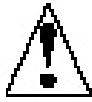


FG-101C User Manual





Safety Information

The below lists are to keep user's safety and prevent any loss.

Please read carefully and follow before installing and operating equipment.

- Any changes or modifications in construction of this device which are not expressly approved by the party responsible for compliance could void the user's authority to the equipment."
- Connect to AC/DC adapter which is offered with equipment.
If connected to other power supply, the equipment or person can be serious injured.
- Do not install the device in a place of direct sun light, humidity, dust or soot.
- Do not place the device next to heating equipments.
- Be careful not to let liquid like water, drinks or chemicals penetrated inside the device.
- Clean periodically the device to remove dust on it.
- In cleaning, do not splash water on the device but wipe it out with soft cloth or towel.

1. OverView

UNICQ FG-101C is an automatic identification integrated system which is used Internet and Intranet computing circumstance. It is available for individual identification Card or digital data through automatic fingerprint sensors. And also it is a system which is used to apply to the various fields of data collecting, analyzing, and processing connected with computer.

2. Strong points

1) High speed process

Prompt identification speed and stable processing are possible due to Using 32 bit ARM9 2442 CPU(400Mhz).

Scan speed is less than 0.3 sec.

2) Large system composition from small scale

It can be used for connection with maximum 32 terminals and serial communication within 1.2Km through RS485.

Also it guarantees easily installation and stable data communication due to Built-in TCP/IP.

3) DATA storage and extension ability

100,000 registered users and 2,000,000 Event Data can be processed simultaneously when using a 128M memory.

Data could be stored for 3 months by using back-up battery.

4) Excellent identification method

It ensures fast access and lower errors through 1:1 verification mode. Basically 1:N mode provided.

Scan speed is less than 0.3 sec for 1,000 person.

It compare special point 45 then do not duplicate the other user.

FRR: 0.1 % or less, FAR: 0.0001 % or less.

5) Data save and extension

It can store that user fingerprint is 100,000 and save event data 2,000,000.

Do not loss data by power off. Because using flash memory in the Machine.

6) Remote control function

Realtime monitoring on machine and entrance door condition is available by using the program. In-out information check on off/on-line is also possible.

7) Various convenience functions for user

Big size (3.5 inch) of graphic LCD color screen makes easier to send the message, and LCD back light helps to use in the dark.

There are various combinations such as using number key only, card + password, exceptional password user function, RF-ID card, etc

8) Various application ranges

There is large range of application such like time attendance management, access control, e-money management, catering management, parking management, school affairs management and membership point management etc.

1. System composition



Screw



Power Adapter



Power & cable

FG-101C Fingerprint identification system

2. Specification

Model Name	FG-101C
CPU	ARM9 2442, 32Bits, 400Mhz, 128M momory
LED	OK, Error 2 lamp [red, green]
LCD	3.5 inch COLOR TFT LCD Graphic display
Key	0,1,2,3,4,5,6,7,8,9,<,>, Clear, Enter, Setup, IN, OUT, F1, F2
Communication	Host[COM1] : comm[RS-232C/RS-485], TCP/IP, WIEGEND
Fingerprint Registration	Max 100,000 person registration
Log data	Max 2,000,000 data
LAN Convertor	Built in TCP/IP LAN Convertor
RF-ID	Built in RF-ID Module - 13.56Mhz
Case	Change case - Multiple color
Voice	Message : 12 language
Operating time	Card reading : 30ms[13.56Mhz] Verification : Less than 0.3 sec
Operating Temp	Fingerprint Module : -20 ° to +60 ° , LCD : -20 ° to +70 ° RF Reader :-35 ° to+65 °
Operating humidity	10% to 90% relative humidity non-condensing
Certification	MIC, CE, FCC
Power	12V / 600mA
Dimension	130mm[W] * 170mm[L] * 40mm[H]
Weight	490g



- Generation operation is for registered user and will register user who time attendance system and access control system.

Waiting for Access control

- * Initial displayed that company Logo and date "MM-DD HH:MM:SS" format.
It is for Access control System mode.
 - [IN] : Clock-in Mode Button
 - [OUT] : Clock-out Mode Button
 - [F1] : Going Out Mode Button
 - [F2] : Return to company Mode Button
 - [SETUP] : System setup Button
 - 0~9 : Numeric key
 - [CLEAR] : Return to Befor menu
 - [Enter] : Selected Menu
- * IF Press the [IN/OUT/F1/F2] button then will be not Chage. So Next user can use same mode.
- * IF Press the [CLEAR] Then will be chane Access control system mode.
- * This is a basic screen display when FG-101C operates in normal.
- * It can input "clock-in", "clock-out", "Going-out", "Return" 4 types of attendance through Attendance mode 1 button.
- * The next LCD screen display show attendance mode

Access control

- * Fingerprint Verifying have several type.
ID & PW, ID & FP, RF & FP, RF & PW, FP, ID, RF.
- * Automatically recognizes fingerprints when fingerprints are presented.
- * FG-101C Fingerprint have touch sensor in the module.
- * IF Entered ID then display for entry menu.
- * User can select passord or RF-ID or Fingerprint.
- * User can select ID only or RF-ID only.
- * But user need select in system setup menu..
- * When verified ID or fingerprint then open the door.



- IF Press the [setup] button then will be Change at a left window.

1. User management

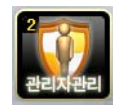
- ★ You can user' s registration , Modify , Delete , Delate all , Registration All.



- ★ If you select is Registration All then you can registration for Fingerprint,RF-ID,password.

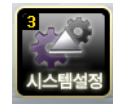
2. Master management

- ★ You can Master' s registration , Modify , Delete , Delate all , Registration All



3. System setup

- ★ You can setup that basic setup , Authentication , Fingerprint & Card , screen & sound , communication setup . Others swtup.



4. System check

- ★ You can check that Fingerprint check , card check , sensor check , relay check , memory check(memory condition).



5. Data management

- ★ You can see the memory information in Fingerprint machine.



6. Data Initialization

- ★ You can initialize that record initialize , setup initialize , factory initialize.





⇒ If you want a User registration then press “1” button(user management) in Environment setup menu.
Then you press “1” button (Registration) in user magement menu.



⇒ You enter ID number yourself on see left window.
you can adjust digit (4 to 10)
But you need setting in machine before
(you can see the next)



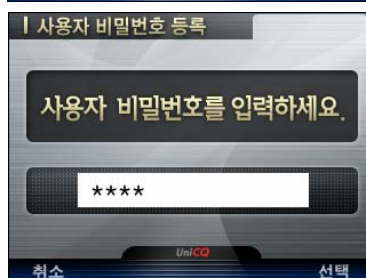
⇒ You can select Fingerprint , Card , Password ,
Authentication , process time on see left window.



⇒ If you selected “1” (Fingerprint) then
Appear fingerprint registration picture
on see left window



⇒ If you selected “2” (RF-ID Card) then
appear card registration on see left window.
You approached card then recording card
information in terminal.



⇒ If you selected “3” (Password) then
appear password registration on see left window.
You enter your password then press [Enter].

⇒ If you finished setup then press [Clear].
Return to First menu.



◎ User management

User Registration

- You try three times for Fingerprint Registration.
- You can use same fingerprint or different fingerprint each case..
- If you insert to inside your fingerprint then It have a auto sensing
- If it had a failed then Fingerprint machine request to retry.

RFID CARD Registration

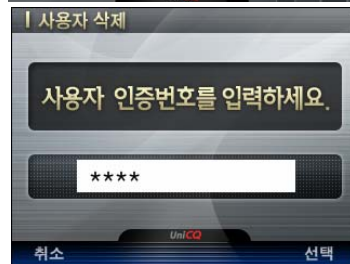
- If you approached your card then fingerprint machine recording automatically.
- If it was impossible for registration then give up automatically..

User password registration

- You can enter your pass word that 4 to 10 digit.

How to method authentication

- * ID&PW authentication : Using ID & PASSWORD
- * ID&FP authentication : Using ID & Fingerprint
- * RF&FP authentication : Using RFID & Fingerprint
- * RF&PW authentication : Using RFID & Password
- * FP authentication : Using only Fingerprint
- * ID authentication : Using only ID
- * RF authentication : Using only RFID.
- * authentication : You can select over two method for authentication.
- * If selected then indicate "Enable" .
- * If finished selection press [ENTER] for Registration.



User Modify

- Enter ID 4 to digit for modify user.
- If correct user Id then chaged next on see left screen.
- Modify is same as registration.

User delete

- Enter ID number for delete.
- Press [Enter] then delete all Information about user.

Delete all

Press [Enter] then delete all user.

- Indicate rate on screen. Because need a time for delete all..
- This is a need a long time.

User registration all

- If you need a Fingerprint and card and password then you can use this menu.

User authentication time.

Setup for date and time per each users.



◎ Master managemen

Master Registration

- Registration: This menu for registration master's fingerprint.

You can use Fingerprint only.

You can use same fingerprint or different fingerprint each case.

If you insert to inside your fingerprint then

It have a auto sensing.

If it had a failed then Fingerprint machine request to retry.

- Modify: This menu for Modify master's fingerprint.
- Delete: This menu for delete master's fingerprint
- If not registration anybody for master, It can be use anybody for system setup.

Master Registration

- * You try three times for Fingerprint Registration.
- * You can use same fingerprint or different fingerprint each case.
- * If you insert to inside your fingerprint then It have a auto sensing.
- * If it had a failed then Fingerprint machine request to retry.

RFID CARD Registration

- * If you approached your card then fingerprint machine recording automatically.
- * If it was impossible for registration then give up automatically.



Master password registration

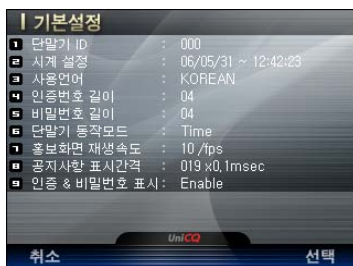
You can enter your pass word that 4 to 10 digit.

How to method authentication

- * ID&PW authentication : Using ID & PASSWORD
- * ID&FP authentication : Using ID & Fingerprint
- * RF&FP authentication : Using RFID & Fingerprint
- * RF&PW authentication : Using RFID & Password
- * FP authentication : Using only Fingerprint
- * ID authentication : Using only ID
- * RF authentication : Using only RFID.
- * authentication : You can select over two method

for authentication.

- * If selected then indicate "Enable" .
- * If finished selection press [ENTER] for Registration.



◎ System Setup

1. Basic setup

- Terminal ID : Setup for terminal ID number
- Time setup : Setup for time of terminal
- Language : setup for language (select)
- Authentication number & password length : You can enter length 4 to 10
- Active mode : Select Access control / Access control & time attendance / time attendance / user mode
- Public relation display speed : setup for video speed (Frame per second)
- Bulletin subject display interval : Control for Bulletin subject display interval
- Authentication number & password : Indicate for authentication number & password. (If select authentication then indicate “*”)

2. Authentication Setup

- process time : setup for Always / Time mode
- Authentication setup : Set for Local / Network / Hibrid mode
- Server connection interval : setup for server connection interval
- Authentication record mode : setup for Alarm / Overwrite / Disable mode
- ID&PW authentication : Using ID & PASSWORD
- ID&FP authentication : Using ID & Fingerprint
- RF&FP authentication : Using RFID & Fingerprint
- RF&PW authentication : Using RFID & Password
- FP authentication : Using only Fingerprint
- ID authentication : Using only ID
- RF authentication : Using only RFID.
- authentication : You can select over two method for authentication.
- If selected then indicate “Enable” .
- If finished selection press [ENTER] for Registration.

3. Card type

- card type : select card type 14443A / 14443B / ISO15693.
- card authentication : setup for UID / Encode
- card memory block : setup for card memory block
- Fingerprint photographing interval : setup for fingerprint photographing interval.
- Fingerprint integral interval : setup for fingerprint integral interval.



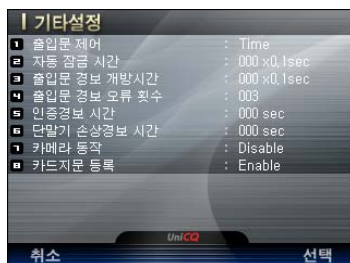
4. Screen & Sound

- Control Brightness setup : screen brightness
- Control voice volume : High / low
- Select keypad sound : Voice / Beep / Off mode
- Success indicate sound : Voice / Beep / Off mode
- Error indicate sound : Voice / Beep / Off mode
- Guide for using sound : Voice / Beep / Off mode
- Indicate time : time setup for guide



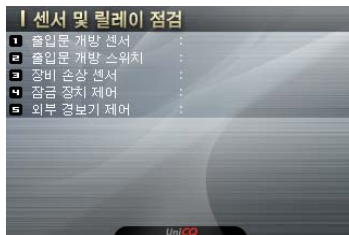
5. Communication setup

- Server communication method : select TCP/IP, RS-232C, RS-485, WIEGAND
- Terminal IP : Setup for Terminal IP address
- Subnet mask : Setup for Subnet Mask
- Gateway : Setup for Gateway
- Authentication server IP : If selected authentication server then setup for IP address of server
- Mac address : setup for Mac address
- WIEGAND format : Select 26/35/44/64/85 bit
- WIEGAND UID : setup for Wiegand UID
- Serial communication speed : Setup for Serial communication speed.
- Stop bit : Setup for stop bit of serial communication.
- Parity bit : Setup for parity bit of serial communication



6. Other setup

- Access control : Setup for Time-attendance or access control.
- Auto closing time : Setup for auto closing time of door.
- Alarm setup for door open time : setup Alarm for door open time. if opened door over time then alarm by automatically..
- Error time of authentication : setup for error times of alarm.
- Authentication Alarm time : setup for authentication Alarm time
- Alarm time of damaged terminal : setup for alarm time of damaged terminal
- Active camera : setup for camera using(yes/no)
- Card or Fingerprint registration : setup for using fingerprint (if card use)



◎ System check

1. Fingerprint check

You can check that Fingerprint sensor and registration status.

2. Card check

You can check registration by RF-ID

3. Sensor check & Relay check

- Check the open/close of door : check for Open/Close
- Check the open switch of door: check for switch active
- Check the temper switch : on/off select
- Check the close unit : on/off select
- Control the Extenal Alarm : on/off select

4. Memory status

- Master record : Indicate Master record
- User record : Indicate user record
- Record new authentication : Indicate Record new authentication
- Record picture by camera : coming soon
- Version : indicate firmware version



© Data Management : Coming soon(Using SD Card)

- User information :
- Master information :
- Record of Authentication :
- User screen :
- User voice :
- User operation table :
- Teminal setting value :
- A public relations display data :
- Bulletin display data :
- Sub Bulletin image data :
- Backgroud Music :
- Terminal firmware :



© Data initialization

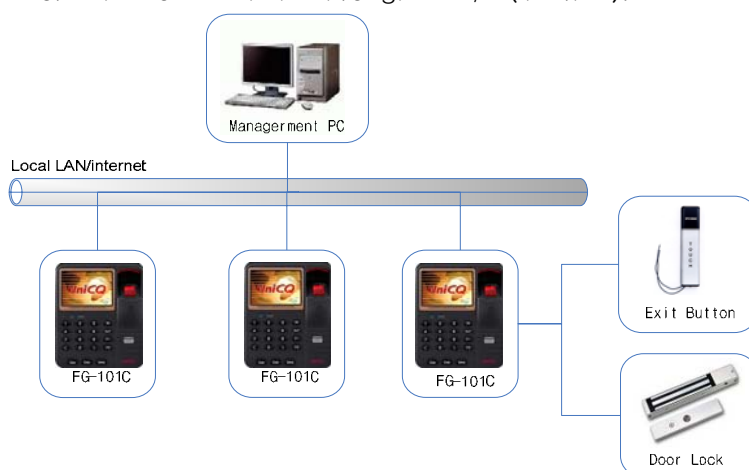
1. Record initialization
 - Initialize all log data.
2. Setup initialization
 - Initialize all setup value.
3. Factory initialization
 - Initialize all setup value and clear value.
 - (like a factory out)

System Configuration and Installation

1. System Configuration

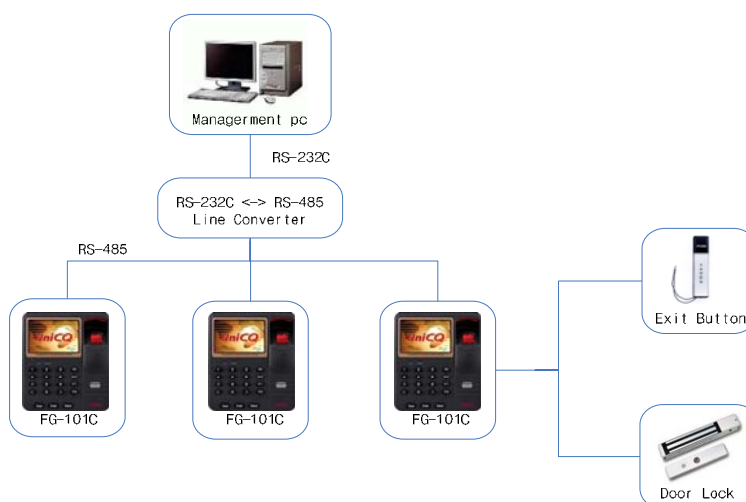
Network Connection configuration

Network configuration is the system which is composed by one or more units of FG-101C through TCP/IP(internet).



1:N connection configuration

Multi-drop configuration is composed by one or many units of FG-101C by using RS-485 interface. Maximum communication distance is 1.2km and maximum number of units to connect is 32. It needs RS-232C as converter to communicate each other, because PC doesn't support RS-485.

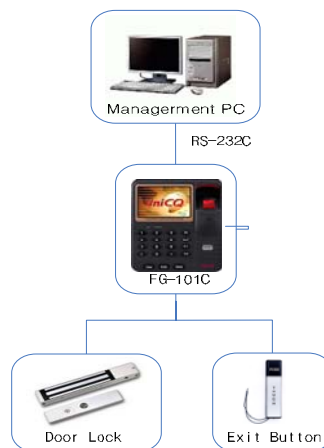


System Configuration and Installation

1. System Configuration

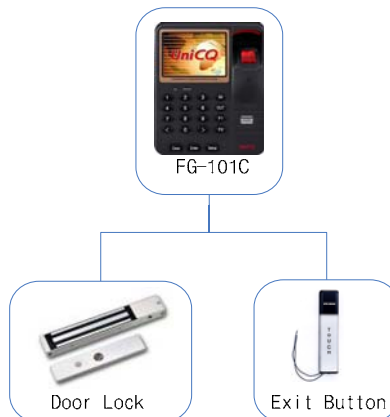
1 : 1 Point-to-point Configuration

Point-to-point configuration is the system with one administrator. PC and one FG-101C by using RS-232C interface. Maximum communication distance is 15m.



Stand-alone Configuration

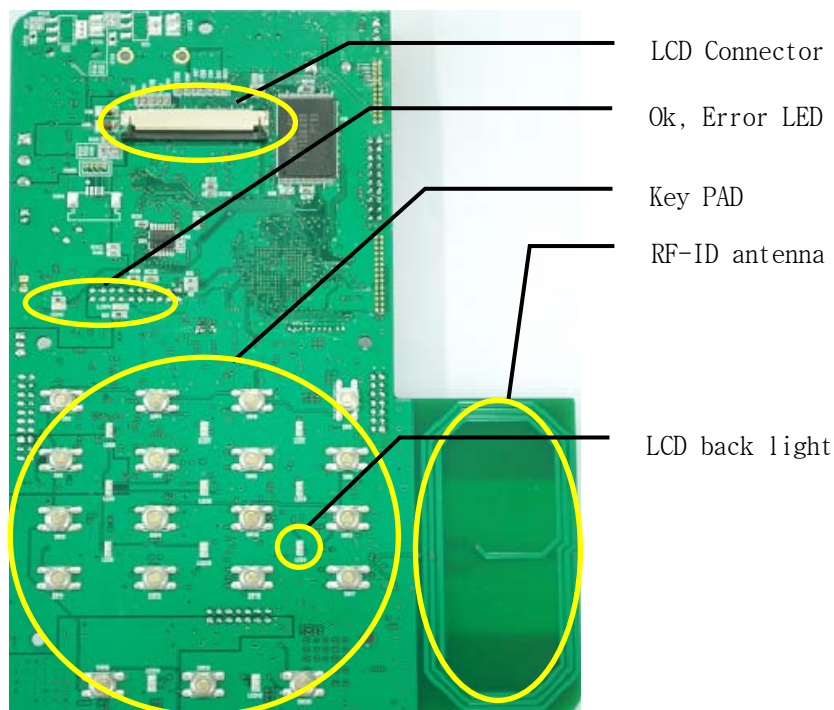
It is stand-alone configuration composed by only one FG-101C without administrator PC.



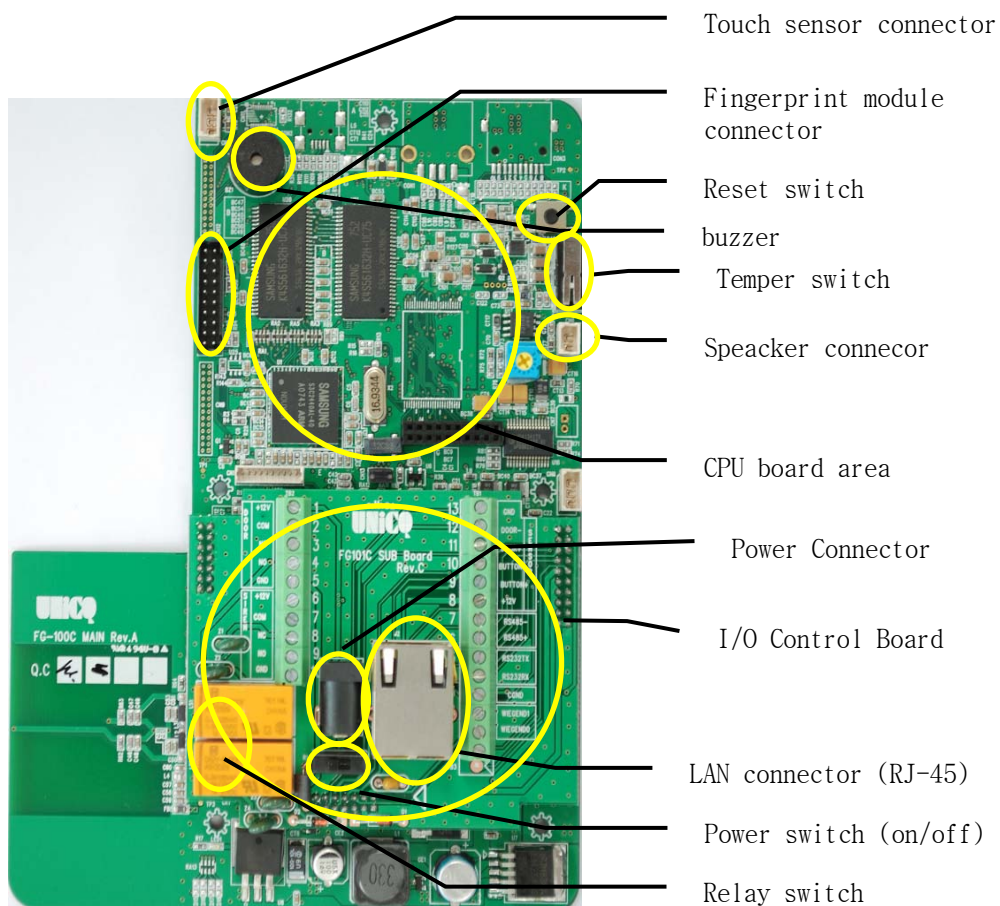
System Configuration and Installation

1. System Configuration

In front



Back side



System Configuration and Installation

2.System installation

Commucation cable Connection

Communication cable connection are different depend to the system composition, so you must refer to the correct connection.

System composition form	Distance(Max)	Connector type
Network communication	TCP/IP (100M)	RJ45
Q:1 connector	RS-485(1.2KM)	
Point to point connector	RS-232C(15M)	
Self composition	none	

A) TCP/IP Connection

First you must adjust dip switch as below, then you may connect .

Put in UTP cable with RJ45 Plug to main board socket (J5)
Below cable colors were made out based on EIA/TIA-568B (Standard)

RJ-45 Connector map

Cable	Pin Number	Pin Name	Description
1 W/Orange	1	Tx+	Transmit+
2 Orange	2	Tx-	Transmit1
3 W/Green	3	Rx+	Receive+
4 Blue	4		Not Used
5 W/Blue	5		Not Used
6 Green	6	Rx-	Receive-
7 W/Brown	7		Not Used
8 Brown	8		Not Used

- Cautions when making and installing UTP cable -

Network problem that frequently occurs is because of cable, so that you must be careful when manufacturing or establishing

- 1) You must connect by following EIA/TIA-568 when manufacturing.
If you do not following the connection form, it will cause noise
EIA/TIA-568B : PC(NIC) – HUB (Direct Cable)
EIA/TIA-568A : HUB – HUB, PC – PC (Crossover Cable)
In 568B connection, change 1 and 3 , 2 and 6 each other
- 2) When manufacturing,use UTP cable which has CAT 5(Category 5) grade and above

System Configuration and Installation

2.System installation

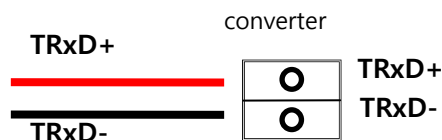
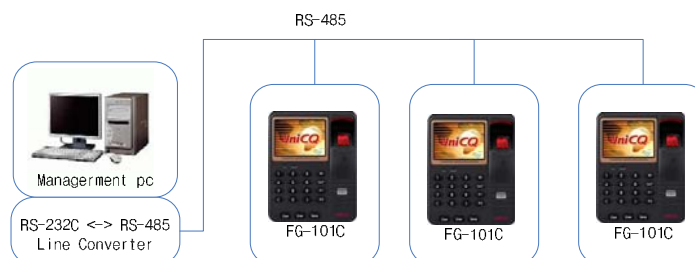
- 3) When manufacturing, you must make it within 13mm in order to keep up to untangle the end of the wire (for CAT 5)
- 4) When establishing, the cable length must not be more than 100M. This is not the length from outlet which is attached on the wall but this is the length from hubs network devices
- 5) When establishing, make sure that the cable is not turn to 90 degrees and above
- 6) Avoid from installing or wiring nearby place that can cause EMI such as AC power line(motor) or power cable

RS-485 Connection

Connect the manufactured RS-485 cable as below to the board

Pin Number	Pin Name	Description
1	TRXD+	Transmit+
2	TRXD-	Transmit1

When connecting multidrop, there are two pieces of RS-485 connector to make the installation easier.



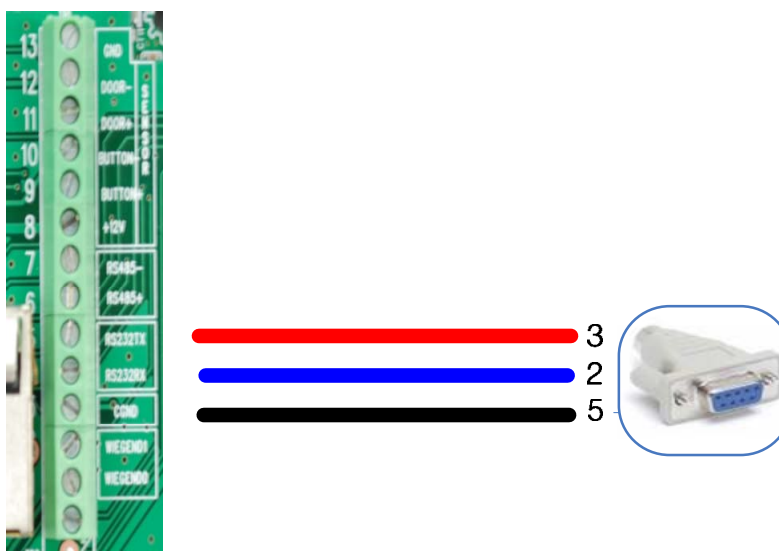
System Configuration and Installation

2.System installation

RS-232C Connection

RS-232C has defined standard connection method, which are DB9 and DB25. General system has communication port(COM Port) which is accomplished through DB9.

Since FG-101C does not support terminal for flow control use, connect data line only as picture below.



DB9 Pin	Pin	Pin Name
2	4	Rxd
3	5	Txd
5	3	GND
Other Pins	Other Pins	Not Used

System Configuration and Installation

2. System installation

Input cable connection

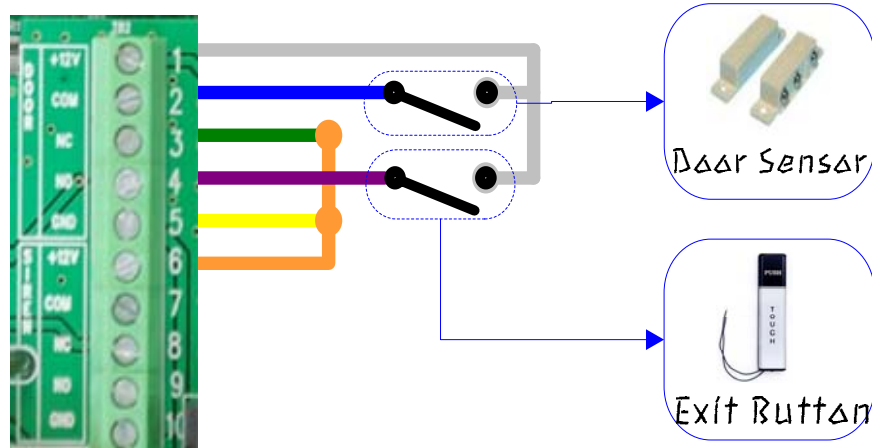
IN1 is for entrance door sensor and IN2 is for entrance door open button.

All of input sensor must use N.O (Normal Open) Type.

Pin No. 1,6 are using supplied power from JP11(I/O Power).

	PIN	PIN NAME	Description
	1	GND	Ground
	2	DOOR-	Door Sensor
	3	DOOR+	
	4	BUTTON-	Exit Button
	5	BUTTON+	
	6	+12V	I/O Power
Comm	7	RS485-	RS485 communication
	8	RS485+	
	9	TX	RS232C communication
	10	RX	
	11	Ground	
	12	WIGEND D1	WIGEND commuication
	13	WIGEND D0	

Below pictures are the connected door sensor which had been made based on magnetic sensor Type
But exit button is normal method.



System Configuration and Installation

2. System installation

Output cable connector

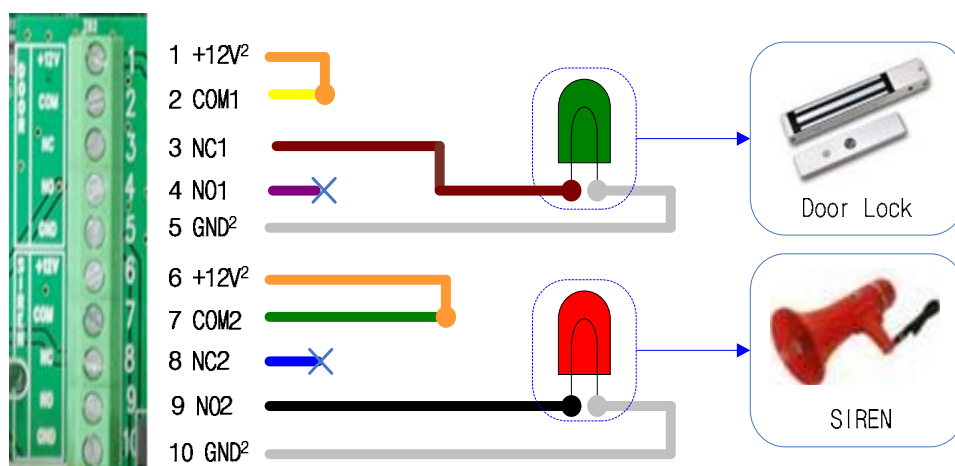
OUT1 is for entrance door relay and OUT2 is for alarm relay.
Power source of connector is using power which is supplied form JP11(I/O Power)

	PIN	PIN NAME	Description
Door	1	+12V	I/O Power
	2	COM	Door Relay - Common
	3	NC	Door Relay – Normal Open
	4	NO	Door Relay - Normal Close
	5	GND	I/O Ground
Siren	6	+12V	I/O Power
	7	COM	Alarm Relay – Common
	8	NC	Alarm Relay – Normal Open
	9	NO	Alarm Relay - Normal Close
	10	GND	I/O Ground

Below pictures are the connected lock devices which had been made based on Fail Secure Type.

For Fail Safe Type, connect NC1 pin instead of NO1 pin.

For Auto Door, you do not have to connect power pin, connect COM1, NO1 pin only









System Configuration and Installation

2. System installation

Type of doorlock

Fail Safe Type [Unlock] : Normal open when power off (Emergency)

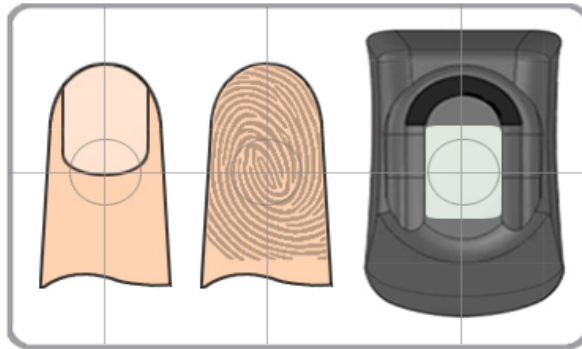
Fail Secure Type [Lock] : Normal close when power off (Emergency)

Dead Bolt		EM-Lock	Electric Strike		Auto Door
Picture image					
					
Fail Safe	Fail Secure		Fail Safe	Fail Secure	
Wet Contact for pooutput connect					Dry Contact for point connect

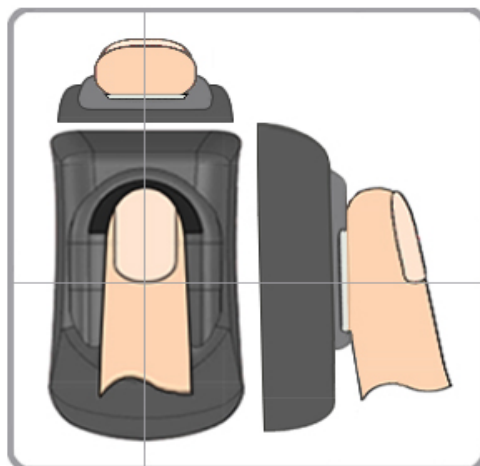
How to Fingerprint Registration

How to Fingerprint Registration

■ Good Registration for fingerprint



1) Keep the center your fingerprint.



2) Press your fingerprint the window

* Notice : IF your finger is dirty. Wash your hand and keep the good status.

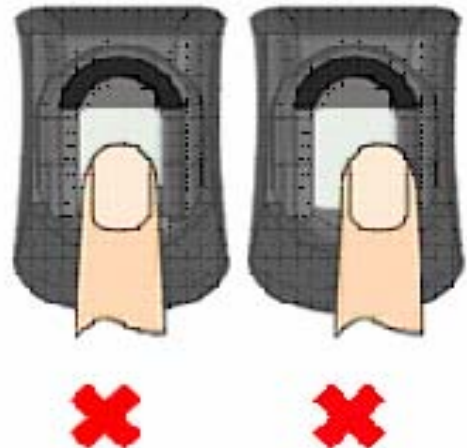
How to Fingerprint Registration

How to Fingerprint Registration

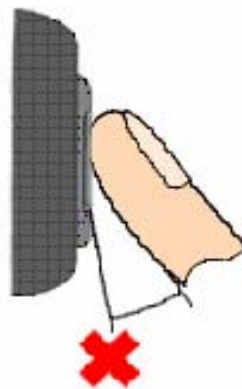
■ Invalid Registration for fingerprint



Keep the center then
do not remove your finger.



Must touch to window all parts.



Do not leave a space
The window



Keep the center then
do not remove your finger.

EC Declaration of conformity

"Hereby, ILSUNG PRECISION declares that RF-101C is in compliance with the essential requirements and other relevant provisions of Directive 1995/5/EC"

- Place available to use

Germany, Hungary, Poland, Bulgaria, Czech Republic

FCC approved

" Note: 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 generated, uses 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 or more of the following measures. Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into 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: Any changes or modifications in construction of this device which are not expressly approved by the party responsible for compliance could void the user's authority to the equipment."

ILSUNG PRECISION

182-2, Jegi-ri, Jeongnam-myeon, Hwaseong-si, Gyeonggi-do, Korea, 445-964

TEL : +82-31-354-1031 FAX : +82-31-354-1035

Website: <http://www.unicq.kr> / www.ilsungmold.com

Mail: unicq@unicq.kr, support@unicq.kr