

## **CT9000 Standalone FingerPrint Time Attendance System**

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**User Manual**



**CT9000**

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**TRADEMARKS:**

*CASTLE is a registered trademark; and CT9000 is a trademark of Cass Technology Sdn. Bhd.*

# **WARRANTY SUMMARY**

(CT9000 Time Attendance System)

Cass Technology Sdn. Bhd. warrants that the products that it manufactures and sells will be free from defects in materials and workmanship for a period of twelve (12) months. If a product proves defective within the respective period, please contact your nearest Cass Technology Sdn. Bhd. authorized dealer to arrange for warranty service.

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## GENERAL SAFETY SUMMARY

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. To avoid potential hazards, use this product only as specified.

*Only qualified personnel should perform service procedures.*

### TO AVOID FIRE OR PERSONAL INJURY

**Use Proper Power Supply Unit.** Use only the power supply unit specified for this product.

**Do Not Operate Without Covers.** Do not operate this product with covers or panels removed.

**Do Not Operate With Suspected Failures.** If you suspect there is damage to this product, have it inspected by qualified service personnel.

**Do Not Operate below or above specified temperature and humidity condition.**

**Do Not Operate in an Explosive Atmosphere.**

***Keep Product Surfaces Clean and Dry.***

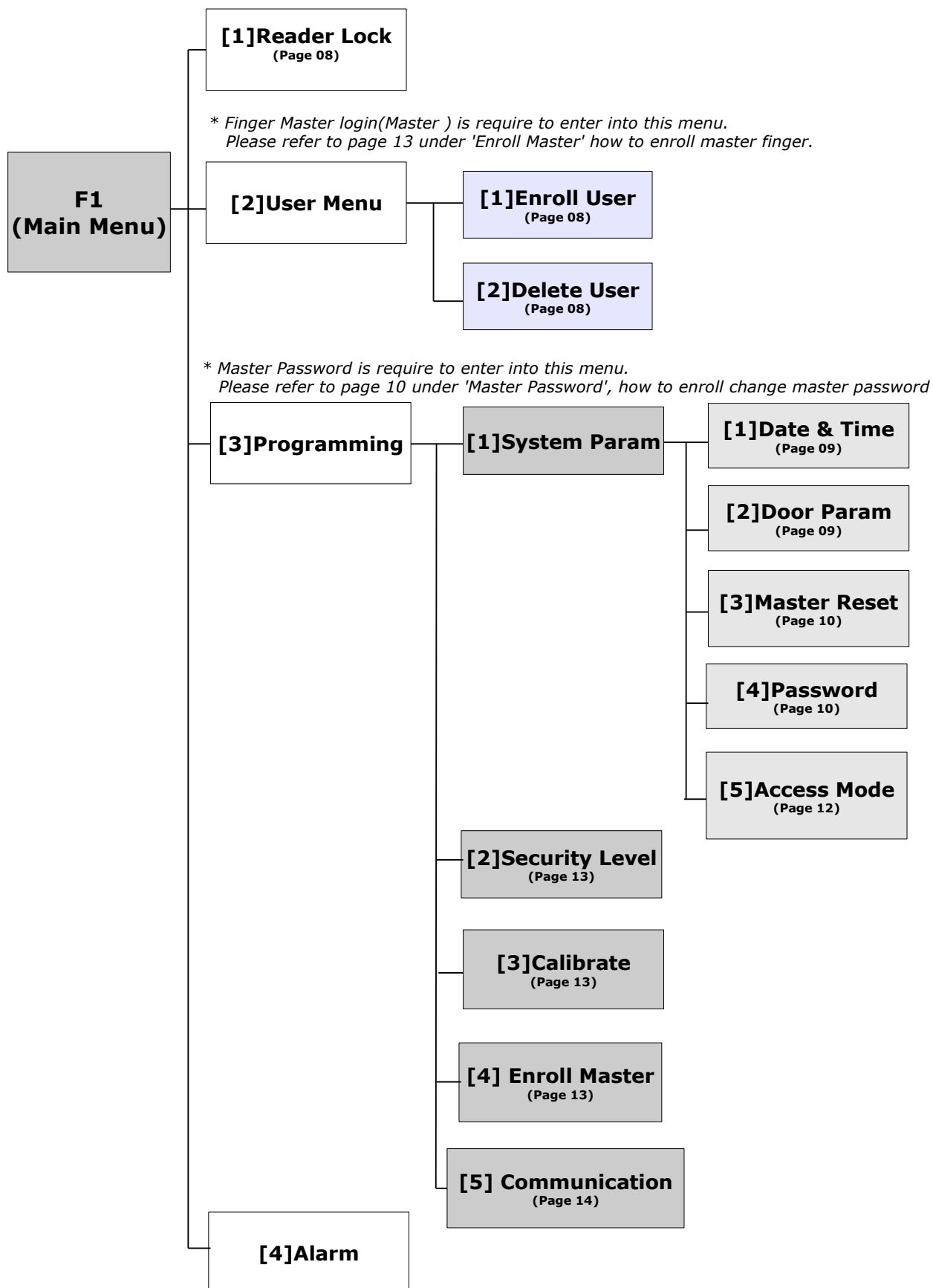
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## GENERAL FEATURES

- **800 Fingerprint Templates**
- **800 Card Users**
- **29,700 transaction storage**
- **6 Operation Mode**
  - ◆ Finger only mode (1:30 1<sup>st</sup> 30 Templates Matching Sequence)
  - ◆ Card and Finger
  - ◆ Card and Pin
  - ◆ Card and/ or finger
  - ◆ Global Pin Only (2 sets of 4 digits Pin Access)
- **Door Setting**
  - ◆ Lock Release Time (1 - 15 Sec)
  - ◆ Door Open Time (1- 30 Sec)
  - ◆ Security ON / OFF
  - ◆ Alarm ON / OFF
- **1:30 Fingerprint Template Matching Sequence**
- **User definable 4 digit user ID**
- **User definable Adjustable Security Level**
- **1 Alarm Input and 1 Alarm Output**
- **Reader Locking Feature**
- **External Watch Dog**
- **Real time clock display during system screen saver mode**
- **Animated icon display**
- **16 keypad for user programming**
- **3 LED**
- **Master login password**

# CT9000 System Menu Structure



# CT9000 OPERATION PROCEDURES

## MENU 1 - READER LOCK MODE – [Reader Lock]

To lock the reader operation temporarily. No access activity until reader unlock. **(default password 3333)**

### Procedure

- a) Press **[F1]** to enter the System Menu
- b) Select **[1] Reader Lock**
- c) Key in 4 digits reader lock pin
- d) Reader is now lock and are prevent from any access operation.

*\* To unlock the reader, repeat the same procedure*

## MENU 2 – USER MENU

*\* Master ID is required to enter in this menu. Please refer to page 13, how to enroll master finger.*

### A) Enroll User

#### Procedure

- a) Press **[F1]** to enter the System MenuPress **[▼]** to scroll down to next page
- b) Select **[2] User Menu** to enter the User Menu
- c) Enter **Master Login ID** & scan **master finger**
- d) Select **[1] Enroll User** to register user
- e) Select **[1] New ID** for new register (*\* For new ID, proceed to step 'h'*) OR  
Select **[2] Specify ID** to modify existing ID information OR  
Select **[3] Pre-registered ID** to select pre-registered ID
- f) Select **[1] Add To Same ID** to adding more than one template in same ID
- g) Select **[1] Add Proxi Card**.
- h) Select **[1] Flash Card** to pre-register card OR select **[2] Key In Card** to manual enter pre-register card.
- i) Select **[1] Add To Same Card** OR select **[2] Create New Record** for previous registered without finger template.
- j) Select **[1] Add pin** to add card pin number OR **[2] No Pin** to leave it blank
- k) Select **[1] Scan finger** to register fingerprint template & Scan finger, repeat it 5 times until system confirm it OR  
**[2] No finger** to add card information only.

*\*Pre-Registered = ID & card number pre-send from computer.*

### B) Delete User

#### Procedure

- a) Press **[F1]** to enter the System MenuPress **[▼]** to scroll down to next page
- b) Select **[2] User Menu** to enter the User Menu
- c) Enter **Master Login ID** & scan **master finger**
- d) Select **[2] Delete User** to delete existing user
- e) Select **[1] Enter Card no** delete by card numberOR select **[2] Enter ID** to delete by User ID.



## MENU 3 – PROGRAMMING

### A) System Param

#### 1. DATE & TIME - [Date and Time setting]

To set date and time display on the reader

**(default Master Password 333333333)**

##### Procedure

- a) Press [**F1**] to enter the System Menu
- b) Press [**▼**] to scroll down to next page
- c) Select [**3**] **Programming** to enter the Programming Menu
- d) Enter **master password** & press '↵'
- e) Select [**1**] **System Param** to set and change System Configuration
- f) Select [**1**] **Date & Time** to set and change Time and Date
- g) Key in current year [4 digits]
- h) Key in current month [2 digits]
- i) Key in current day [2 digits]
- j) Key in current hour [2 digits]
- k) Key in current minute [2 digits]

*\* Time setting are on 24 hour basis*

#### 2. DOOR PARAM – [Door Setting]

To configure all door setting, including door open release time, door security, alarm, and pin access mode.

**(default Master Password 333333333)**

##### Procedure

- a) Press [**F1**] to enter the System Menu
- b) Press [**▼**] to scroll down to next page
- c) Select [**3**] **Programming** to enter the Programming Menu
- d) Enter **master password** & press '↵'
- e) Select [**1**] **System Param** to set and change System Configuration
- f) Select [**2**] **Door Param** to set and change Door Configuration
  - [**1**] **Security [ON / OFF]**, Press[↵] **Enter** to change (default ON)
  - [**2**] **Lock Release Time**, range from 1 Sec – 15 Sec (default 05 Sec)
  - [**3**] **Door Open Time**, range from 1 Sec – 30 Sec (default 10 Sec)

### 3. MASTER RESET

This menu is for clearing all the data that store inside the system.

**(default Master Password 3333333333)**

#### Procedure

- a) Press **[F1]** to enter the System Menu
- b) Press **[▼]** to scroll down to next page
- c) Select **[3] Programming** to enter the Programming Menu
- d) Enter **master password** & press '↵'
- e) Select **[1] System Param**
- f) Select **[3] Master reset**
- g) Enter password (**master password**).  
(Enter Master password will clear the data instantly)

*\* Caution: Performing Master Reset will clear all the database and the process NOT REVERSIBLE!*

### 4. PASSWORD

#### 4.1 MASTER PASSWORD

To set and change programming menu password  
**(default Master Password 3333333333)**

#### Procedure

- a) Press **[F1]** to enter the System Menu
- b) Press **[▼]** to scroll down to next page
- c) Select **[3] Programming** to enter the Programming Menu
- d) Enter **master password** & press '↵'
- e) Select **[1] System Param** to set and change System Configuration
- f) Press **[▼]** to scroll down to next page
- g) Select **[4] Password**
- h) Select **[1] Master Password**
- i) Enter current password or , Press **[\*] Undo** when key in wrongly
- j) Enter 10 digits New Password, Press **[\*] Undo** when key in wrongly
- k) Enter 10 digits New Password again, Press **[\*] Undo** when key in wrongly

- New password can be program either 1 digit to 10digit

#### 4.2 Reader Lock Code (Default password: 3333)

To set and change reader lock code  
**(default Master Password 3333333333)**

#### Procedure

- a) Press **[F1]** to enter the System Menu
- b) Press **[▼]** to scroll down to next page
- c) Select **[3] Programming** to enter the Programming Menu
- d) Enter **master password** & press '↵'
- e) Select **[1] System Param** to set and change System Configuration
- f) Press **[▼]** to scroll down to next page
- g) Select **[4] Password**
- h) Select **[2] Reader Lock Code**
- i) Enter current password, Press **[\*] Undo** when key in wrongly
- j) Enter 1-4 digits New Password, Press **[\*] Undo** when key in wrongly
- k) Enter 1-4 digits New Password again, Press **[\*] Undo** when key in wrongly

### 4.3 Alarm PIN (Default password: 3333)

To set and change alarm pin

**(default Master Password 3333333333)**

#### Procedure

- a) Press **[F1]** to enter the System Menu
- b) Press **[▼]** to scroll down to next page
- c) Select **[3] Programming** to enter the Programming Menu
- d) Enter **master password** & press '↵'
- e) Select **[1] System Param** to set and change System Configuration
- f) Press **[▼]** to scroll down to next page
- g) Select **[4] Password**
- h) Select **[3] Alarm pin**
- i) Enter current password, Press **[\*] Undo** when key in wrongly
- j) Enter 1-4 digits New Password, Press **[\*] Undo** when key in wrongly
- k) Enter 1-4 digits New Password again, Press **[\*] Undo** when key in wrongly

- *New password can be program either 1 digit to 4digit*

### 4.4 Global PIN 1(default Password Null)

To set and change global pin 1

**(default Master Password 3333333333)**

#### Procedure

- a) Press **[F1]** to enter the System Menu
- b) Press **[▼]** to scroll down to next page
- c) Select **[3] Programming** to enter the Programming Menu
- d) Enter **master password** & press '↵'
- e) Select **[1] System Param** to set and change System Configuration
- f) Press **[▼]** to scroll down to next page
- g) Select **[4] Password**
- h) Select **[4] Global Pin 1**
- i) Enter current password, Press **[\*] Undo** when key in wrongly
- j) Enter 1-4 digits New Password, Press **[\*] Undo** when key in wrongly
- k) Enter 1-4 digits New Password again, Press **[\*] Undo** when key in wrongly

- *New password can be program either 1 digit to 4digit*

### 4.5 Global PIN 2(default Password Null)

To set and change global pin 2

**(default Master Password 3333333333)**

#### Procedure

- a) Press **[F1]** to enter the System Menu
- b) Press **[▼]** to scroll down to next page
- c) Select **[3] Programming** to enter the Programming Menu
- d) Enter **master password** & press '↵'
- e) Select **[1] System Param** to set and change System Configuration
- f) Press **[▼]** to scroll down to next page
- g) Select **[4] Password**
- h) Select **[5] Global Pin 2**
- i) Enter current password, Press **[\*] Undo** when key in wrongly
- j) Enter 1-4 digits New Password, Press **[\*] Undo** when key in wrongly
- k) Enter 1-4 digits New Password again, Press **[\*] Undo** when key in wrongly

## 5. ACCESS MODE

To set and change mode operation

**(default Master Password 3333333333)**

### Procedure

- a) Press [**F1**] to enter the System Menu
- b) Press [**▼**] to scroll down to next page
- c) Select [**3**] **Programming** to enter the Programming Menu
- d) Enter **master password** & press '↵'
- e) Select [**1**] **System Param** to set and change System Configuration
- f) Press [**▼**] to scroll down to next page
- g) Select [**5**] **Access Mode** to enter the access mode
- h) 4 Mode can be select here
  - [1] **Card + Finger**
  - [2] **Card + Pin**
  - [3] **Card only**
  - [4] **Card and/or finger**

## B) SECURITY LEVEL – [Security Level]

Set fingerprint security level to accommodate different fingerprint condition  
(**default Master Password 333333333**)

### Procedure

- Press **[F1]** to enter the System Menu
- Press **[▼]** to scroll down to next page
- Select **[3] Programming** to enter the Programming Menu
- Enter **master password** & press '**↵**'
- Select **[2] Security Level** to set and change System Configuration
- Enter value "1 to 9999". Default value "50"

### Important Note

Security Level – "1" is the highest security level  
Security Level – "9999" is the lowest security level

Changing of security level alter the verification process. Lower security level decreases verification level hence increases false acceptance rate (FAR)

| Security Level | False Rejection Rate (FRR) | False Acceptance Rate (FAR) |
|----------------|----------------------------|-----------------------------|
| Highest        | Highest                    | Lowest                      |
| High           | High                       | Low                         |
| Medium         | Medium                     | Medium                      |
| Low            | Low                        | High                        |
| Lowest         | Lowest                     | Highest                     |

## C) CALIBRATE

User can recalibrate the sensor if the the sensor not respond to a finger placement. Make sure there no finger on the sensor during the calibration.

(**default Master Password 333333333**)

### Procedure

- Press **[F1]** to enter the System Menu
- Press **[▼]** to scroll down to next page
- Select **[3] Programming** to enter the Programming Menu
- Enter **master password** & press '**↵**'
- Select **[3] Calibrate**
- If the calibration successful, display will return to the its menu.

## D) ENROLL MASTER – [Enroll Master Finger]

(**default Master Password 333333333**)

- Press **[F1]** to enter the System Menu
- Press **[▼]** to scroll down to next page
- Select **[3] Programming**
- Enter **master password** & press '**↵**'
- Select **[4] Enroll Master** to enroll master user
- Select **[1] New ID** for new register (*\* For new ID, proceed to step 'h'*) OR  
Select **[2] Specify ID** to modify existing ID information OR  
Select **[3] Pre-registered ID** to select pre-registered ID
- Select **[1] Add To Same ID** to adding more than one template in same ID
- Select **[1] Add Proxi Card**.
- Select **[1] Flash Card** to pre-register card OR select **[2] Key In Card** to manual enter pre-register card.
- Select **[1] Add To Same Card** OR select **[2] Create New Record** for previous registered without finger template.
- Select **[1] Add pin** to add card pin number OR **[2] No Pin** to leave it blank
- Select **[1] Scan finger** to register fingerprint template & Scan finger, repeat it 5 times until system confirm it OR  
**[2] No finger** to add card information only.

## E) COMMUNICATION

### 1. Relay Board Comm

Enable/ disable communication port to relay board  
(**default Master Password 3333333333**)

#### Procedure

- a) Press [**F1**] to enter the System Menu
- b) Press [**▼**] to scroll down to next page
- c) Select [**3**] **Programming** to enter the Programming Menu
- d) Enter **master password** & press '↵'
- e) Select [**5**] **Communication** to enter the Programming Menu
- f) Select [**1**] **Relay board comm** to enter menu
- g) Press[↵] **Enter** to 'ON' or 'OFF' relay board communication.

### 2. CT9K Comm addr (0..15):

To set address for the system.  
(**default Master Password 3333333333**)

#### Procedure

- a) Press [**F1**] to enter the System Menu
- b) Press [**▼**] to scroll down to next page
- c) Select [**3**] **Programming** to enter the Programming Menu
- d) Enter **master password** & press '↵'
- e) Select [**5**] **Communication** to enter
- f) Select [**2**] **CT9K Comm Addr** to set the address.
- g) Key in system address [2 digits]

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## MENU 4 – ALARM

### A) Alarm

#### **Alarm(*default Password 3333*)**

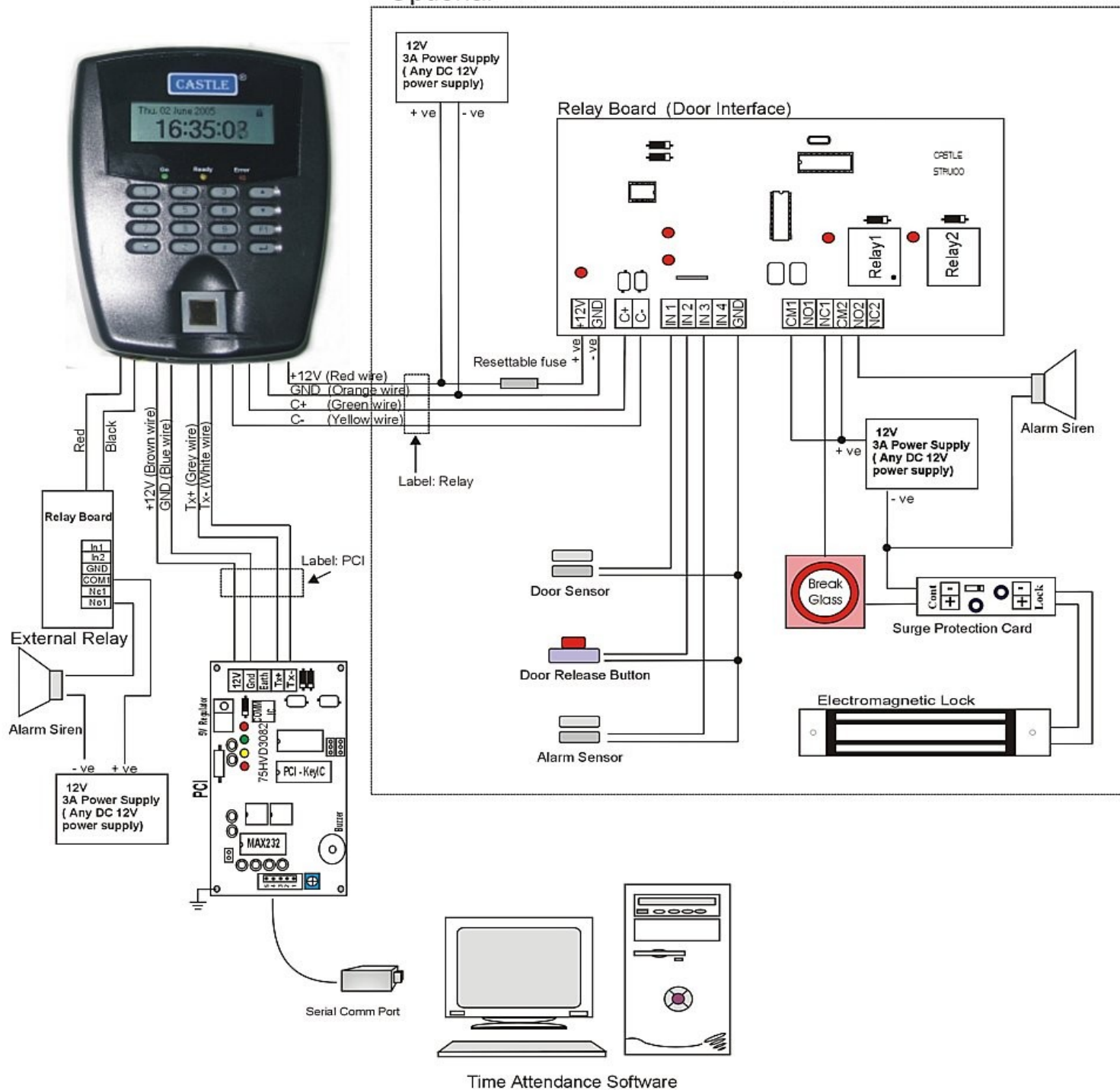
Active/ Deactive alarm.

#### **Procedure**

- a) Press **[F1]** to enter the System Menu
- b) Press **[▼]** to scroll down to next page
- c) Select **[4] Alarm** to enter
- d) Key in Alarm password [4 digits]
- e) Press **[↵] Enter** to 'ON' or 'OFF' alarm.

# CT9000 Configuration

## Optional



### Remarks:

- All communication cable must be compliance to RS485 standard, with proper grounding & connected in multidrop connection.

\*All specification subject to change without prior notice.

|         |                         |
|---------|-------------------------|
| File    | CT9K CONFIG v1.2        |
| Date    | 200509                  |
| Company | Cass Technology Sdn Bhd |



## **OPERATION PROCEDURE**

### **How to use only finger to access?**

1. *Just place the registered finger on the sensor in any access mode, wait until the system granted scanned finger.*

### **How to use only PIN to access?**

1. *Press [\*] to enter the System Menu*
2. *Key in 4 digits PIN number. Global PIN 1 or Global PIN 2 can be use to access.*

*\* Please refer to page 11 to set Global Pin.*

### **How to activate alarm mode?**

1. *Refer to page 14. Follow the same step to deactivate the alarm.*

### **How to change to 'card' only mode?**

1. *Refer to page page 12 under **Access Mode**.  
Select [3] **Card only** to activated card only operation mode.*

### **What is a pre-registered ID?**

1. *Pre-install ID number that sent from computer. User need to flash his/ her pre-installed card to verify before able to register fingerprint.*

# SENSOR MAINTENANCE

**In normal use, monthly cleaning of the sensor surface is recommended.**

To clean the finger drive ring and the sensor surface, follow these steps:

1. Remove the electrical power from the fingerprint sensor by disconnecting it from its power source.
2. Use any type of household kitchen or window cleaner, such as Formula 409™, Fantastic™, Windex™, or any generic versions of these cleaners.



**DO NOT use chlorine-based cleaners, such as Clorox™ bleach, non-chlorine bleach, or chlorine-based bathroom or mildew cleaners.** Chlorine based cleaners will not necessarily affect the functionality of the finger print sensor, but they will discolor the finger drive ring and could damage the surrounding circuitry around the fingerprint sensor.



**DO NOT use any solvents, such as acetone, MEK, TCE, paint thinner, turpentine, etc.** Solvents will not adversely affect the sensor, but they might damage the surrounding enclosure and peripheral components to the sensor.

3. Wet one end of a cotton swab (not soaking or dripping wet) with one of the above mentioned cleaners. Gently rub the sensor surface and finger drive ring with the wet cotton swab, slowly rotating the swab so a new, clean surface of the swab is constantly exposed to the sensor surface. Do not allow cleaner to drip or run down into the electronics around the sensor.
4. After cleaning with the wet swab, gently rub the surfaces again with a dry cotton swab. Use a clean swab each time the sensor is cleaned. (If a dirty swab is used, it may make the sensor dirty again.)

## CT9000 TECHNICAL SPECIFICATION

| ITEM                             | DESCRIPTION   |
|----------------------------------|---|
| <b>Card Reading Distance</b>     | ± 5 cm  |
| <b>Sensor</b>                    | FP8600 TruePrint®   |
| <b>Fingerprint Template</b>      | 6144 Bytes / Template   |
| <b>Fingerprint Capture Time</b>  | ± 1 sec   |
| <b>Processor</b>                 | 16 bits processor   |
| <b>RTC (Real Time Clock)</b>     | Yes   |
| <b>Flash Memory</b>              | 64Mb  |
| <b>RAM</b>                       | 64Mb  |
| <b>Watchdog</b>                  | Yes   |
| <b>Housing</b>                   | Well designated and high grade ABS casing to protect the reader and PCB |
| <b>Display Unit</b>              | Graphic 32 x 122 LCD with blue backlight display                        |
| <b>Operating Temperature</b>     | 0 – 65 ° C  |
| <b>Humidity</b>                  | 95% non-condensing  |
| <b>Audible Device</b>            | Yes   |
| <b>Backup Battery</b>            | Rechargeable SuperCap   |
| <b>Baud Rate (DIU to reader)</b> | 9600bps   |
| <b>EMI Protection</b>            | Yes   |
| <b>Input Voltage</b>             | 12Vdc – 13.8Vdc   |
| <b>Input Current</b>             | 500mA   |
| <b>Communication Cable Usage</b> | 1 Pair from door interface to CT9000<br>1 Pair from CT9000 to PCI unit  |
| <b>Cabling</b>                   | RS485 standard cable  |