

AC-5000, 5100 User Guide

Version eng-2.07



<Revision History>

Version	Date	Description	Firmware Version
2.00	2015-07-13	Initial Release	30.62.00-000.00
2.01	2015-10-19	1.2. Terminal Description 2.1. Features 2.3. Specification 3.2. Menu Configuration	30.62.00-000.01
2.02	2015-11-18	3.6.1. System Setting 3.6.4. Language	30.62.00-000.02
2.03	2016-01-07	3.6.2. Authentication	30.62.00-000.03
2.04	2016-03-28	2.1. Features Various register and changing Auth Type(13->12) 3.7.1. Terminal Option Big character use 3.6.5. Data Time 1.4. LED Signal Shown During Operation 3.3.1.1. Auth Type 3.3.1.5. FP Option 3.6.1. System Setting 3.7.6 Connection device setting 3.8.1 System Info	30.62.00-000.05
2.05	2016-04-14	3.4.3 Terminal ID	30.62.00-000.06
2.06	2016-04-22	3.3.1.1. Auth Type 3.1.5. Save Environment Settings	
2.07	2016-06-02	1.3.1. Icons Shown During Operation	

<Glossary>

- AC5000: Terminals not supported by Camera
- AC5100: Terminals supported by both Camera
- Admin, Administrator
 - A user who can enter the terminal menu mode. They are authorized to register/modify/delete terminal users and alter the operating environment by changing the settings.
 - If there is no administrator registered for a terminal, anyone can enter the terminal menu and change the settings. Therefore, **it is recommended to register at least one administrator.**
 - Special care is required for registration and operation, as an administrator has the rights to change important environmental settings of the fingerprint recognition unit.
- 1 to 1, Verification
 - This is a method that authenticates fingerprints together with a user ID or card.
 - This method is called 1:1 authentication as only the fingerprint registered for the user ID or card is used for comparison.
- 1 to N, Identification
 - This is a method that searches for a corresponding user only with fingerprint.
 - This method is called 1:N authentication as it searches for the identical fingerprint, from the registered fingerprints, without a user ID or card being entered 1:N.
- Security Level
 - This is the level used for fingerprint authentication, displayed from 1 to 9, depending on how both fingerprints match against each other. Authentication is only successful when the similarity between both fingerprints is higher than the preset level.
 - The higher the authentication level, the higher the security. Nevertheless, as it requires a relatively high match rate, self-authentication is prone to failure.
 - 1:1 Level: Authentication level used for 1:1 verification.
 - 1:N Level: Authentication level used for 1:N identification.
- Authentication Method
 - This represents the various types of authentication, including FP (fingerprint) authentication, RF (card) authentication or a combination of these methods.
Example: Card or FP: Authentication with card or fingerprint.
- Function Keys
 - [F1], [F2], [F3], [F4], and [ENT] keys are available. These keys allow a user to enter the menus or change modes such as office start/leave times.
- LFD (Live Finger Detection)
 - This function allows the input of only real fingerprints and blocks the input of imitation fingerprints produced using rubber, paper, film, and silicone.

Table of Contents

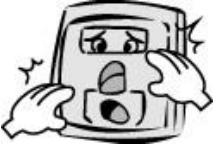
<Revison History>	2
1.2. Terminal Description	2
2.1. Features	2
2.3. Specification	2
3.2. Menu Configuration.....	2
3.6.1. System Setting	2
3.6.4. Language.....	2
3.6.2. Authentication	2
2.1. Features Various register and changing Auth Type(13->12).....	2
3.7.1. Terminal Option	2
Big character use.....	2
3.6.5. Data Time	2
3.4.3 Terminal ID	2
3.1.5. Save Environment Settings	2
1.3.1. Icons Shown During Operation.....	2
Table of Contents.....	4
1. Before Use	6
1.1. Safety Precautions	6
1.2. Terminal Description	7
1.3. Screen Description (During Operation)	8
1.3.1. Icons Shown During Operation.....	8
1.4. LED Signal Shown During Operation	12
1.5. Keys Used During Operation.....	12
1.6. Used Voices During Operation	12
1.7. Buzzer Sounds Used During Operation	13
1.8. How to Register and Input Fingerprint	13
2. Product Introduction	15
2.1. Features	15
2.2. Configuration	17
2.2.1. Standalone (Access).....	17
2.2.2. Connect with PC SERVER (Access, Time & Attendance, Cafeteria) ..	17
2.3. Specification	18
3. Environment Settings	20
3.1. To be checked before environment settings.....	20
3.1.1. Enter the Menu.	20
3.1.2. How to access the menu without the Admin verification.	20
3.1.3. Modify Set Values	21
3.1.4. Move to page	23
3.1.5. Save Environment Settings	24
Press the [F4 (←)] key in the main menu screen of <Figure 3-1> to save the changed settings, and the following screen appears:	24
3.2. Menu Configuration.....	25
3.3. User	28
3.3. 1. Add	29
3.3.2. Delete	33
3.3.3. Modify	34

3.3.4. Delete All	35
3.4. Network	35
3.4.1. IP	36
3.4.2. Server IP.....	36
3.4.2.1. Server IP settings	37
3.4.2.2. DDNS	37
3.4.3. Terminal ID	38
3.5. Application	39
3.5.1. Application	39
3.5.2. Time Schedule.....	40
3.5.3. Function Key.....	41
3.5.4. Extended Key	41
3.5.5. Display.....	43
3.5.6. RS485 ID settings.....	43
3.6. System.....	43
3.6.1. System Setting	44
3.6.2. Authentication	45
3.6.3. Fingerprint	46
3.6.4. Language.....	47
3.6.5. Date Time	48
3.6.6. Database	48
3.7. Terminal.....	51
3.7.1. Terminal Option	51
3.7.2. Volume Control	52
3.7.3. Door.....	53
3.7.4. Wiegand	54
3.7.5. Card Reader	55
3.7.6. External Device	56
3.8. Information.....	58
3.8.1. System Info.....	58
3.8.2. Network Info	58
3.8.3. Database Info	59
3.8.4. View Log.....	59
3.8.5. Version Info.....	59
3.9. Downloading User's File.....	60
3.9.1. Change Background Image	60
3.9.2. Change Voice Message.....	60
3.9.3. Change User Text	61
4. How to use the Terminal	62
 4.1. Change of Authentication Mode	62
 4.2. ID input	63
 4.3. Authentication	63
4.3.1. Fingerprint Authentication	63
4.3.2. Card Authentication	63
4.3.3. Password Authentication	64

1. Before Use

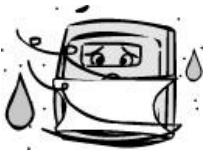
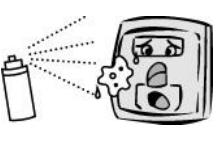
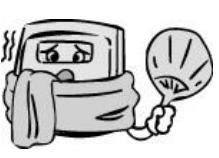
1.1. Safety Precautions

● Warning

<p>Do not handle the unit with wet hands and do not allow liquid to flow into, or on, it. -> It may cause an electric shock or damage.</p> 	<p>Do not place a fire source near the unit. -> It may cause a fire.</p> 
<p>Do not disassemble, repair, or modify the unit. -> It may cause an electric shock, fire or damage.</p> 	<p>Keep out of children's reach. -> It may cause an accident or damage.</p> 

- If the above warnings are ignored, it may result in death or serious injury.

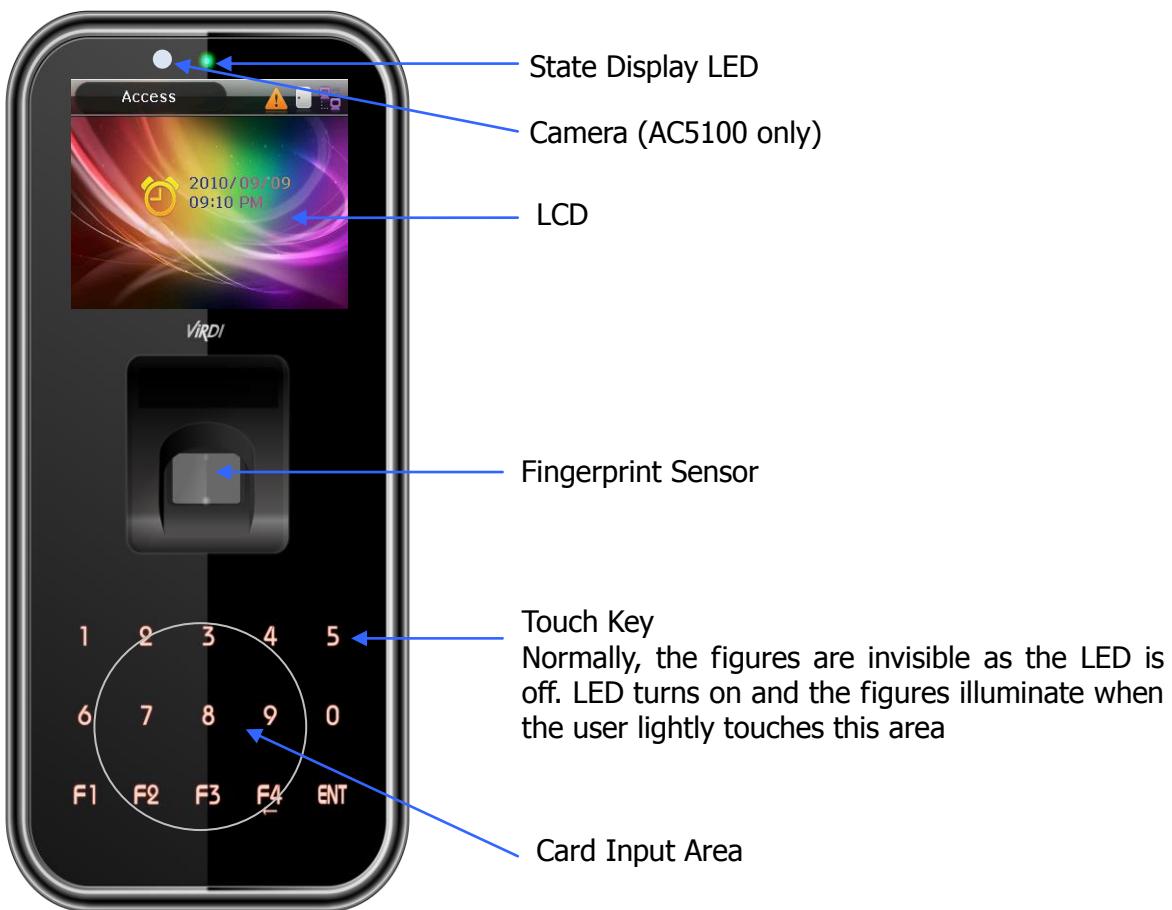
● Cautions

<p>Keep away from direct sunlight -> It may cause malfunction, deformation or change the color of the unit.</p> 	<p>Avoid high humidity or dust -> It may cause the unit to malfunction.</p> 
<p>Avoid using water, benzene, thinner, or alcohol for cleaning the unit. -> It may cause an electric shock or fire.</p> 	<p>Do not place a magnet near the unit. -> The unit may break down or malfunction.</p> 
<p>Avoid getting the fingerprint input area dirty. -> It may prevent the unit from recognizing the fingerprint.</p> 	<p>Avoid using insecticides or flammable sprays near the unit. -> It may result in the deformation or change the color of the unit.</p> 
<p>Avoid impact or using sharp objects on the unit. -> The unit may get damaged and broken.</p> 	<p>Avoid installing the unit in a place where temperature changes severely. -> It may cause the unit to malfunction.</p> 

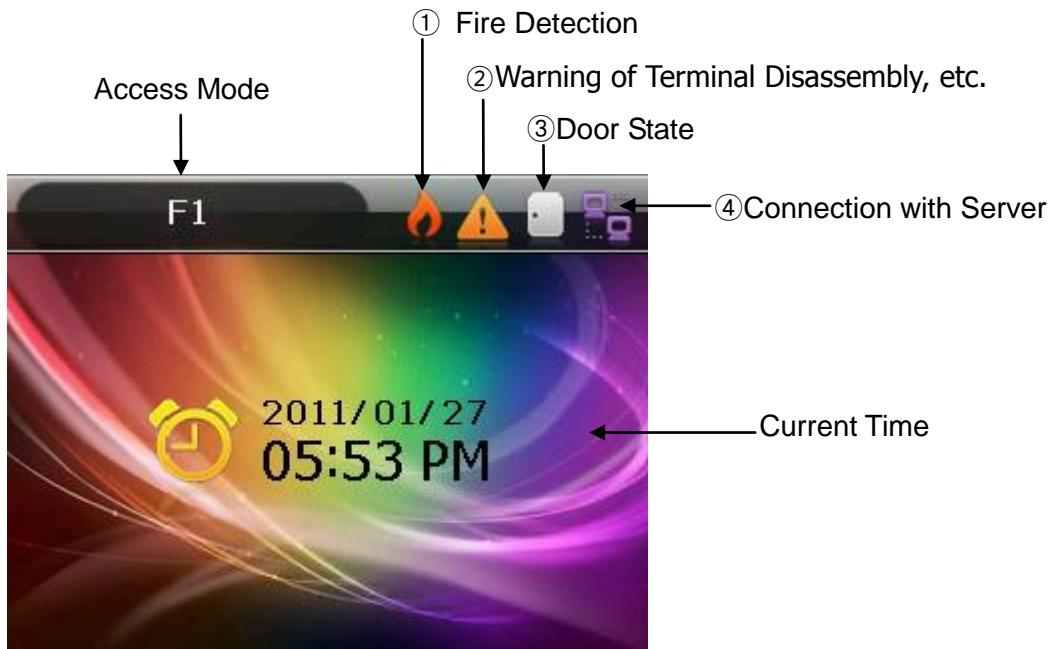
- If the above cautions are ignored, it may result in property damage or human injury.

※ Under no circumstances will Union Community be responsible for accidents or damages caused by inappropriate use of the product and neglect of the precautions stated in the user guide.

1.2. Terminal Description



1.3. Screen Description (During Operation)



1.3.1. Icons Shown During Operation

	None	: Normal
① Fire Detection		: State when fire is detected by a fire sensor (subject to the appropriate fire sensor connection).
② Warning		: Normal. : Abnormal state when terminal is disassembled or door has encountered a problem.
③ Door Status	 	: Door status is unknown. : Door is closed. : Door is open. : Forced door open / Door related error
④ Connection of Server	 	: LAN cable is not connected. : LAN cable is connected, but not yet to the server. : Connected with the server.

1.3.2. Message Shown During Operation



- Initial screen of AC5000.

- When authentication is successful.

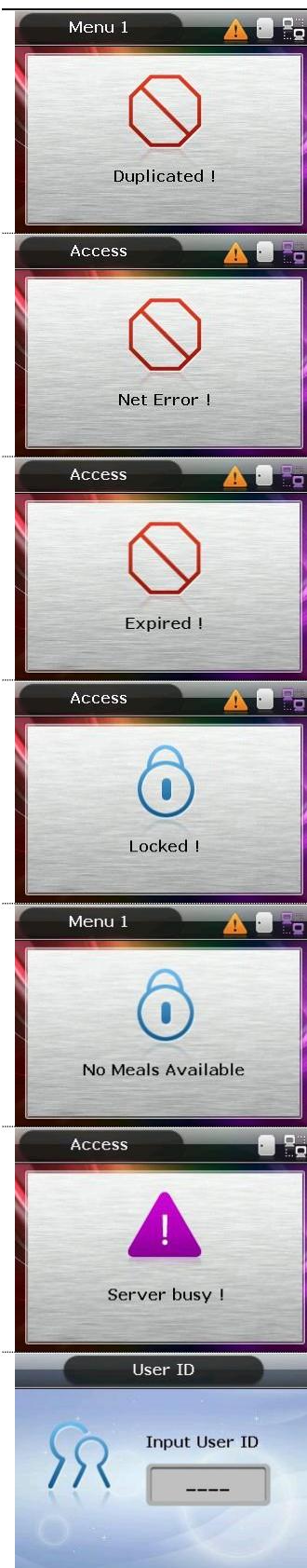
- When authentication has failed.

- When any unregistered user ID is input.
 - When fingerprint authentication is attempted where the server is not connected or there is no registered fingerprint in the terminal.

- When any unregistered card is input.

- When fingerprint input has failed.
 - If the user removed their finger too quickly before the fingerprint was identified.

- When Anti-Pass Back is in error (if the anti-pass back function is being used).



- If a user made two or more attempts at the same meal time zone (if being used for cafeteria operation).

- If there is no response from the server when attempting authentication to the server.
- When network is disconnected during an authentication attempt to the server.

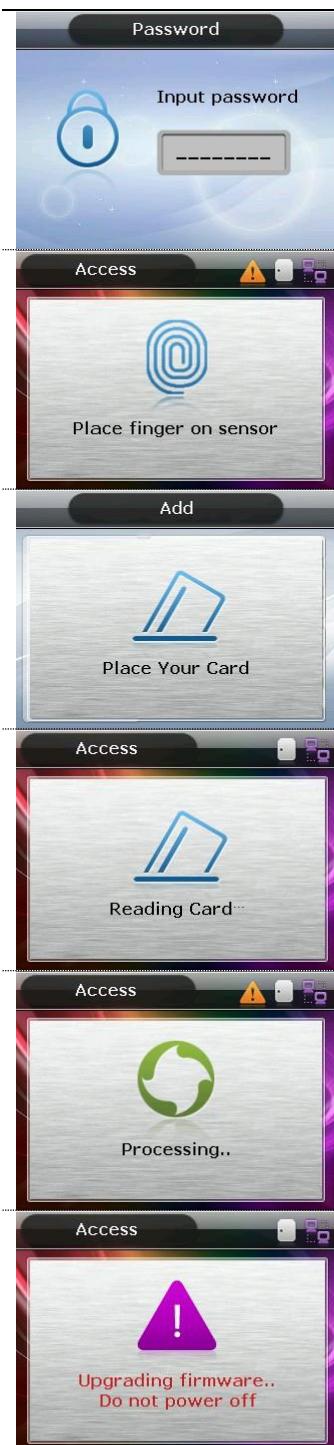
- When the user is not authorized for authentication, even if they are registered, or the user attempted authentication when access is not allowed.

- When the terminal is set to Locked.

- When it's not a meal time (if being used for Cafeteria operation).

- When the authentication cannot be processed due to too many server authentication requests from the terminal.

- Show the waiting status for a user's ID input.



- Status waiting for password input from the user.

- Status waiting for fingerprint input from the user.

- Status waiting for card input from the user.

- During fingerprint card authentication, it shows the status when the card reads fingerprint data. The user must put the card for 1~2 seconds until the message disappears.

- When waiting for a response, after the user attempted authentication by the server.

- When upgrading the terminal program.
(Make sure the terminal is not powered off while this message is being output.)

1.4. LED Signal Shown During Operation

●	Power	Red	On: Normal Flickering: When the lid is open, or there is any communication error in the connection with the LC010.
●	Door	Green	On: Door Open Off: Door Closed
●	Status	Red+Green	Blinking: Display during BLE connection

1.5. Keys Used During Operation

[0]~[9]	- Keys used for number input.
[F1]~[F3]	- Keys used for changing the authentication mode.
[F4] or [←]	- Used for changing the authentication mode. - Used as the Delete key for correction when numbers are input. - Used for cancelling input, and moving to a parent menu in menu mode
[F4(←)~]	- It means to press the [F4 (←)] key for 2 seconds or longer. - When input cursor is located in the input box, it cancels the input and exits to the parent menu if pressed and held for 2 seconds or longer.
ENT [or MENU]	- Used for modifying the mode. - Used for saving the values set in menu mode, or moving to the screen configuration.
[ENT~]	- It means to press the [ENT] key for 2 seconds or longer. - Used for accessing the menu when pressing on the initial screen - When input cursor is located in the input box, the user can exit to the parent menu with the current input value saved by pressing the button for 2 seconds or longer. - Used to apply the configuration to the current screen in menu mode and then exiting to the parent menu.

1.6. Used Voices During Operation

Type of Operation	Voice
For fingerprint input	Please enter your fingerprint

When authentication is successful	You are authorized.
When authentication has failed	Please try again

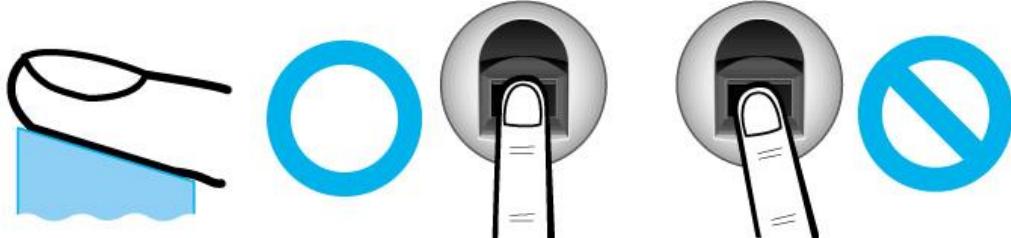
1.7. Buzzer Sounds Used During Operation

Beep	Sound that is generated when a key is pressed or a card is being manipulated	When the key is pressed or card is read; When fingerprint input is completed and the user may take their finger off.
Be beep	Sound of failure	When authentication has failed or when the user's fingerprint is wrongly input.
Brrrrrrp	When standing by for input	When notifying the status of waiting for the user's input of fingerprint or password.
Beeeep	Success	When succeeding in authentication or completing the settings.

1.8. How to Register and Input Fingerprint

- How to Input Fingerprint

Please input your fingerprint as if you are sealing a document using your forefinger.
Avoid inputting your fingerprint with the fingertip touched lightly at input or registration.
Make sure the center of your fingerprint correctly touches the fingerprint input area.



- If possible input the fingerprint of your forefinger.
- It facilitates accurate and stable fingerprint input.
- Check to see if the fingerprint is clear and without any scars.
Too dry or wet fingerprint, ambiguous fingerprint, fingerprint with a scar, etc. may not be recognized. In such cases, use/register the print from a different finger.



- Precautions related to the user's fingerprint status:

Depending on the fingerprint status, the user may not use fingerprint or suffer inconvenience from its use.

- This product is a fingerprint recognition system. Any fingerprint that is damaged or thin may not be used. In such cases, the user should operate with a password.
- If a finger is in a dry condition, we advise breathing lightly on the finger for a smooth operation.
- For children, due to their small size and the tender properties of their fingerprints, it may be difficult or impossible to use their fingerprints. It is necessary to register their fingerprint at 6 monthly intervals.
- In cases of old people, excessive tiny lines existing on their fingerprints may prevent proper registration.

It is recommended, if possible, to register at least 2 fingerprints from every user.

2. Product Introduction

2.1. Features

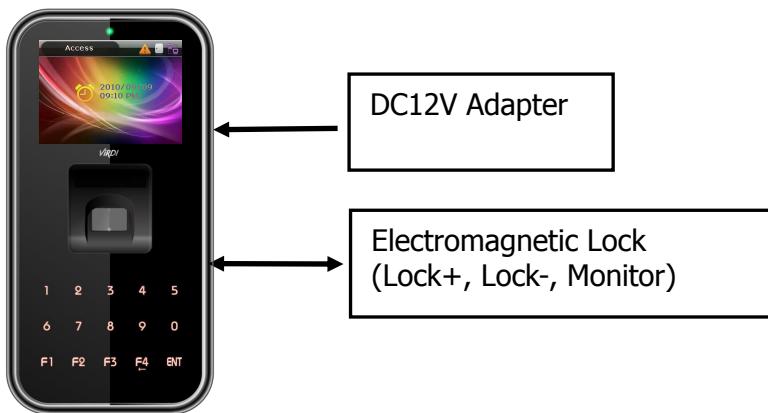
- **IP65 Environmental standard is designed for Outdoor installation**
- **Slim and sophisticated design**
 - Easy to install as it is designed as a vertical type; Slim and elegant design using Color LCD and Touch Keys
- **Download Server Functions – Change the LCD background image and voice**
 - Provides a variety of information messages via the color LCD screen and voices. You can download background images and voice messages from the server according to your preferences. Also, the built-in LCD Screen Backlight and Touch Key LED allow the screen to be read and keys to be operated in dark conditions
- **Convenient Auto Sensing Function**
 - Enables easy authentication operations to be performed by inputting a fingerprint without separately entering a key.
- **Easy Fingerprint Self-Authentication**
 - Prevents risks associated with forgetting a password, loss/theft of a card or key by using biometric fingerprint recognition technology; reinforces the security of self-authentication through the use of your own fingerprint.
- **Access Management System Using a Network (LAN)**
 - Communication is carried out between the fingerprint recognition device and authentication server using TCP/IP protocol, and allows for easy expansion as it can be applied to the network as is. 10/100 Mbps Auto Detection ensures high-speed operation. It enables easy management and to monitor via the network.
- **Provides a Diverse and Flexible Access Management**
 - Provides a perfect control function by granting entrance/access rights by user group.
- **Applicable for Various Operations such as Access, Time & Attendance, Cafeteria, etc.**
 - Enables a variety of operational methods depending on the settings in the terminal menu.
- **Abundant Server Capacity**
 - The system allows an almost unlimited number of people to be managed by the server.
- **Provides a Variety of Registration and Authentication Methods**

There are 13 registration and authentication methods for general user. Therefore, it's necessary to determine which registration and authentication method to use before registering a user or administrator.

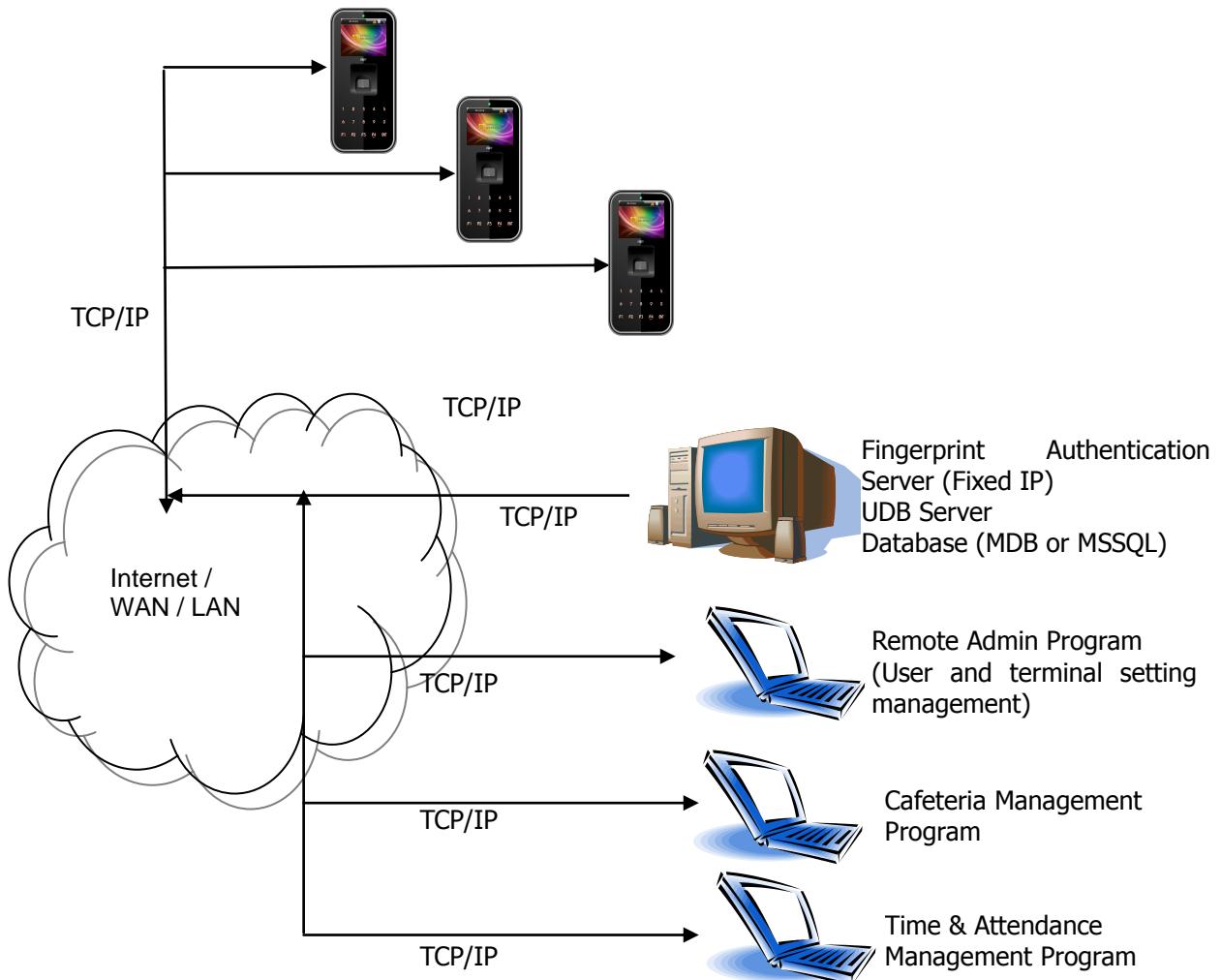
FP	Fingerprint Registration Fingerprint Authentication
PW	Password Registration Password Authentication
FP or PW	Fingerprint and Password Registration Password Authentication when Fingerprint Authentication fails
FP & PW	Fingerprint and Password Registration Fingerprint Authentication and then Password Authentication
Card	Card Registration Card Authentication
Card or FP	Card and Fingerprint Registration Card or Fingerprint Authentication
Card & FP	Card and Fingerprint Registration Card Authentication and then Fingerprint Authentication
Card or PW	Card and Password Registration Card or Password Authentication
Card and PW	Card and Password Registration Card Authentication and then Password Authentication
Card & PW & FP	Card, Password, and Fingerprint Registration Card Authentication and then Fingerprint & Password Authentication

2.2. Configuration

2.2.1. Standalone (Access)



2.2.2. Connect with PC SERVER (Access, Time & Attendance, Cafeteria)



2.3. Specification

Category	SPEC	REMARK
CPU	32Bit RISC CPU(528MHz)	
Environmental	IP65	
LCD	2.8" TFT Color (320*240)	
Touch Key	15key (0~9, F1~F4, Enter)	
	32M SDRAM	
	32M NOR FLASH	20,002 User 20,002 Finger 1:N 15000 User 1:1 5002 User
	128M NAND FLASH	63,488 Log About 17,000 Pics
Fingerprint Sensor	Optical	
Authentication Speed	Within 1 sec	
Scan Area / Resolution	15 * 17mm / 500 DPI	
FRR / FAR	0.1% / 0.001%	
Temperature / Humidity	-20 ~ 50 / Lower than 90% RH	
	INPUT : Universal AC 100 ~ 250V	
AC / DC Adapter	OUTPUT: DC 12V (Option : DC 24V)	
	UL, CSA, CE Approved	
Lock Control	EM, Strike, Motor Lock, Auto Door	
I/O	3 In (1 Exit, 2 Monitor) 2 Out (Lock Control)	
	TCP/IP (10/100Mbps)	Authentication Server Communication
Communication Port	RS-232	Meal Ticket Printer
	RS-485	External Device Communication
	Wiegand In/Out	Card Reader or External device communication

Card Reader	125KHz RF or 13.56MHz Smart (1 Sam Socket) or HID Card	Option
SIZE	88.0mm * 175.0mm * 43.4mm	

3. Environment Settings

3.1. To be checked before environment settings.

3.1.1. Enter the Menu.

Press the [ENT] key and hold for two seconds or longer. The user can access to the screen for menu selection, as follows:



<Figure 3-1>

User can transfer to, and have access to, each sub menu by pressing the relevant number key. If the Admin User is already registered, [Verify Admin] screen appears as shown below:



<Figure 3-2>

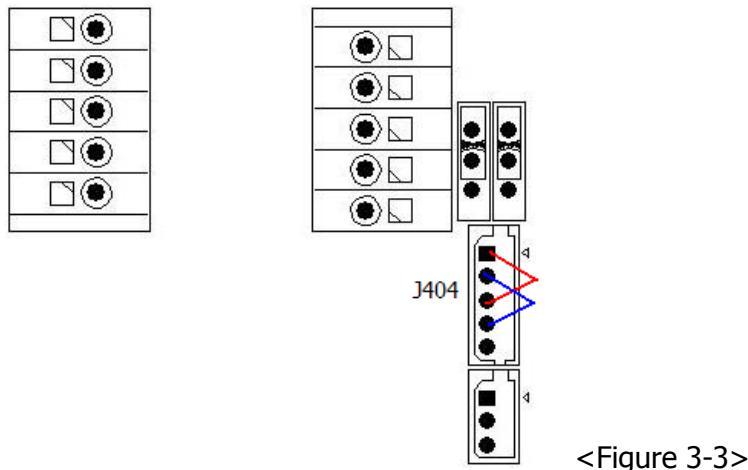
In adherence with the registered authentication method, such as card, fingerprint or password, users can access each menu - subject to successful identification - after the admin verification has finished.

- ▶ Verify Admin appears only if there is a registered Admin User. When accessing menu mode, after being identified, the user is allowed to access all the menus until they completely exit from the main menu.

3.1.2. How to access the menu without the Admin verification.

This is the way to access the menu if fingerprint authentication is impossible, or because the user forgot the admin password, or lost the card registered on the terminal, or there is no Admin.

- ① Remove the bracket on the rear of the terminal to open the lid.
- ② With the lid open, as shown in the figure below, connect pin 1 to pin 3, and pin 2 to pin 4 of connector J404.



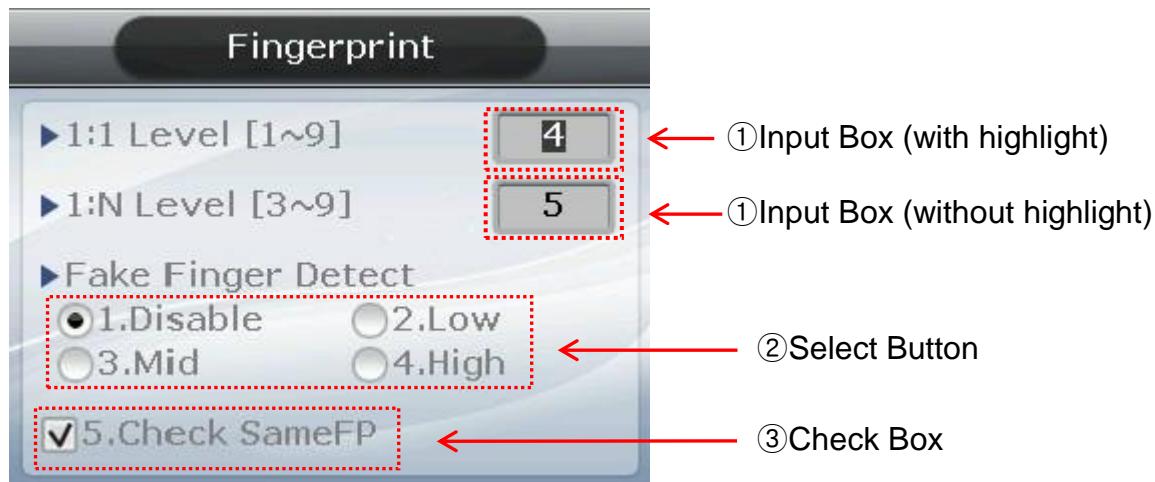
<Figure 3-3>

- ③ Access the menu by pressing and holding the [F4(←)] key for 2 seconds or longer. Enter Admin ID as '0' on the Verify Admin screen <Figure 3-2>, and press the [ENT] key. The user can now access the menu selected and the buzzer sounds "Brrrrrrp".
- After modifying the configuration, remember to remove the wires from the connected pins on the J404 connector.

3.1.3. Modify Set Values

The following are the names and input methods for setting items.

<Figure 3-4>



► ① Input Box

For items where the value is directly input, such as the '1:1 Level', users must delete the existing value using the [F4 (\leftarrow)] key when the applicable item is highlighted. Then input the new value using the [0] ~ [9] keys.

► ② Select Button

For items such as 'Fake Finger Detect', the user should modify the selection (●) by pressing the relevant numeric key, provided the item is first highlighted. Move the highlighting in the input box by pressing the [ENT] key - if the highlight is located in the input box as shown in <Figure 3-5>.

<Figure 3-5> Move Highlight (using the [ENT] key)



As shown in the figure on the left, the number is displayed in reverse color when the highlight is in the input box. In the figure on the right, the applicable letters are displayed in black instead of grey when the highlight moves to 'Fake Finger Detect'.

► ③ Check Box

The user must select whether or not to check 'Check Same FP'. The user can either select (✓) or release it (◻) by pressing the relevant key [5]. It's impossible to select this item, if it's displayed as (✗).

► ④ Combo Box

<Fig. 3-6> Navigate to the combo box (use [ENT] key)



As shown in the <Fig.3-6> above, press the [ENT] key to move the focus to the combo box in order to change the settings. To reset the default, press [1] or [2] (shown as Δ) to either decrease or increase the value.

Press the [F4 (←)] key to cancel, while setting, and move back to the parent menu. When the highlight is located at the input box the [F4 (←)] key functions as a [DEL] key, which deletes figures one by one. Press the [F4 (←)] key for two seconds, or longer, to cancel input and exit to the parent menu. Press the [ENT] key for two seconds, or longer, to save the current configuration and move to the parent menu

3.1.4. Move to page

Below is the way to go to next page / previous page.

<Figure 3-5>



To move to the next menu, press the [F2] button on the keypad. The next menu will appear on the screen.

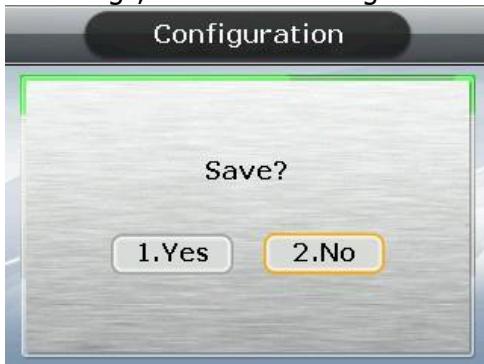
<Figure 3-6>



To return to the previous menu, press the [F1] button on the keypad. The previous menu will appear on the screen.

3.1.5. Save Environment Settings

Press the [F4 (←)] key in the main menu screen of <Figure 3-1> to save the changed settings, and the following screen appears:



<Figure 3-7>

Select [1. Yes] to save the new configuration or [2. No] to cancel it. Then press the [ENT] key. In this instance, if, after a period of time there is no input the system returns to the initial screen.

- If there is no new content, the system exits from the environment settings menu without the aforementioned "Save" process.
- When the settings are changed in the menu, and if there is no input after a certain period of time, the system exits from the environment setting menu. In which case, if there is any revised menu, it should pass through the "Save" process. Otherwise, it transfers to the initial screen without saving the revised settings.

3.2. Menu Configuration

1. User 	1. Add 2. Delete 3. Modify 4. Delete All		
2. Network 	1. IP	1. Static IP / 2. DHCP ► IP Address ► Subnet Mask ► Gateway	
	2. Server IP	1. Static IP ► Server IP ► Server Port	2. DDNS ► DDNS ID ► DDNS IP ► Server port
	3. Terminal ID	► Terminal ID ► Authentication	
3. Application 	1. Application	► Application 1. Access 2. Time & Attendance 3. Cafeteria	
	2. Time Schedule	► F1 Time ► F2 Time ► F3 Time ► F4 Time ► Access Time <input type="checkbox"/> NO Limit (when setting to catering management)	
	3. Function Key	► F1 Enabled ► F2 Enabled ► F3 Enabled ► F4 Enabled ► Ent Enabled ► Auto Sensing	

	4. Extended Key	► Extended Key ► of Extended Key
	5. Display	► Background ► Screensaver ► Clock position
	6.RS485 ID Setting	► RS485 ID Setting

 4. System	1. System Setting	<ul style="list-style-type: none"> ▶ User ID Length ▶ Display Option ▶ Threat fingerprint alarm ▶ Alarm time (sec)
	2. Authentication	<ul style="list-style-type: none"> ▶ User Group IP ▶ Enable 1:N ▶ Card Only ▶ Template On Card ▶ Verify Multi-FP ▶ Blocking Time (sec.) ▶ NetErrTime(Sec)
	3. Fingerprint	<ul style="list-style-type: none"> ▶ 1:1 Level [1~9] ▶ 1:N Level [3~9] ▶ Fake Finger Detect ▶ Template types ▶ Check Same FP
	4. Language	
	5. Data Time	<ul style="list-style-type: none"> ▶ Time Sync ▶ Display Time ▶ Set Current Time ▶ Calendar
	6. Database	<ol style="list-style-type: none"> 1. Init Config 2. Delete All Users 3. Clear Log Data 4. Initialize Terminal
 5. Terminal	1. Terminal Option	<ul style="list-style-type: none"> <input type="checkbox"/> Terminal Alarm <input type="checkbox"/> Lock Terminal <input type="checkbox"/> KeyLed ON <input type="checkbox"/> User Voice <input type="checkbox"/> User Text <input type="checkbox"/> Use Camera (AC5100 Only)
	2. Volume Control	<ul style="list-style-type: none"> ▶ Voice Volume ▶ Beeper Volume

	3. Door	<ul style="list-style-type: none"> ► Lock Type ► DM1 ► DM2 ► Open Duration ► Warn Door Open
	4. Wiegand	<ul style="list-style-type: none"> <input type="checkbox"/> Bypass ► Wiegand Out ► Site Code
	5. Card Reader	<ul style="list-style-type: none"> ► Card Format ► Read Card NO. ► Dummy Mode
	6. External Device	<ul style="list-style-type: none"> ► Printer ► Lock Controller ► Connection Device Setting <input type="checkbox"/> Mode
6. Information 	1. System Info 2. Network Info 3. Database Info 4. View Log 5. Version Info	

3.3. User

Select "1. User" in the main menu, and the following screen appears:



Press [1] key to register new user.
 [2] key to delete user.
 [3] key to modify user.
 [4] key to delete all users.

3.3. 1. Add

- ◆ Select [ENT~] → [1. User] → [1. Add] ◆ in the basic screen, and the following screen appears:



Input the user ID to be registered and press the [ENT] key.

Automatically shows the ID to be registered on the screen, so the user can easily perform registration. To modify the ID, press the [F4 (←)] key and delete the existing value and input the new value.

If the user inputs an already registered ID, a failure message appears. The following screen appears if the ID is not yet registered.



The icon on the left mean, as shown below:

	1.Auth Type
	2.FP Register
	3.Card Register
	4.PW Register
	5.FP Option
	[ENT]:Save

As shown on the screen, the user registers by pressing [2] for fingerprint, [3] for card, and [4] for password. Basically, it is registered in the name of the user. Using the keys [7] and [8], the user can modify as user or admin. Once the registration is complete, the user can press [ENT] to save it. The user must press the [F4 (←)] key to cancel the registration and exit from the menu.

※ Only a user registered as Admin can modify the operating environment of the terminal, and Add/Modify/Delete the information about all users saved in the terminal. Therefore, special care is required when registering Admin.

3.3.1.1. Authentication method



Press the [F4 (\leftarrow)] key to delete the existing value, enter the authentication method you want to use among the authentication methods shown on the screen, and press the [ENT] key.

If you select [AND] mode, authentication will proceed normally with the authentication method.
(Priority: Card -> Fingerprint -> Password)
When selecting [OR] mode, only two authentication types can be selected.

- ※ If you do not set the authentication method after registering the card, it is necessary to be careful when registering because it is not possible to search DB when registering existing card as a new user.

3.3.1.2. FP Register



① Place finger on the sensor - refer to '1.8. How to register and enter fingerprint'. Fingerprint must be input twice, as below, according to the screen guidance.

When the fingerprint sensor is lit and the message "Place Finger on sensor" is displayed, place a finger on the window for fingerprint input - for 2~3 seconds - until the light goes off.



② When the message 'Place same Finger on sensor' is displayed, enter the fingerprint once again.

※ When entering the fingerprint for the second time, make sure the user has taken their finger off the fingerprint input window after the first read.



③ When input is complete, the message at the left appears, together with the images accompanied by their quality rating from 0~100.

If the image is not adequate from a visual aspect, or any image shows 30 or less, the user is advised to register again.

To register again, start the process from step ① by pressing [F4 (\leftarrow)] key until 3 seconds elapse without input or pressing another key. After completion, the system moves to the parent menu.

- ※ Fingerprint registration is available for up to 10 per ID. A failure message appears when registration is attempted in excess of 10 times.

If repeated failure is observed after 2~3 attempts when using the correct fingerprint registration method, the user is advised to use password or card.

3.3.1.3. Card Register



When registration screen appears, put the card on it.
If you want to exit without registration, press the [F4 (←)] key.

3.3.1.4. PW Register



Input the password in 1~8 digits on the password input screen and press the [ENT] key. The 'Confirm Password' window appears. Input the same password and press the [ENT] key.

Press the [F4 (←)] key for 2 seconds or longer to cancel and exit.



3.3.1.5. FP Option

This is the setting related to fingerprints, and is the option that can be changed after registering the fingerprint in advance. If the user selects it with the fingerprint already registered, it only results in the failure buzzer sound.



► '1:1 Level' (Initial setting: '0')

Is the item that determines the authentication level for each registered user. By modifying this value, it is possible to determine the authentication level per registered user.

When set to '0', it conducts authentication using the 1:1 authentication level of the terminal.

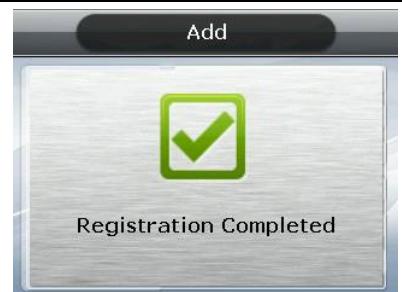
► Enable 1:N (Initial setting: 'v')

When this option is checked, it's possible to successfully authenticate using a fingerprint without any user ID or card.

3.3.1.6. Save

When the registration process is complete, press [Ent] key to save it. The user settings are not saved if the user doesn't press [Ent] key and exits by pressing the [F4 (\leftarrow)] key.

The following is the LCD guidance message indicating the user can exit from the registration process.



When registered normally with [ENT] key pressed.



When registration failed after [6. Save] key pressed.

Means the user is not registered properly in accordance with the authentication method. For example, the user didn't register any fingerprint after setting it as the authentication method, nor registered a card after setting it as the authentication method.



In the case of [2. FP Register]

When fingerprint image is not in a good condition or there is no fingerprint input within 10 seconds of the fingerprint sensor lamp being on.

At the time of fingerprint registration, when the user didn't input the same finger, but input a different finger.



In the case of [4. PW Register]

When the user inputs a different number during password confirmation.



In the case of [3. Card Register]

When the user tried to register a card that has already been registered.



In case of [2. FP Register], when the user tried to register a fingerprint that has already been registered.

※ If the user wants to register the same fingerprint with another ID again, they must release '4. System → 3. Fingerprint → Check Same FP' function. This is, however, not suitable for Time & Attendance as the same fingerprints could be authenticated with different ID's.



In case of [2. FP Register] or [3. Card Register]

When the user attempted registration in excess of the maximum number of allowed registrations (10 each).

3.3.2. Delete

Select ♦ [ENT~] → [1. User] → [2. Delete] in the initial screen ♦, and the following screen appears:



Input the user ID to be deleted, and then press the [ENT] key.

When inputting an unregistered ID, a failure message will appear. When inputting a registered ID, a success message will appear.

Deleting from the terminal doesn't mean deletion from the server. Therefore, it is necessary to delete from the server to make the deletion complete.

Special care should be taken when deleting, since deletion is performed regardless of User/Admin. In particular, the user registered in the terminal may not be restored after deletion unless registered on the network server.

The following are the LCD information messages that appear during the deletion process:

<p>The image shows a blue-toned LCD screen with a 'Delete' button at the top. Below it is a red octagonal 'prohibited' sign containing a key icon. The text 'Unregistered !' is centered below the sign.</p>	<p>When deleted normally.</p>
	<p>When the user inputs an unregistered ID.</p>

3.3.3. Modify

Select ◆ [ENT~] → [1. User] → [3. Modify] in the initial screen ◆, and the following screen appears:



Press the [ENT] key after inputting the user ID to be changed.

When inputting an unregistered ID, a failure message will appear. When inputting a registered ID, the following screen appears:



The icons on the left are described with their respective meanings on the right.

- | | |
|--|---------------------------------------------------------------------------------|
| | : Authentication type (FP) |
| | : Number of Registered Fingerprints (1) |
| | : Number of Registered Cards (0) |
| | : Whether or not the Password is Registered
(: Registered, : Not registered) |

For the method of changing, see '3.3.1. Add' as it is the same as shown in the registration method.

3.3.4. Delete All

Select ◆ [ENT~] → [1. User] → [4. Delete All] in the initial screen ◆, and the following screen appears:



If the user is sure they want to delete all users, press [1. Yes] and press [ENT] key. Select [2. No] to cancel.

※When the user selects [1.Yes], both user and admin are deleted. Special care should be taken as **the deleted user/admin may not be restored after deletion.**

3.4. Network

Select "2. Network" in the main menu, and the following screen appears:



Press the applicable key that represents the item to be changed.

3.4.1. IP

Select ◆ [ENT~] → [2. Network] → [1. IP] in the initial screen ◆, and the following screen appears:



When changing IP, delete the existing values using [F4 (←)] and then input the new values. The '.' in between the number sequence is created automatically. Example: input 192 168 010 50 sequentially to input '192.168.10.50'.

Select [1] when a fixed IP address is assigned to the connected network and select [2] in cases where there is a DHCP server in the connected network which is assigning the address. Set IP, Subnet Mask, and Gateway if it is a fixed IP. There's no need to set the address if the user selected a flexible IP address.

The user can exit to the parent menu using the [ENT~] key to apply the changed values, after finishing the settings, or use the [F4 (←)] key to cancel input during setting. In this case, the user can only exit by pressing the key for 2 seconds or longer if they are inputting value in the input box.

3.4.2. Server IP

Select ◆ [ENT~] → [2. Network] → [2. Server IP] in the initial screen ◆, and the following screen appears:



Select server IP type for server IP setting.

1. Static IP: If you know the server IP and port number
2. DDNS: When connecting the server by DDNS

After selecting the type, press [ENT~] key to enter detailed information. To cancel input, press [F4 (~) ~] key to exit to upper menu.

3.4.2.1. Server IP settings

Select ◆ [ENT~] → [2. Network] → [2. Server IP] → [1.StaticIP] in the initial screen ◆, and the following screen appears:



Set the Server IP and Port.

To change the port, move the input highlight to the server port by pressing the [ENT] key.

►Initial Setting

Server Port: '9870'

The default port value of the authentication server is '9870' for the UNIS server and '2201' for the Access server. Special care should be taken since if you change this value, you must change it to the same value in the server program.

After finishing the setting, press [ENT ~] key to apply the changed value, or press [F4 (~) ~] key to exit the parent menu.

3.4.2.2. DDNS

Select ◆ [ENT~] → [2. Network] → [2. Server IP] → [2.DDNS] in the initial screen ◆, and the following screen appears.



Set DDNS ID, DDNS IP and server port.
DDNS ID can be input from 9 digits
1 to 999999999 can be input.

The default value of DDNS IP is 210.116.104.058,
and enter the IP of DDNS server to be connected.

To change the port, press the [ENT] key to move the
input focus to the server port and enter it.

► Initial Setting

Server Port: '9870'

The default port value of the authentication server is '9870' for the UNIS server and '2201' for the Access server. Special care should be taken since if you change this value, you must change it to the same value in the server program.

After finishing the setting, press [ENT~] key to apply the changed value, or press [F4 (←) ~] key to exit the parent menu.

3.4.3. Terminal ID

Select ◆ [ENT~] [2. Network] [3. Terminal ID] on the initial screen ◆, and the following screen appears:



Set Terminal ID and Authentication.

► Initial setting

Terminal ID: '1'
Authentication: '2. terminal/server'

Terminal ID is the unique ID used by the authentication server for the purpose of identifying the terminal having '1' as its default value. It must correspond to the entry/exit door ID set in the server program - which can be input as a maximum of 8 digits.

► Authentication

This determines the priority for authentication between terminal and the network server. Having '2. Terminal/Server' as its default value, operation is as follows in each mode:

1. Server/Terminal	Authentication is made by the server when it's connected to the network, and by the terminal when it is disconnected from the server due to network disturbance, etc.
-----------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------

2. Terminal/Server	Authentication is made by the terminal, even if the server is connected, and authentication result transferred to the server on a real-time basis.
3. Server Only	However, authentication is made by the server when the input user ID or card is not registered in the terminal (it doesn't attempt server authentication in case of 1:N fingerprint authentication).
4. Terminal Only	Although the user is registered in the terminal, authentication is made via the server. Therefore, authentication cannot be performed unless the server is connected.

Flexible designation is allowed depending on the circumstance, such as the number of terminals connected to the server, the number of users authenticated, or network errors etc. It is recommended to use '2. Terminal/Server' so concurrent authentications can be attempted if 10> terminals are connected to the server, or if frequent network errors occur.

※ In the server authentication mode, logs are stored in the server, not the terminal.

3.5. Application

Selecting '3. Application' in the main menu causes the following screen to appear:



Press the applicable key representing the item to be changed.

3.5.1. Application

Select ◆ [ENT~] → [3. Application] → [1. Application] in the initial screen ◆, and the following screen appears:



Select the terminal operation type by pressing the applicable numeric key.

Press the [ENT] key to apply the configuration and [F4 (←)] key to cancel it.

3.5.2. Time Schedule

3.5.2.1. Setting to Access Control / Time & Attendance

Select ◆ [ENT~] → [3. Application] → [2. Time Schedule] in the initial screen ◆, and the following screen appears:



► Initial setting: Identical with the screen on the left.

The user can set the time period for authentication mode; otherwise, set to '00:00-00:00'.

Input after deleting the existing value using [F4 (←)] to change the value.

Input HHMM (Hour/Minute) in order - can be set from 00:00 to 23:59

In a preset time period, it's always shown in the preset mode unless the user presses another function key. Although the user pressed the other function key to authenticate with another mode the terminal display mode automatically changes to authentication mode, which is suitable for the management of time & attendance.

As shown in the example below, each time period must be set without overlapping; the mode is determined F1→F2→F3→F4→Access sequentially if they do overlap.

(Example) Office start=06:00~09:59, Office leave=17:00~22:00



Exit to the parent menu to apply the changed value, after finishing the settings, by pressing the [ENT~] key. Press the [F4 (←) ~] key to cancel the input value.

3.5.2.2. Setting to Cafeteria



- ▶ Initial setting: Identical with the screen on the left.

The user can set the time period by meal types; otherwise, set to '00:00-00:00'.

▶ NO Limit

Clear the check box (), and each user is allowed one authentication by meal only. If you check the box () they are allowed several authentications regardless of the existing authentication.

3.5.3. Function Key

Select ◆ [ENT~] → [3. Application] → [3. Function Key] in the initial screen ◆, and the following screen appears:



- ▶ Initial setting: Identical with the screen on the left.

Function key refers to the keys [F1] ~[F4], [ENT] & [Auto Sensing] used to change the authentication mode, such as office start/office leave etc. If you press a function key the authentication mode changes to the applicable mode. When a box is not checked, authentication mode does not change even if the applicable key is pressed.

If the '6. Auto Sensing' check box is cleared the fingerprint sensor doesn't respond, even if the user inputs their fingerprint on the sensor. In this case, be sure to input the ID or card or fingerprint of the user.

3.5.4. Extended Key

Select ◆ [ENT~] → [3. Application] → [4. Extended Key] in the initial screen ◆, and the following screen appears:



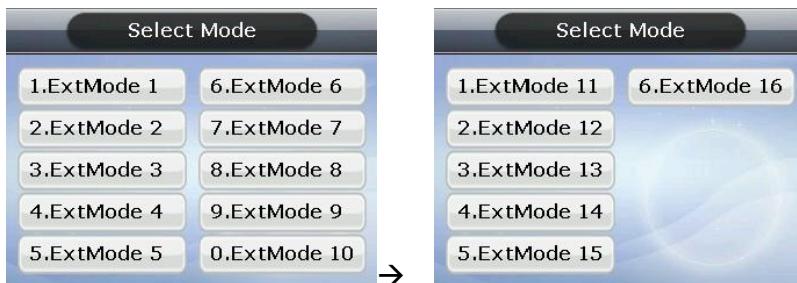
► Initial setting: Identical with the screen on the left

To use the Extended Key, press the [1] key and then check '1. Extended Key'. The number of extended keys can be set within a range of 1~40.

Extended Key is a function which extends the number of additional authentication modes (up to 40 as required) in addition to the basic function keys ([F1] ~ [F4], [ENT]). The screen for selecting the extended keys, when the user presses the F4 key, is shown below. Select the applicable mode with [0] ~ [9] keys.

If the number of extended keys exceeds 10, select them by changing the page with the [F1] ~ [F4] keys.

Example: If the number of the extended keys is 16, press [F4] key in the initial screen, and the following screen appears



If you want to select ExtMode 12, move to the next page with the [F2] key and then press the [2] key.

Press the [ENT] key to exit without selecting an ExtMode.

The user can exit to the parent menu using the [ENT~] key and apply the changed value. Use the [F4 (←)] key to cancel input during setting.

3.5.5. Display

Select ◆ [ENT~] → [3. Application] → [5. Display] on the initial screen ◆, and the following screen appears:



► Initial setting: Identical with the screen on the left

► Background image

You can change the background image shown on the initial screen by pressing the [1] and [2] keys. Also, you can set the cycle to 5 seconds or longer to have the background images saved in the terminal displayed sequentially at every preset interval (seconds)

But, it is not represented in the order of setting, rather it is represented from the first

► Screen Saver (0,10~1800sec)

If there is no input for a time you set, LCD screen turns off automatically. However, if set to 0 LCD screen always turns on. 10 seconds to 1800 seconds can be set.

The user can exit to the parent menu using the [ENT~] key to apply the changed values. Use the [F4 (←)] key to cancel input during setting.

3.5.6. RS485 ID settings



► Basic setting: Same with the left screen

► RS485 ID setting

Click [0] ~ [7] key to set ID for RS485 communication. It can be set for the connection with the external device MCP040.

When the external device is not connected, it is not operated with any value.

3.6. System

Selecting '4. System' in the main menu causes the following screen to appear:



Press the applicable key representing the item to be changed.

3.6.1. System Setting

Select ◆ [ENT~] → [4. System] → [1. System Setting] in the initial screen ◆, and the following screen appears:



► Initial setting: Identical with the screen on the left

► User ID Length

This field sets the length of user ID, which can be changed within the range of 1~9 digits. It must be identical to the length of ID registered in the server program. For example, the user must set it to 6 if the ID registered in the server program is '000075' - which is 6 digits long.

► Display Option

When set to '1. None', only the authentication result message is displayed when the authentication is successful, but when set to '2', the user ID is displayed. If set to '3', user name, '4', UserKey, '5', User's statement will be displayed on LCD screen, if the terminal does not store the corresponding user information, the ID is displayed.

Once the registration is complete, the user can press [ENT] to apply it. Press the [F4 (←)] key to exit to the parent menu.

► Duress FP Alarm

The default setting is '2. No'. If set to 1, Yes, 12V current is output to "L2" pin when the registered threat fingerprint is authenticated. This pin will operate when you connect equipment for emergency situation detection such as siren.

► Alarm Duration (sec)

Set the time for 12V current output.

3.6.2. Authentication

Select ◆ [ENT~] ([4. System] [2. Authentication]) in the initial screen ◆, and the following screen appears:

► Initial setting: Identical with the screen on the left



► User Group ID

The method of authentication where the initial digit of an ID relates to a group. It completes 1:N authentication faster when more than 5,000 users are registered.

When this method is checked, it authenticates the fingerprint from users whose ID starts with the same input letter. If this method is not checked, it considers the input figure as the user ID and attempts 1:1 authentication against the fingerprint of the user with the applicable ID

Example: Where the user inputs '12' to attempt authentication when the user ID is a 4-digit figure;

If checked (), 1:N authentication is attempted from users having ID '1200'~'1299',

If unchecked (), 1:1 authentication is attempted from fingerprints of users whose ID is '12'.

► Enable 1:N

If checked (), this option enables fingerprint only authentication without inputting user ID or card. Even if the user is registered with 1:N authentication, only 1:1 authentication is permitted in the terminal where this option is not checked.

► Card Only

If checked (), this option enables card only authentication without inputting fingerprint. Even if the user is registered with (Card & FP) or (Card & PW), only authentication with card is permitted in the terminal where this option is checked.

► Template On Card

If checked (), this option enables authentication with the user's information and fingerprint recorded in the card without downloading the user in the terminal. In order for this option to be operated, SC card reader must be mounted and the server must set which terminal uses that fingerprint card.

► Verify Multi-FP

If checked () , this function has all the registered fingerprints to be authenticated after the user inputs ID (or Card). When this item is set to checked, the user must, without fail, input user ID or card. In this case, Enable 1:N is automatically changed to unchecked ().

This function is used for strict access control to special zones. For example, if the user with ID '0001' is registered with 3 fingerprints they must input ID and complete the authentication for three fingerprints.

In this case, the order of authentication for the 3 fingerprints is irrelevant, but the fingerprints should be repeatedly input until authentication is successful.

* Authentication will fail on a single occurrence of authentication failure.

► Blocking Time (sec)

This function prevents duplicate authentication for the same user within the preset time period. When set to 0, it has no restriction. However, when set to a value larger than 0, the user can be successful in re-authentication if the preset time (sec) has elapsed after the success of the previous authentication.

► NetErrTime(Sec) – Network error time setting (Sec)

If it is the server authorization mode and the network error time is set, you can set the authorization waiting time.

For example, if you set the network error time as 5 seconds, the error message occurs when there is no response of the server for 5 seconds (But, the user is considered to be failed to authorize)

The user can exit to the parent menu using the [ENT~] key to apply the changed values. Use the [F4 (←)] key to cancel input during setting.

3.6.3. Fingerprint

Select ◆ [ENT~] → [4. System] → [3. Fingerprint] in the initial screen ◆, and the following screen appears:



► Initial setting: Identical with the screen on the left.

► 1:1 Level

Authentication level used for 1:1 Fingerprint Authentication. Provided that, 1:1

authentication level of the relevant user is applied for the user whose 1:1 authentication level is not set to '0' (using the authentication level of the terminal).

► 1:N Level

Authentication level used for 1:N Fingerprint Authentication. In case of 1:N authentication, the authentication level by users is not set and therefore always based on the authentication level of the terminal.

► Fake Finger Detect

It presets LFD level to prevent imitation fingerprint input. Pre-setting the LFD level to a higher value tends to reinforce the function, preventing the input of imitation fingerprints produced with rubber, paper, film, silicone, etc. But when inputting a real fingerprint, it may not read well.

► Template type

It sets the type of the fingerprint template. In this setting, all the users are deleted, and the terminal is rebooted. It selects one of the UNION, ISO_ Standard, ISO_Extended (Default- UNION).

► Check Same FP

If checked (), is the function that, during registration, checks whether or not the fingerprint is already registered to prevent overlapped registration of the same fingerprint in another user ID.

The user can exit to the parent menu using the [ENT~] key to apply the changed values. Use the [F4 (←)] key to cancel input during setting.

3.6.4. Language

Select ◆ [ENT~] → [4. System] → [4. Language] in the initial screen ◆, and the following screen appears:



► Initial setting: '1. English'

When changing the language settings, the default voice message and on-screen message are changed into that language set.

The user can exit to the parent menu using the [ENT~] key to apply the changed values. Use the [F4 (←)] key to cancel input during setting.

- * Danish / Arvia / Persian languages are restricted by fonts, languages are shown in English, and voices are replaced by their respective languages. Also, due to the

nature of fonts, some screens may not be displayed as all the languages.

3.6.5. Date Time

Select ◆ [ENT~] → [4. System] → [5. Date Time] in the initial screen ◆, and the following screen appears:



► Initial setting: Identical with the screen on the left.

► Time Sync

Sets the method which synchronizes the current time of the terminal with the server. To synchronize the terminal time with the server time, set to '1. Auto' to perform it automatically, while '2. Manual' is for manual setting.

► Display Time

The method of displaying the current time of the terminal set to '1' for 24-hour clock and '2' for AM/PM system.

► Set Current Time

Changes the current time of the terminal. No change is required if it's synchronized and linked with the server time and with the aforementioned Time Sync set to '1. Auto'.

► Calendar

To configure a way to display the current date on the terminal. '5. Gregorian calendar' is the default, but the user can manually select '6. Persian calendar' if desired. [Image change required]

The user can exit to the parent menu using the [ENT~] key to apply the changed values. Use the [F4 (←)] key to cancel input during setting.

3.6.6. Database

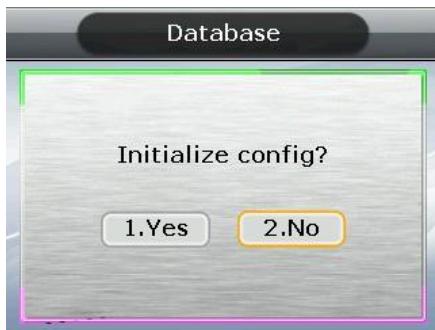
Select ◆ [ENT~] → [4. System] → [6. Database] in the initial screen ◆, and the following screen appears:



Press the following keys:
 [1] key to initialize the configuration.
 [2] key to delete all users.
 [3] key to initialize the authentication record.
 and [4] key to initialize the terminal.

3.6.6.1. Init Config

Select ◆ [ENT~] → [4. System] → [6. Database] → [1. Init Config] in the initial screen ◆, and the following screen appears:



Press [1. Yes] key to initialize all configurations and select [2. No] and press [ENT] key to cancel.

If no value is input for a certain period of time in this state, it returns to the initial screen instead of initialization

Initializes all the configurations of the terminal except MAC (physical) address but it doesn't delete the user and authentication record.

When the configuration is successfully initialized, it proceeds to the parent menu accompanied by the success buzzer sound.

3.6.6.2. Delete All Users

Select ◆ [ENT~] → [4. System] → [6. Database] → [2. Delete All Users] in the initial screen ◆, and the following screen appears:



Press the [1. Yes] key to delete all users, or select [2. No] and press the [ENT] key to cancel.

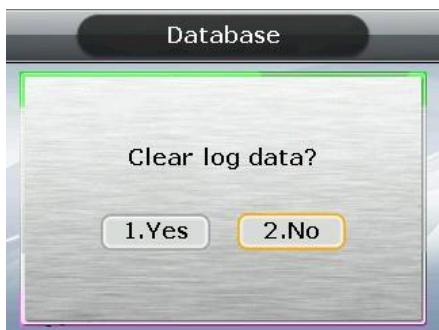
If no value is input for a certain period of time in this state, it returns to the initial screen instead of deleting.

Both user and administrator are deleted, and **the deleted users cannot be restored after deletion.**

When deletion is successfully completed, it proceeds to the parent menu accompanied by the success buzzer sound.

3.6.6.3. Clear Log Data

Select ◆ [ENT~] → [4. System] → [6. Database] → [3. Clear Log Data] in the initial screen ◆, and the following screen appears:



Press the [1. Yes] key to delete all the authentication records saved in the terminal, or select [2. No] and press the [ENT] key to cancel.

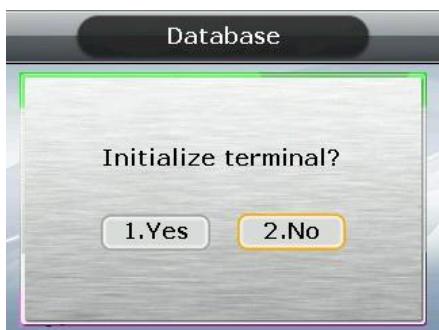
If no value is input for a certain period of time in this state, it returns to the initial screen instead of deleting.

Deletes all logs related to authentication, and **the deleted logs cannot be restored after deletion.**

When deletion is successfully completed, it proceeds to the parent menu accompanied by the success buzzer sound.

3.6.6.4. Initialize Terminal

Select ◆ [ENT~] → [4. System] → [6. Database] → [4. Initialize Terminal] in the initial screen ◆, and the following screen appears:



Press the [1. Yes] key to initialize the terminal to the factory default state, or select [2. No] and press the [ENT] key to cancel.

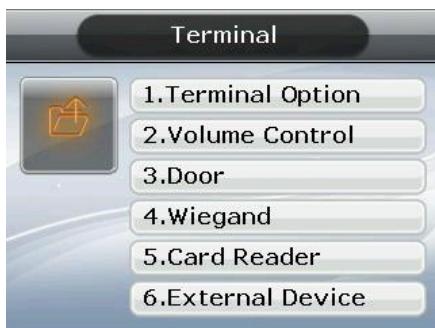
When no value is input for a certain period of time in this state, it returns to the initial screen instead of initialization.

Deletes all the configurations, users, and log information, except MAC (physical) address saved in the terminal, restoring them to factory default state. **Special care should be taken as restoration is impossible after initialization.**

When initialization to the factory default state is successfully completed, it proceeds to the parent menu accompanied by the success buzzer sound.

3.7. Terminal

Selecting '5. Terminal' in the main menu causes the following screen to appear:



Press the key corresponding to the item you want to change

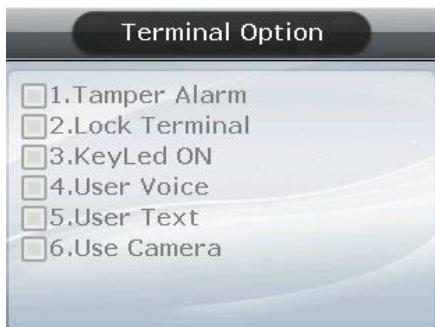
Press [F2] on the keypad to move to the next page.



Press [F1] on the keypad to go to the previous page.

3.7.1. Terminal Option

Select ◆ [ENT~] → [5. Terminal] → [1. Terminal Option] in the initial screen ◆, and the following screen appears:



► Initial setting: Identical with the screen on the left

► Door open

Door opens when the '0' key is pressed.
Appears only when the terminal is locked. This option is not normally shown.

► Tamper Alarm

If checked () , a warning sound is generated when the lid of the terminal is opened.

► Lock Terminal

This is the function the administrator can directly set or release the locking of the terminal via the terminal rather than server program. If checked () , it is locked so no one can access until the administrator releases the setting.

► KeyLed ON

If checked () , Key LED is always turned ON so the Touch Keys are visible.

► Use of the user voices, Use of user-defined messages

Based on need/preference, you can download a voice from a Wav file (16bit/8KHz) to change the voice output when authentication is successful or has failed. Additionally, you can download the image text, in a modified form, such as office start or office leave, using the specially provided resource file (Excel file). In this case, the user can apply the applicable modified contents only when the boxes of '6. User Voice' and '7. User Text' are checked. For the download method, see '3.9. Download customized file'

► Camera Use

If checked () , use camera. Camera images can be viewed via UNIS(server). (단
AC5100 only)

► User Text

If checked () , when you press [F1], [F2], [F3], [F4] key, each function message will appear on the screen. Displayed only when the language is set to Hangul. The clock is locked at the bottom.

► Door Open

This menu shows that the terminal administrator is allowed to temporarily open the door when the terminal is set to lock in the server.

After setting up the user can apply the changed values using the [ENT~] key. Use the [F4 (←)] key to cancel input during setting.

3.7.2. Volume Control

Select ◆ [ENT~] → [5. Terminal] → [2. Volume Control] in the initial screen ◆, and the following screen appears:



► Initial setting: Identical with the screen on the left

Sets Voice Volume and Beeper Volume.
When set to '0', no voice or buzzer sound is generated.

The user can exit to the parent menu using the [ENT~] key to apply the changed values. Use the [F4 (←)] key to cancel input during setting.

3.7.3. Door

Select ◆ [ENT~] → [5. Terminal] → [3. Door] in the initial screen ◆, and the following screen appears:



► Initial setting: Identical with the screen on the left.

► Lock Type

Set to '1' when strike type or automatic door is connected to the terminal, or '2' when motorized lock is connected to the terminal. If no connection is made, it is set to '1'. Set to '3' when connecting a warning lamp to the lock port to indicate the success or failure of authentication.

► DM1: To connect an external contact to DM1 (Set 1 or 2 for motor locks)

- '0. Not in use': none in connection
 - '1. Door open NO' or '2. Door open NC': A door status monitoring pin in connection
 - '3. Fire detection NO' or '4. Fire detection NC': A fire sensor in connection
 - '5. Panic detection NO' or '6. Panic detection NC': A panic situation sensor in connection
 - '7. Emergency detection NO' or '8. Emergency detection NC': An emergency situation sensor in connection
- Configure NO/NC depending on the pin status upon detection
- '9. Controller authorization result': It sends the authorization result to the external controller.

(You should connect the RED led of the controller with DM1 or DM2 through the board toward TR, and the pin should be set 9. Controller result. You should set the Wiegand Out.)

► DM2: To connect an external contact to DM2 (Set 1 or 2 for motor locks)

- '0. Not in use': none in connection
 - '1. Lock status NO' or '2. Lock status NC': A lock status monitoring pin in connection
 - '3. Fire detection NO' or '4. Fire detection NC': A fire sensor in connection
 - '5. Panic detection NO' or '6. Panic detection NC': A panic situation sensor in connection
 - '7. Emergency detection NO' or '8. Emergency detection NC': An emergency situation sensor in connection
- Configure NO/NC depending on the pin status upon detection
- '9. Controller authorization result': It sends the authorization result to the external controller.

(You should connect the RED led of the controller with DM1 or DM2 through the board toward TR, and the pin should be set 9. Controller result. You should set the Wiegand Out.)

► Open Duration (0.1 sec unit)

Designates the time the door is opened and closed again when authentication is successful. As it is set to 0.1 second per unit, a value of 30 is required to set it to 3 seconds. Strike type refers to the time the door is opened and closed again when authentication is complete.

► Warn Door Open (Second Unit)

This function enables the terminal to check the time the door opens, and generate a warning sound once it exceeds the preset time (min. 5 sec~ max. 30 sec).

When set to '00', warning doesn't sound at all. If set between 01~04, it only starts sounding after 5 seconds have elapsed.

The warning sound is also generated in cases where the door is unexpectedly not closed within the preset time; although the door should be closed. This warning allows proper action to be taken for the door to be closed.

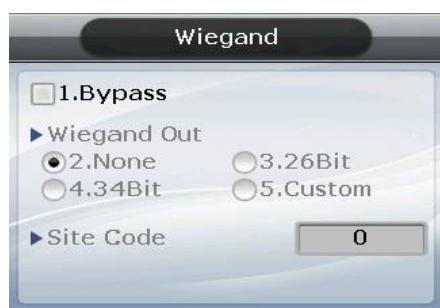
To use this function, the lock must be the one that enables the monitoring of the door door status, and the monitoring pin of the lock should be connected to the terminal.

In addition, such settings are enabled only when the aforementioned Door Monitor is set to '4. Normal Open' or '5. Normal Close'.

The user can exit to the parent menu using the [ENT~] key to apply the changed values. Use the [F4 (←)] key to cancel input during setting.

3.7.4. Wiegand

Select [ENT~] → [5. Terminal] → [4. Wiegand] in the initial screen ♦, and the following screen appears:



► Initial setting: Identical with the screen on the left

This menu configures the Wiegand Output.

Used only when a separate controller, operating with Wiegand input, is mounted. Upon successful authentication, it transmits the data to the terminal's Wiegand port in the following form:

2.None	This is the normal case. Wiegand Output is not used.
--------	------------------------------------------------------

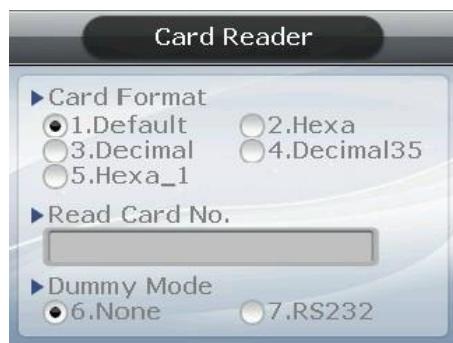
3.26bit	Transmits "Site code[1byte] + user ID[2byte]", so the user ID is set to 4 digits or less. Example: For SiteCode:045(2Dh), UID:6543(198Fh), is transmitted as '1 00101101 0001 1001 10001111 0'
4.34bit	Transmits "Site code[1byte] + user ID[3byte]" so the user ID is set to 7 digits or less. In case of an 8-digit user ID, "user ID[4byte]" is transmitted without Site code. Example: In the case of SiteCode:001(1h), UID:123456(1E240h), is transmitted as '0 00000001 00000001 11100010 01000000 0'
5. Custom	Can be set in the server as the settings under the user's definition only. The setting type can only be inquired at the terminal.

However, when Bypass is checked, regardless of Wiegand Out settings, it transmits the data received by Wiegand Import at the time when authentication was successful to the Wiegand Out as it is.

The user can exit to the parent menu using the [ENT~] key to apply the changed values. Use the [F4 (←)] key to cancel input during setting.

3.7.5. Card Reader

Select [ENT~] → [5. Terminal] → [5. Card Reader] in the initial screen ♦, and the following screen appears.



- ▶ Initial setting: Identical with the screen on the left.
- ▶ Read Card No.
When the user puts the card on the screen, the card number is displayed on the LCD.
- ▶ Dummy mode
If 6.RS232 is set, the authorization is not fulfilled by card reading, rather it send the card data to the RS232(Debug) Port.

▶ Card Format

This is the menu that sets the way the card number is displayed. As shown below, the displayed card number varies depending on the configuration. Therefore, if changing it during operation is unavoidable, after it was set during initial installation, the card should be registered again.

RF card example) Card number (5byte): 08h 01h 16h 1Dh D6h

Card Format	Card number	Method of Expression
1. Default	02207638	(3+5) digit decimal number [022(16h)+07638(1DD6h)]

2. Hexadecimal number	0801161DD6	10-digit hexadecimal number
3. Decimal number	0018226646	Last 4byte to be expressed in a 10-digit decimal number (01161DD6h)
4. Decimal number 35	02207638	Same as '1. Default'
5. Hexa_1	161DD6	Displays last 3bytes as the 6-digit hexadecimal number.

SC card example: Card Number (4byte): 52h 9Dh 06h E3h

Card Format	Card number	Method of Expression
1. Default	529D06E3	Expressed as an 8-digit hexadecimal number
2. Hexadecimal number	E3069D52	Expressed as an 8-digit hexadecimal number changing the order of byte
3. Decimal number	1386022627	Hexadecimal number 529D06E3 to be expressed as a 10-digit decimal number
4. Decimal number 35	3808861522	Hexadecimal number E3069D52 to be expressed as a 10-digit decimal number
5. Hexa_1	069D52	Only the first 3 bytes are placed upside down.

The user can exit to the parent menu using the [ENT~] key to apply the changed values. Use the [F4 (←)] key to cancel input during setting.

3.7.6. External Device

Select [ENT~] ([5. Terminal] [6. External Device]) in the initial screen ◆, and the following screen appears.

Connector Settings shown as below



▶ Initial setting: Identical with the screen on the left.

► Printer

To connect a Slave Reader which uses a card or a fingerprint as a secondary authentication device. If you would like a Wiegand card reader to be connected, set '7' while SR100 should be '8'. If authentication occurred at the Slave Reader, 'Dummy Reader' would be displayed under 'External Device' on UNIS when the user looks up log history. [Mode] indicates an authentication mode of the external device. '0' means that AC5000's authentication mode (saved as '1': F1, '2': F2, '3': Access, '4': F3, '5': F4).

► Lock controller

It is set when the additional device is connected without using lock port of the terminal for the entrance control. If the lock is directly connected to the terminal, select '4. None'. And if the LC010 is connected, select '5.LC'. And if MCP040 is connected, select 'MCP'.

► Connection device setting

It is set when connecting the slave reader using card or fingerprint to the terminal to use as the supplementary authorization device. Set '7' to connect the Wiegand card reader, and set '8' to connect the SR100. When the authorization is fulfilled by slave reader, the 'Dummy reader' is represented on the 'External device' of UNIS program when searching the authorization log.

[Mode] represents the authorization mode which will be saved when the authorization was fulfilled by the external device. If it is set '0', it is authorized with the present authorization mode of AC5000, and if it is set '1', it is always saved as the set authorization mode. (Saved as '1': F1, '2': F2, '3': Access, '4': F3, and '5': F4).

The user can exit to the parent menu using the [ENT~] key to apply the changed values. Use the [F4 (←)] key to cancel input during setting.

3.8. Information

Select '6. Information' in the main menu and the following screen appears:



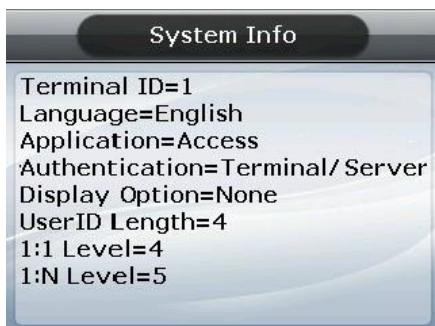
Menu to view the terminal settings.

Press;

- [1] key to view various terminal configurations.
- [2] key to view network configuration, such as IP.
- [3] key to view the user registration status, etc.
- [4] key to view log data.
- [5] key to view firmware version.

3.8.1. System Info

Select ◆ [ENT~] → [6. Information] → [6. System Info] in the initial screen ◆



Press the [F4 (←)] key to exit to the parent menu.

3.8.2. Network Info

Select ◆ [ENT~] → [6. Information] → [2. Network Info] in the initial screen ◆



Press the [F4 (←)] key to exit to the parent menu.

3.8.3. Database Info

Select ◆ [ENT~] → [6. Information] → [3. Database Info] in the initial screen ◆



- Registered User: Number of registered users (including administrator).
- Registered Admin: Number of registered administrators.
- Max User: Maximum number of users that can be registered.
- Registered FP: Number of whole fingerprints that are registered.
- Max FP: Maximum number of fingerprints that can be registered.

Press the [F4 (←)] key to exit to the parent menu.

3.8.4. View Log

Select ◆ [ENT~] → [6. Information] → [4. View Log] in the initial screen ◆



- All Log: Number of logs saved in the terminal.
- Max Log: Maximum number of logs that can be saved.

Press the [F4 (←)] key to exit to the parent menu.

3.8.5. Version Info

Select ◆ [ENT~] → [6. Information] → [5. Version Info] in the initial screen ◆



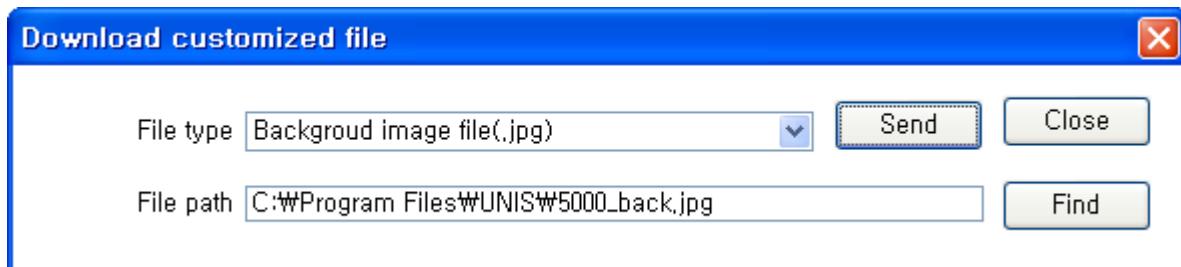
Press the [F4 (←)] key to exit to the parent menu.

3.9. Downloading User's File

This function allows the user to change background image or voice message. User files can be downloaded from UNIS server program.

3.9.1. Change Background Image

When selecting 'Download customized file' in the UNIS program, the following screen appears:



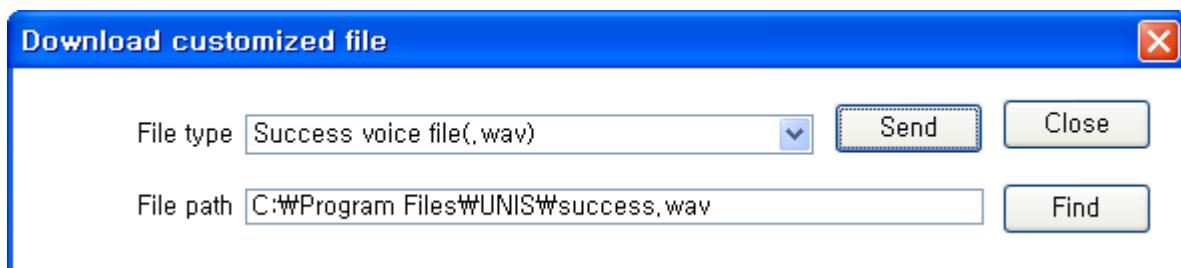
Designate the file as 'Background image file (.jpg)', select the image file (.jpg), and click the 'Send' button. The terminal select window will appear. Select the terminal on the terminal list window and click the 'Send' button again. The file will be transmitted with the downloaded result displayed.

The file name can be up to 15 characters long, including the extension name, with a jpg file size of 320*240. If any data in a different format is downloaded, the transmission result will be displayed as a version error.

To change the background image, you can directly select it from '3.5.5 Display'.

3.9.2. Change Voice Message

When selecting 'Download customized file' in UNIS program, the following screen appears:



Designate the file as 'Success voice file (.wav)', select Wav file (.wav) and click the 'Send' button. The terminal select window will appear. Select the terminal from the terminal list window and click the 'Send' button again. The file is transmitted with the downloaded result displayed.

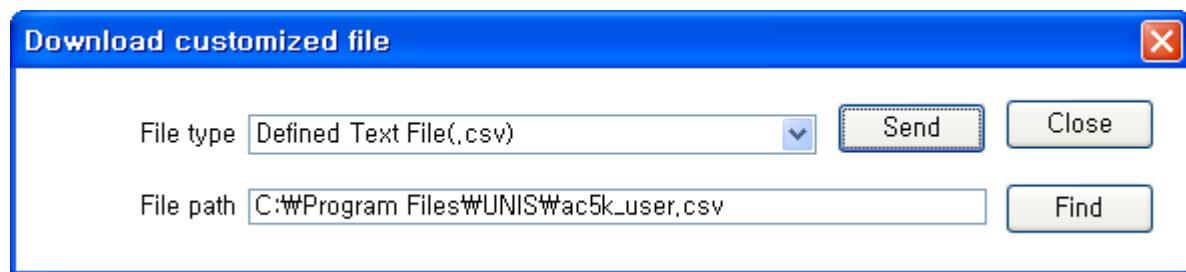
The file name can be up to 15 characters, including the extension name, with the Wav file in 8KHz 16-bit mono form only. If any data in a different format is downloaded, the transmission result will be displayed as a version error.

In the case of a voice failure, designate the file as 'Fail voice file (.wav)' and then change it in the same way.

To change the user's defined voice into the default voice, release the check mark in the 'User Voice' item in '3.5.5 Display'.

3.9.3. Change User Text

When selecting 'Download customized file' in UNIS program, the following screen appears:

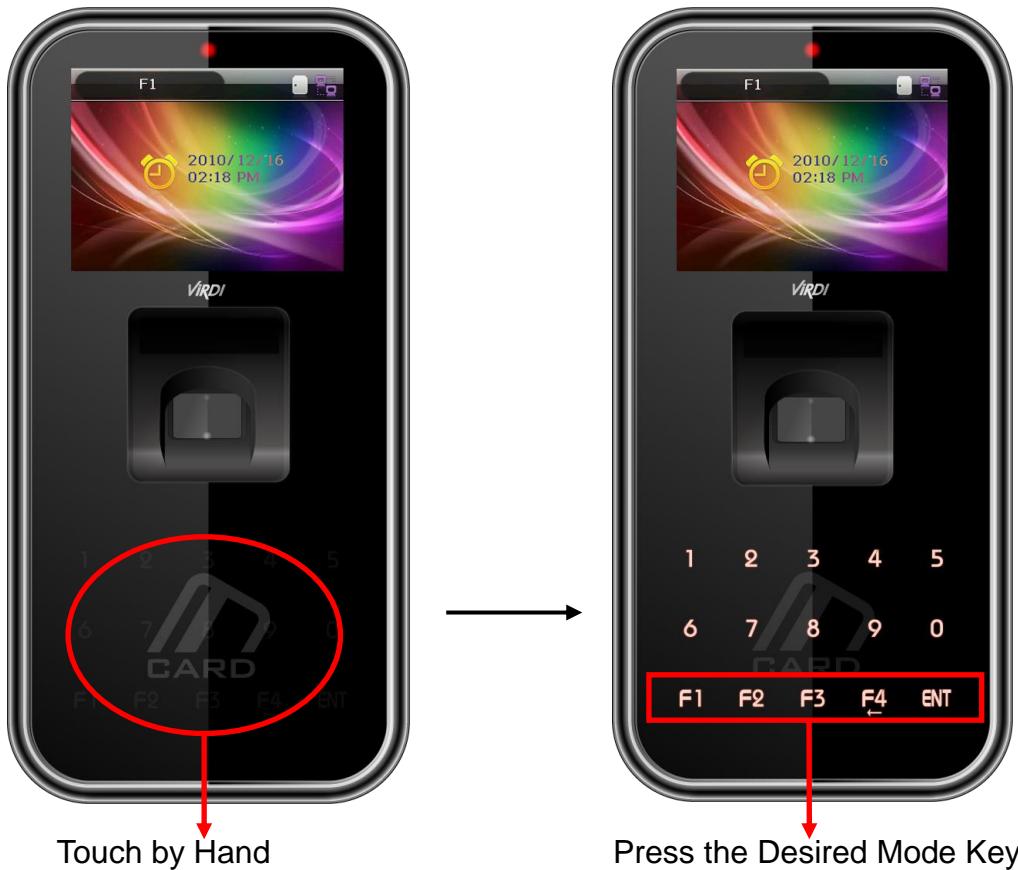


Designate the file as 'Defined Text File (.csv)', select CSV file (.csv) and click the 'Send' button. The terminal select window will appear. Select the terminal from the terminal list window and click the 'Send' button again. The file is transmitted with the downloaded result displayed.

CSV file can be created and saved as a csv file type after changing the desired text in the Excel (.xls) file provided with the terminal firmware. To change from the user's defined text to the default text, release the check mark in the 'User Text' item in '3.5.5 Display'.

4. How to use the Terminal

4.1. Change of Authentication Mode

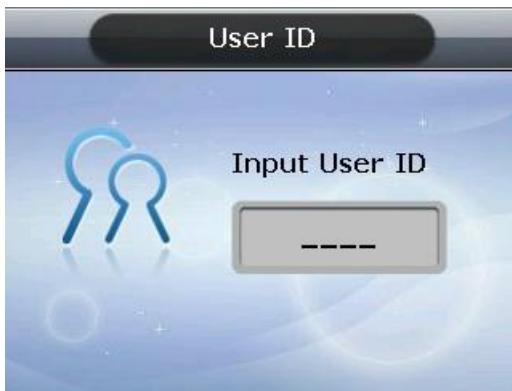


< Figure 4-1>

Normally it's not visible, but when the user touches their hand on the card input area - as shown in the Figure at the left – the LED's are powered ON and the keypad appears - as shown in the Figure at the right. When the keys are visible, press the desired function key to change the authentication mode, such as office start [F1], office leave [F2], going-out [F3], return [F4], access [ENT] etc.

4.2. ID input

Normally it's not visible, but as shown in Figure <4-1>, when the user touches their hand on the card input area, the LED's are powered ON and the keypad appears. In this case, ID input screen appears when the user inputs their ID.



Delete with the [F4 (←)] key if a figure is wrongly input during the input process. Pressing the [ENT] key, after inputting ID, causes the fingerprint input or password input screen to appear; depending on the method of user authentication. However, authentication will fail if a card user inputs ID first. Therefore, be sure to use the card.

4.3. Authentication

4.3.1. Fingerprint Authentication

When placing a fingerprint on the sensor, a buzzer sounds with the sensor lamp ON, and the fingerprint is duly input. Be sure not to take your finger off the sensor until the sensor lamp is OFF and the buzzer sounds.

In the case of 1:1 authentication, input ID and press the [ENT] key which causes the fingerprint sensor to flicker. Then input the fingerprint via the sensor.

4.3.2. Card Authentication

Touch the card on the figure of the card as shown in <Figure 4-1>.

4.3.3. Password Authentication



Press the [ENT] key after inputting ID, and the screen for password input appears. When a wrong number is input, delete it using the [F4 (←)] key. Input the password and press the [ENT] key.

IC Information

This device complies with Industry Canada's licence-exempt RSSs

"Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device."

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil nedoit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

"This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body"

Cet équipement doit être installé et utilisé à une distance minimale de 20cm entre le radiateur et votre corps.

FCC Information

This device complies with part 15 of the FCC Results. Operation is subject to the following two conditions :

- (1) This Device may not cause harmful interface, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for CLASS B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. 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 correct the interference by one or more of the following measures:

- 1.1. Reorient or relocate the receiving antenna.
- 1.2. Increase the separation between the equipment and receiver.
- 1.3. Connect the equipment into an outlet on a circuit different from that to which receiver is connected.
- 1.4. Consult the dealer or experienced radio/TV technician for help.

WARNING

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

"CAUTION : Exposure to Radio Frequency Radiation.

Antenna shall be mounted in such a manner to minimize the potential for human contact during normal operation. The antenna should not be contacted during operation to avoid the possibility of exceeding the FCC radio frequency exposure limit.

Contains FCC ID: 2AEEY-PBLN51822M

Contains IC: 22852-PBLN51822M