3.7 Input, Output Specification
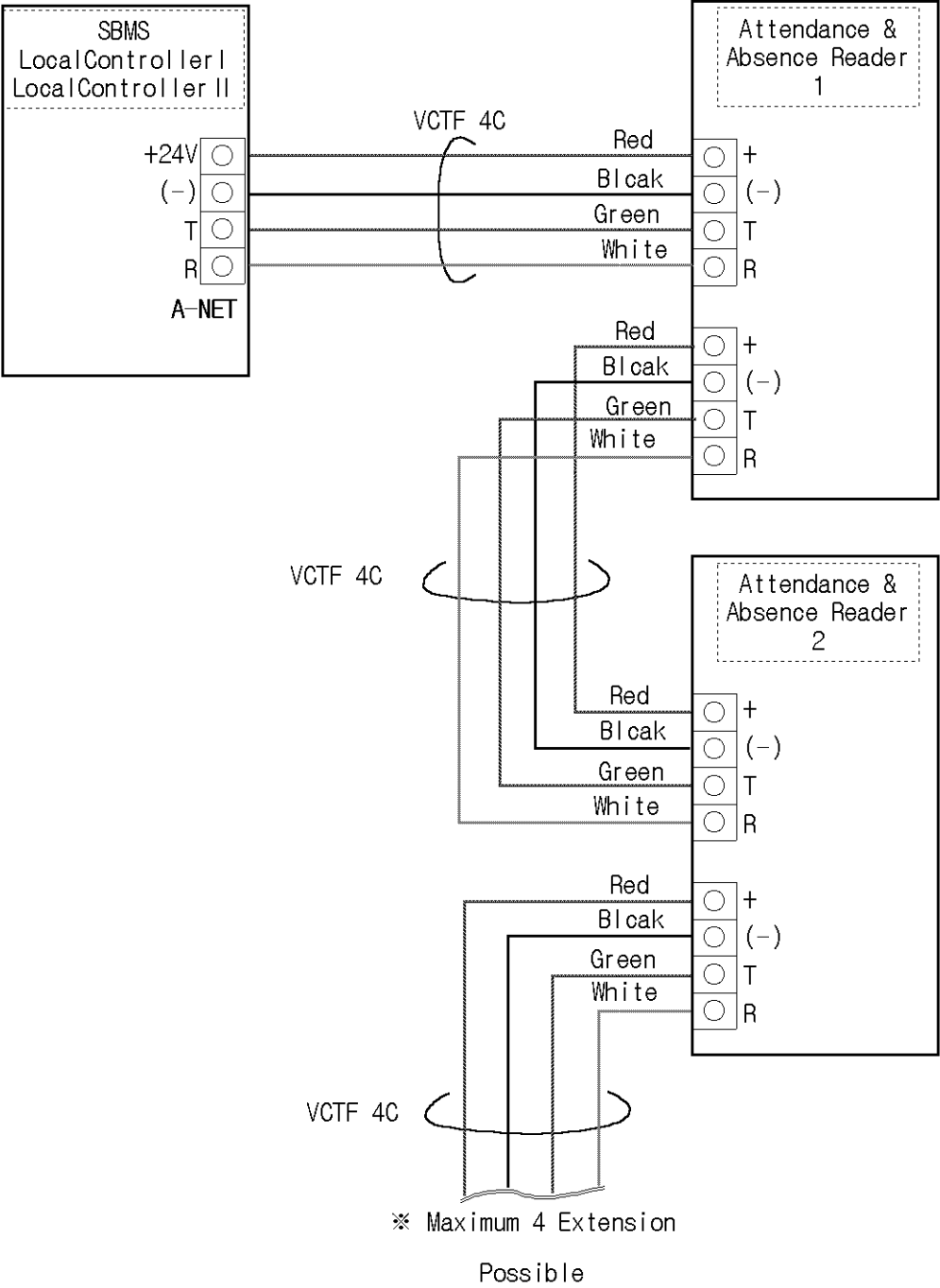### 3.7.1 External Input, Output Terminal
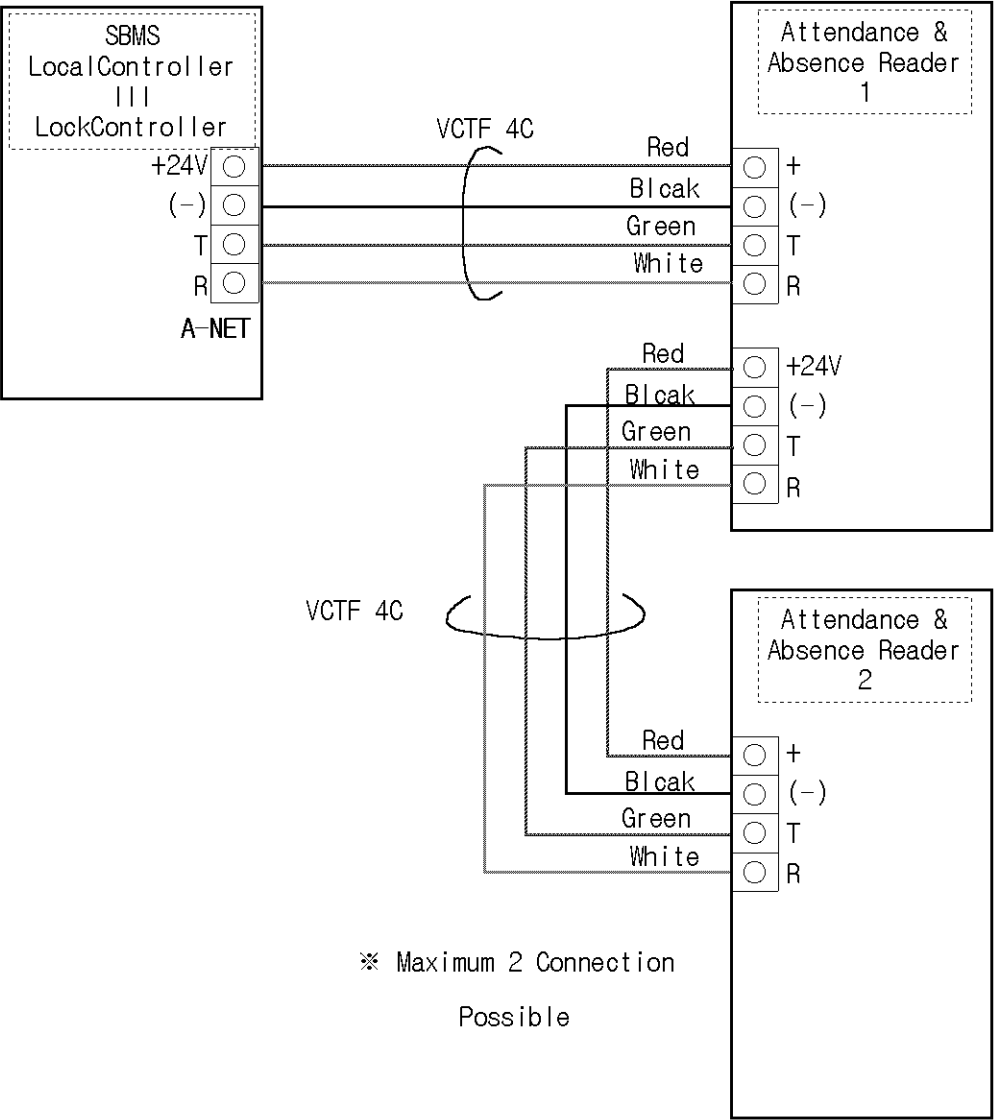
LOCK	X	EXIT			R-	R+	T-	T+		R	T	(-)	+		R	T	(-)	+
17	16	15	14	13	12	11	10	9		8	7	6	5		4	3	2	1
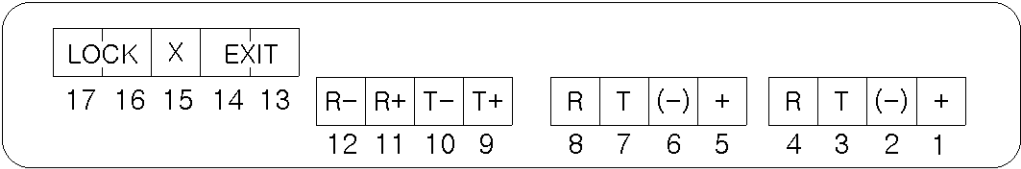
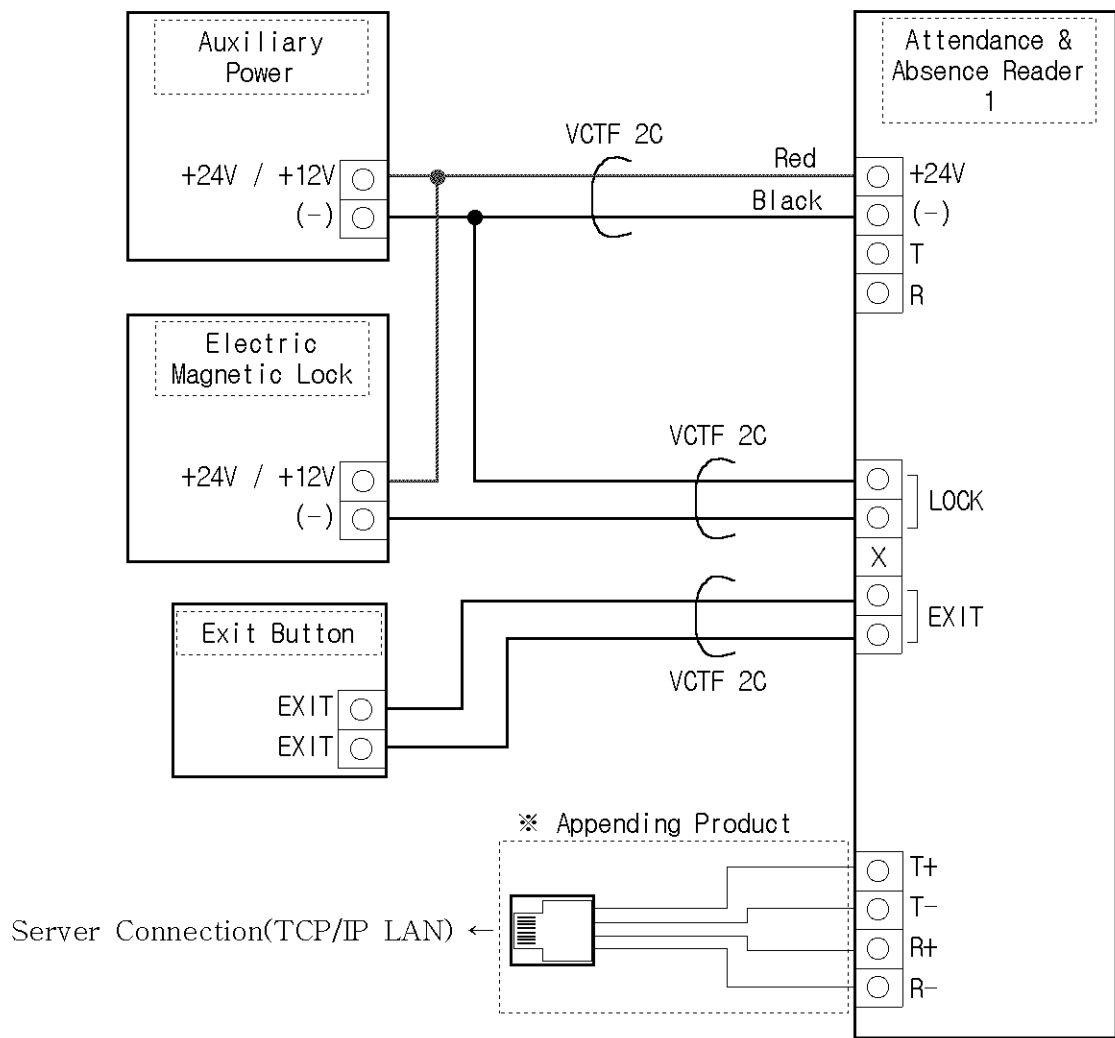| No	Name	Input/Output	Specification
1	+	Input	Power
2	(-)	Input	
3	T	Input	RS-422 Receive (Rx)
4	R	Output	RS-422 Send (Tx)
5	+	Input	Power
6	(-)	Input	
7	T	Input	RS-422 Receive (Rx)
8	R	Output	RS-422 Send (Tx)
9	T+	Input/Output	RJ-45 Output
10	T-		
11	R+		
12	R-		
13	EXIT	Input	LAN : EXIT Button SBMS : Not used
14		Input	
15	Not used		
16	LOCK	No voltage Output	For only single type, used for Electric magnetic lock. ※ By using Electric magnetic lock type selection switch, select NO(Normal Open) or NC(Normal Close)
17		No voltage Output	

3.8 Total Interface Connection Diagram

3.8.1 SBMS Local Controller I & SBMS Local Controller II Connection

SBMS
LocalControllerI
LocalControllerII

+24V
(−)
T
R

A-NET

VCTF 4C

Red
Blcak
Green
White

Attendance &
Absence Reader
1

+
(−)
T
R

Red
Blcak
Green
White

+
(−)
T
R

VCTF 4C

Attendance &
Absence Reader
2

Red
Blcak
Green
White

+
(−)
T
R

Red
Blcak
Green
White

+
(−)
T
R

VCTF 4C

※ Maximum 4 Extension

Possible

3.8.2 SBMS Local controller III & Lock controller Connection


```
┌─────────────────┐                                    ┌─────────────────┐
│      SBMS       │                                    │  Attendance &   │
│ LocalController │                                    │ Absence Reader  │
│       III       │                                    │        1        │
│ LockController  │          VCTF 4C          Red      │                 │
│  +24V ○─────────────────────────────────────── ○ +  │
│   (-) ○─────────────────────────── Blcak ───── ○ (-)│
│     T ○─────────────────────────── Green ───── ○ T  │
│     R ○─────────────────────────── White ───── ○ R  │
│      A-NET      │                                    │                 │
└─────────────────┘                         Red        ○ +24V            │
                                            Blcak       ○ (-)            │
                                            Green       ○ T             │
                                            White       ○ R             │
                                                      └─────────────────┘
                              VCTF 4C
                                                      ┌─────────────────┐
                                                      │  Attendance &   │
                                                      │ Absence Reader  │
                                                      │        2        │
                                            Red        ○ +            │
                                            Blcak       ○ (-)          │
                                            Green       ○ T            │
                                            White       ○ R            │
                                                      └─────────────────┘
```

※ Maximum 2 Connection

Possible

3.8. Attendance & Absence Operating Program Connection

Auxiliary Power	**Attendance & Absence Reader 1**

VCTF 2C

Red — +24V
Black — (−)

+24V / +12V ○ ○ +24V
(−) ○ ○ (−)
○ T
○ R

Electric Magnetic Lock

VCTF 2C

+24V / +12V ○ ○ } LOCK
(−) ○ ○
X
○ } EXIT
○

Exit Button

VCTF 2C

EXIT ○
EXIT ○

※ Appending Product

Server Connection(TCP/IP LAN) ←

○ T+
○ T−
○ R+
○ R−

4. Function

4.1 Function List

No	Name	No	Name
1	Register Function	7	Guide voice Function
2	Authentication Function	8	Buzzer Function
3	Access Function	9	LCD/LED Display Function
4	Inquiry Function	10	EXIT Button Connection Function
5	Crime prevention/Access modification Function	11	Register DB Copy Function
6	Detect Abnormalities Function		

4.2 Register Function

4.2.1 Master Register·Modification & Deletion
: A function that register, modify, and delete a manager(Master) who can set and change each function particulars.(set available for 2 Person)

4.2.2 User Register & Deletion
: A function that register and delete accessible user.
User register & deletion is done by manager authority.

4.2.3 Setup Communication Type
: Setup upper machine which connect with this machine, and setup RS-422, TCP/IP related information.

4.2.4 Time Setup Function
: Setup current time, attendance&absence time.
(Attendance&Absence time does not used when using SBMS)

4.2.5 Security Level Setup Function
: A function that setup level which determine success when authenticate fingerprint.
※ If security level is low, easy to authenticate but wrong recognition rate is high. If security level is high, wrong recognition rate is low but hard to authenticate.

4.2.6 Access Door Setup Function (Door open time, Force open, Force close
: Not used when using SBMS)
: Setup access door open time, setup or cancel to keep door opened, or to lock door for limited time.

4.2.7 All Information Deletion
: All registered information is deleted for machine initialize.

4.3 Authentication Function

  4.3.1 Attendance&Absence Operating Program(TCP/IP) Connection

   (1) "Smart Card + Fingerprint" Authentication

     ① It searches user info in terminal and authenticates by reading fingerprint or password stored in terminal.

     ② If user info or fingerprint/password is not stored in terminal, it authenticates by reading fingerprint/password in card. Access permission is determined by upper machine.

     ③ If fingerprint or password does not exist in card, it requests user info to upper machine and authenticates by receiving fingerprint or password from upper machine.

   (2) "Smart Card" Authentication

     ① It authenticates by searching user info from terminal.

     ② If terminal does not have user info, it requests user info to upper machine and access permission is determined by upper machine.

    ※ According to access setup, it can only authenticate user registered in terminal

  4.3.2 SBMS Authentication

     ① It searches user info in terminal and authenticates by reading fingerprint or password stored in terminal.

     ② If user info or fingerprint/password is not stored in terminal, it authenticates by reading fingerprint/password in card. Access permission is determined by upper machine.

     ③ It transmits authenticated user info to upper machine.

4.4 Access Function

  : Registered user or manager can open an access door by authenticating registered card and fingerprint.

  4.4.1 RF Card + Fingerprint Access("Smart Card + Fingerprint" Authentication)

    : RF Card first, and input fingerprint. Double Authentication

  4.4.2 User ID(Resident Number) + Fingerprint Access("Smart Card +Fingerprint")

    : User ID input first, input finger print. Double Authentication(User ID is resident number)

  4.4.3 RF Card + Password Access ("Smart Card + Fingerprint" Authentication)

    : RF Card input first, input password. Double Authentication.

  4.4.4 RF Card Access ("Smart Card" Authentication)

    : Can access by reading registered card.

4.5 Inquiry Function (Not used when SBMS using)
   4.5.1 Attendance&Absence Time Inquiry
      : Can inquiry normal attendance time, normal leaving time,
        saturday attendance time, and saturday leaving time setup in terminal.
   4.5.2 Door open time Inquiry
      : Can inquiry door open time setup in terminal.
   4.5.3 Force Open, Force Close Time Inquiry
      : Can inquiry force open, force close time setup in terminal.
   4.5.4 Authentication type Inquiry
      : Can inquiry authentication type setup in terminal.

4.6 Crime prevention/Access modification Function
  : Can change crime prevention mode(set/cancel/patrol) at card reading
   and input finger print when using SBMS connection. Can modify access.

4.7 Detect Abnormalities Function
  : When open machine's cover by force or occur error like buffer overflow,
   transmit error signal to upper machine(SBMS or Operating System).

4.8 Guide voice Function
  : Output voice message.

4.9 Buzzer Function
  : Output buzzer for confirmation when using keypad and button.

4.10 LCD/LED Display Function
  : By output LCD/LED, easily recognize current status.

4.11 EXIT Button Connection Function
  : Can connect exit button used by inner person.

4.12 Registered DB(Data Base) Copy Function
  : Can copy existing machine's DB to new machine's DB by connecting each
   other with cable
  ※Can download or upload relevant data to machine when using
   attedance&absence operation program.

5.Modification

-. Modification is classified **Register Modification** and **Use Modification**,
   and modification particulars are changed according to upper machine setup.
-. Dividing operations into sections is done by voice message and buzzer sound
   when modify. If a key is not inputted for 10 sec. when modify, current mode is
   auto canceled and terminated.
-. Refer 5.3 for menu modification sequence.

  5.1 Register Modification
      ①Entering Setup Mode
       : If click "Return" button while pushing "Enter" button, it requests master
         authentication and if master authentication is successful,
         it enters setup mode.
      ② Register Master
       : Select "Master Register/Delelte" at setup mode, enter "Register" section, and
         complete register by reading master card.
         But, if authentication type is card+fingerprint, master must use fingerprint for
         authentication method..
         ※ Master can be registered for 2 person, and machine remains master
             register standby status when initial delivery.
      ③ Master Delete
       : Select "Master Register/Delelte" at setup mode, enter "Delete" section, and
         delete by reading master card or inputting resident number.
      ④ Setup Authentication Type
       : Select "Authentication Type Setup" at Setup mode, select
         "Smart Card & Fingerprint" mode or "Smart Card" mode.
         ※ User who have difficulties for inputting fingerprint at smart card & fingerprint
             mode can use password instead of fingerprint.

⑤ Register User Card/Fingerprint

   : Select "User Register/Delete" at Setup mode, and register as follows
     according to authentication type setup in terminal.

    ※ Examples by authentication type

      • Smart Card + Fingerprint : For normal issued cards, register
                             by reading card.

       → For cards which are not registered fingerprint or password, or temporary
          cards, register by inputting fingerprint or password after reading card.

       → For not having card, register by inputting fingerprint after input ID
          by using keypad.

      • Smart Card : Register by reading card.

   ※ User who cannot input fingerprint when inputting fingerprint register by
     inputting password. But, for register by inputting keypad only you must
     input fingerprint.

⑥ User Delete

   Select "User Register/Delelte"→"Delete" at setup mode, and
   delete by reading user card or inputting resident number.

   ※ For all user deletion, Select "Setup Mode"→"User Register/Delelte"→
     "All Delete". But, master is not deleted.

⑦ Date/Time Setup

   Select "Card Reader Management"→"Date/Time Change", and register
   date/time by selecting "Direct Input" or "Download"

   ※ If select upper machine download, setup date/time automatically by
     downloading date/time information from upper machine.
     But, only direct input available for SBMS connection.

⑧ Setup Card Reader Number

   Select "Card Reader Management"→"Setup Card Reader"→
   "Card Reader Number", and setup by inputting card reader number.

   ※ 01~99 for TCP/IP(Attendace&Absence System), 01~04 for SBMS.

⑨ Setup Network

   Select "Card Reader Management"→"Setup Card Reader"→
   "Setup Network", and setup by selecting "SBMS Connection" for
   SBMS Connection or "TCP/IP Connection" for operating system connection.
   "IP Address", "GateWay", "SubNetmask", "Port" is inputted for
   "TCP/IP" setup.

⑩ Setup Attendance&Absence Time(Not used when SBMS Connection)

Select "Card Reader Management"→"Setup Card Reader"→"Setup Function"→ "Setup Attendance&Absence Time"→"Automatical Time Conversion" at Setup mode, and setup by inputting "normal attendance time", "normal leaving time", "saturday attendance time", and "saturday leaving time" and Attendance, Leaving mode is automatically changed when using.

If select "Not using conversion", change attendance, leaving mode by using button.

⑪ Setup Force Open(Not used when SBMS Connection)

Select "Card Reader Management"→"Setup Card Reader"→"Setup Function"→ "Setup Force Open" at setup mode, and setup by selecting "Setup" or "Cancel". If select "Setup", can setup force open time and a door is opened for relevant time.

⑫ Setup Force Close(Not used when SBMS Connection)

Select "Card Reader Management"→"Setup Card Reader"→"Setup Function"→ "Setup Force Close" at setup mode, and setup by selecting "Setup" or "Cancel". If select "Setup", can setup force close time and access is denied except for masters.

※Force Open/Force Close Time have priority over Attendance&Absence Time. Force Close time has priority over Force Open Time.

⑬ Setup Card Reader Buzzer & Voice

Select "Card Reader Management"→"Setup Card Reader"→"Setup Function"→ "Setup Buzzer & Voice" at setup mode, and setup by selecting "ON" or "OFF".
• ON : Can hear buzzer sound when input key or operation.
• OFF : Can not hear buzzer sound when input key or operation.

⑭ Setup door open time (Not used when using SBMS connection)

Select "Card Reader Management"→"Setup Card Reader"→"Setup Function"→ "Setup door open time" at setup mode, and setup by selecting open time. If door open time is setup, door is opened for limited setup time when access.

⑮ Setup Security Level

Select "Card Reader Management"→"Setup Card Reader"→"Setup Function"→ "Setup Security Level" at setup mode, and setup by selecting wanted security level. (Security Level:1~7)

⑯ Setup access permission (Not used when using SBMS connection)

Select "Card Reader Management"→"Setup Card Reader"→"Setup Access Permission" at Setup mode, and setup by selecting "Total access" or "Local access".

• Total access : Determine access by searching user from terminal and server.

• Local access : Determine access by searching user from terminal only.

⑰ Initialize Event (Not used when using SBMS connection)

Initialize by selecting "Initialize"→"Initialize Event" at Setup mode.

⑱ Initialize Setup (Not used when using SBMS connection)

Initialize by selecting "Initialize"→"Initialize Setup" at Setup mode.

⑲ Rebooting (Not used when using SBMS connection)

Initialize by selecting "Initialize"→"Rebooting" at Setup mode.

⑳ DB Copy

Copy terminal's DB to another terminal using cable.

5.2 Use Modification

① Use access fingerprint & card

Push Attendance, Leaving, Airing, or Return button and access by modifying card+fingerprint, card+password, ID+fingerprint or card only according to authentication type when not using attendance&absence conversion.

According to authentication type, access by modifying card+fingerprint, card+password, ID+fingerprint or card only without button modification. (But, Modify button when return.)

② Use Inquiry Function(Not used when SBMS Connection)

: Enter Inquiry mode by pushing "Enter"+"Aring" Button.

③ Inquiry Attendance&Absence Time(Not used when SBMS Connection)

Can inquiry "Normal Attendance Time", "Normal Leaving Time", "Saturday Attendance Time", "Saturday Leaving Time", "Automatic Conversion" by selecting "Attendance&Absence Time" at inquiry mode.

④ Inquiry Door open time(Not used when SBMS Connection)

Can inquiry door open time by selecting "Door Open Time" at inquiry mode.

⑤ Inquiry Force Open/Close Time(Not used when SBMS Connection)

Can inquiry force open/close time and setup status by selecting "Force Open/Force Close" at inquiry mode.

⑥ Inquiry Authentication Type(Not used when SBMS Connection)

Can inquiry authentication type by selecting "Authentication Type" at inquiry mode.

⑦ Modify Set/Cancel (Not used when SBMS Connection)

Can set and cancel by inputting fingerprint or password after reading card with pushing Enter button. (For crime prevention card only, modify card with pushing Enter button.)

5.3 Main Menu Structure & Modification Specification
5.3.1 LCD Display Specification

Date

Time

Attendance &
Absence Type

Animation

"Smart Card + Fingerprint" Authentication

"Smart Card" Authentication
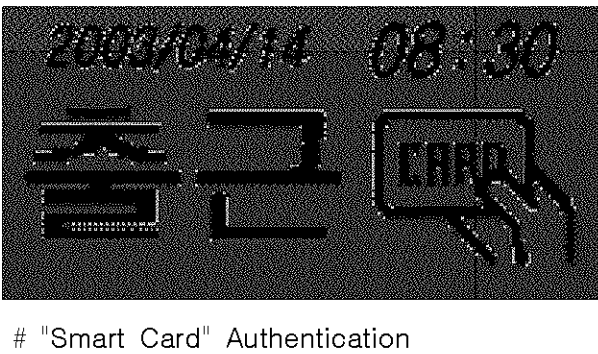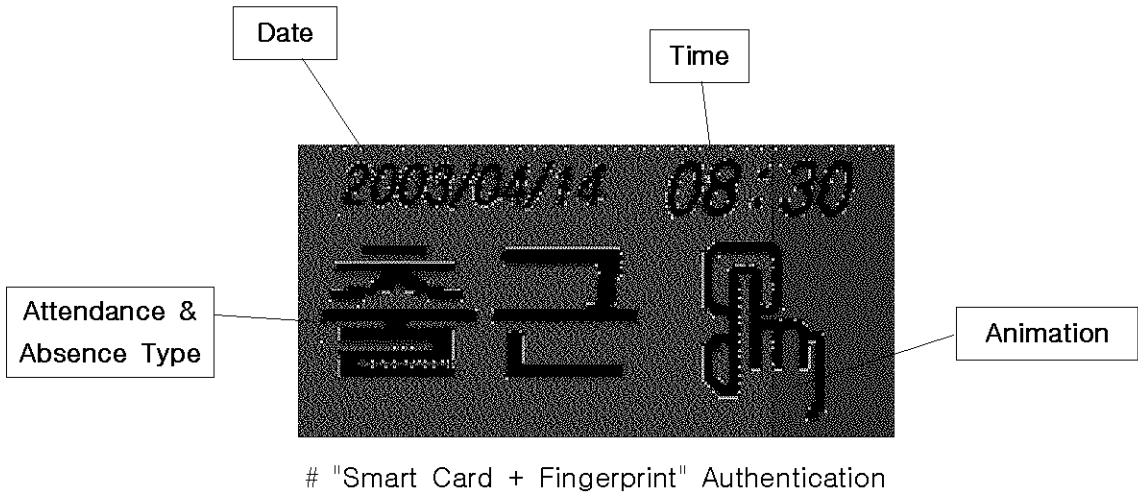
< Attendance & Absence Program(TCP/IP) Connection >

Date

Time

Display Crime
Prevention Status

Animation

< SBMS Connection
>

5.3.2 Main Menu Structure

* Button (TCP/IP & SBMS)

-. Esc
: Key Pad Input : Clear(Back Space) Function
: Push 1 time at menu (to Previous menu),Push for 2 sec.(to Access mode)

-. Enter
: Data input confirmation except for menu selection and SET/CANCEL when using SBMS connection

1. Enter Setup mode

"Return" + "Enter" at Attendance&Absence mode & Access mode for entering setup menu.

```
User Attendance&Absence    ───▶   "Return" + "Ent"   ───▶   Enter Setup
Mode & Access Mode                                           Mode
```
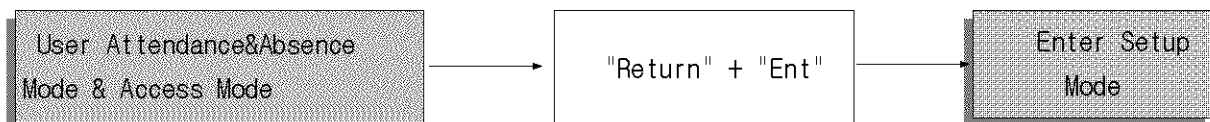
-. Attendance & Absence Reader setup at delivery(TCP/IP connection)

-. Setup menu & Sub-menu is differ when entering setup mode according to Attendance & Absence Reader(TCP-IP) / Access Reader(SBMS) Connection

TCP/IP

2. Entering Inquiry Mode

"Enter" + "Airing" at Attendance&Absence mode & Access mode for entering Inquiry menu.

```
User Attendance&Absence    ───▶   "Enter" + "Airing"   ───▶   Inquiry Mode
Mode & Access Mode
```
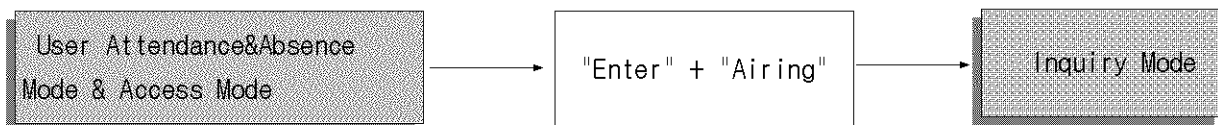
-. Contents at Inquiry Mode.

```
- Inquiry Menu -

1. Attendance &
   Absence Time

2. Door Open Time

3. Force Open/Force
   Close

4. Authentication
   Type
```

```
-Door Open Time-
   10 Sec.
```

```
- Authentication
   Type -
   Card +
   Fingerprint
```

```
- ForceOpen/ForceClose-

ForceOpenTime:Cancel
--:-- ~ --:--
ForceCloseTime:Set
 22:00 ~ 06:00
```

```
- Attendance&Absence
   Time -

Normal Attendance
  07:00 ~ 09:00
Normal Leaving
  17:00 ~ 20:00
Saturday Attendance
  07:00 ~ 09:00
Saturday Leaving
  12:00 ~ 14:00
```

- Attendance&Absence System Menu For Smart Card -

* Menu at Setup mode

Setup Menu

1. Card Reader Management
2. User Register/Deletion
3. Initialize

- TCP/IP Connection -

Card Reader Management

User Register/Deletion

Initialize

1. Master Register/Deletion
2. Date/Time Change
3. Card Reader Setup

1. Register
2. Deletion
3. All Deletion

1. Initialize Event
2. Initialize Setup
3. Rebooting

Master Register/Deletion

1. Register
2. Deletion

Date/Time Change

1. Direct Input
2. Upper machine Download

Network Setup

SBMS Connection
TCP/IP Connection

Card Reader Setup

1. Card Reader Number
2. Network Setup
3. Function Setup
4. Access permission Setup

Function Setup

1. Attendance&Absence Time Setup
2. Authentication Type Setup
3. Buzzer & Voice
4. Door Open Time Setup
5. Force Open Setup
6. Force Close Setup
7. Security Level Setup

* Menu at Setup Mode

- SBMS Connection -

Setup Menu

1.Card Reader Management
2.User Register/Deletion

Card Reader Management

User Register/Deletion

1.Master Register/Deletion
2.Date/Time Change
3.Card Reader Setup

1.Register
2.Deletion
3.All Deletion

Master Register/Deletion

1.Register
2.Deletion

Date/Time Change

1.Direct Input

Network Setup

1.SBMS Connection
2.TCP/IP Connection

Card Reader Setup

1.Card Reader
  Number
2.Network Setup
3.Function Setup

1.Buzzer & Voice
2.Security Level Setup

Function Setup