RF-101C User Manual

1. Overview

UNICQ RF-101C is an integrated automatic identification system which can be used the Internet and Intranet computing circumstance. It is available for the individual identification Card or helps to use RFID information as digital data through the card reader.
And it is the system which can be used to apply to the various fields of data collecting, analyzing, and processing connected with computers.

2. Strong points

1) High speed process

Prompt identification speed and stable processing are possible due to using 32 bit ARM9 2440 CPU(400Mhz). Scan speed is less than 0.2 sec.

2) Large scale of system composition

It can be used for connection with maximum 32 terminals and serial communication within 1.2Km through RS485. Also it guarantees easy installation and stable data communication due to Built-in TCP/IP.

3) DATA storage and extension ability

100,000 registered users and 100,000 Event Data can be processed simultaneously when using a 8Mb memory.
Data could be stored for 3 months by using back-up battery in case of black-outs.

4) Remote control function

Real time monitoring on the machine and entrance door condition is available by using a program. Checking In & out information is also possible by on and off line..

5) Various convenience functions for user

Big size (2.4 inch) of graphic LCD color screen makes easier send the message, and LCD back light helps to use in the dark.
There are various combinations such as using number keys only, card + password, exceptional user password function, RF-ID card, etc .

6) Various application ranges

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

1.System composition

RF-101C RF-ID Reader

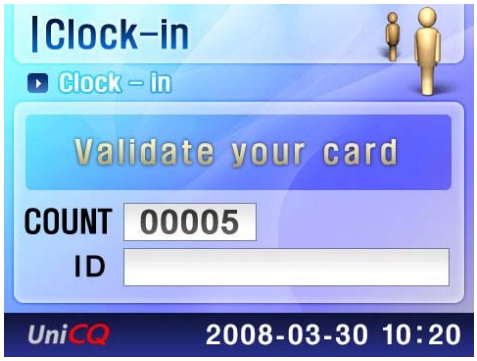
Screw

Power adapter

Power Cable

2. Specifiction

Model Name	RF-101C
CPU	ARM9 S3C2440A, 32Bits, 400Mhz
LED	OK, Error 2 lamp [red, green]
LCD	2.4 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	RS-232C, RS-485, TCP/IP, Wiegand
Registration	100,000 person registration
RF-ID	13.56MHz
I/O Port	Input Sensor Port : 2Ports Output : 2 Ports
Case	Chage case - Multiple color
Read Range	13.56MHz : 6cm
Reading time	13,56MHz : Less than 1Sec
Operating Temp	LCD : -20 ° to +70 ° RF Reader : 0 ° to +70 °
Operating humidity	10% to 90% relative humidity non-condensing
Certification	MIC, CE, FCC
Power/Current	12V / Max.500mA(Main) 12V / Max.2A(I/O)
Dimension	131mm[W] * 131mm[L] * 40mm[H]
Weight	320g



- The general mode allows verification of the user in order to manage the registered user timesheet.

Login Verification Screen

- The texts located on the upper section of the screen shows the mode the terminal is in (a text and icon display). The verification message is displayed in the center. The log no. is the number of previous log values, while the ID box reads the value from the card swiping. The date and time information is displayed at the bottom of the screen.
- [IN] : Selection button for the attendance recording and verification
- [OUT] : Selection button for the end of the working hour and its verification
- [F1] : Selection button for out on a business verification
- [F2] : Selection button for return from business trip
- [SETUP] : System configuration selection button
- 0~9 : ID verification keys
- [CLEAR] : To exit from the current menu

- If [IN/OUT/F1/F2] is used for verification, the next user can skip the selection button and continue in the same mode

Exit/Entry management

- Application of CARD & Password and CARD for user verification methods.
- Once the user is verified, the lock system is disengaged.

Attendance recording management

- IN(in the office) / OUT(gets off work) / F1(out on business) / F2(return to work) buttons can be used for verification purposes also.
- The button once selected will remain unchanged until a different button is selected.

- Select [SETUP] on the panel, and Setup Panel will be displayed after Password and MasterCard verification.

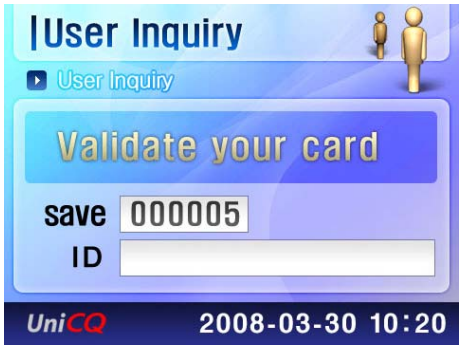
1. Card registration/deletion
    1. User registration
    2. User Verification
    3. Delete the user
    4. Administrator registration
    5. Delete the administrator
    6. Delete all
2. Control mode configuration
    1. Entry restriction setup
    2. Voice function setup
    3. Card type setup
    4. Card data setup
    5. Read from the card
    6. Write to the card
3. System configuration
    1. set date/time
    2. set Address
    3. set com1 port
    4. set com2 port
    5. set Password
    6. set Language,
    7. set Network
4. System test
    1. KEY
    2. RELAY
    3. SENSOR
    4. LED
    5. COM1
    6. COM2
    7. VOICE
    8. TCP/UDP

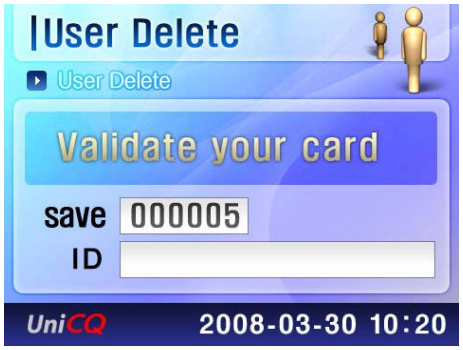
User and administrator registration

⇒ For the initial registration, choose [Set] and enter “1234” for the administrator password. Once you are in administrator mode, choose 1 for Card registration and deletion and go to the user registration on the next displayed screen.

⇒ In the User Registration Type screen, choose either Card Only or Card+Password options. If you choose to use Card Only, touch the card to the terminal for registration. If the other is selected, touch the card to the terminal for registration.

⇒For the administrator registration, choose [Set] to enter “1234” for the administrator password. Once you are in administrator mode, choose 1 for Card registration and deletion and go to the administrator menu on the next displayed screen. Choose 4 for administrator registration (Hit 4 or use the arrow key to move to 4) and press Enter before touching the administrator card to the terminal





1. Card Registration/Deletion

1. User registration

To register a card for the new user.

2. User Inquiry

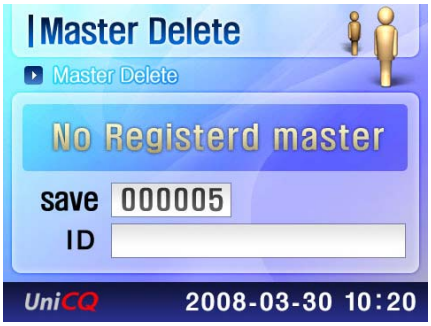
To verify the registration of a user card.

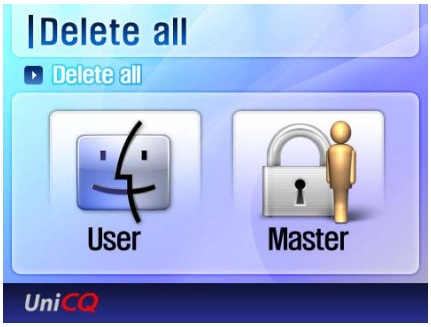
2-1. If the card is not registered =>
"The card is not registered."
message will be displayed.

2-2. If the card is registered =>
The detailed card information
will be displayed.

3. Delete User

To delete the card of a registered user.





1. Card Registration/Deletion

4. Administrator registration

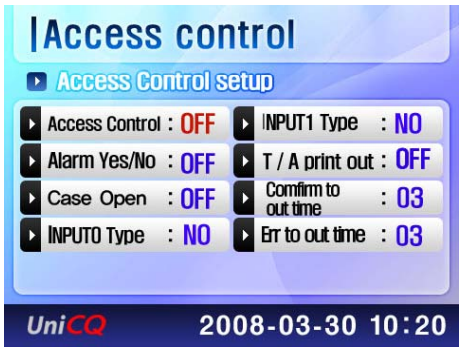
To restrict unauthorized access to the menu items by locking certain menu items.

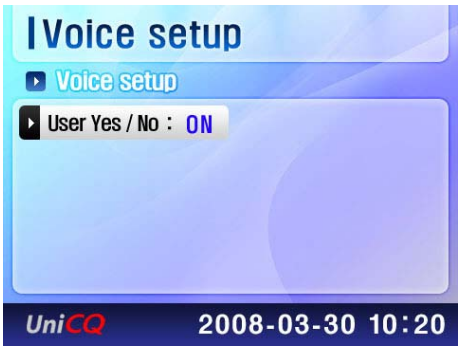
5. Delete Administrator

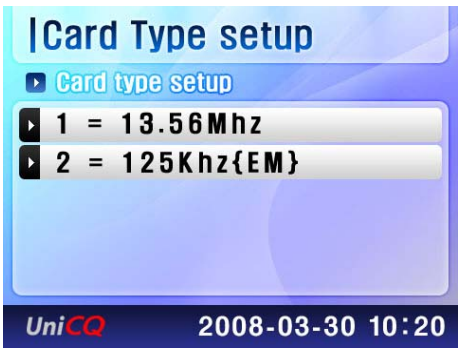
To delete the card of the registered administrator.

6. Delete All

Delete all deletes both users and administrator cards.







2. Control mode setup

1. Setting the entry/exit control

- Use the arrow key to move up and down the menu and make selections using 1 and 3 keys.

Restricted entry : ON / OFF

(Attendance mode/entry restriction mode settings)

Alarm : ON / OFF

Case Open : Alarm setting in case of ON / OFF open

INPUT0 Type : NO / NC

(normal open / normal close) lock setup

INPUT1 Type : NO / NC

(normal open / normal close) lock setup

Attendance output : ON / OFF

In ON mode, lock opens when verified.

Verification output time: to be configured from 00 up to 99.

Setting message output intervals when verified.

Error output time: to be configured from 00 up to 99.

Setting error message output interval

2. Voice function setting(voice/alarm)

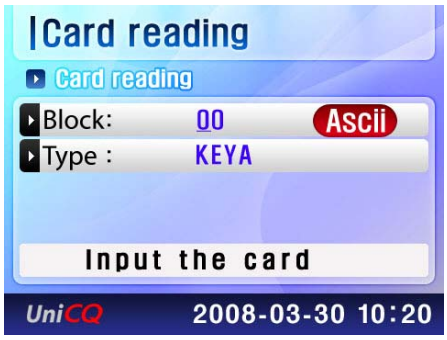
Setting : ON / OFF (Voice function selection)

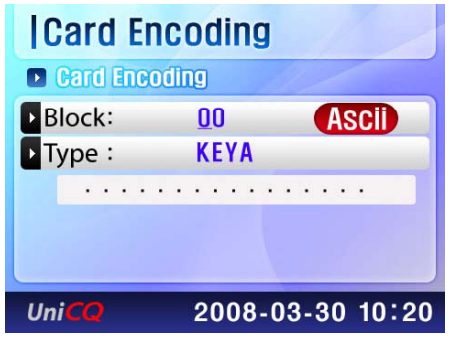
Press [Ent] key to see the sub menus.

VOLUME : to set the volume

3. Card type setting(choose a card type to be used)

Hi-frequency(Myfare type) and Low-frequency(EM) card selection





4. Card data setup

Changing menu items using numeric buttons
Use <, > buttons to move up and down the menu items
KEYA - '1', KEYB - '2' key

View mode change - IN key

Input mode change - OUT key

5. Reading a card

Card data setup values are read from the card. "Block" and "Type" are displayed according to the card data setup.
In the case that the block number is 00, the chip serial number of the card will be read. But the type and Key data will not be used.

View status change - IN key

6. Write to a card

Changing menu items using numeric buttons
Use <, > buttons to move up and down the menu items
User the numeric button to enter the data input.
After completing the entry, touch the card for pass or failure message.

Input status change - OUT key

<Note>

To search or setup card data
"Block" – refers to the block number to be used in the card (00 ~ 63)
"Type" – refers to the card type to be used in the card (KEYA, KEYB)
"KEY" – refers to the 6-bit keys to be used in the card.
The default set values are 00, KEYA, FFFFFFFFFFFF in this order.
In case of the block number being 00, the chip serial number of the card is used. The chip serial number can be only read and not be written. In this case, type and key data are not used.
It is not recommended to use all of the block numbers and the following numbers, which are designated for special purpose.
Special purpose block numbers: 03, 07, 11, 15, 19, 23, 27, 31, 35, 39, 43, 47, 51, 55, 59, 63

3. System configuration

1. set date/time

(User the arrow and numeric keys to input data and hit Enter to save.)

Setting the date/time/day on the terminal.

2. set Address (Use the numeric keys to input the data and Enter key is used to save the data)

Setting the terminal number (when multiple terminals are used)

3. set com1 port

Setting the Baudrate / character / Parity / Stop values.

4. set com2 port

Setting the Baudrate / character / Parity / Stop values.

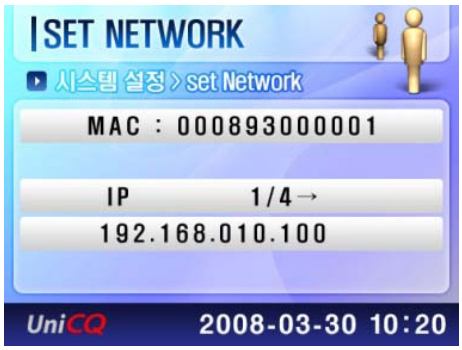
5. set Password (Use the numeric keys to input the data and Enter key is used to save the data)

To change the password when moving up and down the menu items.

6. set Language (Use the arrow keys to input the data and Enter key is used to save the data)

To set the language of the reader.

Korea / English / Japanese etc.



7. set Network (Use the numeric and arrow keys to input the data and the Enter key is used to save the data) - Use the In key to move up and down the menu, and use the arrow and numeric keys to input the data before hitting Enter key to save the data. To exit the menu, use [Cle]

IP : Setting the terminal IP address

Subnetmask : input setting

Gateway : input setting

Port : input setting

4. System test

1. KEY

- To test the key values

- When pressing a key, the hair cross(+) mark displays for 0.5 seconds.

- Use Enter or Clear to exit

2. RELAY

- Each time pressing 1 and 2 key, the applicable Relay becomes on or off.

3. SENSOR

- When detecting an input, the "Sensing.." message is displayed.

4. LED

- Each time pressing 1 and 3 key, the applicable LED becomes on or off

5. COM1

- Pressing a numeric key will activate the data transmission
- LCD will display the input data.

6. COM2

- Pressing a numeric key will activate the data transmission
- LCD will display the input data.

7. VOICE

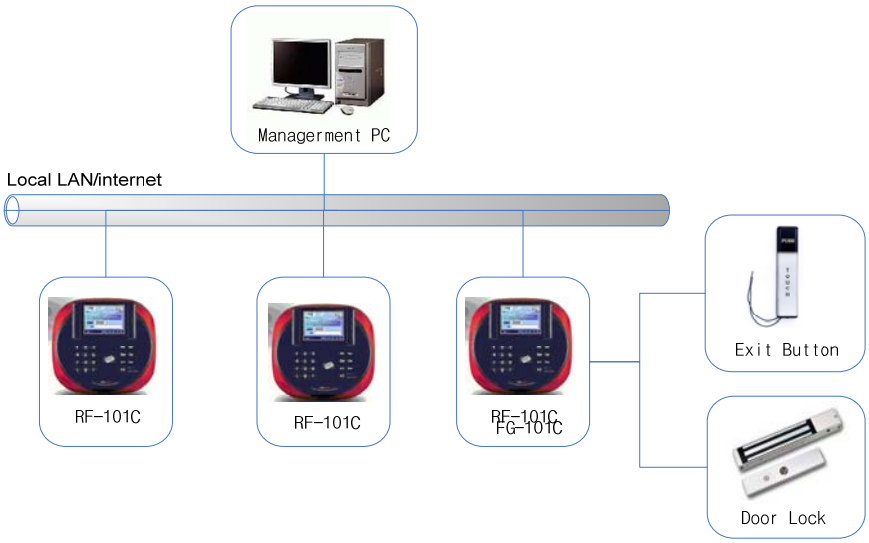
- To test the voice quality on the terminal.
- Use the “>” key to stop or start
- [IN] => to choose the next voice
- [OUT] => to choose the previous voice.

System Configuration and Installation

1. System Configuration

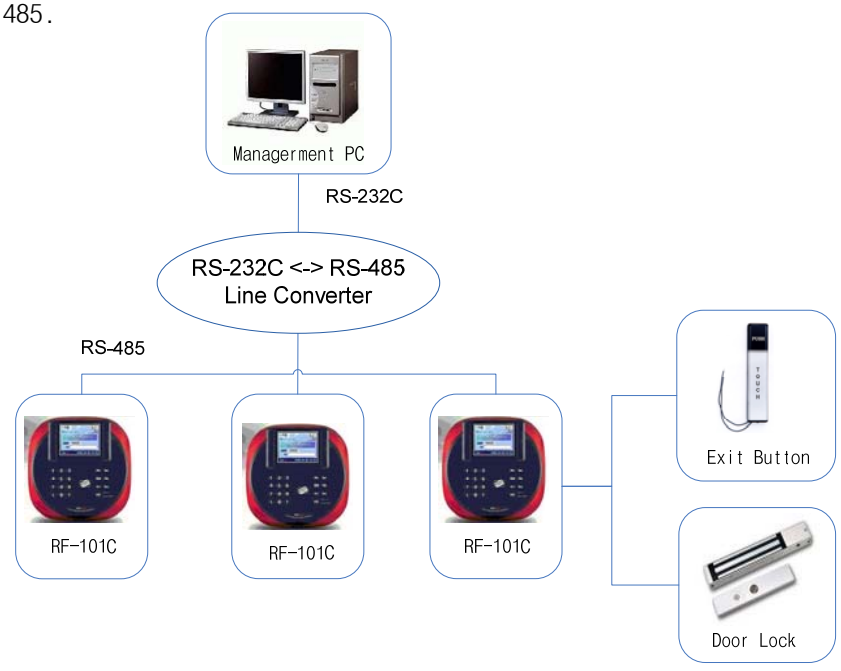
1 : 1 Point-to-point Configuration

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



1:N connection configuration

Multi-drop configuration is composed by one or many units of RF-101C by using RS-485 interface. The maximum communication distance is 1.2km and the maximum number of units to connect is 32. It needs RS-232C as a converter to communicate each other, because PC does not support RS-485.



System Configuration and Installation

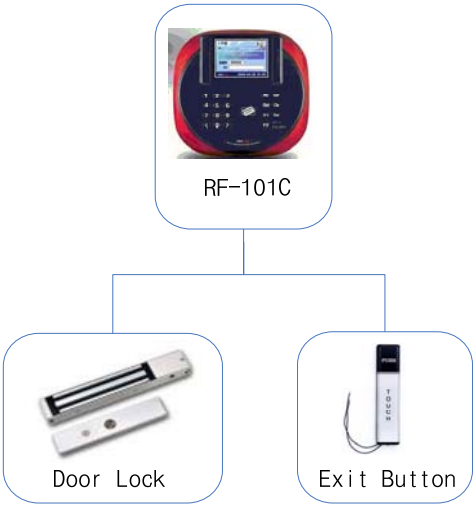
1. System Configuration

1 : 1 Point-to-point Configuration

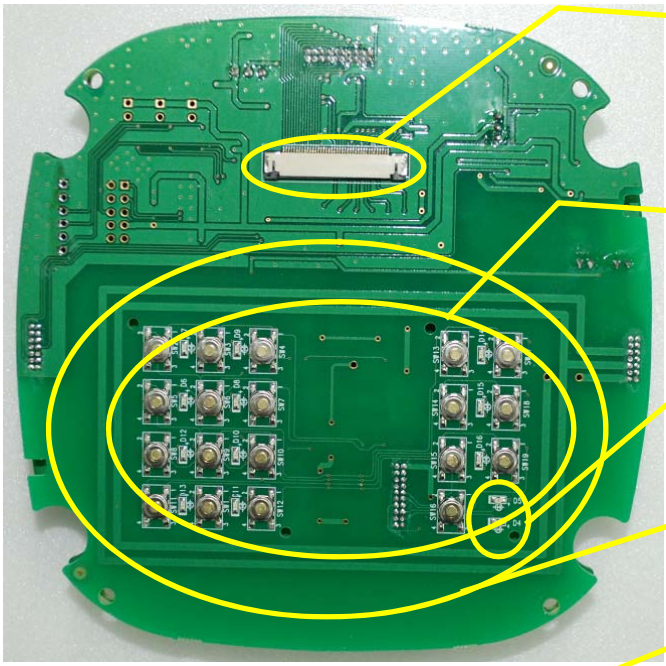
Point-to-point configuration is the system with one administrator. PC and one RF-101C by using RS-232C interface.
The maximum communication distance is 15m.

Stand-alone Configuration

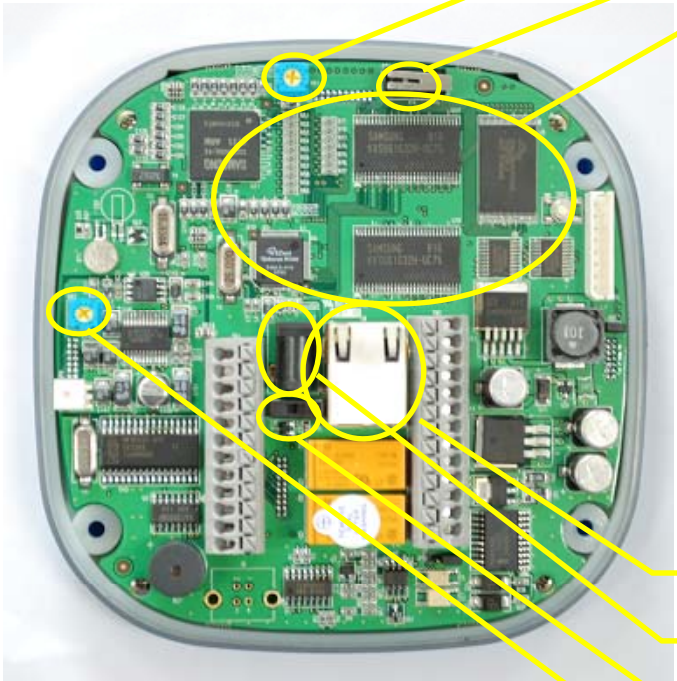
It is stand-alone configuration composed by only one RF-101C without administrator PC.



IN FRONT



BACK SIDE



2.System installation

Commucation cable Connection

Communication cable connection is different depending on the system composition, so you must refer to the correct connection.

System composition form	Interface(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

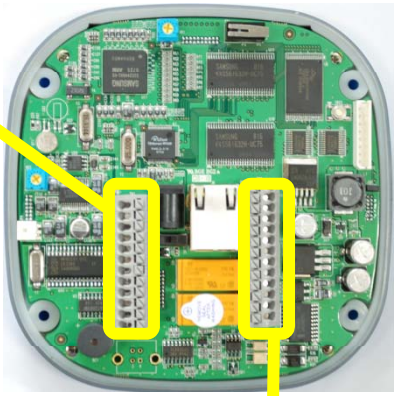
- Cautions when making and installing UTP cable -

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

1) You must connect by following EIA/TIA-568 when manufacturing.
   If you do not follow 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

Connection Diagram

TM1		
1	+12V	
2	DOOR_COM	OUTPUT1
3	DOOR_NC	
4	DOOR_NO	
5	GND	
6	+12	OUTPUT2
7	SIREN_COM	
8	SIREN_NO	
9	SIREN_NC	
10	GRND	
11	RS-232TXD2	RS-232(COM2)
12	RS-232RXD2	



Normal open (when power off) +

Normal close (when power off) +

GND -

EXIT BUTTON

DOOR SENSER

TM2		
25	GND	
24	EXT_SENSER2-	DOOR BUTTON
23	EXT_SENSER2+	
22	EXT_SENSER1-	DOOR SENSOR
21	EXT_SENSER1+	
20	+12V	
19	RS485TRX1+	RS-485(C0M1)
18	RS485TRX1-	
17	RS232TXD0	RS-232C(COM0)
16	RS232RXD0	
15	COM_GND	
14	WGD1	WIGEAND
13	WGD0	

Connection Diagram

TM1		
1	+12V	
2	DOOR_COM	OUTPUT1
3	DOOR_NC	
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5	GND	
6	+12	OUTPUT2
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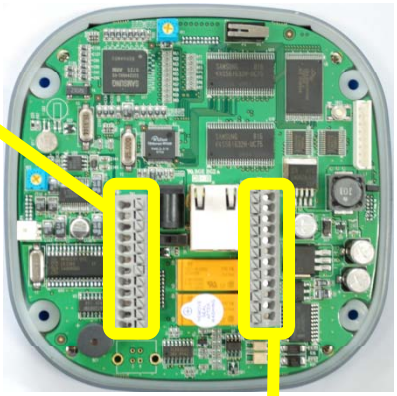
12	RS-232RXD2	



TM2		
25	GND	
24	EXT_SENSER2-	DOOR BUTTON
23	EXT_SENSER2+	
22	EXT_SENSER1-	DOOR SENSOR
21	EXT_SENSER1+	
20	+12V	
19	RS485TRX1+	RS-485(C0M1)
18	RS485TRX1-	
17	RS232TXD0	RS-232C(COM0)
16	RS232RXD0	
15	COM_GND	
14	WGD1	WIGEAND
13	WGD0	

•If you need a Dummy terminal than can use Wiegand input only.

1. DC(9~12V)	RED
2. POWER ground	black
3. Data 0	brown
4. Data 1	RED

2.System installation

Type of doorloock

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

Declaration of conformity

"Hereby, ILSUNG PRECISION declares that FG-100 & RF-100 are in compliance with the essential requirements and other relevant provisions of Directive 1995/5/EC"

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."

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