MAC-1000
Standalone Fingerprint Access Controller
Hardware Manual
Version 1.3.2
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## Revision History

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<td>First Edition</td>
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<td>V1.1</td>
<td>Modify case sensor.</td>
</tr>
<tr>
<td>V1.2</td>
<td>Modify 1.2 Features. 1.3 Specification and Add the Installation (F) Tear off the protective film.</td>
</tr>
<tr>
<td>V1.3</td>
<td>Modify the wire connections (DC+12V IN and SGND)</td>
</tr>
<tr>
<td>V1.3.1</td>
<td>Add Appendix 2: Wiring Material Requirements</td>
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<td>Modify MAC-1000 V2.00 Models</td>
</tr>
</tbody>
</table>
Chapter 1 Product Overview

1.1 Package Contents:

<table>
<thead>
<tr>
<th>Controller x 1</th>
<th>Quick Start Guide x 1</th>
<th>Plate x1</th>
<th>Hex Key Wrench x 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Screw x 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cable x 2</td>
</tr>
</tbody>
</table>
1.2 Features

- Bell key function design. Suit for various location.
- Casing tamper proof detection and door tamper alarm.
- Slim, stylish design, sensitive touch keypad with blue backlight.
- Dual card / fingerprint contrast function, improve system security.
- High security, using encryption with random code to saving finger characteristic.
- Large LCD display time, date, weekday and company name. And show cardholder Chinese / English name or card number after verification.
- The standard model can access 950 users with 2 fingerprint templates per each user (total 1,900 fingerprint templates). The storage event record is up to 18,000 events.
- The advanced model can access 4,750 users with 2 fingerprint templates per each user (total 9,500 fingerprint templates).
- Quick and accurate fingerprint verification, supports 1:1 authentication & 1:N identification. And audible voice prompts guiding users during verification process.
- Provide 32 working shifts and 32 siren schedules. Able display current shift or active alarm. Provide 100 holiday schedules per year.
- Provide 128 time zones and time schedules, 8 time conditional unlock door schedules (per week).
- Duress card/code setting. When door opened in the emergency, controller will send signal to control center at the same time for tracing and rescue.
- Programmable disarm code.
- Unique ID or Block read format supported and programmable key value. (RAC-970PMF)
- RTC ensures to provide correct date and time. Watchdog function secures system free from halting.
- Built-in RS-485 & TCP/IP communication interface to PC.
- On-board lithium battery ensures data storage can reach up to 1 year upon power outage.
- Conforms to ISO 14443A standard; supporting Mifare card. (MAC-1000PMF)
## 1.3 Specification

<table>
<thead>
<tr>
<th>Model No.</th>
<th>MAC-1000PEF</th>
<th>MAC-1000PMF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read Format</td>
<td>EM (125KHz)</td>
<td>Mifare (13.56MHz)</td>
</tr>
<tr>
<td>Read Range</td>
<td>8-10 cm(max)</td>
<td>3-5 cm(max)</td>
</tr>
<tr>
<td>Slave Reader</td>
<td>T2 or Wiegand (1 Set)</td>
<td></td>
</tr>
<tr>
<td>Input Port</td>
<td>3 Sensors (Door Sensor x 1, Exit Button x 1, Case Sensor x 1)</td>
<td></td>
</tr>
<tr>
<td>Output Port (Built-in)</td>
<td>Relay x 1(Door Lock or Bell)</td>
<td></td>
</tr>
<tr>
<td>Output Port (External)</td>
<td>O.C Output x 2 (Door Lock/Alarm or Siren, external ACU-30)</td>
<td></td>
</tr>
<tr>
<td>Cardholders</td>
<td>18,000 (max)</td>
<td></td>
</tr>
<tr>
<td>Events</td>
<td>18,000</td>
<td></td>
</tr>
<tr>
<td>Fingerprint Capacity</td>
<td>950 users capacity (2 fingerprint template per person)</td>
<td></td>
</tr>
<tr>
<td>Identification Mode</td>
<td>$1:1/1:N$</td>
<td></td>
</tr>
<tr>
<td>Identification Time</td>
<td>$1:1 &lt;= 1$ second ; $1:1,000 &gt;= 1$ second</td>
<td></td>
</tr>
<tr>
<td>FAR/FRR</td>
<td>$&lt;=0.001%$ / $&lt;=0.01%$</td>
<td></td>
</tr>
<tr>
<td>Fingerprint Sensor</td>
<td>Optical CMOS Sensor</td>
<td></td>
</tr>
<tr>
<td>LED Indicator</td>
<td>Power / Comm.</td>
<td></td>
</tr>
<tr>
<td>LCD Display</td>
<td>128 x 64 Dot. Graphic Display with backlight</td>
<td></td>
</tr>
<tr>
<td>Keypad</td>
<td>17 Key (F1-F4, 0-9, *, #, Bell) (Touch Sensitive Keypads)</td>
<td></td>
</tr>
<tr>
<td>RTC (Real Time Clock)</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>Beep Tone</td>
<td>Buzzer &amp; Operating steps sound</td>
<td></td>
</tr>
<tr>
<td>ID or IP Setting</td>
<td>Command setting by keypad</td>
<td></td>
</tr>
<tr>
<td>Power Input</td>
<td>DC 12V/1A</td>
<td></td>
</tr>
<tr>
<td>Current Consumption</td>
<td>1A. (max.)</td>
<td></td>
</tr>
<tr>
<td>Comm. Interface</td>
<td>RS-485、TCP/IP</td>
<td></td>
</tr>
<tr>
<td>Operating Baud rate</td>
<td>RS-485 : 9,600/19,200 bps-N-8-1</td>
<td></td>
</tr>
<tr>
<td>TCP/IP : 10/100Mbps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Temp.</td>
<td>$0^\circ C ~ 55^\circ C / 32^\circ F ~ 131^\circ F$</td>
<td></td>
</tr>
<tr>
<td>Relative Humidity</td>
<td>20% ~ 80% (Non-condensing)</td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>140mm(L)x130mm(W)x41mm(H)</td>
<td></td>
</tr>
<tr>
<td>Weight (Device)</td>
<td>400g</td>
<td></td>
</tr>
</tbody>
</table>

* Product design and specifications are subject to change without prior notice.
Chapter 2 Physical Dimension

2.1 Dimension

Scale: mm

2.2 Appearance Introduction
<table>
<thead>
<tr>
<th>Item</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>①</td>
<td>LCD/Reading Area</td>
<td>First line displays date and week. Second line displays time. Third line displays Ready when in standby mode. Display swiped card status when swiping card. Fourth line is blank when standby mode. It will display name or card number when swiping card.</td>
</tr>
<tr>
<td>②</td>
<td>POWER</td>
<td>Power LED, flashed green led usually, flashed red led upon invalid operations.</td>
</tr>
<tr>
<td>③</td>
<td>LINK</td>
<td>Data transmission led. No flash usually. Flashing red and green led indicates successful transmission. Flashing red led only indicates no response of controller.</td>
</tr>
<tr>
<td>④</td>
<td>Bell</td>
<td>Bell Function key</td>
</tr>
</tbody>
</table>

Request Bell function should select mode 1 and activate by HAMS.

Relay Active as below
(Relay 0 signifies Controller relay. Relay 1~2 signifies relay in the external relay board.)

<table>
<thead>
<tr>
<th></th>
<th>Relay0</th>
<th>Relay1</th>
<th>Relay2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode 0 (Default)</td>
<td>Door</td>
<td>Door</td>
<td>Siren/Alarm</td>
</tr>
<tr>
<td>Mode 1</td>
<td>Bell</td>
<td>Door</td>
<td>Siren/Alarm</td>
</tr>
</tbody>
</table>

PS: Siren and alarm can not work at the same time. Only select one once.

<p>| ⑤   | Numerical Keypad | 0~9 : Numeric key. * : Cancel # : Enter |
| ⑥   | Function Keypad  | F1 : Duty On F2 : Duty Off F3 : Duty shift switch for Break In and Break Out F4 : Duty shift switch for Overtime Start and Overtime End |
| ⑦   | Fingerprint Sensor | Fingerprint Scanning Area |</p>
<table>
<thead>
<tr>
<th>Item</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>①</td>
<td>RJ-45</td>
<td>TCP/IP or RS-485 (Kindly refer to Chapter 3.2.6)</td>
</tr>
<tr>
<td>②</td>
<td>Contact(CN1)</td>
<td>Connector for Power, Exit Button, Lock, Sensor, Relay …etc. Kindly refer to follow figure. (Relay3 Reserved)</td>
</tr>
<tr>
<td>③</td>
<td>Case Sensor</td>
<td>Reader tamper proof detection</td>
</tr>
<tr>
<td>④</td>
<td>Comm. Switch</td>
<td>TCP/IP or RS-485. (Switch up is TCP/IP, switch down is RS-485)</td>
</tr>
<tr>
<td>⑤</td>
<td>Contact of Slave Reader(CN2)</td>
<td>Slave reader's connector for communication and DVR. Kindly refer to follow figure.</td>
</tr>
</tbody>
</table>
## CN1

<table>
<thead>
<tr>
<th></th>
<th>DC+12V IN</th>
<th>DC+12V OUT</th>
<th>GND</th>
<th>Relay 1</th>
<th>Relay 2</th>
<th>Relay 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Purple/紫/紫</strong></td>
<td>Purple/紫/紫</td>
<td>Pink/粉紅/粉紅</td>
<td>White/白/白</td>
<td>Brown/棕/棕</td>
<td>Black/黑/黑</td>
<td>Orange/橙/橙</td>
</tr>
<tr>
<td><strong>NC</strong></td>
<td>COM</td>
<td>NO</td>
<td>GND</td>
<td>Door Sensor</td>
<td>GND</td>
<td>Push Button</td>
</tr>
</tbody>
</table>

## CN2

<table>
<thead>
<tr>
<th></th>
<th>DC+12V OUT</th>
<th>DVR RS-485+</th>
<th>DVR RS-485-</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Red/紅/紅</strong></td>
<td>Red/紅/紅</td>
<td>Yellow/黃/黃</td>
<td>Blue/藍/藍</td>
</tr>
<tr>
<td><strong>Black/黑/黑</strong></td>
<td>Black/黑/黑</td>
<td>Gray/灰/灰</td>
<td>Green/綠/緑</td>
</tr>
<tr>
<td><strong>GND</strong></td>
<td>DATA/W0</td>
<td>CLK/W1</td>
<td></td>
</tr>
</tbody>
</table>
Chapter 3 System Configuration & Wire Connections

3.1 System Configuration
3.2 Wire Connections

3.2.1 Installations

Do not over tighten the back plate screws during installation to prevent distortion.
Kindly refer to "4.2.4Comm" for set communication way and NODE ID.
(A) Mount the fixed iron plate onto the wall with screws.
(B) Connect the wires in accordance with the wiring instruction(CN1、CN2).
(C)(D) Install the controller upper cover to the back plate. Make sure the back plate and the controller upper cover guides are aligned.
(E) Use the screws onto the bottoms of the controller. Installation completed.
(F) Tear off the protective film.
3.2.2 with ACU-30 Wire Diagram

Relay Active as below
(Relay 0 signifies Controller relay. Relay 1~2 signifies relay in the external relay board.)

<table>
<thead>
<tr>
<th>Mode</th>
<th>Relay0</th>
<th>Relay1</th>
<th>Relay2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode 0(Def.)</td>
<td>Door</td>
<td>Door</td>
<td>Siren/Alarm</td>
</tr>
<tr>
<td>Mode 1</td>
<td>Bell</td>
<td>Door</td>
<td>Siren/Alarm</td>
</tr>
</tbody>
</table>

ACU-30’s wiring is same in Mode 0 and Mode 1
3.2.3 Electronic Lock Setup

Wiring of using built-in relay

3.2.3.1 NO Mode Connection

This wire connection is mode 0.

This is doo bell connection of mode 1. (Will activate bell button on the controller)
3.2.3.2 NC Mode Connection

This wire connection is mode 0.

3.2.3.3 Magnetic Door Lock Connection

This wire connection is mode 0.
3.2.4 Exit Button/Door Sensor Connection

3.2.5 Siren/Alarm Connection

Siren/Alarm wiring is same in Mode 0 and Mode 1
3.2.6 Communication Interface Connection

NOTE: To avoid device damage, please do not connect it with PoE Hub.

3.2.6.1 RS-485 Connection

3.2.6.2 TCP/IP Connection
3.2.7 Slave Reader Connection

RS-485 Reader Connection (PXR-82MFS only support MAC-1000PMF)

If the slave reader is wiegand format, the wire distance should be within 30M.

Slave reader and DVR are using same contacts. Please select device which you want to using in the software. (Default is slave reader)
3.2.8 Power Supply Connection

Note: To avoid interference self-detection of sensitive keypad, please do not touch keypad when input power.

AC-DC Power supply
Output: DC 12V / 1A ~

3.2.9 DVR Connection
Chapter 4 Setting

4.1 RS-485/ TCP/IP Selection (to PC)

Please select RS-485 or TCP/IP communication way.
Note: Follow SW2 DIP switch setting should identical with command 70 then the communication will be success. Kindly refer to Chapter 4.2.4.1
4.2 Function Settings

LCD Display

- **Date** → 2010 / 05 / 05 Wed
- **Time** → 16 : 20 : 15
- **Ready / Work Status** → Ready!

Menus Operation

- **1. Access Info**
- **2. Sys Setup**
- **3. Comm**
- **F1: ↑ F2: ↓ # :←**

F1 and F2 are for up and down selection. Function key # signifies OK

- Input Master Code. Default master code is 30191000.
- Then you will into menus operation.
- Function key F1 and F2 are for function selections. When you select the functions, the item which you selected will be marked. When you press function key #, it will access next page or OK. Function key * signifies exit or cancel the input. (or input item code to direct to selection. Ex: input 3 to enter the Comm.)
- System will return to ready status after 20 seconds if do not have any input actions.
4.2.1 Card Manage

4.2.1.1 Add Fingerprint

Allows to select restricted or unrestricted of time schedule for user. The card number must be pure 10 digits of MAC-1000PEF/PMF

Operation Instruction:

Unrestricted
Add FP_Card

Audio Prompt:
Position finger

Audio Prompt:
Position finger again.
(System will double scan finger, if scan failed, system will return to upper menu)

If enroll first finger success but second finger failed, system will also return to upper menu and anew the enroll process.

Card Manage

Unrestricted

Card No=

1 Examine Finger

2 Examine Finger

Completed

Master Card/Code
(Default 30191000)
The card can only select a time zone.

If do not need password, press function key # to skip this step.

If do not need enroll fingerprint, press function key # to skip this step.

Completed

Access by card swiped

Input time schedule number. There are 128 time schedules (0-127). Kindly refer to Chapter 4.2.2 Access Info for more information of Time Zone and Time Schedule.

If do not need password, press function key # to skip this step.

If do not need enroll fingerprint, press function key # to skip this step.

1 Examine Finger

Completed

Access by card swiped+ finger or finger only.

Access by card+ password

1 Examine Finger

2 Examine Finger

Completed
4.2.1.2 Delete Fingerprint

Deletes a single user or all users’ fingerprint templates and also removes its access authorization.

Operation Instruction:

Delete A Single User

1. Master Card/Code (Default 30191000)
2. Card Manage
3. Del FP_Card
4. Del A Card
5. Card No=
6. Del Success
Delete All Users

Master Card/Code (Default 30191000)

Card Manage

Del FP_Card

Del All Card

1:Yes

Del Success

0:No

Del All Card
4.2.1.3 Change Fingerprint

Allow user to change fingerprint template.

Operation Instruction:

Master Card/Code (Default 30191000) → Card Manage → C_Card FP → Card No = → 1 Examine Finger → 1 Examine Finger → 2 Examine Finger → 2 Examine Finger → Completed
4.2.1.4 Change Schedule

Change a valid card’s time schedule.

Operation Instruction:

Master Card/Code (Default 30191000)

Card Manage

Change Sch

Screen will display original time schedule. Please input new time Schedule (255 means open 24 hours).

Card No =

Input new Time Schedule

Card No =

Continue to change other cards’ time schedule. Or wait for time out and return to ready status.

Continue
4.2.1.5 Set Master Card/Code

There are two different methods for master card/code. One is by card, the other is by fingerprint. Default master code is 30191000, To change, kindly follow the instructions below and input max. length is 13 digits for master code. Whenever a device initiation has been performed, master code will be restored back to default “30191000”.

Operation Instruction:

Change master code/card

Note: If input master code by swipe card, please do not set “Retrieve Valid Code Index” function hence setting index code will retrieve incomplete master digits.
Assign a fingerprint as master card/code

Master Code/Card
(Default 30191000)

Card Manage

Master Card

Master_FP Add

1 Examine Finger

1 Examine Finger

2 Examine Finger

2 Examine Finger

Completed

Note: When user assigns a fingerprint as master card, the original master card will become invalid card. To resume master card function, please delete the master fingerprint. (Master fingerprint has priority in the system.)
Delete master fingerprint

Note: After delete master fingerprint, if master card has been set before, user may swipe card or press keypad into menu.
4.2.1.6 Set Disarm Card/Code

Allow user to change disarm card/code. Default disarm code is “0000”. To changed, kindly follow the instructions below and input maximum length is 13 digits for disarm card/code. Whenever a device initiation has been performed, disarm code will be restored back to default “0000”.

Operation Instruction:

Master Card/Code (Default 30191000)

Card Manage

Screen will display original disarm card/code.

Please just input new disarm card/code.

Set Disarm

Card No =

Completed
4.2.1.7 Set Duress Card/Code

Allow user to change duress card/code. Default duress code is “1190”. To changed, kindly follow the instructions below and input maximum length is 13 digits for duress card/code. Whenever a device initiation has been performed, duress code will be restored back to default “1190”.

Operation Instruction:

1. Master Card/Code (Default 30191000)
2. Card Manage
3. Set Duress
4. Card No =
5. Completed

Screen will display original duress card/code.
Please just input new duress card/code.
4.2.2 Access Info

4.2.2.1 Set Time Zone

Allow user set time zone. Total have 128 sets (0~127 sets). Time range from 00:00~00:00 to 00:00~23:59 (00:00~00:00 signifies whole day close. 00:00~23:59 signifies whole day open)

Operation Instruction:

Master Card/Code (Default 30191000)

Access Info

Time Zone

Input Time Zone No.
Default Time Zone No 000 signifies 00:00~23:59 whole day open.
Default Time Zone No 001 signifies 00:00~00:00 whole day close.

Time Zone 0-127

NEW =

Completed

Input time range.
For example: Input 0800-1800 which means 8AM to 6PM.
4.2.2.2 Set Time Schedule

Allow user set time range to weekday. Total have 128 sets (0~127 sets). Please set time zone first. Kindly refer to Chapter 4.2.2.1 Time Zone

Operation Instruction:

Master Card/Code (Default 30191000)

Access Info

Time Sch

Time Sch 0-127

Input Time Zone No.
Press F1 or F2 to select the weekday and enter the time zone no.

Completed

Input Time Schedule No.
Default Time Schedule No 000 signifies time zone no 000 (0000-2359) to Mon to Sun.
4.2.2.3 Set Conditional Unlock Door Time

Allow user set conditional unlock door time. Provide 8 sets unlock door time (Select from 0~127 time schedule). The door will remain open until the allotted time. If parameter value sets 255, then the function is deactivated. (Please set time zone and time schedule first. Kindly refer to Chapter 4.2.2.1 and Chapter 4.2.2.2)

Operation Instruction:

Master Card/Code (Default 30191000)

Access Info

Conditional

Unlock 0-7

NEW =

Completed

Select unlock time schedule from 0-127 sets time schedules. The door will remain open until the allotted time.

255 = Deactivate function.

Input conditional unlock door time no. Provide 8 sets (No 0-7) time schedule for selection.
4.2.2.4 Unlock Door Time

Sets the duration of door opening time upon card swipe or exit button request. Default time is 4 seconds. Time duration can be set from 0.1 ~ 409.5 seconds. (If parameter sets to 0 or greater than 409.5 seconds, the parameter is ineffective)

Operation Instruction:

Master Card/Code (Default 30191000)

Access Info

Door Relay

NEW =

Completed

Default time is 4 seconds. Screen will show 004.0 seconds. (It is advisable to keep moderate time duration, not too long or too short.)
4.2.2.5 Set Alarm Relay Mode

There are three modes. Latch / Toggle/ Pulse (Default is Latch).
Press F1 or F2 to select the action mode.

Latch Mode: It will not return to original position until alarms disarm card/code has been entered.

Toggle Mode: It will change the relay condition after every time being activated. For example, relay on become to relay off.

Pulse Mode: It will return to original position within the time you set. Time range is 0.1 ~ 409.5 seconds. (If parameter sets to 0 or greater than 409.5 seconds, the parameter is ineffective).

Operation Instruction:

Master Card/Code (Default 30191000)

Access Info

Alarm Relay

NEW =

Completed

Press F1 or F2 to select the action mode
4.2.2.6 Door Sensor Detection Time

Application only if door sensor is installed. Default value is 0 which means this function is deactivated. Sensor detection time may be set from 1~255 seconds. (If parameter value is greater than 255 seconds, the parameter is ineffective).

When door sensor detection time has been set, system will monitor door's status. If the allotted door open time has expired and door does not close, controller will make beep sound continuity until the door has to be closed. However, if door was forced open, controller will activate the alarm relay to alert the administrator or security personnel. To deactivate the alarm relay, input the disarm code. (Default is 0000)

Operation Instruction:

Master Card/Code
(Defaults 30191000)

Access Info

Door Sensor

NEW =

Completed

Default is 0 second which signifies deactivates function.
4.2.3 Sys Setup

4.2.3.1 Set Date

Sets date displayed on the LCD display. Date format is yy:mm:dd:w (yy stands for year 00~99, mm stands for month 01~12, dd stands for date 01~31 and w stands for week 1~7)

Operation Instruction:

Master Card/Code (Default 30191000)

Sys Setup

Date

NEW =

Completed

Screen displays original date.
For example: 110518-3 signifies May 18, 2011, Wednesday

After return to ready status, LCD screen will display new date.
4.2.3.2 Set Time

Sets time displayed on the LCD display. Time format is hh:mm:ss (hh represents hours 00~23, mm for minutes 00~59 and ss for seconds 00~59.

Operation Instruction:

Master Card/Code
(Default 30191000)

Sys Setup

Time

NEW =

Screen displays original time.

For Example: 090428 signifies 09:04:28 AM

Completed

After return to ready status, LCD screen will display new time.
4.2.3.3 Set Date Format

Allow user set date format displayed on the LCD display.
Input 0, date format is YYYY/MM/DD
Input 1, date format is MM/DD/YYYY
Input 2, date format is DD/MM/YYYY
(YYYY is year, MM is month, DD is date)

Operation Instruction:

Master Card/Code
(Default 30191000)

Sys Setup

Date Format

0. YYYY/MM/DD
1. MM/DD/YYYY
2. DD/MM/YYYY

Default value is 0. YYYY/MM/DD.
Press F1 or F2 to select format.

After return to ready status, LCD screen will display new format.

Completed
4.2.3.4 Set Keypad Status

Allows user to lock or unlock controller's keypad. When parameter is set 0, keypoints are disabled. The parameter is set 1, keypoints are enabled. (If parameter value is not 0 or 1, the parameter is ineffective.

Operation Instruction:

Master Card/Code
(Default 30191000)

Sys Setup

Keypad

0=Disable
1=Enable

Completed
Completed

When disable keypoints, access is required by swiping valid card. And access to command mode is required by swiping Master Card only.

Note:
1. Before disable keypad function, please set a new Master Card first hence disabling the keypoints will lock you out of the command prompt.
2. If input master code by swiped card, please does not set “Retrieve Valid Code Index” function hence setting index code will retrieve incomplete master digits.
4.2.3.5 Set Read Interface

Allow the users to select read interface. 0 is T1/T2 reader interface. 1 is Wiegand 26(8) (system will retrieve 8 digits). 2 is Wiegand 26(10)(system will read 8 digits back and add 00 automatic in front of number. Total will retrieve 10 digits.) 3 is Wiegand 34 (system will retrieve 10 digits).

Operation Instruction:
4.2.3.6 System Initiation

System Initiation clears all records within the memory including the card numbers, system settings, Master code (Default is 30191000) and restores all parameters to default settings. After performing this function, card number and parameter should be reset.

Initiation should be performed only when the following occurs:
1. On the initial installation, set the MAC-1000 parameter to its default settings before deployment.
2. If the following problem arises:
   Abnormal operation
   User wants to clear all card numbers, passwords and settings.

Operation Instruction:

Press function key * to exit the menu or wait for time out and return to ready status.
4.2.4 Comm

4.2.4.1 Set Communication Way

Select communication way of controller. The parameter 0 signifies TCP/IP, 1 signifies RS-485. This setting should be identical with Chapter 3.2.6 and Chapter 4.1

Operation Instruction:

- Press function key * to exit the menu or wait for time out and return to ready status.

```
Master Card/Code
(Default 30191000)

Comm

Interface

0=TCP/IP
1=RS-485

Interface
```
4.2.4.2 Set IP Address

Set controller’s IP address. Default IP address is 172.016.250.100 (The communication way must select TCP/IP, otherwise the setting is ineffective)

Operation Instruction:

Master Card/Code (Default 30191000)

Comm

IP

NEW =

Completed

Screen will display original IP address, Please input new IP address.
4.2.4.3 Set Submask

Set Controller's submask. Default value is 255.255.0.0 (The communication way must select TCP/IP, otherwise the setting is ineffective.)

Operation Instruction:

Master Card/Code (Default 30191000)

Comm

Submask

Screen will display original submask, Please input new submask.

NEW =

Completed
4.2.4.4 Set Gateway

Set controller’s gateway. Default value is 000.000.000.000 (The communication way must select TCP/IP, otherwise the setting is ineffective)

Operation Instruction:

Master Card/Code (Default 30191000)

Comm

Gateway

NEW =

Completed
4.2.4.5 Set Port

Set controller’s port. Default value is 4660. (The communication way must select TCP/IP, otherwise the setting is ineffective)

Operation Instruction:

1. Master Card/Code (Default 30191000)
2. Comm
3. Port
4. Screen will display original port, Please input new port.
5. NEW =
6. Completed
4.2.4.6 Set Baud rate

Select controller's baud rate. 0=9600, 1=19200, 2=38400 · 3=115200.
(The communication way must select RS-485, otherwise the setting is ineffective.)

Operation Instruction:

Master Card/Code
(Defualt 30191000)

Comm

Baud Rate

Default value is 19200. Program will mark current selection.
Press F1 or F2 to select the value.

0=9600, 1=19200, 2=38400, 3=115200

Completed
4.2.4.7 Set Node ID

Set controller’s ID (ID range from 001~255).
(The communication way must select RS-485, otherwise the setting is ineffective.)

Operation Instruction:
4.2.5 Language Selection

Allow user to select language (0= English, 1= Traditional Chinese, 2= Simplified Chinese).

Operation Instruction:

Master Card/Code (Default 30191000)

Language

0= English
1= 簡体
2= 繁體

Completed

Default is English. Program will mark current selection. Press F1 or F2 to select the language.
4.2.6 Information

Allow user to read controller’s information, as follow:
Version: XXX
Communication Way: TCP/IP or RS-485
Node ID: XXX
Baud Rate: XXXXXBPS
IP: XXX.XXX.XXX.XXX
Submask: XXX.XXX.XXX.XXX
Gateway: XXX.XXX.XXX.XXX
Port: XXXX
Card: XXXXX Event:
XXXXX

Operation Instruction:

Master Card/Code
(Default 30191000)

Info

Version: XXX
Comm: TCP/IP

Completed

Press F1 or F2 to read full information.
Chapter 5 Testing

1. Make sure the wire connecting is complete.
2. Please input Master code 30191000 (Default) to enter command mode.
3. Go to Card Manage → Add FP_Card → Restricted
4. Input time schedule code. (000 = Open 24 hours)
5. Input card number to be added. (Input card number through keypad then press # or simply swipes the card).
6. Input password then press #. (If password is unnecessary, please press #).
7. Add two different fingerprint templates.
8. Upon successful addition, system will request to add another new card number. For adding more cards, just repeat previous steps.
9. To end of adding, press #, system will back to ready status.
10. After resume to Ready Status, swipe card or input card number then put finger on the sensor. Upon a valid entry, controller’s LCD will display “Complete” and audio prompt “Thank you”. If LCD displays “Access Denied” or “Fingerprint r mismatch”, the adding fingerprints failed. Please re-add again.
## Chapter 6 Troubleshoot

<table>
<thead>
<tr>
<th>Question</th>
<th>Reason</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAC-1000PEF/PMF, PWR LED does not lit</td>
<td>Kindly check if the controller receives DC12V power input or inspect if the power connecting is correct.</td>
<td>Kindly refer to Chapter 3.2.8 Power Supply Connection.</td>
</tr>
<tr>
<td>The controller does not beep and OK/ ERR LED does not lit upon a valid card swiped.</td>
<td>1. Kindly check if the controller receives DC 12 V power input. 2. Controller is not under ready status.</td>
<td>1. Kindly refer to Chapter 3.2.8 Power Supply Connection. 2. Please contact with our agent whom you bought the products from.</td>
</tr>
<tr>
<td>LCD display Access Granted but door does not open.</td>
<td>The electronic lock disconnection or bad connection. And check whether the lock is properly installed.</td>
<td>Kindly refer to Chapter 3.2.3 Electronic Lock setup.</td>
</tr>
<tr>
<td>Controller doesn’t communication with PC.</td>
<td>1. Bad wire connection with controller. 2. Wrong IP setting. 3. SW2 doesn’t switch to correct comm. type.</td>
<td>1. Kindly refer to 3.2.6 communication interface connection. 2. Kindly refer Chapter 7 Appendix to set controller IP by tool. 3. Kindly refer to Chapter 4.1 RS485/TCPIP selection</td>
</tr>
<tr>
<td>LCD display wrong time and date.</td>
<td>Synchronize from software or enter command mode to modify date and time.</td>
<td>Kindly refer to Chapter 4.2.3.1 Set date and 4.2.3.2 Set time.</td>
</tr>
<tr>
<td>Unable to access command mode when input Master code.</td>
<td>Master code is ineffective.</td>
<td>Check correct Master code or Retrieve valid code index setting from HAMS access control management system.</td>
</tr>
<tr>
<td>Question</td>
<td>Reason</td>
<td>Solution</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>----------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>LCD display “Access Denied” when card swiped.</td>
<td>Invalid card</td>
<td>Please download card authorization through HAMS. Kindly refer to manual.</td>
</tr>
<tr>
<td>Set alarm time but alarm does not activate.</td>
<td>1. Alarm wire disconnection.</td>
<td>1. Kindly refer to Chapter 3.2.5 Alarm connection.</td>
</tr>
<tr>
<td></td>
<td>2. Bad Alarm</td>
<td>2. Kindly refer to Chapter 4.2.2.5 Set Alarm Relay Mode</td>
</tr>
<tr>
<td></td>
<td>3. The Alarm timetable doesn’t</td>
<td>3. Please refer to HAMS access control system.</td>
</tr>
<tr>
<td></td>
<td>download to controller. Or Alarm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>relay setting wrong.</td>
<td></td>
</tr>
</tbody>
</table>
Chapter 7 Appendix
Appendix 1 : Set Controller IP by Tool

A ・ Overview :
HTA-830 Tool.exe is a program that automatically locates TCP/IP based controller as well as modify the device's IP address. This program is application to TCP/IP device and does not require installation. Double click on the programs to execute.

This program used broadcast search and connection method. And the terminal’s firewall should be shut down in order to locate the devices.

B ・ Workspace Description:

1. Device List – Found devices are listed in this area. The following parameters are also included in the listing:
   - MAC ID (Media Access Control Identification): It serves as unique identifier of the device connected over the network. This fixed identification number is set from the factory and is not allowed to be modified.
   - IP (Internet Protocol Address): Default is 172.16.250.100. IP address should be unique.
Kindly differentiate the devices using their MAC ID on the initial search.

- Submask (Subnet Mask): Default is 255.255.0.0
- Gateway: Default is 0.0.0.0
- Port: Communication port, default is 4660.
- Baud Rate: Communication baud rate. Different device supports different baud rate.
  
  Kindly check its manual individually.

1. Function reserved
2. Search Button: Click this button to search all the devices connected over the network.
3. New settings area: Modifies device’s IP address, Submask, Gateway, Port and Baud Rate.
4. Broadcast Setup: This button will set new parameters to a device via broadcast method.
5. Connect Setup: This button is connecting with a device and sets its new parameters.

C. Operation Procedure:

C-1 Shut down firewall
C-2 Double click HTA830Tools.exe to execute program.
C-3 Click on “Search” button to locate the devices over the network. Returned results will be shown in the device list area. Kindly refer to follow figure:

- If found devices have the same IP addresses, kindly differentiate each using their MAC
C-4 Select a device as shown below:

C-5 Current settings of the selected device will be displayed in the "New" settings area. To modify it, overwrite the parameters:
- IP: New IP address
- Submask: Sub Mask
- Gateway: Modification is not required if the devices are connected on the same network.
- Port: Default is 4660 or user-defined port.
- Baud Rate: Definition by different devices.

Kindly inquire the necessary information about the network environment from your IT personnel. All parameter settings should be the same with the system in order to establish connection with the devices.

C-6 Verify the new parameters before pressing the “Broadcast Setup” button.

- “Broadcast Setup” is applicable when devices are connected under the same network. However, if the program and device belong to different network or if connection cannot be established due to network barriers, kindly use “Connect Setup” button to set the parameters.
Upon completion of the settings, the device will automatically restart and temporarily disconnects from the network. Kindly wait for 10-20 sec. before searching the device again. Check if the parameters are correct and successfully modified.
## Appendix 2 : Wiring Material Requirements

<table>
<thead>
<tr>
<th>Cable Type</th>
<th>Cable Specification</th>
<th>Max. Connection Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAC-1000 Power Cable</td>
<td>18-22 AWG</td>
<td>30M</td>
</tr>
<tr>
<td>Alarm Relay Connection Cable</td>
<td>18-22 AWG</td>
<td>50M</td>
</tr>
<tr>
<td>Exit Button Connection Cable</td>
<td>18-22 AWG</td>
<td>50M</td>
</tr>
<tr>
<td>RS-232 Cable</td>
<td>4-core shielded twisted pair wire 20~22 AWG</td>
<td>25M</td>
</tr>
<tr>
<td>RS-485 Cable</td>
<td>4-core shielded twisted pair wire 20~22 AWG</td>
<td>800 M</td>
</tr>
</tbody>
</table>

- Upgrade the cable specification according to transmission distance.
- Upgrade the cable specification as per environmental interference factors.
- It is recommended to use larger cable wires for future use.
- It is highly recommended to use shielded twisted pair wire for readers and communication cable to increase transmission distance and interference resistance ability.
ONE YEAR LIMITED WARRANTY

We warrants this product against defect in material or workmanship for 1 year from the date of purchase. If such a defect is discovered within this warranty limitation, contact your dealer for repair or replacement of your unit.

When returning the product, you must ship the product in its original packaging or packaging that gives an equal degree of protection. This warranty becomes invalid if the factory-supplied serial number has been removed or altered on the product.

This warranty does not cover cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence or modification of any part of the product. This warranty does not cover damage due to improper operation or maintenance, connection to improper equipment, or attempted repair by anyone other than.

In no event shall manufacturer’s liability exceed the price paid for the product from direct, indirect, special, incidental, or consequential, damages resulting from the use of the product, its accompanying software, or its documentation. Hundure makes no warranty or representation expressed, implied, or statutory, with respect to its products, contents of use of this documentation and all accompanying software, and specially disclaims its quality, performance, merchantability or fitness for any particular purpose. Hundure reserves the right to revise or update its product, software or documentation without obligation to notify any individual or entity.

TECHNICAL SUPPORT

For technical questions regarding your product, please email our service and support team at support@midastouchinc.com

www.midastouchinc.com