MODEL : FINGER_007
ACCESS CONTROLLER

OWNER’S MANUAL
Please read this instruction manual carefully

Contents

IMPORTANT SAFETY INSTRUCTIONS

When using your door access controller, basing safety precautions should always be followed to reduce the risk of fire, electrical shock, and injury to persons including following:

1. Read and understand all instructions.
2. Follow all warnings and instructions marked on the product
3. Do not use liquid cleaners, or aerosol cleaners. Use a damp cloth for cleaning. if necessary, use a mild soap.
4. Do not use this product near water, for example near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.
5. This product should be operated only from the type of power source indicated on the marking label. if you are not sure of the type of power supply to your home, consult your dealer or local power company.
6. Never push objects of any kind into this product though the cabinet slots as they may touch voltage points or short out parts that could result in a risk of fire or electric shock. Never spill liquid of any kind on the product.
7. To reduce the risk of electric shock, do not disassemble this product, but take it to a qualified serviceman when some service or repair work is required. Opening or removing covers may expose you to dangerous voltages or other risks. incorrect reassembly can cause electric shock when the appliance is subsequently used.
8. Unplug this product from the wall outlet and refer to qualified service personnel under the following conditions:
   a. When the power supply cord or plug is damaged or frayed.
   b. If liquid has been spilled into the product
   c. If the product has exposed to rain or water.
   d. If the product doses not operate normally by following the operating instructions.
      Adjust only those controls, that are covered by the operating instructions. Improper adjustment of other controls in damage and will often require extensive work by a qualified technician to restore the to normal operation.
   e. If the product exhibit a distinct change in performance.

FINGER_007 Access Controller

1. General

FINGER_007 is an intelligent one door Access Controller based on powerful 32 bit Microprocessor with two 8bit microcontroller to meet a simple and cost-effective access control market requirement. It is designed for low cost but high security as well as convenience and reliability. User friendly device allows you to register 4,560 ID numbers and easy to add or to delete ID numbers and it has 5,000 transaction buffers. Built in FingerPrint recognition system, 10cm RF reader and PIN pad gives you various operating modes such as RF card only, RF + 4 digit PIN Number, RF + FingerPrint and RF + PIN + FingerPrint.

Independent 4 Input ports can detect exit button, door status, PIR sensor, Fire sensor and Temper switch and you can program related output sources and active timing from the front keypads. It is possible to use as standalone or network communication via RS-232 and RS-422. All control setting values such as ID numbers, Inputs/Outputs, Real time clock and Time schedule can be Download/Upload from/to the host computer and all event transaction reports to the Host. The modern design and easy installation will provide you an accurate access control for single door and 3 LED indicators informs you all system operating status at real time. FINGER_007 will give you field proven reliability and cost-effective solution anywhere the access controls and high security is required.

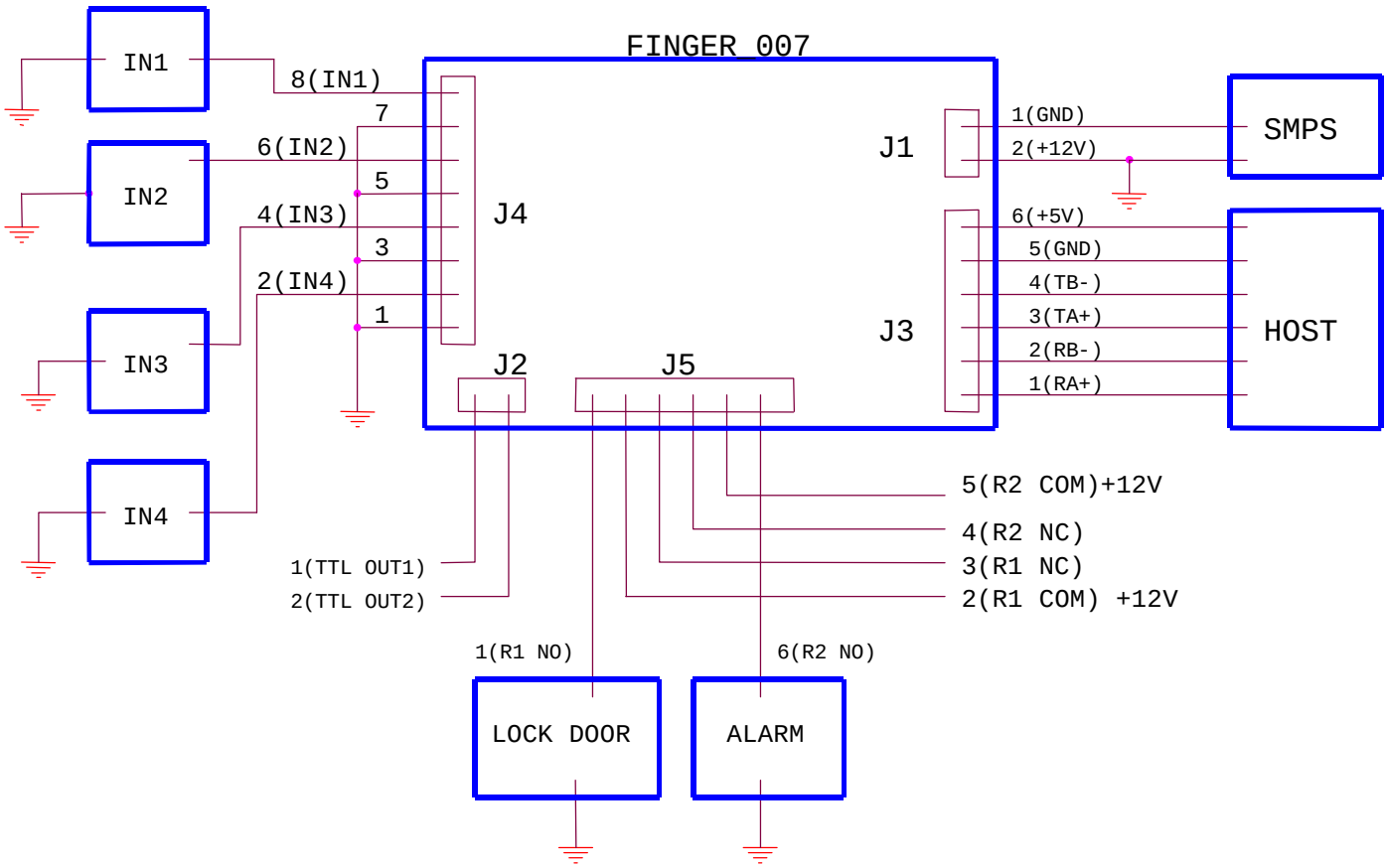
2. Specification

.CPU : 32bit Microprocessor and two 8 bit Microprocessor
.Memory : Program memory (64KB ROM)
Data memory (128KB RAM; battery backup)
.Card holders/Event buffers: 4,280 Card holders/5,000 Event buffers
.Reader Ports/Data format : 1 port/Wiegand format
.Inputs/Outputs : Isolation Inputs(4ea) : high-over 0.8V, low-under 2.4V
Relay Outputs(2ea; COM,NO,NC) : 12V/2A
TTL Outputs(2ea) : 5V/1mA
.Communication : RS-232 and RS-422 port, address selectable
Baud Rate : 4800bps, 9600bps(default), 19200bps
.Display : 1 **x** LCD module, 2lines **x** 16ch, 65.6 **x** 13.8mm view area
.Keypads : 16 Numeric keypad

.Self Diagnostic : Yes
.LED indicators : 3 LEDs (RED, GREEN, YELLOW)
.Power : DC 12V, Max 300mA
.Operating Environment : 0°C ~ +60°C, 10% ~ 90% humidity
.Reset : power on reset
.Terminal Block : Screw clamp

FDA01 (Finger Module)
sensor : SecuGen OPP01
Supply Voltage : 5VDC 200mV
Power Consumption : 170mA(Idle)

3. Connection



3.1. TABLE FOR WIRE COLORS

POWER

NO	FUNCTION	COLOR
1	GND	BLACK
2	+12V	RED

READER2

NO	FUNCTION	COLOR
1	D1	SKY BLUE
2	D0	PINK

TTL OUTPUT

NO	FUNCTION	COLOR
1	TTL OUT1	ORANGE WITH WHITE LINE
2	TTL OUT2	BROWN WITH WHITE LINE

COMMUNICATION

NO	FUNCTION	COLOR
1	TX(-)[RS422]	YELLOW
2	TX(+)[RS422]	GRAY
3	RX(-)[RS422]	BLUE
4	RX(+)[RS422]	BROWN
5	TX[RS232]	BLACK WITH WHITE LINE
6	RX[RS232]	RED WITH WHITE LINE

INPUT

NO	FUNCTION	COLOR
1	IN1(EXIT)	ORANGE
2	IN2(CONTACT)	YELLOW WITH RED LINE
3	IN3(PIR)	GREEN
4	IN(FIRE)	GREEN WITH WHITE LINE

RELAY

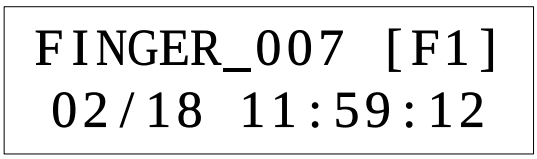
NO	FUNCTION	COLOR	
1	R1 NC	BLUE WITH WHITE LINE	Door Relay
2	R1 COM	GRAY WITH RED LINE	
3	R1 NO	WHITE WITH RED LINE	
4	R2 NC	PURPLE WITH WHITE LINE	Alarm Relay
5	R2 COM	WHITE	
6	R2 NO	PURPLE	

4. Operation

CAUTION:

At first, to enter setup mode, press 00000000 and ENT on keypads. Then enter MASTER PASSWORD[3141].

When user power on FINGER_007, user see the following on LCD, where *02/18 11:59:11* means *Month/Day Hour: Minute: second*. Hence the following is not exactly same with the LCD, of which user see. Now, user can test normal operation (*Normal mode*) and change setting in FINGER_007 (*Setup mode*)



<Fig 1> FINGER_007 Normal State

Normal Mode

1. When user get registered card near FINGER_007, requesting PASSWORD or FingerPrint, user will see the green LED on, the RELAY1 active, and the following on LCD for three seconds.

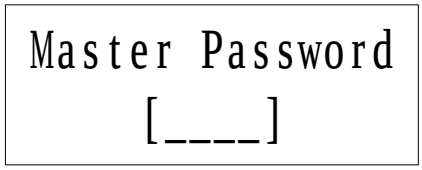
<Fig 2> Normal Operation

2. When user get unregistered card near FINGER_007, user will see the yellow LED on, the RELAY2 active, and the following on LCD about three seconds.

<Fig 3> Abnormal Operation

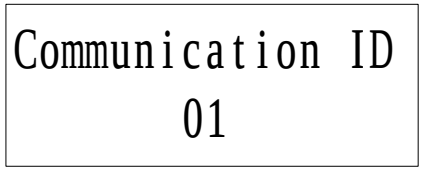
Setup Mode

Initially, When user press 8digit MASTER CARD number**[00000000]** and ENT, user see the following on LCD.



<Fig 4> Wait state for
Master password

Now press default Master password **(3141).** If Master Card and Master Password are matched, User will see, for a few second, the following message[1], and then user is in setup mode.



<Fig 5> Comm address

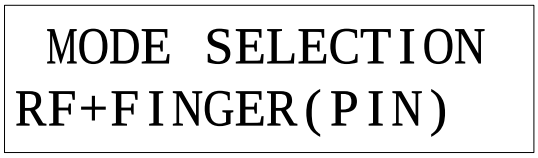
<u>Note)</u> When user changed MasterID, then master are required

[1] It says the ID number of this FINGER_007 is 01. This ID number is necessary, when several FINGER_007s are connected to host.

MasterCard and Master FingerPrint to enter setup mode. Hence, When change Master, You SHOULD be careful.

In setup mode, there are four setup menus. By default, user is in Setup Menu 1. The change between setup menu is done by pressing Function key[2].

SETUP MENU 1: General Setup Menu (mode selection, time setting, anti pass back setup, baud rate change, event clear, master ID change, system initialization, card ID clear, and time schedule clear)



<Fig 6> setup menu 1

SETUP MENU 2: Time schedule and Holiday Time Schedule and In/Out Setup

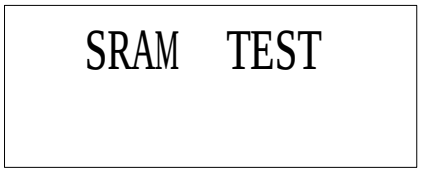
<Fig 7> setup menu 2

SETUP MENU 3: ID Registration, and deletion

<Fig 8> setup menu 3

[2] **F1**: setup menu 1, **F2**: setup menu2, **F3**: setup menu3, **F4**: setup menu4

SETUP MENU 4: Self-Diagnostic



<Fig 9> setup menu 4

⚠ **CAUTION**: (1) **'F1', 'F2', 'F3',** and **'F4': ** Main Setup menu change
(2) Keypad digit '**4**', '**6**','**2**' and '**8**' used as cursor.
~ to change submenu, ID list, etc.
~ '2' and '8' used only in Time Schedule setup (see 4.2)
(3) '**ESC**': used to escape from a state to upper state.
(4) '**ENT**': used to enter the menu or to confirm the change.

4.1 Setup Menu 1: General setup menu

4.1.1. Mode Selection : The state is to change operation mode.

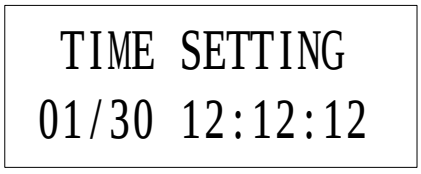
Submenu
(1)

(2)

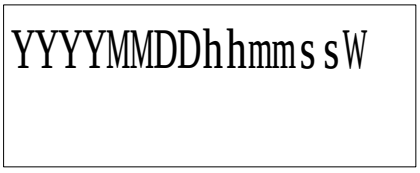
(2)

Submenu (1) mode: users are required to use RF-Card in normal operation
Submenu (2) mode: users are required to use RF-Card and Finger(password)
Submenu (3) mode: users are required to use RF-Card, Finger and PIN.
(See 4.3.1 ID REGISTRATION).

4.1.2. Time Setting

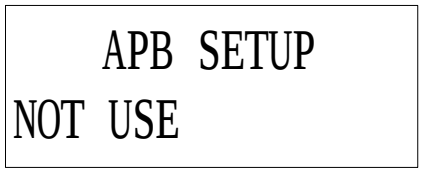


Submenu



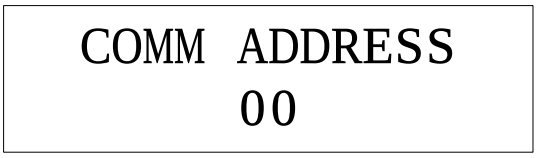
Note)
YYYY: Year *MM*: Month *DD*: Day *hh*: Hour *mm*: Minute *ss*: second
W: week (1:Sunday, 2:Monday, . . ., 7:Saturday)
(ex) 2000 02 18 23 59 00 1

4.1.3. Anti Pass Back Setup : For a high security, user can set Anti-Pass-BACK.

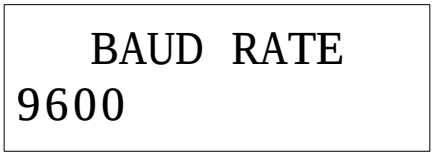


4.1.4. COMM ID SETTING : User can set Communication ID between 00-31. [In abnormal case or when System Initialized, Comm ID is 00]

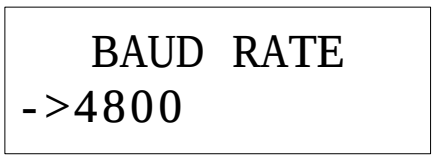
Submenu : Press ‘ENT’, then User can change Comm Address[00-31]



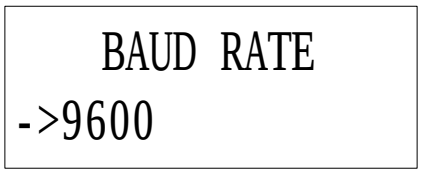
4.1.5. Baud Rate : When FINGER_007 communicate with host, baud rate determine the speed. (Default Baud rate of FINGER_007 is 9600)



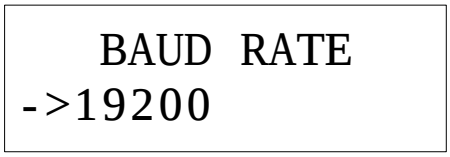
Submenu

1) 

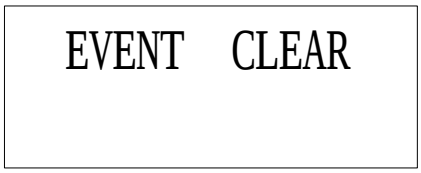
2)



3)

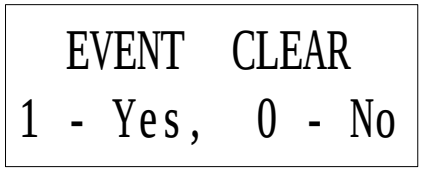


4.1.6. Event Clear : Remove all event which is stored in memory.

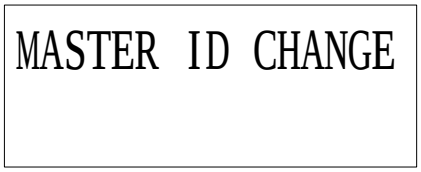


Submenu

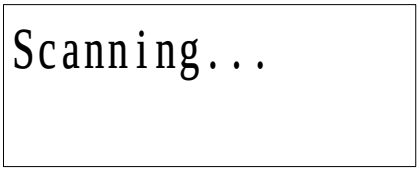
1)



***4.1.7. Master ID (Card and FingerPrint) change*:**
!!!!!! Be Careful, When Change Master. !!!!!!



- Wait for a RF-CARD, which should be registered as a master card.

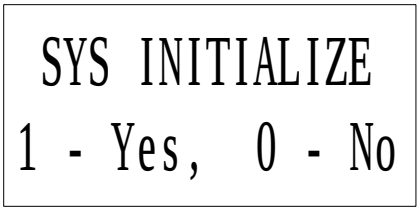


  - Wait for FingerPrint: If already Master is registered, then Master FingerPrint is required [old fingerprint]

After Master FingerPrint is registered, 'Master Card Registered' message appear a few second. Now, Master Id and Password is changed.

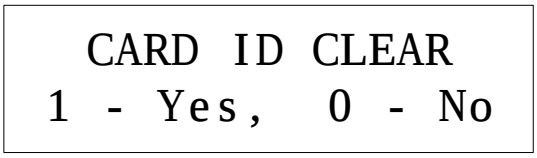
4.1.8. System Initialize : Initialization of all setting value

  - To initialize enter '1', if not, enter '0'



4.1.9. Card ID clear : remove all card ID which is in memory.

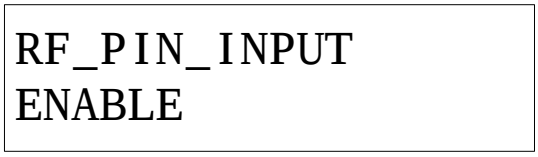
- To clear all ID enter '1', if not, enter '0'



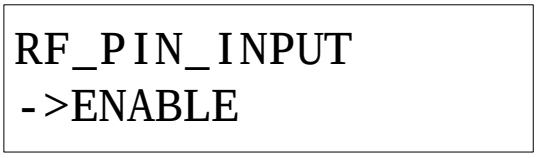
4.1.10. Time schedule clear : remove all time schedule in memory.

- To clear all ID enter '1', if not, enter '0'

4.1.11. PIN PAD Input En/Disable Mode : In this mode, User can enable/disable eight digit RF card number through keypad input.

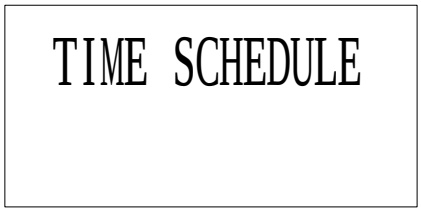


- To enable/disable, press 'ENT', and then change.

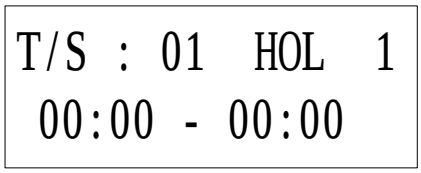


4.2. Setup menu 2

4.2.1. Time schedule : Register or change time schedule.



- Time Schedule setting



(Note)

- The first line shows (1) Time Schedule number: 01-10.
  (2) Week: MON, . . . SUN, HOL.
  (3) Index: 1 –5
- Five index gives flexibility for setting time schedule, because user can set in maximum five disconnected time schedule.
- The second line show time for each schedule, which is in first line.

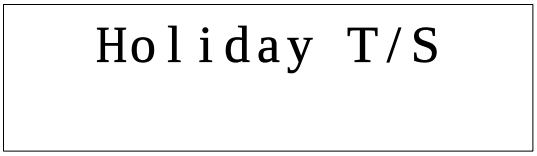
(Example)

If time schedule set like below, then user, who is registered with T/S #01(see 4.3.1 ID registration), are allowed to access only in 9:00-12:00, 13:00-17:00(Monday) and 18:00-19:00(Sunday).

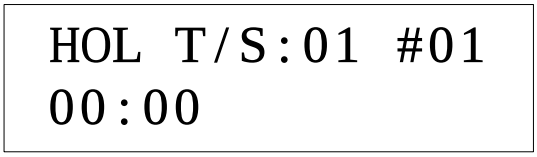
(T/S : 01 MON 1) 09:00 - 12:00

(T/S : 01 MON 2) 13:00 - 17:00
(T/S : 01 SUN 1) 18:00 - 19:00
the other time schedule 00:00 - 00:00

4.2.2. Holiday Time schedule : Register or change time schedule.



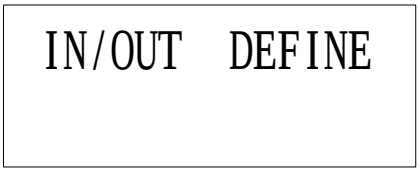
- Time Schedule setting



(Note)

- The first line shows (1) Holiday T/S number: 01-10.
  (2) Index for each Holiday T/S : 1–32.
- The 32 index gives flexibility for setting Holiday time schedule, because user can set in maximum 32 Holiday time schedule for year.
- The second line show [Month:Day] for each schedule, which is in first line.

4.2.3. In/Out define : set output for each input.



- The relation between In and Out

```
Index No.:01
03 00 00 00 00
```

Note)

1) The relation between Index number and Input is in the table on the below.
2) Index number 9-13 is not used in FINGER_007.
3) The second line show for each index the output status. (see table)
   (00: no operation, 99: always on, 01-98: operation on the given seconds.)
4) Input1(EXIT), Input2(CONTACT), Input3(PIR) and Input4(FIRE)
5) Relay1(LOCK DOOR) and Relay2(ALARM)

(Table 1) *The relation between Index, Input and Output(default)*

Index No	Relay1	Relay2	TTL1	TTL2	Buzzer
[1] Input1	03	00	00	00	00
[2] Input2	00	00	00	00	00
[3] Input3	00	00	03	00	00
[4] Input4	99	99	99	99	99
[5] Input5	00	99	99	99	99
[6] R/D1 OK	03	00	00	00	00
[7] R/D1 ID Error	00	03	00	00	00
[8] R/D1 T/S Error	00	03	00	00	00
[9] R/D1 APB Error	00	03	00	00	00

[10] R/D2 OK	03	00	00	00	00
[11] R/D2 ID Error	00	03	00	00	00
[12] R/D2 T/S Error	00	03	00	00	00
[13] R/D2 APB Error	00	03	00	00	00
[14] Output T/S	00	00	00	00	00

4.2.4. Holiday Index :

Set Holiday Time Schedule number[01-10], which have to apply.

- Set Holiday Index Number.

4.2.5. Mode Index :

- Set Mode Time Schedule number[01-10], which have to apply.
  - If this Time Schedule is set (i.e. index number is not 00), then in RF+Finger mode or RF+PIN+Finger mode, user can use only RF only mode when mode time schedule is applied.

- Set Mode Time Schedule Index Number.

4.3 Setup menu 3

4.3.1 ID Registration

- Wait for an ID-CARD which will be registered.

```
Scanning...
```

- Wait for Personal Information

```
    00342860
PW____TS__RD_FP_
```

< Scanned Card ID number

< wait for personal information.

Note)

(1) The second line shows

Password + applied time schedule + Reader + Finger

(2) This Password is used in RF+PIN+FINGER mode.

-> Password is meaningless in RF only and RF+Finger mode.

(3) The possible time schedule number is eleven:

-> #00 means anytime access possible.

- > #01 - #10 which is set in 4.2.1 Time Schedule.

(4) Reader Access number:

'1': Reader_1 only access

'2': Reader_2 only access

'3': Reader_1 and Reader_2 access

(5) Finger Usage number:

`1': User use finger

'0': User do not use finger

After Personal Information is entered, 'ID Registered' message appear a few second. Then ID Registration is over for one ID Card. If user use Finger, then user must follow the message on the LCD Now FINGER_007 is waiting for another ID card registration (i.e. 'Scanning' message is appear on LCD).

4.3.2 ID Deletion

```
ID DELETE
```

- Wait for an ID-CARD number.

```
Enter Card No.
->________
```

After the card number to be deleted is entered:

- Card Number is in registered card list.

```
ID  DELETE
```

- Card Number is not in registered card list,
  the following message is appeared for a few second.

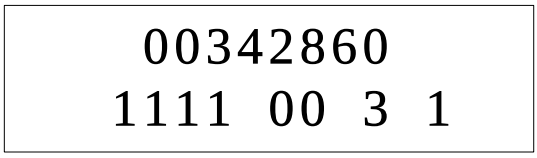
```
ID Unregistered
```

.4.3.1 ID List : List the ID which is registered.

```
ID  LIST
```

- If registered ID is empty.

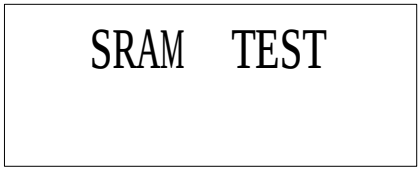
- If registered ID is not empty. (press ‘3’ or ‘6’ to see the other registered ID)



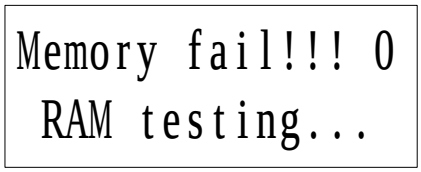
Note) As we know, 00342860 is a ID number,
1111 is a password,
00 is a time schedule, and
3 is access Reader for ID 00342860.
1 is Finger Use.

4.4 Setup menu 4

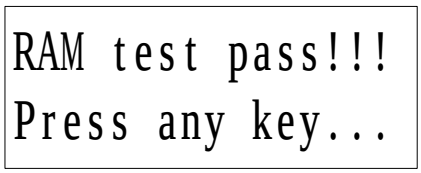
4.4.1. SRAM test



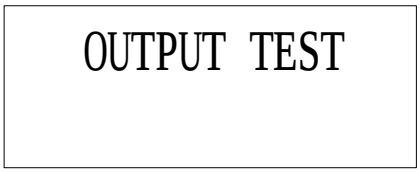
- If RAM(KM681000C) is bad, then the message is the following



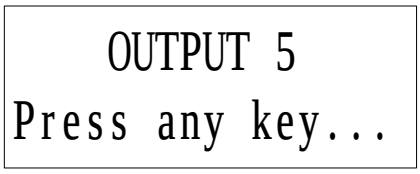
- If RAM(KM681000C) is good, the following message is appear on LCD



4.4.2. Output test : test five output port.
Outputs are On/Off three times.
(output1: relay1, output2: relay2, output3: TTL1, output4: TTL2, output5: Buzzer)

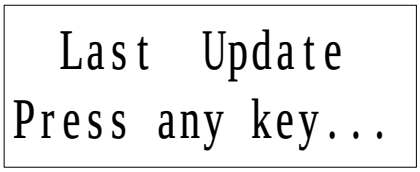


- When Output test finished, the following message appear on LCD

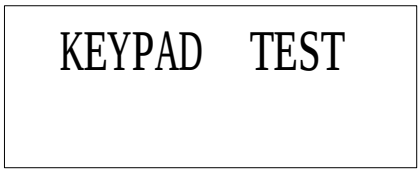


4.4.3. LCD test

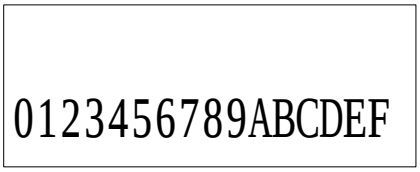
- When LCD test is over the following message is appear



4.4.4. Keypad test

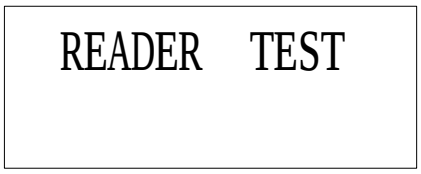


- When KeyPad test start, the following message is appear on LCD
  Now, press keypad then the matched number will disappear.
  (note: A-F is correspond to F1-F4, ESC and ENT)

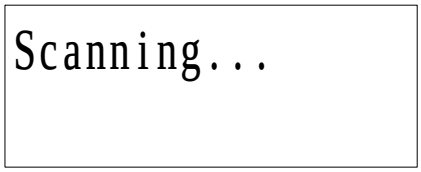


£ £ µ

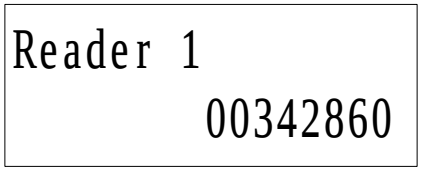
4.4.5. Reader test



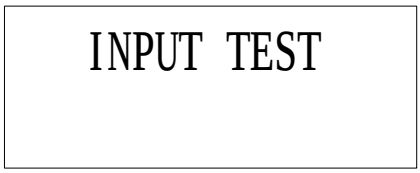
- Wait for test ID card



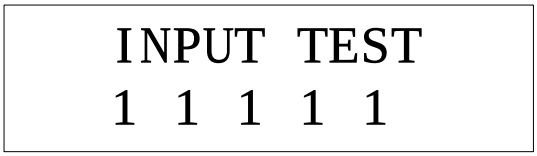
- Test Card Number which is read.



4.4.6. Input test : test five Input port and DIP switch.



- The following show input status



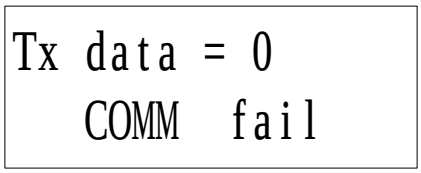
Note)

1) Input 1-4 : '0' mean on (active) and '1' mean off(inactive)
2) Input 5 (Temper switch): '0' mean off and '1' mean on.

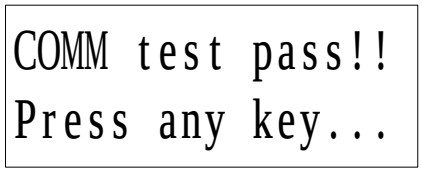
4.4.7. Communication test

To test communication with PC, connect Rx+ and Tx+ and connect Rx- and Tx-.

- The follwing show the communication is fail



- The following show the communication is success.



4.4.8. GET GAIN in FDA

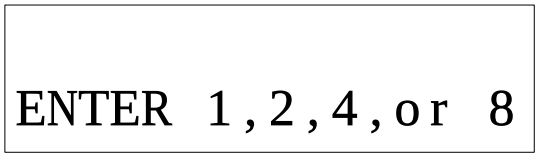
To get gain in Finger_007, Press ‘ENT’.

- The follwing show the gain in FDA

4.4.9. SET GAIN in FDA

To set gain in Finger_007, Press ‘ENT’.

- Enter ‘1’, ‘2’, ‘4’ or ‘8’ the gain in FDA

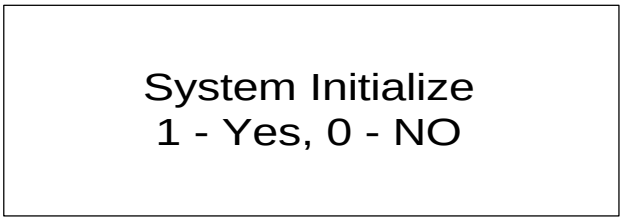


4.4.10. System Initialization for Error in machine.

If you are not sure to find which caused by error, put power off and connect reader 2 to GND.
then put power on and it will show the message as below

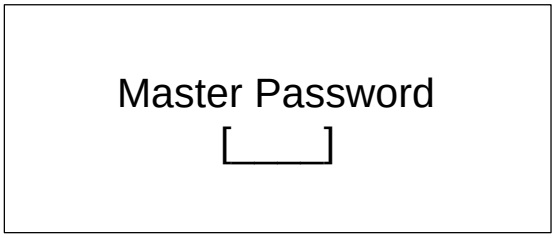
!!!! !!!! if initialized, all data will be deleted. !!!!!!!!!!

1) Initialization

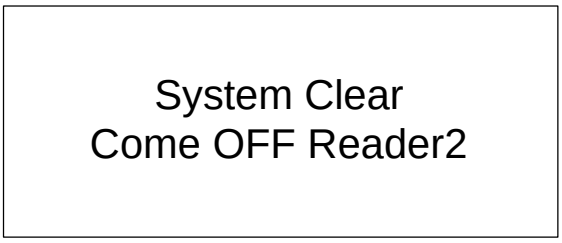


£ £ ¸

- press ‘1’ allows you to initialize.
  press ‘0’ goes to RF_PIN_INPUT menu.

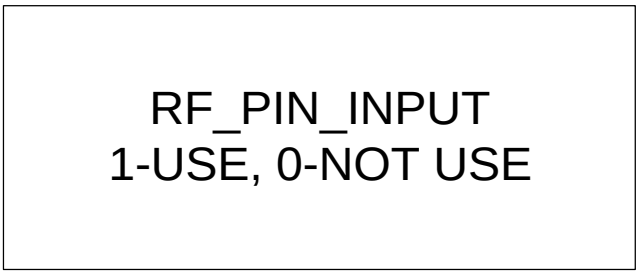


Master password is still ‘3141’ after the changed for master password. Message will be shown as below.



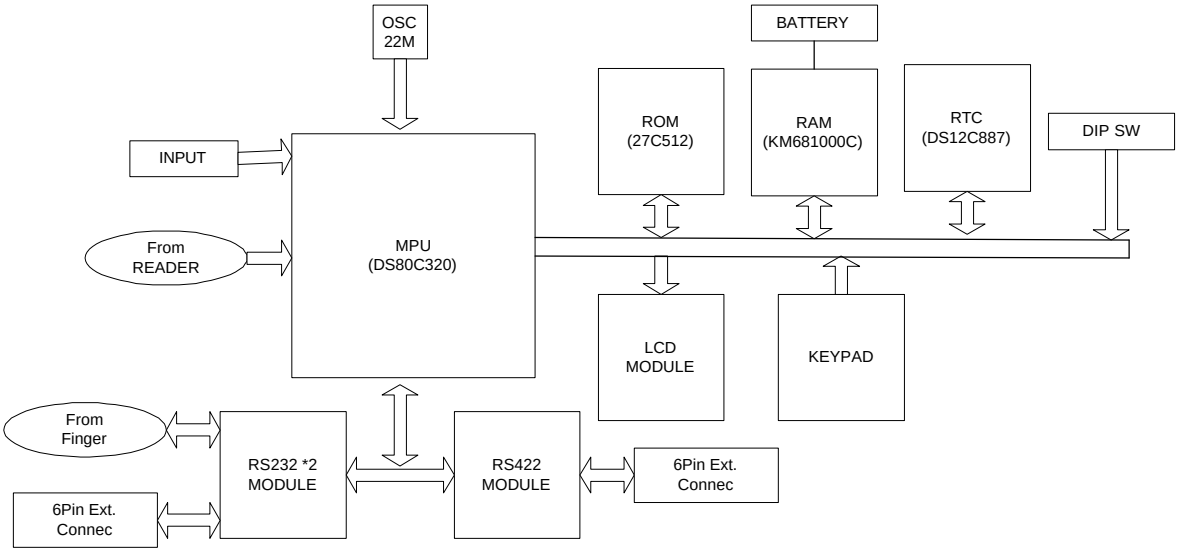
2) RF_PIN_INPUT Enable / Disable

once you make RF_PIN_INPUT disable, you should set for Master password before. If not, you cannot register any card number or menu.
To set up RF_PIN_INPUT, you go to this menu as below.

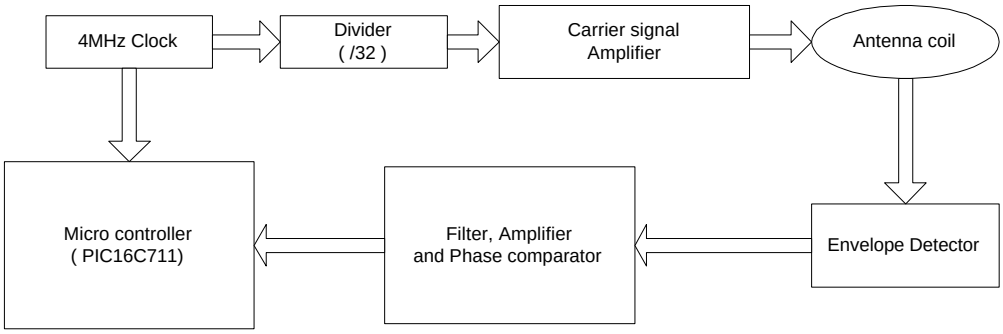


- ‘1’ Use.
  ‘0’ not use.

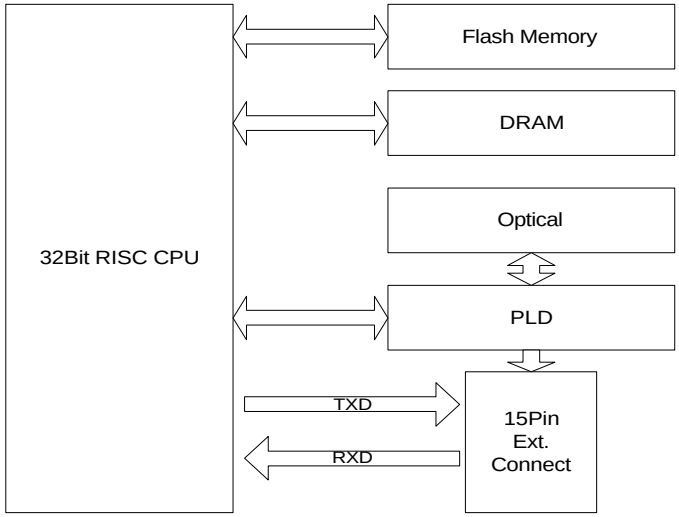
5. Block Diagram



Block Diagram of Finger 007



Block Diagram of RF Reader



Block Diagram of Finger

£ £ ±

FCC REGISTRATION INFORMATION

FCC REQUIREMENTS PART 15

Caution: Any changes or modifications in construction of this device which are not expressly approved by the responsible for compliance cold void the user's authority to operate the equipment.

NOTE: This device complies with part 15 of the FCC Rules.
Operation is subject to the following two conditions:
1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Note : This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the 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 instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARRANTY AND SERVICE

The following warranty and service information applies only to the U.S. For information in other countries, please contact your local distributor.
To obtain in or out of warranty service, please prepay shipment and return the unit to the appropriate facility listed below.

IN THE UNITED STATES

RF LOGICS, INC. Service center
3026 SCOTT BLVD,
SANTA CLARA, CA 95054

Tel. : (408) 980-0001
Fax.: (408) 980-8060
Email: webmaster@rflogics.com
Website : www.rflogics.com

OUTSIDE OF THE UNITED STATES

ID TECK CO., LTD. Service center
5F ACE TECHNOTOWER BLDG.
684-1 DUNGCHON-DONG, GANSUH-KU
SEOUL 157-030, KOREA
Tel. : 82-2-659-0055
Fax.: 82-2-659-0086
Email: webmaster@id-teck.com
Website : www.id-teck.com

Please use the original container, or pack the unit(s) in a sturdy carton with sufficient packing to prevent damage. Include the following information:

1. A proof-of-purchase indicating model number and date of purchase.
2. Bill-to address
3. Ship-to address
4. Number and description of units shipped
5. Name and telephone number of person to call, should contact be necessary
6. Reason for return and description of the problem.

Damage occurring during shipment is deemed the responsibility of the carrier, and claims should be made directly with the carrier.