Installation/Owner’s Manual
Models 1504 / 1506
Programmable Stand Alone Digital Keypad Entry Devices

Use this manual for circuit board 1506-010 Revision G or higher.

Control a main entry point plus an additional entry point.

1504 with Intercom

1506

Date Installed: __________________________

Installer/Company Name: ______________________

Phone Number: ____________________________

Model Number ____________________

Circuit Board Serial Number and Revision Letter: ______________________

Leave Manual with Owner

Copyright 2018 DoorKing, Inc. All rights reserved.
# TABLE OF CONTENTS

## SPECIFICATIONS
- 1504 Specifications .................................................. 2
- 1506 Specifications .................................................. 3
- General Information .................................................. 4
- Important Notices .................................................... 5

## SECTION 1 - INSTALLATION
1. Remove Faceplate from Cabinet .................................. 5
2. Surface Mount ....................................................... 6
3. Flush Mount ........................................................ 6
4. Terminal Wiring ..................................................... 7
5. 1504 AiPhone Intercom Station Connections .................. 8
6. 1504 Secondary Keypad Wiring ................................... 9

## SECTION 2 - PROGRAMMING
1. Re-Programming the Master Code ................................ 10
2. Relay Strike Time .................................................... 10
3. X Strikes for Invalid Entry Code Attempts ....................... 10
4. Programming Four-digit Entry Codes ............................ 11
5. Erase a Four-digit Entry Code .................................... 11
6. Erase ALL Four-digit Entry Codes ............................... 11
7. Four-digit Entry Code Divide Number ........................... 11
8. Programming Five-digit Entry Codes ............................. 12
9. Erase a Five-digit Entry Code ..................................... 12
10. Erase ALL Five-digit Entry Codes ............................... 12
11. Five-digit Entry Code Divide Number .......................... 12
12. Hold Boundary Programming ..................................... 13
13. Time ZONE 1 Boundary Programming .......................... 13
14. Time ZONE 2 Boundary Programming .......................... 13

## SECTION 3 - OPERATING INSTRUCTIONS
1. Four-digit Entry Codes ............................................ 14
2. Five-digit Entry Codes ............................................ 14
3. Request to Exit Input (Terminals 1 and 12) ...................... 14
4. Door Open Input (Terminals 2 and 12) .......................... 14
5. Hold Feature Operation .......................................... 15
6. Time Zone Operation ............................................. 16

## SECTION 4 - MAINTENANCE
1. Troubleshooting ................................................... 17
2. Log Tables ......................................................... 18-19
1504 SPECIFICATIONS

1504 Surface Mount Dimensions
P/N 1504-086

Front View

Side View

Back View

Bottom View

1504 Flush Mount Dimensions
P/N 1504-096

Mounting Note:
Can be mounted on a DoorKing gooseneck mounting post.

Rough-In Box

Flush Box

Flush Box

Rough-In Box

Rough-In Box

Mounting Note:
Bolt holes (4) to secure flush box inside rough-in box.
1506 SPECIFICATIONS

1506 Surface Mount Dimensions

P/N 1506-086

Back

Side

Mounting Note:
Can be mounted on a DoorKing gooseneck mounting post.

Front

1506 Flush Mount Dimensions

P/N 1506-096

Side Views

Front Views

Bottom Views
Prior to beginning the installation of the entry device, we suggest that you become familiar with the instructions, illustrations, and wiring guidelines in this manual. This will help ensure that you installation is performed in an efficient and professional manner.

The proper installation of the entry device is extremely important. Check all local building ordinances and building codes prior to installing this device. Be sure your installation is in compliance with local codes.

When used to control a door or pedestrian gate, try to locate the entry device as near as possible to the entry point. The unit should be mounted on a rigid wall to prevent excessive shock and vibration from closing doors or gates. Continuous vibration and shock from slamming doors or spring-loaded pedestrian gates will damage the circuit board. Under no circumstances should the unit be mounted directly to a moving door or gate.

ADA mounting requirements for door control (Ref: ICC/ANSI A117.1-2009). The requirements below apply ONLY when the entry device is being used to control entry through A PUBLIC DOOR ONLY. If this system is used to control entry through a vehicular gate or private entrance, the dimensions noted below do not apply.

1. **Unobstructed Forward Reach.** Where a clear floor or ground space allows only a forward approach to an object and is unobstructed, mounting height shall be a minimum of 15 inches (381 mm), and a maximum of 48 inches (1.22 m), above the floor or ground to the operable controls.

2. **Obstructed High Forward Reach.** If the high forward reach is over an obstruction, reach and clearances shall be as shown. **NOTE:** If the height of a control is 48" maximum, then the length of the obstruction must be 34" or less. If the height of a control is 46" maximum, then the length of the obstruction may be increased to 24" or less.

3. **Unobstructed Side Reach.** Where a clear floor or ground space allows a parallel approach to an object and the side reach is unobstructed, and the edge of the clear floor space is 10 inches (255 mm) maximum from the object, mounting height shall be a minimum of 15 inches (380 mm), and a maximum of 48 inches (1.22 m), above the floor or ground to the operable controls.

4. **Obstructed High Side Reach.** If the side reach is over an obstruction 10 inches or less, mounting height shall be a maximum of 48 inches (1.21 m) above the floor or ground to the operable controls. If the side reach is over an obstruction greater than 10 inches but less than 24 inches, mounting height shall be a maximum of 66 inches (1.27 m) above the floor or ground to the operable controls.

When used to control a vehicular gate with an automatic gate operator, the entry device must be mounted a minimum of six (6) feet away from the gate and gate operator, or in such a way that a person cannot operate the entry device and/or touch the gate or gate operator at the same time.

Be sure that the device is installed so that it is not directly in the traffic lane. Goose neck mounting post and kiosks work well for these type devices. When planning where to locate the device, take into consideration traffic lane layouts, turn around lanes for rejected access, conduit runs, power availability, etc.

Environmental factors must also be taken into account. Surface mount units are designed for direct outdoor installations, however it is preferable to protect them from direct exposure to driven rain or snow whenever possible. Flush mount units must be protected from direct exposure to the elements.

This entry device contains a number of static sensitive components that can be damaged or destroyed by static discharges during installation or use. Discharge any static prior to removing the circuit board from the lobby panel by touching a proper ground device.

Instruct the end user to read and follow these instructions. Instruct the end user to never let children play with or operate any access control device. This Owner's Manual is the property of the end user and must be left with them when installation is complete.
Important Notices

- Prior to starting the installation, become familiar with the instructions, illustrations and wiring diagrams in this manual.
- Never mount this device to a moving gate or gate panel, or next to a gate that causes vibration to the fence, such as a spring-loaded pedestrian gate. Continuous vibration from moving or slamming gates can cause damage to the system over time.
- If this system is used to activate an automatic vehicular gate operator, it must be mounted in such a way that the user cannot come into contact with the gate or the gate operator when the device is used. We recommend that the unit be installed a minimum of 6 feet away from the gate and gate operator.
- Always disconnect power when performing service on the system.
- If the unit is mounted outdoors, be sure that the wiring to the unit is designed for direct underground burial, even if the wire is run inside a conduit.
- Surge suppression is recommended on the low voltage input power line.
- Instruct the end user on the safe and proper operation of this device.
- Instruct the end user to read and follow these instructions. Instruct the end user to never let children play with or operate any access control device. This Owner’s Manual is the property of the end user and must be left with them when installation is complete.

SECTION 1 - INSTALLATION

| Destructive Attack: | Level I |
| Line Security:     | Level I |
| Endurance:         | Level IV |
| Standby Power:     | Level I |

Do not mount the 1504/1506 keypad to a moving gate, or immediately next to a gate panel or pedestrian gate. Continuous vibration from slamming gates and vibration can cause damage to the system over time.

**WARNING** If the keypad is used to activate a vehicular gate operator, it must be mounted a minimum of 6 feet away from the gate and gate operator, or in such a way that the user cannot come into contact with the gate or gate operator while using the device.

1.1 Remove Faceplate from Cabinet

1. Open housing with key (surface or flush mount). 2. Remove locknuts from hinge on faceplate to remove faceplate.

Discharge any static BEFORE removing the faceplate by touching a proper ground device.

Store faceplate in a safe place during installation.
1.2 Surface Mount

Mount on a Post
Use existing 4 holes in surface mount cabinet box to bolt on a DoorKing mounting post. Use the hardware that is supplied with the mounting post.

Note: A gooseneck mounting post anchored in concrete does not make a good ground.

Run ALL wires that will be needed during the cabinet installation and connect to 14-pin terminal. See Section 1.4 Terminal Wiring.

Surface mount cabinet can be mounted directly to a wall or pilaster. They can be post mounted using a DoorKing mounting post (there are several different styles available). Be sure keypad is securely mounted and is not subject to continuous vibration from closing doors or gates.

1.3 Flush Mount

Mount in a Pilaster, Wall or Kiosk
Bolt flush box into the rough-in box with 4 supplied bolts.

Mount rough-in box into the pilaster, wall or kiosk. Run conduit inside wall into bottom of rough-in box if desired. Use appropriate hardware (Not supplied) to secure the rough-in box in place.

IMPORTANT: Be sure to clean out the cabinet of any debris that can cause a short. All necessary wiring should be connected to the 14-pin terminal. See Section 1.4 Terminal Wiring.

IMPORTANT: Be sure to clean out the cabinet of any debris that can cause a short. All necessary wiring should be connected to the 14-pin terminal. See Section 1.4 Terminal Wiring.
1.4 Terminal Wiring

Attach a separate 12 AWG wire to GND (earth ground). Attach the other end of this wire to a good earth ground. This can be a properly grounded metal conduit, a cold water pipe, or a grounding rod driven at least 10 feet into the soil. A gooseneck post anchored or mounted on concrete does not make a good ground. Avoid any splices in wiring. If a splice is made, it must be soldered and sealed in a watertight junction box.

Keypad MUST be Properly Grounded!

Note: A low voltage power surge suppressor (P/N 1878-010) is recommended.

Power Input

<table>
<thead>
<tr>
<th>Wire Size</th>
<th>MAX Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 AWG</td>
<td>100 Ft.</td>
</tr>
<tr>
<td>16 AWG</td>
<td>200 Ft.</td>
</tr>
</tbody>
</table>

Keep power wiring as short as possible.

Note: 12-24 VDC may also be used to power the 1504/1506.

Supplied Power Transformer

16.5 VAC
20 VA

Relay 1 and Relay 2 Input Options

- Current Draw with 16 Volt AC Input: 100mA at rest; 275mA with relay activated.
- Current Draw with 12 Volt DC Input: 30mA at rest; 145mA with relay activated.
- Current Draw with 24 Volt DC Input: 50mA at rest; 165mA with relay activated.

External Time Clock

Time ZONE 1

External Time Clock

Time ZONE 2

Request to Exit

1 - REQUEST TO EXIT – A switch closure to TERMINAL 12 will activate RELAY 1 for its programmed strike time.

2 - DOOR OPEN – A switch closure to TERMINAL 12 will cause the relay that is activated to deactivate 1 second after this input is activated. Can also be used for alarm bypass.

3 - A switch closure to TERMINAL 11 will lock out all entry codes within the TIME ZONE 1 lower and upper boundary.

4 - A switch closure to TERMINAL 11 will lock out all entry codes within the TIME ZONE 2 lower and upper boundary.

Door Contact Switch

PUSH TO EXIT

Note: 12-24 VDC may also be used to power the 1504/1506.

Relay contacts are rated for 30 Volt, 1 amp maximum power.
These wire diagrams are provided for convenience only. For detailed wiring information on Aiphone products, visit their website at [www.aiphone.com](http://www.aiphone.com).

### 1.5 1504 Aiphone Intercom Station Connections

#### 1504

**Intercom Station**

**AIPhone LEF Series**

- **Push to Call Button**
- **Speaker**
- **Capacitor:** 47uF

**Intercom Station**

**AIPhone LEM Series**

- **Push to Call Button**
- **Speaker**
- **Capacitor:** 47uF

**Hands-Free Selective Call Systems**

These series of systems are purchased separately.
### 1.6 Secondary Keypad Wiring

**1504/1506 Keypad Entry Device**

**Secondary Lighted Keypad**

- **P/N 1506-081 Surface Mount (Sold Separately)**
- **P/N 1506-091 Flush Mount (Sold Separately)**

**Note:** The secondary keypad has **NO** relays! Valid entry codes entered on the secondary keypad will activate the relays in the 1504/1506 keypad.

**1599 Secondary Keypad Board**

- P/N 1506-08
- P/N 1506-091 Flush Mount (Sold Separately)

**Secondary Keypad Installation Note:**

**DO NOT** mount the secondary keypad to a moving gate, or immediately next to a gate panel or pedestrian gate. Continuous vibration from slamming gates and vibration can cause damage to the system over time.

**WARNING!** If the secondary keypad is used to activate a vehicular gate operator, it must be mounted a minimum of 6 feet away from the gate and gate operator, or in such a way that the user cannot come into contact with the gate or gate operator while using the device.

**1.6 Secondary Keypad Wiring**

**1504/1506 Keypad Entry Device**

**Secondary Lighted Keypad**

- **P/N 1506-081 Surface Mount (Sold Separately)**
- **P/N 1506-091 Flush Mount (Sold Separately)**

**Note:** The secondary keypad has **NO** relays! Valid entry codes entered on the secondary keypad will activate the relays in the 1504/1506 keypad.

**1599 Secondary Keypad Board**

- P/N 1506-08
- P/N 1506-091 Flush Mount (Sold Separately)

**Secondary Keypad Installation Note:**

**DO NOT** mount the secondary keypad to a moving gate, or immediately next to a gate panel or pedestrian gate. Continuous vibration from slamming gates and vibration can cause damage to the system over time.

**WARNING!** If the secondary keypad is used to activate a vehicular gate operator, it must be mounted a minimum of 6 feet away from the gate and gate operator, or in such a way that the user cannot come into contact with the gate or gate operator while using the device.

**1599 Secondary Keypad Board**

- P/N 1506-08
- P/N 1506-091 Flush Mount (Sold Separately)

**Secondary Keypad Installation Note:**

**DO NOT** mount the secondary keypad to a moving gate, or immediately next to a gate panel or pedestrian gate. Continuous vibration from slamming gates and vibration can cause damage to the system over time.

**WARNING!** If the secondary keypad is used to activate a vehicular gate operator, it must be mounted a minimum of 6 feet away from the gate and gate operator, or in such a way that the user cannot come into contact with the gate or gate operator while using the device.

**1599 Secondary Keypad Board**

- P/N 1506-08
- P/N 1506-091 Flush Mount (Sold Separately)

**Secondary Keypad Installation Note:**

**DO NOT** mount the secondary keypad to a moving gate, or immediately next to a gate panel or pedestrian gate. Continuous vibration from slamming gates and vibration can cause damage to the system over time.

**WARNING!** If the secondary keypad is used to activate a vehicular gate operator, it must be mounted a minimum of 6 feet away from the gate and gate operator, or in such a way that the user cannot come into contact with the gate or gate operator while using the device.

**1599 Secondary Keypad Board**

- P/N 1506-08
- P/N 1506-091 Flush Mount (Sold Separately)

**Secondary Keypad Installation Note:**

**DO NOT** mount the secondary keypad to a moving gate, or immediately next to a gate panel or pedestrian gate. Continuous vibration from slamming gates and vibration can cause damage to the system over time.

**WARNING!** If the secondary keypad is used to activate a vehicular gate operator, it must be mounted a minimum of 6 feet away from the gate and gate operator, or in such a way that the user cannot come into contact with the gate or gate operator while using the device.
SECTION 2 - PROGRAMMING

Before You Start Programming: IMPORTANT! Make sure the 1504/1506 has power and we suggest that you become familiar with programming instructions before beginning any programming.
Keep a record of the programmed codes by completing the tables on pages 18 and 19.

2.1 Re-Programming the Master Code

The Master Code has been pre-programmed at the factory to 9999. This programming sequence reprograms the MASTER CODE if desired. The master code is the four-digit number required to gain access to the system memory. You MUST know the master code before programming ANY features.

Important Note: After re-programming the master code, write it down and keep it in a safe place. There is no way of retrieving the master code after it has been programmed in. If you forget it, you will have to program in a new one but all other previously programmed information will remain intact.

**Step 1.** Open the cabinet and locate the Master Code switch on the circuit board. Turn switch ON.

Note: After you turn ON the master code switch, the system will sound a short tone after 30 seconds if the master code is not entered. This tone will continue every 30 seconds until a new master code is entered, or until the switch is turned off.

**Step 2.** Enter a four-digit master code using the keypad, then press “*” (A short beep will be heard). Any four numbers.


Same keystrokes as written in this manual: [ _ _ _ _ * (beep)]

**Step 3.** Turn OFF the Master Code switch and close cabinet. Write down master code and keep it in a secure place.

2.2 Relay Strike Time

The relay strike time sets the amount of time that the relay(s) will be activated when a valid entry code is entered on the keypad. The unit has two relays, both of which can be programmed with individual strike times. Setting the strike time to “00” will activate the relay for ½ second. It can be set to a max of 99 seconds. Two digits MUST be entered in the fields.

Factory setting is 01 (1 Second).

1. Press [ * ] 0 3 and enter the MASTER CODE. [ * 0 3 _ _ _ _ (beep)]
2. Enter the two-digit strike time for Relay 1 (00-99), then press [ * ]. [ _ _ * (beep)]
3. Enter the two-digit strike time for Relay 2 (00-99), then press [ * ]. [ _ _ * (beep)]
4. Press 0 # TOGETHER to end. [0 # (beeeeeeep)]

2.3 X Strikes for Invalid Entry Code Attempts

This keypad has a 3-minute lockout feature that is activated when “X” number of INVALID entry codes are entered on the keypad. The “X” strikes can be programmed from 1 to 9 invalid attempts before the lockout feature is activated.

Factory setting is 3 (3 Attempts).

1. Press [ * ] 0 4 and enter the MASTER CODE. [ * 0 4 _ _ _ _ (beep)]
2. Enter the single-digit invalid attempts before the lockout feature is activated (1-9), then press [ * ]. [ _ * (beep)]
3. Press 0 # TOGETHER to end. [0 # (beeeeeeep)]
2.4 Programming Four-digit Entry Codes

Four-digit entry codes are entered on the Keypad preceded by “ # ” to allow the RESIDENT ACCESS. DO NOT confuse a FOUR-digit ENTRY code with a FIVE-digit ENTRY code (see section 2.8).

1. Press * 0 2 and enter the MASTER CODE. [★ 0 2 _ _ _ _ (beep)]
2. Choose and enter a four-digit entry code, then press *. [ _ _ _ _ *(beep)]
3. Repeat step 2 to enter additional four-digit entry codes one at a time.
4. Press 0 # TOGETHER to end. [0 # (beeeeeep)]

2.5 Erase a Four-digit Entry Code

**CAUTION:** This programming sequence will delete an INDIVIDUAL four-digit entry code that has been previously programmed in. This cannot be UNDONE.

1. Press * 0 8 and enter the MASTER CODE. [★ 0 8 _ _ _ _ (beep)]
2. Enter an existing four-digit entry code to be erased, then press *. [ _ _ _ _ *(beep)]
3. Repeat step 2 to erase additional existing four-digit entry codes one at a time.
4. Press 0 # TOGETHER to end. [0 # (beeeeeep)]

2.6 Erase ALL Four-digit Entry Codes

**CAUTION:** This programming sequence will delete ALL four-digit entry codes that have been previously programmed in. This cannot be UNDONE.

1. Press * 0 0 and enter the MASTER CODE. [★ 0 0 _ _ _ _ (beep)]
2. Enter 9 9 9 9, then press *. [ 9 9 9 9 *(beep)]
3. A long beep after approximately 10 seconds indicates that all four-digit entry codes are deleted and programming ends.

2.7 Four-digit Entry Code Divide Number

The four-digit entry codes can be made to activate either Relay 1 or Relay 2 by programming a four-digit “divide” number. Four-digit entry codes EQUAL TO or LESS THAN the divide number will activate Relay 1, while four-digit entry codes GREATER THAN the divide number will activate Relay 2. If NO divide number is programmed (enter # # # # in step 2), then Relay 2 acts as an alarm by-pass relay, activating .1 second PRIOR to Relay 1, and deactivating .1 second AFTER Relay 1.

**Important:** Both four-digit and five-digit entry codes must be programmed to operate in the same mode. If a divide number is programmed for the four-digit codes, then a divide number MUST also be programmed for the five-digit entry codes (see section 2.11).

Factory setting is NO divide numbers programmed (# # # #).

1. Press * 1 2 and enter the MASTER CODE. [★ 1 2 _ _ _ _ (beep)]
2. Choose and enter a four-digit divide number, then press *. [ _ _ _ _ *(beep)]
3. Press 0 # TOGETHER to end. [0 # (beeeeeeep)]

**Note:** To delete an existing four-digit entry code divide number, enter # # # # in step 2. This will cause relay 2 to act as an alarm by-pass relay provided that the existing five-digit divide number has also been deleted (see section 2.11).
2.8 Programming Five-digit Entry Codes

Five-digit entry codes are entered on the Keypad. **DO NOT** press # first when using five-digit entry codes. When the door input is activated by the five-digit entry code, the relay will deactivate **one second** after this input is activated, regardless of the programmed **strike time**. Five-digit entry codes are **NOT** affected by the **time zone** inputs or **hold boundaries**. **ONLY SIX (6) five-digit entry codes can be programmed.**

1. Press * 0 9 and enter the MASTER CODE. [**0 9 _ _ _ _ (beep)**]
2. Choose and enter a five-digit entry code, then press *. [ _ _ _ _ _ *(beep)]
3. Repeat step 2 to enter up to 5 additional five-digit entry codes one at a time.
4. Press 0 # TOGETHER to end. [0 # **(beeeeeeep)**]

2.9 Erase a Five-digit Entry Code

**CAUTION:** This programming sequence will delete an **INDIVIDUAL** five-digit entry code that has been **previously** programmed in. This cannot be **UNDONE**.

1. Press * 1 0 and enter the MASTER CODE. [**1 0 _ _ _ _ (beep)**]
2. Enter an existing five-digit entry code to be erased, then press *. [ _ _ _ _ _ *(beep)]
3. Repeat step 2 to erase additional existing five-digit entry codes one at a time.
4. Press 0 # TOGETHER to end. [0 # **(beeeeeeep)**]

2.10 Erase ALL Five-digit Entry Codes

**CAUTION:** This programming sequence will delete **ALL** five-digit entry codes that have been **previously** programmed in. This cannot be **UNDONE**.

1. Press * 1 1 and enter the MASTER CODE. [**1 1 _ _ _ _ (beep)**]
2. Enter 9 9 9 9, then press *. [ 9 9 9 9 *(beep)]
3. A long beep after approximately 10 seconds indicates that all five-digit entry codes are deleted and programming ends.

2.11 Five-digit Entry Code Divide Number

The **five-digit entry codes** can be made to activate either **Relay 1** or **Relay 2** by programming a five-digit “divide” number. Five-digit entry codes **EQUAL TO** or **LESS THAN** the divide number will activate **Relay 1**, while five-digit entry codes **GREATER THAN** the divide number will activate **Relay 2**. If NO divide number is programmed (enter # # # # # in step 2), then **Relay 2** acts as an alarm by-pass relay, activating .1 second **PRIOR** to **Relay 1**, and deactivating .1 second **AFTER** **Relay 1**.

**Important:** Both five-digit and four-digit entry codes must be programmed to operate in the **same mode**. If a divide number is programmed for the five-digit codes, then a divide number **MUST** also be programmed for the four-digit entry codes (see section 2.7).

Factory setting is **NO divide numbers programmed (# # # # #)**.

1. Press * 1 3 and enter the MASTER CODE. [**1 3 _ _ _ _ (beep)**]
2. Choose and enter a five-digit divide number, then press *. [ _ _ _ _ _ *(beep)]
3. Press 0 # TOGETHER to end. [0 # **(beeeeeeep)**]

**Note:** To delete an existing five-digit entry code divide number, enter # # # # # in step 2. This will cause relay 2 to act as an alarm by-pass relay provided that the existing four-digit divide number has also been deleted (see section 2.7).
2.12 Hold Boundary Programming

The entry system hold boundaries establish a set of four-digit entry codes that will latch Relay 1 ON, Relay 2 ON, or BOTH Relay 1 and Relay 2 ON (depending on the divide number programmed and the hold boundaries that have been programmed) indefinitely. To un-latch the relay(s), a four-digit entry code within the hold boundary is entered on the keypad.

Factory setting is NO hold boundary programmed (# # # #).

Note: Hold boundaries can only be established for the four-digit entry codes. Five-digit entry codes have no hold boundaries.

1. Press * 0 7 and enter the MASTER CODE. [* 0 7 _ _ _ _ (beep)]
2. Choose and enter a four-digit code for the LOWER hold boundary, then press *. [ _ _ _ _ *(beep)]
3. Choose and enter a four-digit code for the UPPER hold boundary, then press *. [ _ _ _ _ *(beep)]
4. Press 0 # TOGETHER to end. [0 # (beeeeeep)]

Note: To delete existing hold boundaries, enter # # # # in steps 2 and 3.

Note: See section 3.5 for examples.

2.13 Time ZONE 1 Boundary Programming

Programming the LOWER and UPPER boundaries for time ZONE 1 establishes a set of four-digit entry codes that will be denied access if the time zone 1 input (terminal 4) is activated. Note: This time zone does not affect the five-digit entry codes.

Factory setting is NO zone 1 boundary programmed (# # # #).

1. Press * 0 5 and enter the MASTER CODE. [* 0 5 _ _ _ _ (beep)]
2. Choose and enter a four-digit code for the LOWER boundary, then press *. [ _ _ _ _ *(beep)]
3. Choose and enter a four-digit code for the UPPER boundary, then press *. [ _ _ _ _ *(beep)]
4. Press 0 # TOGETHER to end. [0 # (beeeeeep)]

Note: To delete existing time zone 1 boundaries, enter # # # # in steps 2 and 3.

Note: See section 3.6 for examples.

2.14 Time ZONE 2 Boundary Programming

Programming the LOWER and UPPER boundaries for time ZONE 2 establishes a set of four-digit entry codes that will be denied access if the time zone 2 input (terminal 3) is activated. Note: This time zone does not affect the five-digit entry codes.

Factory setting is NO zone 2 boundary programmed (# # # #).

1. Press * 0 6 and enter the MASTER CODE. [* 0 6 _ _ _ _ (beep)]
2. Choose and enter a four-digit code for the LOWER boundary, then press *. [ _ _ _ _ *(beep)]
3. Choose and enter a four-digit code for the UPPER boundary, then press *. [ _ _ _ _ *(beep)]
4. Press 0 # TOGETHER to end. [0 # (beeeeeep)]

Note: To delete existing time zone 2 boundaries, enter # # # # in steps 2 and 3.

Note: See section 3.6 for examples.
SECTION 3 - OPERATING INSTRUCTIONS

3.1 Four-digit Entry Codes

To use a four-digit entry code, the # key MUST first be pressed then the four-digit code entered on the keypad. Four-digit entry codes can be programmed to operate either Relay 1 or Relay 2. When a four-digit code is entered on the keypad (preceded by #), the system checks its memory to see if the code is stored. If the four-digit entry code is not stored in the system memory, the relay(s) will not activate. If the four-digit code is stored, the system will then check to see if any of the time zone inputs are activated. If the four-digit code is within the boundaries of the time zone that is activated. If the four-digit code falls within one or both of the time zone boundaries, the relay will not activate. If the time zones are not activated, or if the four-digit code is outside of the activated time zone(s), then the system will check the four-digit divide number. If the entered code is equal to or less than the divide number, relay 1 will activate for its programmed strike time. If the entered code is greater than the divide number, relay 2 will activate for its programmed strike time. If the door input is activated, the relay will deactivate one second after this input is activated, regardless of the programmed strike time. If no divide number is programmed, relay 2 will activate .1 second prior to relay 1 activation. Relay 1 will then activate for its programmed strike time. Relay 2 will deactivate .1 second after relay 1 deactivates. If the door input (terminal 2) is activated, relay 1 will deactivate one second after this input is activated, regardless of the relay strike time remaining. Relay 2 will stay activated for the duration of the relay 1 strike time program.

3.2 Five-digit Entry Codes

To use a five-digit entry code, enter the five-digit code on the system keypad. DO NOT press # first when using five-digit entry codes. Five-digit entry codes can be programmed to operate either Relay 1 or Relay 2. When a five-digit code is entered on the keypad, the system checks its memory to see if the code is stored. If the five-digit entry code is not stored in the system memory, the relay(s) will not activate. If the five-digit entry code is not stored in the system memory, the relay(s) will not activate. If the entered code is greater than the divide number, relay 1 will activate for its programmed strike time. If the entered code is less than or equal to the divide number, relay 2 will activate for its programmed strike time. If the door input is activated, the relay will deactivate one second after this input is activated, regardless of the programmed strike time. If the entered code is greater than the divide number, relay 2 will activate for its programmed strike time. If the door input is activated, the relay will deactivate one second after this input is activated, regardless of the programmed strike time. Five-digit entry codes are not affected by the time zone inputs or hold boundaries.

3.3 Request to Exit Input (Terminals 1 and 12)

A switch closure across terminals 1 and 12 will cause relay 1 to activate for its programmed strike time. This input is not affected by the time zone inputs.

3.4 Door Open Input (Terminals 2 and 12)

A switch closure across terminals 2 and 12 will cause the relay that is activated to deactivate one second after this input is activated. A useful application of this input would be to wire it to a normally closed door-switch that is held open when the door is closed. When the door is opened, the switch will close, cutting off the door strike one second later. This will stop a door strike from buzzing for prolonged periods of time if the relay strike time is set high. For example, if the relay strike time was set for 10 seconds and the door was opened after 2 seconds, the door switch input will stop the strike from buzzing after three seconds, even though the strike time was set to 10 seconds. If no entry code divide number is programmed, and the second relay is being used as an alarm bypass relay, the door input switch does not prematurely deactivate the second relay. For example, if the strike time for relay 1 is set to 10 seconds, relay 2 will activate .1 seconds prior to relay 1. If the door input deactivates relay 1 after three seconds, relay 2 will remain activated for the full strike time.
3.5 Hold Feature Operation

The relay hold feature allows a set of four-digit entry codes to latch (or hold) a relay indefinitely. Any four-digit entry code that falls numerically within the hold boundaries will cause relay 1 to activate indefinitely if no four-digit divide number is programmed.

If a four-digit divide number is programmed, and the divide number is less than the lower hold boundary, then the four-digit codes within the hold boundary will activate relay 2.

If a four-digit divide number is programmed, and the divide number is greater than the upper hold boundary, then the four-digit codes within the hold boundary will activate relay 1.

If a four-digit divide number is programmed, and it falls between the hold boundaries, then four-digit entry codes equal to or less than the divide number, but greater than the lower hold boundary, will activate relay 1 indefinitely. Four-digit entry codes that are greater than the divide number, but less than the upper hold boundary, will activate relay 2 indefinitely. To deactivate a relay that is latched, simply re-enter the number that was used to activate the relay. See sample charts below.

Five-digit entry codes are NOT affected by hold boundaries.

**Example 1**

<table>
<thead>
<tr>
<th>Relay 1</th>
<th>Relay 2</th>
</tr>
</thead>
</table>

**Example 2**

<table>
<thead>
<tr>
<th>Relay 1</th>
<th>Relay 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relay 1 momentarily activates with entry code 2009 or lower.</td>
<td>Relay 1 latches when entry codes 2010 thru 2015 are entered on the keypad.</td>
</tr>
<tr>
<td>Relay 1 latches when entry codes 2010 thru 2015 are entered on the keypad.</td>
<td>Relay 1 momentarily activates with entry codes 2016 thru 2025.</td>
</tr>
<tr>
<td>Relay 2 momentarily activates with entry code 2026 or higher.</td>
<td></td>
</tr>
</tbody>
</table>

**Example 3**

<table>
<thead>
<tr>
<th>Relay 1</th>
<th>Relay 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relay 1 momentarily activates with entry code 2009 or lower.</td>
<td>Relay 1 latches when entry codes 2010 thru 2012 are entered on the keypad.</td>
</tr>
<tr>
<td>Relay 1 latches when entry codes 2010 thru 2015 are entered on the keypad.</td>
<td>Relay 2 latches when entry codes 2013 thru 2015 are entered on keypad.</td>
</tr>
<tr>
<td>Relay 2 momentarily activates with entry code 2016 and higher.</td>
<td>Relay 2 momentarily activates with entry code 2016 and higher.</td>
</tr>
</tbody>
</table>
### 3.6 Time Zone Operation

The entry system has **two** time zone inputs. By using an external timer or switch, access can be denied to a group of **four-digit entry codes** during desired lockout times.

Four-digit entry codes that fall numerically within a time zone boundary will cause a check of the time zone input when the code is entered.

If time zone 1 is activated (switch closure across terminals 3 and 11), four-digit entry codes that are within the time zone 1 boundaries will be denied access.

If time zone 2 is activated (switch closure across terminals 4 and 11), four-digit entry codes that are within time zone 2 boundaries will be denied access.

Time zone boundaries may overlap each other.

**Five-digit entry codes** are **NOT** time zone restricted.

---

#### Example 1

<table>
<thead>
<tr>
<th>Time Zone 1</th>
<th>Time Zone 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Entry codes</strong>&lt;br&gt;1999 and lower are not time zone restricted.</td>
<td>Entry codes <strong>5001</strong> and <strong>higher</strong> are not time zone restricted.</td>
</tr>
<tr>
<td><strong>Time ZONE 1</strong>&lt;br&gt;Lower Boundary: 2000</td>
<td><strong>Time ZONE 2</strong>&lt;br&gt;Upper Boundary: 5000</td>
</tr>
<tr>
<td>Entry codes 2000 thru 3000 are restricted by Time ZONE 1.</td>
<td>Entry codes <strong>4000</strong> thru <strong>5000</strong> are restricted by Time ZONE 2.</td>
</tr>
<tr>
<td><strong>Time ZONE 1</strong>&lt;br&gt;Upper Boundary: 3000</td>
<td><strong>Time ZONE 2</strong>&lt;br&gt;Lower Boundary: 4000</td>
</tr>
<tr>
<td>Entry codes 3001 thru 3999 are not time zone restricted.</td>
<td>Entry codes <strong>4000</strong> thru <strong>5000</strong> are restricted by Time ZONE 2.</td>
</tr>
<tr>
<td><strong>Time ZONE 2</strong>&lt;br&gt;Upper Boundary: 5000</td>
<td><strong>Time ZONE 2</strong>&lt;br&gt;Lower Boundary: 4000</td>
</tr>
<tr>
<td>Entry codes <strong>3501</strong> and <strong>higher</strong> are not time zone restricted.</td>
<td>Entry codes <strong>4000</strong> thru <strong>5000</strong> are restricted by Time ZONE 2.</td>
</tr>
</tbody>
</table>

---

#### Example 2

<table>
<thead>
<tr>
<th>Time Zone 1</th>
<th>Time Zone 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Entry codes</strong>&lt;br&gt;1999 and lower are not time zone restricted.</td>
<td>Entry codes <strong>5001</strong> and <strong>higher</strong> are not time zone restricted.</td>
</tr>
<tr>
<td><strong>Time ZONE 1</strong>&lt;br&gt;Lower Boundary: 2000</td>
<td><strong>Time ZONE 2</strong>&lt;br&gt;Upper Boundary: 3500</td>
</tr>
<tr>
<td>Entry codes 2000 thru 2499 are restricted by Time ZONE 1 only.</td>
<td>Entry codes <strong>3501</strong> and <strong>higher</strong> are not time zone restricted.</td>
</tr>
<tr>
<td><strong>Time ZONE 1</strong>&lt;br&gt;Upper Boundary: 2500</td>
<td><strong>Time ZONE 2</strong>&lt;br&gt;Lower Boundary: 3500</td>
</tr>
<tr>
<td>Entry codes 2500 thru 2999 are restricted by Time ZONE 1 and Time ZONE 2.</td>
<td>Entry codes <strong>3501</strong> and <strong>higher</strong> are not time zone restricted.</td>
</tr>
<tr>
<td><strong>Time ZONE 1</strong>&lt;br&gt;Upper Boundary: 3000</td>
<td><strong>Time ZONE 2</strong>&lt;br&gt;Lower Boundary: 3500</td>
</tr>
<tr>
<td>Entry codes 3000 thru 3500 are restricted by Time ZONE 2 only.</td>
<td>Entry codes <strong>3501</strong> and <strong>higher</strong> are not time zone restricted.</td>
</tr>
</tbody>
</table>
### SECTION 4 - MAINTENANCE

#### 4.1 Troubleshooting

- Have a good VOM meter to use when checking voltages and continuity.
- Check power wiring wire size and distance. Improper wire size and too long wire run distances can cause problems.
- Check the power transformer.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Solution(s)</th>
</tr>
</thead>
</table>
| Cannot get into programming mode. | • Wrong master code entered. Start over.  
• Waiting too long between pushing buttons. Enter information quicker.  
• Keypad may not be plugged in correctly. Unplug and reconnect. |
| Keypad emits a long tone and cancels programming. | • Waiting too long between pushing buttons while programming.  
• Forgetting to press * first when programming.  
• Memory is filled. Delete some entry codes or erase entire memory.  
• Check for power at terminals 13 and 14.  
• Keypad may not be plugged in correctly. Unplug and reconnect.  
• X strikes feature may be activated. Wait 3 minutes and try again. (Section 2.3) |
| System is dead. | |
| Four-digit entry codes will not activate relay 1. | • Be sure entry code is programmed into the keypad.  
• Press # first, then enter four-digit number.  
• Code may be time zone restricted. Reprogram time zone or disable time zone input. (Sec 2.13/2.14)  
• Be sure entry code is less than divide number or reprogram divide number. (Section 2.7) |
| Four-digit entry codes will not activate relay 2. | • Be sure entry code is programmed into the keypad.  
• Press # first, then enter four-digit number.  
• Code may be time zone restricted. Reprogram time zone or disable time zone input. (Sec 2.13/2.14)  
• Be sure entry code is greater than divide number or reprogram divide number. (Section 2.7) |
| Five-digit entry codes will not activate relay 1. | • Be sure entry code is programmed into the keypad.  
• Enter five-digit code directly on keypad. **DO NOT** press # first.  
• Be sure entry code is less than divide number or reprogram divide number. (Section 2.11) |
| Five-digit entry codes will not activate relay 2. | • Be sure entry code is programmed into the keypad.  
• Enter five-digit code directly on keypad. **DO NOT** press # first.  
• Be sure entry code is less than divide number or reprogram divide number. (Section 2.11) |
| Relay(s) lock on for long periods of time. | • Excessive voltage-drop on power wires. Check transformer and wire size.  
• Transformer has too low VA rating.  
• Relay hold feature may be activated. Reprogram hold boundaries. (Section 2.12)  
• Relay strike time may be programmed too long. Reprogram. (Section 2.2) |
| Request to exit input will not operate relay. | • Check wiring connected to terminals 1 and 12. |
## 4.2 Log Tables

Use the tables below to record data entered into the keypad system.

### Master Code (section 2.1)  Factory - 9999

<table>
<thead>
<tr>
<th>1st Digit</th>
<th>2nd Digit</th>
<th>3rd Digit</th>
<th>4th Digit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Relay Strike Time (section 2.2)

<table>
<thead>
<tr>
<th>Relay 1</th>
<th>Relay 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factory - 1 sec.</td>
<td>Factory - 1 sec.</td>
</tr>
</tbody>
</table>

### Four-digit Hold Boundaries (section 2.12)

<table>
<thead>
<tr>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Four-digit Entry Code Divide Number (section 2.7)

<table>
<thead>
<tr>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Five-digit Entry Code Divide Number (section 2.11)

<table>
<thead>
<tr>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Time ZONE 1 Boundaries (section 2.13)

<table>
<thead>
<tr>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Time ZONE 2 Boundaries (section 2.14)

<table>
<thead>
<tr>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Five-digit Entry Codes (section 2.8)

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
</table>
## Resident Four-Digit Entry Codes

Make additional copies of this table as needed.

<table>
<thead>
<tr>
<th>NAME</th>
<th>Four-Digit Entry Code</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Use this manual for circuit board 1506-010 Revision G or higher.

Control a main entry point plus an additional entry point.