio does not function properly**

  – Try again after initializing Cadenacio by pressing the Reset switch.

  – If the problem is not solved with the method above, please make an inquiry to our customer service center.

2. Proper Way to Input Fingerprint

- Fingerprint Input Location
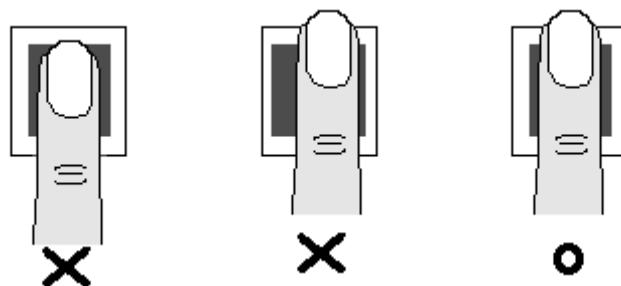
- Fingerprint Contact Method

3. Product Introduction

BIOINSEC's CADENACIO model is a fingerprint recognition access control system applicable to all areas requiring personal authentication such as access control, attendance management, membership management, and academic affairs management. This product recognizes a person and saves the image at the point of recognition using a fingerprint. By doing so, it solves problems such as piracy due to illegal use and loss by an agent, which occur in existing terminals using ID cards or keypads.

A fingerprint is characterized by inalterability and uniqueness. It is the area most widely used in biometrics due to its inexpensive price. **CADENACIO** is a product using BIOINSEC's world renowned optical fingerprint sensor. It boasts excellent performance due to its durability and stability.

CADENACIO has already been recognized for its reliability by being supplied to many places such as government offices, large corporations, and academic institutes.
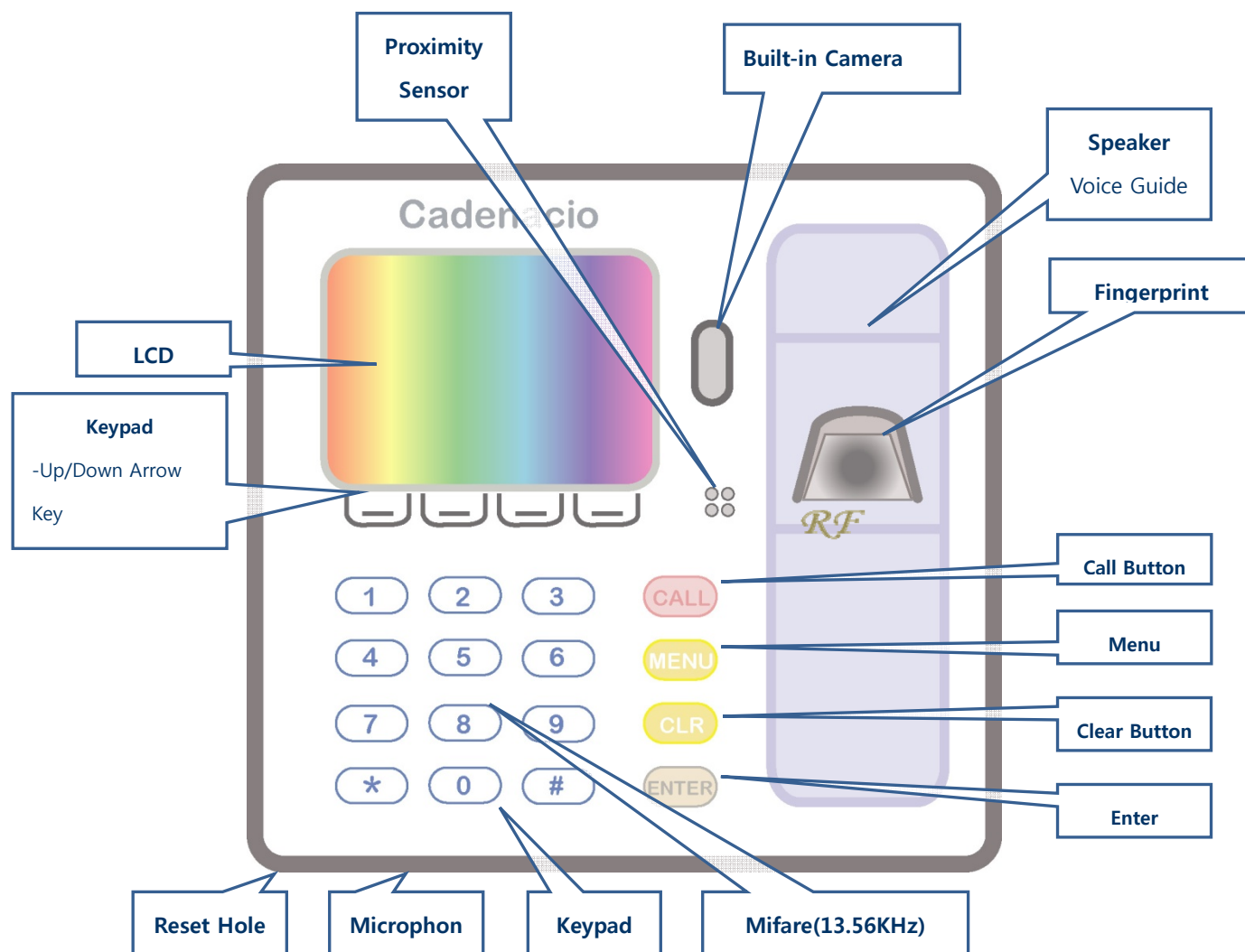
CADENACIO has improved its performance by implementing camera function with a camera directly built into the mainboard. Through this, it has added video storage function upon recognition success or failure, and remote visitor image identification function. In addition to this, it has allowed the user to personally send one's WAV file to the terminal so it can generate a desired voice by applying AC97 voice codec for high quality voice support.

CADENACIO has its own door open relay, and I/O MAN(controller) can be added in places requiring higher security. It offers the optimum solution for access control using various I/O of IOMAN.

The CPU speed of the terminal is a very fast 400 MHz, and through this, high speed calculation and authentication speed was maximized. Furthermore, by modulizing the LAN card and camera that may cause problems, user convenience was maximized to enable the use of the terminal body just by replacing the card when a problem occurs. On top of that, storage capability was enhanced to enable the loading of 1~2GByte Micro SD Memory Card (T Flash) for storing user videos when the terminal is used as a single unit due to disconnection with a network.

Using various functions like this, it can be used for multi-purpose in places requiring personal authentification such as time & attendance management and academic affairs management as well as being able to conduct access control in highly secure areas.

4. Product Diagram

Proximity Sensor

Built-in Camera

Speaker
Voice Guide

Fingerprint

LCD

Keypad
-Up/Down Arrow Key

Call Button

Menu

Clear Button

Enter

Reset Hole

Microphon

Keypad

Mifare(13.56KHz)

5. Icon Information

	Normal Network icon appearing when communication with the server is normal
	Icon showing when communication with the server is cut off
	DHCP mode setting in progress
	No Camera Icon
	Camera Off
	Camera Auto/On
	SD Memory Card recognized
	Serial disconnected
	Serial normal
	Door Closed
	Door Open
	Force Locked Door

	Force Open Door
	Locked by Door Schedule
	Open by Door Schedule
	Lock Down (Forced lock locking device)
	Lock Open (Forced open locking device)

6. Product Features

- **High Performance CPU**
  - Capable of high speed authentication by using 32Bit 400Mhz ARM CPU
- **Large Built-in Memory**
  - It has a 128 Mbyte NAND Flash memory built into the device.
  - It can additionally load a Mini SD memory. (Supports only 1GB, 2GB) SD memory is used for log and user backup.
- **Capable of mounting various external RF reader**
  - It can mount external RF readers such as MIFARE.
  - It can connect RF of other companies through 1 Wiegand Input Port.
- **Camera Function (Option)**
  - Image is saved upon authentication/failure due to built-in camera.
  - Capable of remote monitoring.
  - When a visitor calls, you can see the face of the visitor.
  - When DVR is connected via NTSC port, you can save images.
- **Proximity Sensor (Included in Camera Option)**
  - When a user approaches, the camera turns on and gives out a greeting message.

- **Links with Speed Gate**
  - You can set the door open time in units of 1/10 second. When you set the door open time in minimum units of 0.5 seconds, it can be linked up to Speed Gate.

- **Built-in Key Phone Function (Option Board)**
  - It is capable of interphone call by linking up with a private switchboard inside a company. The door can be opened by pressing a password using a dial of the telephone while talking over the phone.

- **AC97 Voice Play (Wav File Play Function)**
  - The product supports high quality sound, and the desired sound source can be personally produced by the user, and sent to and played through the terminal.

- **Multi-Language Support**
  - Languages such as English, Italian etc. can be set in the menu, and voice can be recorded and replaced with the desired language.

- **I/O Man mounted for Access Control and I/O Expansion**
- Engages in encrypted data communication for high-security
- Capable of RS485 communication for remote communication
- Supports fire alarm connection and various I/O.
- Provides 2 relay contact points as basic option.

- **High Reliability using Fingerprint**
  - It has solved security problems due to card duplication, loss, and distribution arising from Card System or Key Pad System with a fingerprint.

- **Various Solution**
  - It can be applied to various areas such as access control, time & attendance management, overtime work management, parking management, speed gate etc.

- **Built-in TCP/IP**
  - TCP/IP is built into the terminal board, and multiple terminals can be managed via LAN.

- **Function capable of flexible implementation of Time & Attendance Management**
  - Functions including 4 programmable function keys and up to 9 time & attendance classification codes supports a more efficient time & attendance management. You can apply various types of functions with one terminal.

- **Capable of Management with Low Budget**
  - When ID Card is used, there is a cost for reissuing of a card when there is a new user or when a card is lost. The fingerprint recognition system can simply manage with a terminal without any additional cost.

- **Built-in RF Card Reader**
  - According to the type of reader, EM Card, Mifare(13.56MHz, 1443A) Card, and Transportation Card can be used.

- **Capable of Independent Use or Use in connection with a Server**
    - BIOINSEC's fingerprint recognition system can be used independently or linked up with a server via TCP/IP communication. Furthermore, it can be directly connected to the independent program using SDK provided as a bundle. CADENACIO can conduct time & attendance management with its own RTC and Log management function.
- **Setting & Viewing of User Time Zone**
    - It can be controlled by groups through a combination of 32 time zones and 32 schedules, and this can be sent to the terminal.
- **Log Automatic Transfer**
    - A log is automatically sent when a terminal communicates with a server, and the sent log can be deleted from the terminal.

7. Terminal Menu

① How to Use Menu

< Menu Setting Button >
4 buttons below the LCD

↑ ↓ ← →	This is the up and down arrow keys used for moving the cursor up and down or left and right in all menus.
↩ ↪	This switches to previous or next menu.
✖	This cancels a task.
✔	This completes a task and saves it.
🚫	This goes back to the previous menu.

< Keypad Setting Button >

＊	You can select the check box (☑) upon user registration. It is hereinafter referred to as "Star Button."
＃	When deleting the input value, it is used for the same purpose as a Back Space key. It is hereinafter referred to as "**Sharp Button**."
CALL	This is used when a visitor makes a call. It is hereinafter referred to as "**Call Button**."
MENU	This is pressed when going into a menu. It is hereinafter referred to as "**Menu Button**."
CLR	This is used when cancelling a task. It is hereinafter referred to as "**Cancel Button**."

Enter	This is used to complete or save a task. It is hereinafter referred to as "**Enter Button**."

② Entire Menu Tree

The terminal is set as example menu tree when it left the factory.

If user changes the value set as factory next tree menu process will be changed with your purpose.

> 1. User
>
> 2. Access Control
>
> 3. Network
>
> 4. Configuration
>
> 5. System

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1. User

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1. User ┬**1. Enroll User**

  2. Batch Enroll User

  3. Edit User

  └**4. Delete User**

2. Access Control

2. Access Control
- **1. Operation Mode**
  - **1. Mode Select**
    - 1. Access Control Mode
    - 2. Meal Mode
  - **2. Time&Attend Setup**
    - 1. Key
      - 1. Up/Down Key
      - 2. F1-F2-F3-F4
    - 2. Items
      - 1.
      - 2. IN
      - 3. OUT
      - 4. ABSENCE
      - ⋮
      - 9. OT OUT
    - 3. Timer
  - **3. Door Configuration**
    - 1. 1 Door, 1 Reader
    - 2. 1 Door, In/Out Readers
    - 3. 2 Door, 2 Readers
- **2. Door**
  - **1. Reader** - 1. Auth. Mode
    - 1. Authorize
    - 2. Grant Active
    - 3. Deny All
    - 4. Card Grant All
  - **2. Pulse Time**
  - **3. Input/Output**
    - 1. Door Contact
      - 1. No
      - 2. Yes
    - 2. RequestToExit
      - 1. No
      - 2. Yes
  - **4. Time Delay**
  - **5. Alarm**
    - 1. Open Too Long
      - 1. No
      - 2. Yes
    - 2. Forced Open
      - 1. No
      - 2. Yes
- **3. Readers Setup**
  - **1. FP Reader**
    - 1. Using
      - 1. No
      - 2. Reader
    - 2. Exposure
    - 3. Security Level
      - 1. Lowest
      - ⋮
      - 9. Highest
  - **2. Mifare Card Reader**
    - 1. Usage Type
      - 1. No
      - 2. Serial Number
      - 3. Special Card
      - 4. FPOnCard
    - 2. Special Card Set
      - 1. Normal order
      - 2. Reverse order
    - 3. Reading Card
  - **3. Wiegand Reader 1** - 1. Usage Type
    - 1. No
    - 2. Reader
  - **4. Wiegand Reader 2** - 1. Usage Type
    - 1. No
    - 2. Reader
- **4. Use I/O MAN**
  - 1. No
  - 2. Yes
- **5. Event Setup**
  - 1. Delete Event
  - 2. Output Type
    - 1. Network
    - 2. 26 Wiegand
    - 3. 34 Wiegand
  - 3. Mask Event
    - 1. Lock Event
      - 1. No
      - 2. Yes
    - 2. Access Event
      - 1. No
      - 2. Yes
    - 3. Other Event
      - 1. No
      - 2. Yes
- **6. Anti-Passback**
  - 1. Passback Mode
    - 1. Disable
    - 2. Hard
    - 3. Soft
  - 2. Passback Timeout
- **7. Duress**
  - 1. Duress Digits
  - 2. Duress Alarm
    - 1. Disable
    - 2. Relay 2
    - 3. Output 1
    - 4. Output 2

3. Network

3. Network
- 1. Terminal ID
- 2. MAC Address
- 3. Network Mode
  - 1. Serial
  - 2. Dial-UP
  - 3. TCP/IP
- 4. IP Address - Dynamic Address
  - 1. No
  - 2. Yes
- 5. Server Setup
- 6. Ping test

4. Setup

4. Setup
- 1. Administrator
- 2. Date & Time
  - 1. Set Date
  - 2. Set Time
- 3. Monitor
  - 1. BackLight Time
  - 2. LCD Contrast
  - 3. LCD Brightness
  - 4. Black/White Mode
    - 1. No
    - 2. Yes
  - 5. Time Notation
    - 1. 12 hour
    - 2. 24 hour
  - 6. Date Notation
    - 1. No
    - 2. MM/DD
    - 3. DD MON
- 4. Sound
  - 1. User Volume
  - 2. Admin Volume
  - 3. Button Volume
- 5. Lockout
  - 1. Key Lockout
    - 1. No
    - 2. Yes
  - 2. Tamper Enable
    - 1. No
    - 2. Yes
- 6. Language
  - 1. English
  - 2. Italian
  - 3. Korean
- 7. Camera
  - 1. camera Mode
    - 1. Automatic
    - 2. On
    - 3. Off
  - 2. Camera Channel
    - 1. 0 Channel
    - 2. 1 Channel
    - 3. 2 Channel
    - 4. 3 Channel
  - 3. Camera Direction
  - 4. Camera View
- 8. Door Phone

5. System
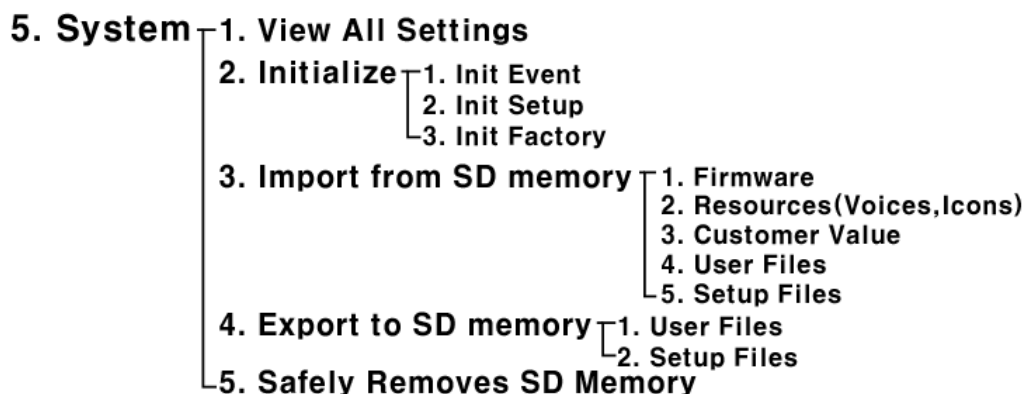
* If user changes the value set as factory, next tree menu process will be changed with your purpose.

2. User Management(Registration/Edit/Delete) Menu

1. Administrator Password Registration

In order to go into the menu, administrator password must be registered.
The password when the product was shipped out is "1111," and you must change the password.

I. **MENU Button → Admin password(Default value : 1111) → Enter button**

II. **4 Setup → 1 Administrator → Button (Delete Existing Password) → Enter New Password → Enter Button(Switchover to new line) → Check Password (Reenter New Password)**

III. ✅ Button → Finish

MENU → Enter Password → Enter → 4 → 1 → ↩ (Delete Existing Password) → Input New Password → Enter (Switchover to new line) → Password Check Reinput → ✅ → Completion

Caution : Please change the administrator password.

If you wish to go into the desired menu fast, once you press the number relevant to the menu, it is immediately applied.

2. Enroll User

① Fingerprint Registration

I. MENU Button → Enter Password(Default Value : 1111) → Enter Button

II. User → 1 Enroll User → Enter User ID (Number) → ✅ Button

III. 1 ☑ FP Check (Once 1 is pressed, Repeat Check/Uncheck) → ➡ Button

IV. Register FP 1 (Register the same finger twice) → Register FP 2 (Register the same finger twice)

V. ✅ Button → Finish

MENU → Enter Password → **Enter** → **1** → **1** → Enter User ID (Number) → ✅ → Check **1** ☑FP → ➡ → Register FP 1 (Register the same finger twice) → Register FP 2 (Register the same finger twice) → ✅ → Completion

TIP When changing the access mode, once you press the relevant number, you can check or uncheck it.

② Card Registration

I. **MENU** Button → Enter Password(Default Value:1111) → **Enter** Button

II. **1** User → **1** Enroll User → Enter User ID (Number) → ✅ Button

III. **2** ☑ Card Check (If you press **2** Repeat Check/Uncheck) → ➡ Button → Card gets close to number key → ➡ Button

IV. ✅ Button → Completed

MENU → Enter Password → **Enter** → **1** → **1** → Input User ID (Number) → ✅ → Check **2** ☑ Card → ➡ → Approach with Card Number Key → ✅ → Finish

TIP When changing the access mode, once you press the relevant number, you can check or uncheck it.

③ Password Registration

I. ⬭MENU Button → Enter Password(Default Value :1111) → ⬭Enter Button

II. **1** User → **1** Enroll User → Enter User ID (Number) → ✅ Button

IV. **3** ☑ PIN Check (If you press **3** Repeat Check/Uncheck) → ➜ Button → Enter New Password → ⬭Enter Button(Switchover to new line) → Check Password (Reenter New Password)

III. ✅ Button → Finish

⬭MENU→ Enter Password → ⬭Enter → **1** → **1** → Input User ID(Number) → ✅ → Check **3** ☑ PIN → ➜ → Input Password → ⬭Enter (Switchover to new line) → Check Password (Reinput) → ✅ → Finish

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TIP When changing the access mode, once you press the relevant number, you can check or uncheck it.

※ Please enter the password in 4~8 digits in order to prevent its leakage.

④ When setting with Fingerprint or Card

When you have registered numerous fingerprints and cards and only want to authenticate one of them, check fingerprint, card or password as shown below, and then, authorize only one of them.

1. ☑ FP
2. ☑ CARD
3. ☐ PIN

TIP **What is the difference between** ‘Card + Fingerprint’**? When selecting ‘4 Card + FP’ in access mode, both the card and the fingerprint must match in order to authorize.**

3. Edit User

In User Change, it is impossible to change the access mode. If you want to change the access mode, reregister after deleting a user.

I. **MENU** **Button → Enter Password(Default Value :1111) → Enter Button**

II. **1 User → 3 Edit User → Enter User ID (Number) → ✔ Button**

V. **Enter Date to Change(Impossible to change already registered access mode) → ➦ Button**

III. **✔ Button → Finish**

MENU → Enter Password → Enter → 1 → 3 → Input User ID (Number) → ✔ → Input Data to Change → ➦ → ✔ → Finish

TIP **If you want to view the user list, press ✱ (star) button in the User ID input window.**
※ If you want to quickly access the desire menu, once you press the number relevant to the menu, it is immediately applied.

4. Delete User

I. **MENU** **Button** → **Enter Password(Default Value:1111)** → **Enter** **Button**

II. **1 User** → **4 Delete User** → **Enter User ID (Number)**

III. ✔ **Button** → **Finish**

MENU → **Enter Password** → **Enter** → **1** → **4** → **Input User ID (Number)** → ✔ → **Finish**

TIP **When deleting all the users, once you press** **★** **(star) button in the User ID input window, the total number of registered users is displayed and they can be deleted together.**

3. Mode Setup (Access Control/Time & Attendance Setup/Meals Setup)

1. Access Control Setup (Access Control)

When using Access Control and Time & Attendance Management, please select 1. Access Control as Operation Mode.

I. **MENU** **Button** → **Enter Password(Default Value :1111)** → **Enter**

Button

II.   **2** Access Control → **1** Operation Mode → **1** Mode Select → **1**

Access Control Mode

III.   ✔ Button → Finish

MENU → Enter Password → **Enter** → 2 → 1 → 1 → 1 → ✔ → Finish

2. Attendance Management Setup

Attendance Management can only be used when Operation Mode is '1. Access Control.' (Impossible to use in '2. Meal Mode')

① Key

It selects a button for using attendance code.   Select time & attendance code with arrow keys or select using F1, F2, F3, and F4 as fixed keys.

1. **Up/Down key : Change Time & Attendance Button (Use Over 4 Time & Attendance Code)**

2. **F1-F2-F3-F4 : Fix Time & Attendance Button (Fix Below 4 Time & Attendance Code)**

I.   **MENU** Button → Enter Password(Default Value :1111) → **Enter**

Button

II.　　**2** Access Control → **1** Operation Mode → **2** Time & Attend Setup

→ **1** Key → Select (**1** or **2**)

III.　　✔ Button → Finish

(MENU)→ Enter Password → (Enter) → **2** → **1** → **2** → **1** → (**1** or **2**)→

✔ → Finish

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② **Item**

Select time & attendance code and name.

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1 => F0　Access Mode(Deactivated if unnecessary)

2 => F1　Sign In (Attendance)　Capable of Auto Setup of Time

3 => F2　Sign Out (After School)　Capable of Auto Setup of Time

4 => F3　Out (Early Leave)

5 => F4　Return (Return)

6 => F5

7 => F6

8 => F7

9 => F8

TIP　**1 (F0) is access mode, the default value. When access mode is unnecessary in time & attendance, please deactivate it.**

< Reporting Time Auto Setup>

(MENU) → Enter Password → (Enter) → **2** → **1** → **2** → **2** → **2** → **2** Yes

→ ➡ → **2** IN → ➡ → Input Time Slot (00:00-00:00) → ➡ → ✔ →

※ **Sign in is F1, and Sign out F2 code is fixed. After setup, sign in/sign out code is automatically changed by time slot.**

TIP (#)(Sharp) button has the same function as Back Space (←) which deletes data.

3. Meals Mode

When setting up meals mode, only meals function is supported. Access control and time & attendance function cannot be used.

I.   (MENU) Button → Enter Password(Default Value : 1111) → (Enter) Button

II.   **2** Access Control → **1** Operation Mode → **1** Mode Select → **2** Meal Mode

III.   ✔ Button → Finish

① Meal Setup

It can be set in the time slot in the order of breakfast, lunch, dinner, late-night meal, and snack. You can also set the number of menus by time slots. The terminal is not authorized outside the set time slot.
If overlapping prevention is selected, the same time slot is authorized only once.

TIP (#) **(Sharp) Button :   (Sharp) button has the same function as Back Space (←) which deletes data**

(Enter) **Button : Line Switchover**

I.   (MENU) Button → Enter Password(Default Value: 1111) → (Enter)

Button

II.　　**2** **Access** **Control** → **1** **Operation** **Mode** → **2** **Meals** **Mode** →

Breakfast/Lunch/Dinner/Late **Supper/Snack** **Time** **Slot** **&** **No.** **of**

Menus **Setup** → → **Select** **Overlapping** **Prohibited** (**1** **or** **2**)

III.　　 **Button** → **Finish**

※ **It is authorized in only the set time. Time besides that is not authorized by the terminal.**

TIP **The number indicated on the screen is the count number authorized by the current time slot. It is not saved and automatically deleted when it is changed to the next time slot.**

4. Prevention of Unnecessary Events in Attendance / Meal Counting Mode

Event prevention is a setup menu for preventing the occurrence of unnecessary log data, which can reduce the amount of data. For example, it is the log data on door open in time & attendance/ meals mode. It is unnecessary in time & attendance and meals mode.

When selecting lock event prevention, event on door open/close does not occur.

I.　　**MENU** **Button** → **Enter** **Password(Default** **Value** **:** **1111)** → **Enter**

Button

II.　　**2** **Access** **Control** → **5** **Event** **Setup** → **3** **Mask** **Event** → **1** **Lock**

Event → **1** **Yes**

III.　　 **Button** → **Change Complete**

MENU → **Enter Password** → **Enter** → **2** → **5** → **3** → **1** → **1** → ✅ →

4.　**Access Door Setup**

1. Use of I/O MAN

Select only when I/O MAN is used.

　I.　**MENU** **Button** → **Enter Password(Default Value :1111)** → **Enter**

　　Button

　II.　**2** **Access Control** → **4** **Use I/O MAN** → **2** **Yes**

　III.　✅ **Button** → **Change Complete**

MENU → **Enter Password** → **Enter** → **2** → **4** → **2** → ✅ → **Finish**

※ **Please refer to installation manual on How to connect I/O MAN.**

2. Link to Speed Gate (Change of Door Opening Time)

Set door opening time to 0.5 seconds when using the device for controlling speed gate.
The default value is set to 5 seconds.

　I.　**MENU** **Button** → **Enter Password(Default Value : 1111)** → **Enter**

　　Button

II.　　**2** **Access Control** → **2** **Reader** → **2** **Relay On Time** → **Input** '5'

III.　　✔ **Button** → **Finish**

MENU → **Enter Password** → **Enter** → **2** → **2** → **2** → **Input** '5' → ✔ →

TIP　You can control the door opening time from 0.5 ~ 25.5 seconds, and the entered 5 appears as 0.5 seconds.

5.　Network

1. Terminal ID

Terminal ID is the identification number by terminal which must not be overlapped.
Upon network connection, it is connected only when IP address and terminal ID matches.

I.　**MENU** **Button** → **Enter Password(Default Value :1111)** → **Enter**

　Button

II.　　**3** **Network** → **1** **Terminal ID** → **Input** **Terminal ID (1~999)**

III.　　✔ **Button** → **Change Complete**

MENU → **Enter Password** → **Enter** → **3** → **1** → **Input Terminal ID**

(1~999) → ✔ → **Finish**

Caution　**: Terminal ID must not be overlapped.**
※ 1~999 can be used as terminal ID.

2. TCP/IP Network Connection

① Terminal IP Setup

I. (MENU) Button → Enter Password(Default Value:1111) → (Enter)

  Button

II. **3** Network → **3** Network Mode → **Input 3** TCP/IP

III. ✅ Button → Finish

IV. **4** Setting IP Address → **2** Yes → ➡ → ✅ Button → Finish

<Normal Input Checking Procedure>

  I. **4** IP Address Setup → **2** Yes → ➡

  II. **1**Automatic address receiving is successful when address is like 92.168.2.XXX

  III. **0**When .**0**.**0**.**0** is displayed, select '**4** IP address setup → **1** No, Input **Manually.**

(MENU) → **Enter Password** → (Enter) → **3** → **3** → **3** → ✅ → **Finish**

---

4 → **2** → ➡ → ✅ → **Finish**

Caution : When the automatically received terminal IP address is displayed as '0.0.0.0', it is a network environment unable to automatically receive IP address. You must input manually.

② Server Setup

I. **MENU** **Button → Enter Password(Default Value :1111) → Enter**
Button

II. **3 Network → 3 Network Mode → Select 3 TCP/IP**

III. **5 Server Setup → Input Server Computer IP Address**

IV. ✔ **Button → Finish**

MENU → Enter Password → Enter → 3 → 3 → 3 → 5 → Input Server
Computer IP Address → ✔ → Finish

< Check Network Connection with Server Computer >

MENU → Enter Password → Enter → 3 → 6 → Input Server Computer IP
Address → ✔ → Finish

- **Reply OK : No problem in communiction from terminal to server computer**
- **Time out : No communication between terminal and server computer**

Caution : If 'Time out' appears, there is a problem in network setting or physical connection. You must check the status of connection.

3. RS485 Network Connection

I. **MENU** **Button → Enter Password(Default Value :1111) → Enter**

Button

II.   **3** **Network** → **3** **Network Mode** → **1** **Serial**

III.   ✔ **Button** → **Finish**

IV.   **4** **Serial Speed** → **Set Same as Computer Program Setup Speed** → ✔ → **Finish**

V.   **5** **Serial Port** → **1** **Port 0(RS-485)** → ✔ → **Finish**

(MENU) → **Enter Password** → (Enter) → **3** → **3** → **1** → ✔ → **Finish**

---

4 → **Same as PC Program Serial Speed** → ✔ → **Finish**

---

5 → **1** → ✔ → **Finish**

※ For the Serial Speed, you must enter the same speed as the serial port speed of BioManager program.

※ For how to connect to RS485, please refer to installation manual.

6.   Camera Setup

Camera is optional, and does not apply to products without camera.

1. Camera Operation Mode Setup

1. **Auto : Camera automatically turns on when a user approaches. It automatically turns off when there is no user.**
2. **On : Always on (Used when recording with DVR or used when always monitoring)**

> **3. Off : Camera not used**

    I.   **MENU** **Button** → **Enter Password(Default Value: 1111)** → **Enter**

        Button

    II.   **4 Setup → 7 Camera → 1 Camera Mode → Select 1 Automatic (or**

        2 On)

    III.   ✔ **Button → Finish**

    IV.   **2 Camera Channel → 1 0 Channel → ✔ → Finish**

> **MENU** → **Enter Password** → **Enter** → **4 → 7 → 1 → (1 or 2) → ✔**
>
> → **Finish → 2 → 1 → Finish**

※ '1.Auto' is recommended for camera operation mode.

2. Viewing with Camera

Check if camera is properly working from the terminal.

    I.   **MENU** **Button → Enter Password(Default Value: 1111)** → **Enter**

        Button

    II.   **4 Setup → 7 Camera → 4 Camera View**

    III.   **Enter** **Button → Finish**

MENU → **Enter Password** → **Enter** → **4** → **7** → **4** → **Enter** → **Finish**

※ Screen is normal if it is showing the screen in the direction of 90 degrees to the right.

Caution : **If an image does not appear on the screen, the camera is not properly working. Please inquire the dealer.**

7. Display

This is the LCD setup menu.

1. Lighting Hours

Proximity sensor works in the terminal with camera option.

Default value is 10 seconds. If a person approaches the camera, it turns on in 10 seconds and automatically turns off after 10 seconds.

I. **MENU** Button → Enter Password(Default Value: 1111) → **Enter** Button

II. **4** Setup → **3** Monitor → **1** BackLight Time → Input Desired Lighting Hours (0=Always On, 1~255 seconds)

III. ✅ Button → Finish

[MENU] → **Enter Password** → [Enter] → **4** → **3** → **1** → Input Lighting

Hours (0=Always On, 1~255 seconds) → ✅ → Finish

TIP LCD Always On Setup => Input '0' as Lighting Hour

2. Contrast

I. [MENU] Button → Enter Password(Default Value: 1111) → [Enter]

Button

II. **4** Setup → **3** Monitor → **2** LCD Contrast → Change with ⬅ ➡

Button

III. ✅ Button → Finish

[MENU] → **Enter Password** → [Enter] → **4** → **3** → **2** → ⬅ ➡ → ✅ →

3. Brightness

I. [MENU] Button → Enter Password(Default Value: 1111) → [Enter]

Button

II. **4** Setup → **3** Monitor → **3** LCD Brightness → Change with ⬅ ➡

Button

III. ✅ Button → Finish

MENU → **Enter Password** → **Enter** → **4** → **3** → **3** → **Change** ⬅ ➡

→ ✅ → **Finish**
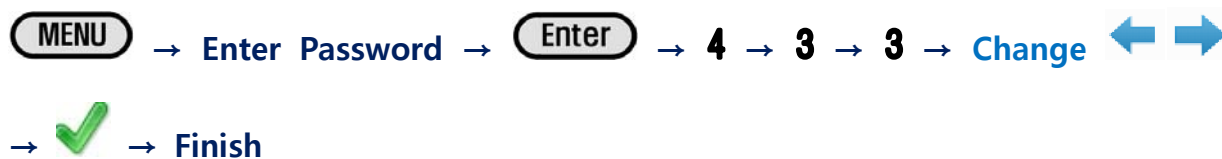
4. Black / White Mode (Daylight Mode)

Due to the characteristic of color LCD, it cannot be viewed well under daylight. In this case, if you select black/white mode, the main screen turns to black & white screen.

I.   **MENU** **Button** → **Enter Password(Default Value: 1111)** → **Enter**

   Button

II.   **4** **Setup** → **3** **Monitor** → **4** **Black / White Mode** → **Select** **2** **Yes**

III.   ✅ **Button** → **Finish**

MENU → **Enter Password** → **Enter** → **4** → **3** → **4** → **2** → ✅ → **Finish**

※ While the authorization screen changes to black & white mode, the menu does not change.

5. Set Time

This is the menu for setting the time indication format.

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1. 12 hour : Displays time in AM/PM with 12 hour format. (예 07:00PM   )

2. 24 hour : Displays time in 24 hour format. (Ex) 19:00   )

I.   **MENU** **Button** → **Enter Password(Default Value :1111)** → **Enter**

Button

II. **4** Setup → **3** Monitor → **5** Set Time → **Select** **1** 12 Hours (or **2** 24

Hours)

III. ✔ Button → Finish

MENU → **Enter Password** → Enter → **Select** **4** → **3** → **5** → (**1** or **2**)

→ ✔ → **Finish**

---

6. Set Date

This is the menu for setting the date format on the screen.

---

1. No : Screen is not displayed

2. MM/DD : Displays the date in the format of '8/13 FRI'

3. DD MON : Displays the date in the format of '13 AUG FRI'

I. MENU Button → Enter Password(Default Value :1111) → Enter

Button

II. **4** Setup → **3** Monitor → **6** Set Date → **Select** **2** MM/DD (or **3** MM

month DD date)

III. ✔ Button → Finish

MENU → Enter Password → Enter → Select **4** → **3** → **6** → (**2** or **3**) → ✔ → Finish

7. Language

For language, it only supports English and Korean. If the language changes, voice also automatically changes.

I.   MENU Button → Enter Password(Default Value: 1111) → Enter Button

II.   **4** Setup → **6** Language → Select **1** English

III. ✔ Button → Finish

MENU → Enter Password → Enter → **4** → **6** → **3** → ✔ → Finish

※ Only English and Korean is supported.

8.   SD Memory Backup & Restore

Micro SD Memory size supported is only 1GB or 2GB. (Unable to support more than 2GB)

The function is supported only when the following folders are created in the SD memory card. Please inquire the dealer for contents going into each folder.

Firmware
Icon
Ment
User

1. SD Memory Function

1. Auto log data backup function(in text format)
2. Store Camera Capture Image(Up to 10,000 images)
3. User Data Backup and Recovery
4. Terminal Setup Information Backup and Recovery
5. Firmware Update
6. Import Resource Files(Voice & Icon Files)

2. Auto Log Data Backup Function

Once you insert the SD memory into the terminal, text files are automatically created for each month, and are automatically saved without any setup process.

- **Log data : Save log data to SD memory**
- **Image data : Save image data to SD memory (Max 10K)**

3. Import from SD memory

This function which allows you to save the SD memory data to terminal. The SD memory data includes a firmware, resources files(Voices, Icons), Customer value, User Files and Setup Files.

2. **Resources(Voices, Icons) : Voice and Icon files**

3. **Customer Value : T&A Item name, Printer setup value(Meal Model), Mifare**

   key value

4. **User Files : User data saved in terminal**

5. **Setup Files : Terminal setting value**

I. (MENU)Button → Enter Password(Default Value: 1111) → (Enter)
Button

II. **5** System → **3** Import from SD Memory → (**2** Import Resources
(Voices, Icons) / **3** Customer Value / **4** User Files / **5** Setup Files)

III. ✔ Button → Finish

(MENU) → **Enter Password** → (Enter) → **5** → **3** → (**2** Resources / **3**
Customer Value / **4** User Files / **5** Setup Files) → ✔ → Finish

Caution Data in the terminal: User ID, Fingerprint/Card/Password (Name and company number can be checked only in the program)

4. Export to SD Memory

This is a function which allows you to backup user data and terminal setup value saved in the terminal to SD memory.

1. **User Files : User data saved in SD memory**

2. **Setup Files : Terminal setup value in SD memory**

I. (MENU)Button → Enter Password(Default Value :1111) → (Enter)

Button

II. **5** System → **4** Export to SD Memory → (**1** User Files / **2** Setup Files)

III. ✔ Button → Finish

MENU → Enter Password → Enter → **5** → **4** → (**1** : User Files / **2** : Setup Files) → ✔ → Finish

---

5. How to Update Firmware

Firmware update is used only when there are some problems in operating the terminal or when there is an upgraded version. If the version is different, the registered data can be deleted.

I. MENU Menu → Enter Password(Default Value: 1111) → Enter Button

II. **5** System → **3** Import from SD Memory → **1** Firmware

III. ✔ Button → System Reboot → Finish

MENU → Enter Password → Enter → **5** → **3** → **1** → ✔ → Reboot →

Caution **When there is a different version, setup values and data may be initialized. Please inquire the dealer about which version it is.**

9. Initialization

> 1. Init Event : Deletes only long event data
> 2. Init Setup : Resets only terminal setting to default values.
> 3. Init Factory : Deletes all the user, log, and setup values, and resets to default values.

I. **MENU** Button → Enter Password(Default Value: 1111) → **Enter** Button

II. **5** System → **2** Initialize → Select out of (**1** Init Event / **2** Init Setup / **3** Init Factory)

III. ✔ Button → System Reboot

IV. **MENU** Button → Enter Password(Default Value :1111) → **ENTER** Button

V. **4** Setup → **6** Language → **3** Korean

VI. ✔ Button → Finish

MENU → Enter Password → **Enter** → **5** → **2** → Select (**1** : Init Event / **2** Init Setup / **3** Init Factory) → ✔ → Reboot → **MENU** → Enter Password → **Enter** → **4** → **6** → **3** → ✔ → Finish

10. Q&A

1. I cannot view the LCD screen from outdoors
2. Card is not authorized when using Serial PC device.
3. I want to know the Card number.
4. The fingerprint registered on the USB Fingerprint Device is not properly recognized.

5. **The LCD screen keeps turning off and giving out a 'beep beep' sound.**

1. I cannot view the LCD from outdoors.

Color LCD is not very visible under daylight conditions. It is just as a cellphone screen not visible outdoors. If you set the main screen to black & white mode, the letters and time becomes a bit clearer.

I.   **MENU Button → Enter Password(Default Value: 1111) → Enter Button**

II. **4 Setup → 3 Screen → 4 Black / White Mode → 2 Yes**

III. **✔ Button → Finish**

MENU → Enter Password → Enter → 4 → 3 → 4 → 2 → ✔ → Finish

2.Card is not authorized when using Serial PC Device.

When using a Serial PC device, because the card data value and the terminal default value is different, you have to set options.

I.   **MENU Button → Enter Password(Default Value :1111) → Enter Button**

II. **2 Access Control → 3 Readers Setup→ 2 Mifare Card Reader → 2 Serial Number → 2 Reverse order**

III. **✔ Button → Finish**

(MENU) → **Enter Password** → (Enter) → **2 → 3 → 2 → 2 → 2 →** ✔ →

Finish
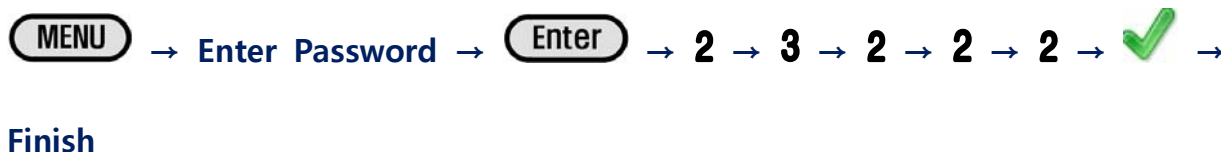
3.I want to know the Card Number.

When you want to check the card number registered in the terminal, you can easily view it if you use View Card Number in the menu.

I. (MENU) **Button → Enter Password(Default Value: 1111) →** (Enter)

Button

II. **2 Access Control → 3 Readers Setup → 2 Mifare Card Reader → 3**

Reading Card → Hold card close to keypad (or fingerprint sensor)

(Wiegand 리더기일 경우, Wiegand 리더기 안에 카드보기 메뉴가 있음)

III. ✔ **Button → Finish**

(MENU) → **Enter Password** → (Enter) → **2 → 3 → 2 → 3 →Touch Card →**

✔ → **Finish**
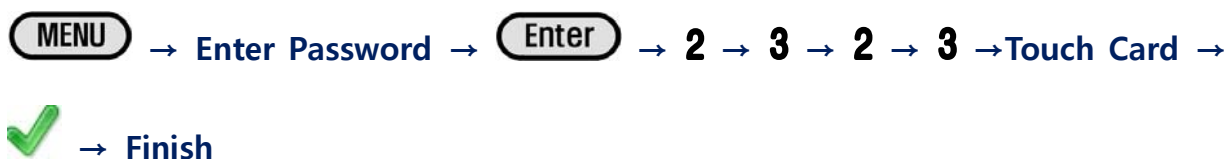
4.The fingerprint registered on the USB Fingerprint Device

is not properly recognized.

When registering a fingerprint, the fingerprint core must be in the taken image. Please re-register. In addition, if there is difference in the level of exposure between the USB fingerprint device and the

terminal, this may occur.

Please change the fingerprint sensor exposure value in the menu to '5.'

I. **MENU** **Button → Enter Password(Default Value: 1111) → Enter**

   Button

II. **2 Access Control → 3 Readers Setup → 1 FP Reader → 2 Exposure**

   → Set to '5'

III. ✔ **Button → Finish**

MENU → Enter Password → Enter → 2 → 3 → 1 → 2 fingerprint

exposure level → Set to '5' → ✔ → Finish

5.The LCD screen keeps turning off and giving out a 'beep

beep' sound.

This may happen if the proximity sensor is activated or if the terminal without a built-in proximity sensor is set to use proximity sensor. Enter lighting hours to '0.'

I. **MENU** **Button → Enter Password(Default Value :1111) → Enter**

   Button

II. **4 Setup → 3 Monitor → 1 BackLight Time → Enter '0'**

III. ✔ **Button → Finish**

MENU → **Enter Password** → **Enter** → **4** → **3** → **1** → **Enter '0'** → ✔️

→ **Finish**

GLOSSARY

☐ **Administrator**

- The administrator has the authority to modify or set all setup values of the terminal, and register or delete new users.
- The first ID of the administrator is the number '0,' and the first password of the terminal is '1111.'
  A NEW ADMINISTRATOR MUST CHANGE THIS VALUE.

☐ **1 to 1 Verification**

- This is a way to compare fingerprints among fingerprint recognition methods. It pre-selects a user's fingerprint with an ID or card and compares the fingerprints.

☐ **1 to N Identification**

- This is a method in which all the fingerprints registered in the terminal searches for the user by comparing all fingerprints with fingerprints of an individual.

☐ **Authentication Grade**

- This is a standard grade for determining the authentication according to the similarity of fingerprints when comparing fingerprints. Generally, it is suitable to set it to 'normal.'

☐ **Authentication Method**

- This is a method of identifying a user using a fingerprint, password, and RF card. There are various combinations from authenticating with each respective method to a method of final authentication only when all the fingerprint, password, and RF card are authenticated.

☐ **Function Key**

- This refers to a key setting the current mode such as sign in, sign out, outing, and returning to office upon user authentication in time & attendance mode. Each function key is set from the menu. Furthermore, you can have this setting displayed on the basic screen in the format of 'F1' and 'F2,' or 'sign in,' and 'sign out.'

☐ **IOMAN (optional)**

- When connecting additional I/O to Cadenacio, I/O MAN is connected. It is safe due to encrypted communication with the terminal, and it can be interlinked with additional I/O such as locks and fire sensors.

☐ **Link up with Key Phone (optional)**

- This is a module installed inside the terminal. Once you install this board and connect to the in-company key phone, you can connect to a phone by pressing the extension number and have a phone conversation. It also has a function allowing the user to open the door during a phone conversation using a dial button on the phone.

☐ **Camera (optional)**

- This is a camera module built into Cadenacio. It takes photos when somebody attempts to authenticate with a fingerprint, card, or password, and sends it to a server. When a visitor rings the bell, you can check the person's face with the program. Because there is a NTSC camera port, it can be linked up to a DVR.

☐ **Proximity Sensor (included in camera option)**

- It is a sensor built into the front side of the terminal. If a person approaches from a distance of more than 1m, it sends up a signal to light up the LCD screen and automatically activate the camera.

PRODUCT SPECIFICATION

CPU	32bit Micro processor, 400MHz
Memory	NAND Flash 128Mbyte, 64Mbyte RAM
Backup Memory(optional)	Mini SD Memory 1Gbyte
LCD	2.8″ color LCD
Sensor	Optic, 500 DPI
NTSC Camera(optional)	Built-in Focal length : 3.7mm Iris : fixed Angle Of view : 92°(D)
Proximity Sensor(optional)	Camera automatically turns on in proximity
Size	(W)149mm X (L)132mm X (D)52mm
Fingerprint data size	512 byte
Registered Personnel	1:N user: 3,000 persons RF card : 10,000 persons Log data : 100,000 data
IN/OUT port	Input : Door sensor, Lock sensor Output : Lock relay, Exit button *When linked up to I/O MAN Lock 2 port , Exit button, Fire alarm, Door sensor, Lock sensor, Output 2 port, Spare I/O 5 port
Communication	TCP/IP
Language/Voice	Korea/ English (Support multi languages) User can change voice file (Wave File only)
Key phone(option)	Capable of extension call linked up with internal switchboard(Key phone)
Power consumption	400mA
Built-in RF	Mifare(13.56MHz, ISO14443A)
Built-in option	Camera, Keyphone Call
Other option	I/O MAN