OPERATING INSTRUCTIONS

# CR-2000

## KEYPAD / CARD READER

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# Product Overview

The CR-2000 is an inductive contact-less card reader in a metal waterproof housing that also acts as a keypad control. The CR-2000 provides safe secure access control for any combination of 2000 users by the use of the Mifare pass card or individual user pass codes.

The CR-2000 has low power consumption (30mA standby) luminous keypad for nighttime use, Short circuit protection, tamper alarm output, and the Wiegand output for monitoring of user access.

The CR-2000 may also be used stand alone for access control of doors, gate and barrier arms.

**Features**

- Low 30 mA standby current
- Luminous keypad: for nighttime operation
- 2000 user support
- Independent password support (may use code or card for access)
- Keypad user delete (for lost or stolen cards or codes)
- Output short circuit protection
- Wiegand output: Wg26 for cards
- Tamper alarm output
- Doorbell button: Independent from circuit works with any doorbell
- User pass card code change (allows user to use code they can remember in case card is lost or forgotten)

# Indicators and Controls

| Operation State | Red LED | Green LED | Beeper | Notes |
|---|---|---|---|---|
| **Standby** | Slow Blink | Off | | |
| **Key Activation** | | | Beep | |
| **Success** | Off | On | Long Beep | |
| **Fail** | | | 3 Short Beeps | |
| **Enter Programming** | On | Off | Long Beep | Indicator is Orange |
| **Set Condition** | On | On | | |
| **Exit Programming** | Slow Blink | Off | Long Beep | |
| **Unlock** | Off | On | Long Beep | |
| **Alarm** | Fast Blink | Off | Alarm Sound | |

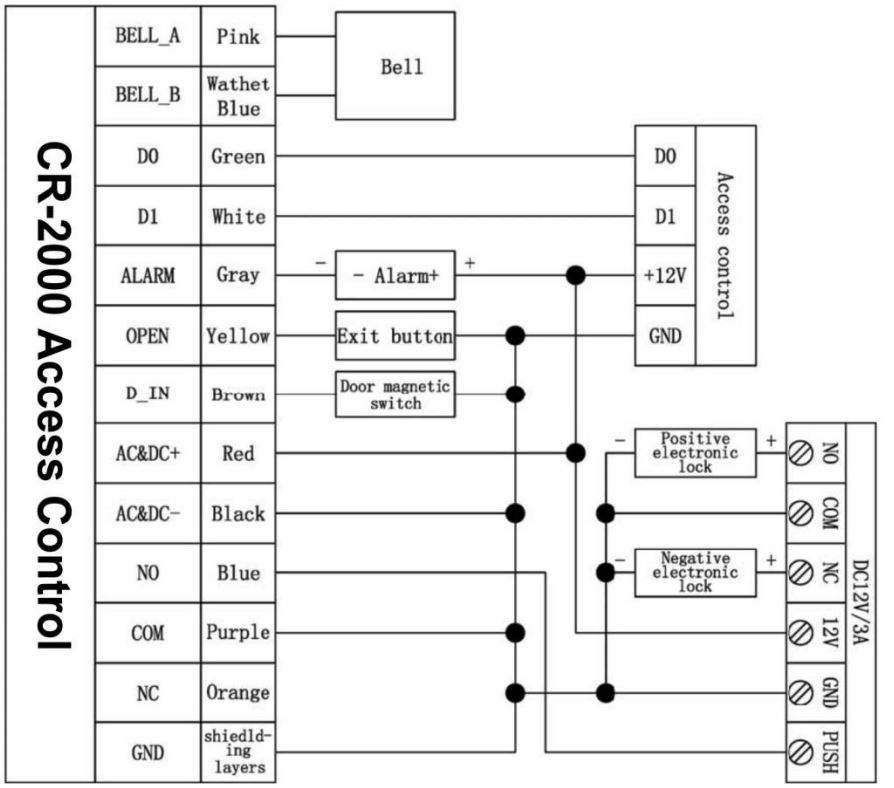
## Specifications

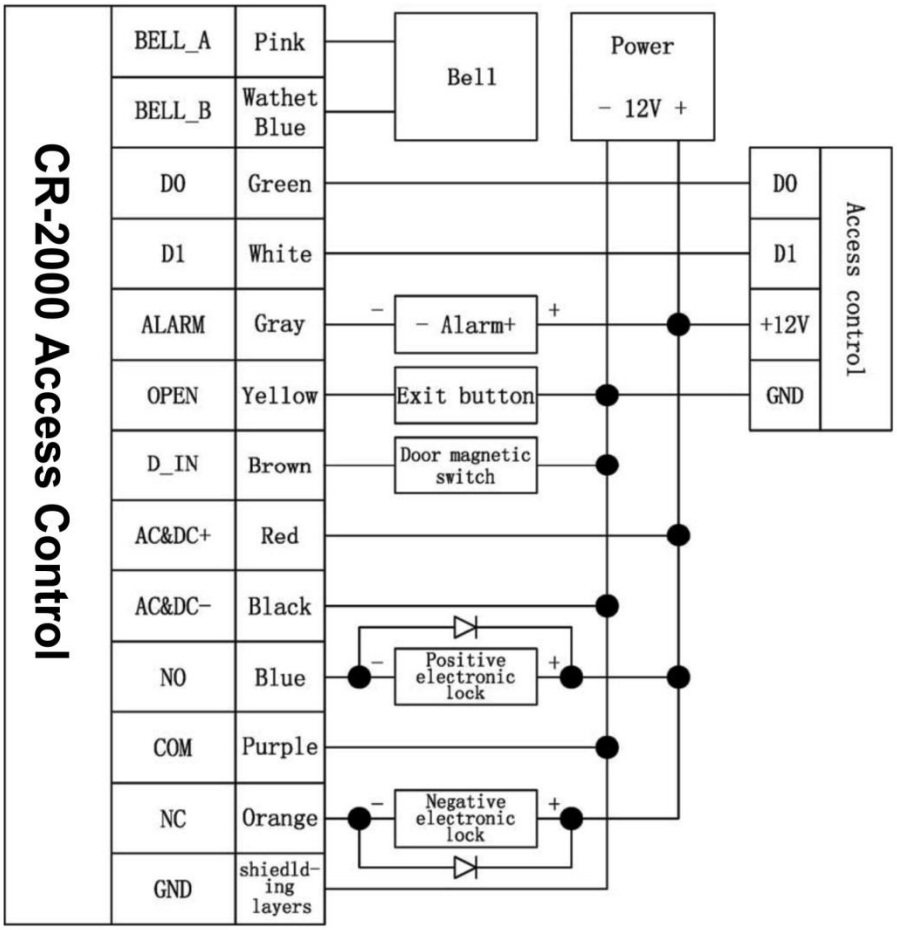
| Specifications | |
|---|---|
| **Power Supply** | 9-25VDC |
| **Power Supply Tolerance** | +/- 20% of Power Rating |
| **Current Draw Standby** | </= 30mA |
| **Read Range** | 1.1 in (3cm) – 3.1in (8cm) |
| **Capacity (users)** | 2000 Card and or Pass Codes |
| **Temperature Range** | -13ºF (-25ºC) to 140ºF (60ºC) |
| **Operating Humidity** | 10% ~ 90% |
| **Electric Lock Output** | </= 3A |
| **Alarm Output** | </= 20A |
| **Short Circuit Protection Time** | </= 100uS |
| **Activation Time** | 0-99 Seconds (Adjustable) |
| **Size** | 4.74in (120mm) x 2.2in(56mm) x 0.71in(18mm) |
| **Certifications** | CE |

## Connections

| No. | Designation | Color | Function |
|---|---|---|---|
| **1** | Bell-A | Pink | Doorbell Terminal A |
| **2** | Bell-B | Pale Blue | Doorbell Terminal B |
| **3** | D0 | Green | WG Output Line (D0) |
| **4** | D1 | White | WG Output Line (D1) |
| **5** | Alarm | Grey | Alarm Negative (Alarm positive connected to +12V |
| **6** | Open | Yellow | Exit Button (Other end of exit button connected to GND) |
| **7** | D-IN | Brown | Magnet Switch(Other end of magnet SW connected to GND) |
| **8** | AC/DC+ | RED | Power 9-25V DC + Input |
| **9** | AC/DC- | Black | Power 9-25V DC - Input |
| **10** | N/O | Blue | Relay Internal Contact (Normally Open) |
| **11** | COM | Purple | Relay Internal Contact (Common) |
| **12** | N/C | Orange | Relay Internal Contact (Normally Closed) |
| **13** | GND | Shield | Ground (Earth Ground) |

# Connections (Continued)

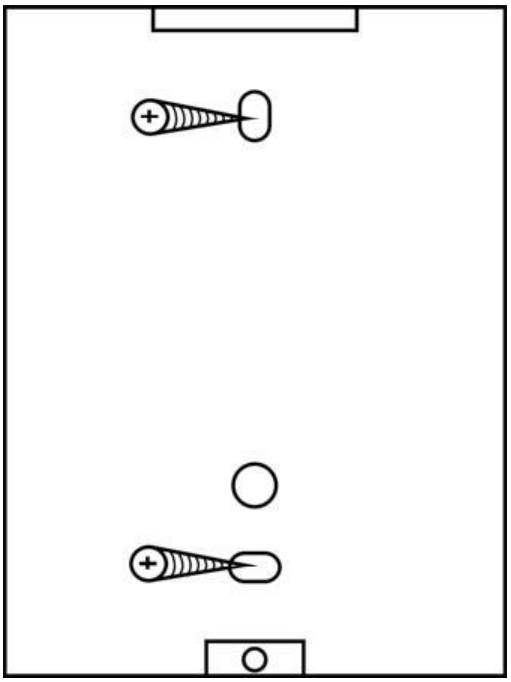


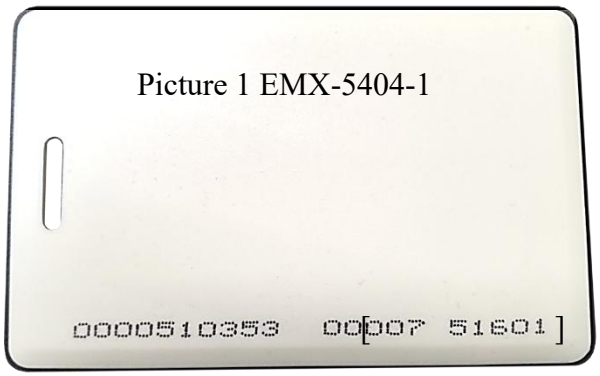



# Installation

Find location on mounting surface that has an opening of at least 5 x 2.2 inches.

1. Remove mounting plate from the back of the unit to use as a template for the mounting screws. (Figure 1.0)
2. Drill mounting holes and affix mounting plate to the surface. Also fits to ordinary wall outlet junction boxes.
3. Make sure wires are routed so they are not damaged or shorted
4. Make connections per site requirements see schematics (Figure 2.0, 2.1, 2.2)
5. Install front cover to back cover and tighten unit in place.
6. Proceed to programming






Picture 1 EMX-5404-1

# Programming

To enter programming mode press [*] [999999] [#] (factory default)

**Note:** You are in programming mode indicated by the solid RED light. You may exit programming mode by pressing the [*] key or wait until the unit has timed out, indicated by flashing RED light.

## Operations Performed in Programming Mode

1. Change Administrator Pass Code. [0] [New Pass Code] [#] , repeat [New Pass Code] [#]

**Note:** Administrator pass code must be between 6 and 8 digits. Please remember to record this new pass code for future reference.

2. Add User Cards (Light bar will turn solid GREEN)

2.1 Adding cards by scanning. Press [1] [Scan Card] , [Scan Card] , ...

Press [#] to end adding cards and [*] to exit programming mode.

2.2 Adding cards by card number. Press [1] [8 Digit Card Number] [#] ,

[8 Digit Card Number] [#] , ... Press [#] to end adding cards. (See Picture 1 on pg. 5)

2.3 Adding cards to designated ID locations by scanning cards.

Press [1] [ID Number] [#] [Scan Card] , [ID Number] [#] [Scan Card] , ... [#]

**Note:** ID location range is from 1 to 2000. Must enter an ID number that is not in use. The ID number is a way to identify cards and pass codes for future modification or deletion.

2.4 Adding cards to designated ID locations by card number.

Press [1] [ID Number] [#] [8 Digit Card Number] [#] ,

[ID Number] [#] [8 Digit Card Number] [#] , .... [#] (See Picture 1 on pg. 5)

2.5 Adding pass codes to designated ID locations.

Press [1] [ID Number] [#] [Pass Code] [#] , [ID Number] [#] [Pass Code] [#] , ... [#]

**Note:** This is for users with pass code only, no cards. Code may be any four digit combination except for 1234, this is reserved by the system.

# Programming (Continued)

3. Deleting Users (Light bar will turn solid GREEN)

   3.1 Delete cards by scanning. Press [2] [Scan Card] , [Scan Card] , ... [#]

   3.2 Delete cards by card number. (See Picture 1 on pg. 5)

   Press [2] [8 Digit Card Number] [#] , [8 Digit Card Number] [#] , ... [#]

   3.3 Delete cards and pass codes at designated ID location.

   Press [2] [ID Number] [#] , [ID Number] [#] , ... [#]

   3.4 Delete all: Press [2] [0000] , [#]

4. Door Opening Setting (Light bar will turn solid GREEN)

   4.1 Card ONLY: Press [3] [0] [#]

   4.2 BOTH Card and Password: Press [3] [1] [#]

   4.3 EITHER Card or Password (factory default): Press [3] [2] [#]

5. Relay Hold Time Setting (Light bar will turn solid GREEN)

   5.1 Press [4] [0 ~ 99] [#] Relay holds for 0 to 99 seconds (factory default is 5 seconds).

6. Alarm Output Time Setting (Light bar will turn solid GREEN)

   6.1 Press [5] [0 ~ 3] [#] Alarm sounds for 0 to 3 minutes, (factory default is 1 minute).

7. Door Ajar Alarm Function (Light bar will turn solid GREEN)

   7.1 Press [6] [0] [#] Ignore (factory default)

   7.2 Press [6] [1] [#] Send alarm signal

   A. If door is ajar after 1 minute the alarm will trip sounding the built in buzzer for 1 minute and then turn off.
   B. If door is forced open the built in alarm and the external alarm will trigger.

8. Security Mode

8.1 Press [7] [0] [#] Normal (factory default) See section 10.2

8.2 Press [7] [1] [#] Invalid Lock (Within 10 minutes multiple swipes of invalid card or input of invalid pass code 10 times will deactivate the keypad for 10 minutes)

9. Status indicator

9.1 Press [8] [0] [#] Turn off RED indicator flash in light bar

9.2 Press [8] [1] [#] Turn on RED indicator flash in light bar

## Operations Performed in Standby Mode

10. User password modify

10.1 With Scan Card: Press [*] [Scan Card] , [Old Pass Code] [#] ,

[New Pass Code] [#] , [Repeat New Pass Code] [#] If this is first time use on a new card the default password is (1234).

10.2 With Pass Code Only: Press [*] [ID Number] [#] [Old Pass Code] [#] ,

[New Pass Code] [#] , [Repeat New Pass Code] [#] For users without scan cards.

11. Door Open Operation

11.1 Card Open [Scan Card]

11.2 Pass Code Open: Press [User Pass Code] [#] If correct door will open. If incorrect code is entered you have 9 more attempts before unit locks and needs reset by administrator or swipe of valid card.

11.3 Card plus Password Open: [Scan Card] [Enter Pass Code] [#] If card is valid and user password is correct the door will open. If card or password is incorrect you will have 9 more attempts before unit locks and needs reset by administrator or valid card swipe and correct password entry.

12. Administrator Functions

12.1 End Alarm [Enter Administrator Pass Code] [#]

12.2 Administering users, passwords, alarm settings, timing functions (Programming Mode)

# Programming (Continued)

Restore Factory setting

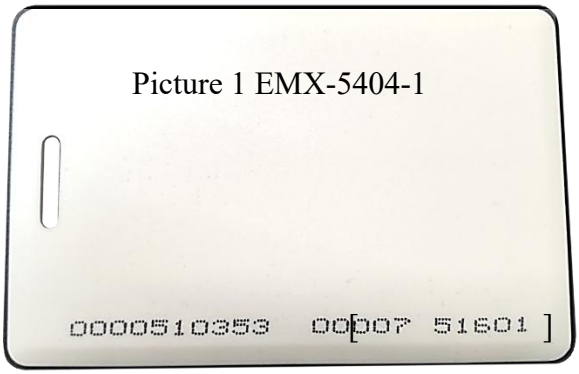
1. Disconnect power
2. Press the # button
3. Restore power while holding the # button
4. The CR-2000 will beep twice
5. Release the # button

(Holding the # button for 10 seconds will cancel the factory reset and sound 3 beeps)

**Note:** Restoring to factory setting will not delete user(s) data.

## Ordering Information

| | |
|---|---|
| **CR-2000** | **Card Reader / Keypad** |
| **CARX-20** | **1.8mm Mifare** |



Picture 1 EMX-5404-1

## Warranty

EMX Industries Incorporated warrants all products to be free of defects in materials and workmanship for a period of two years under normal use and service from the date of sale to our customer. This warranty does not cover normal wear and tear, abuse, misuse, overloading, altered products, damage caused by incorrect connections, lightning damage, or use other than intended design.

There is no warranty of merchantability. There are no warranties expressed or implied or any affirmation of fact or representation except as set forth herein.

EMX Industries Inc. sole responsibility and liability, and the purchaser's exclusive remedy shall be limited to the repair or replacement at EMX Industries option of a part or parts found not conforming to the warranty. In no event shall EMX Industries Inc. be liable for damages, including but not limited to damages resulting from non-conformity, defect in material or workmanship.

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