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Section 1: Introduction

The following section contains a brief product description, an overview of product features, product specifications, LED and a list of sounder and LED indicators and a list of default keypad settings.

1.1 Product Description

The 2000 Series combines all of our functionality groups into one powerful platform. The 2000 Series access control keypads manage up to 500 users and provide complete access control functionality including monitoring door position; controlling locking hardware; triggering a propped or forced door alert or alarm shunt output. The 2000 Series outputs can be expanded using the Output Expansion Module [p/n 2000-8EX] that provides 8 additional Form C outputs for a system total of 10 Form C outputs. Some applications for the 2000 Series keypads include; operating as keypad front ends for access system, controlling many other electronic devices such as handicapped doors, gate controls, alarm systems, ATM vestibules, and other types of machinery requiring momentary or latched outputs. In addition to the Stand Alone operation, you can select between two additional modes of operation with the 2000 Series keypads, including Secured Series Front End Mode for use as a keypad front ends to IEI Secured Series Access Control Systems and Wiegand Front End Mode which is compatible with most Wiegand Access Control Systems.

1.2 Features

- 500 users
- Uniform IEI programming & wiring
- Door position input
- Request to Exit input
- 2 form C SPDT relay outputs – default for access control function
- Output Expansion Module (2000-8EX) – 8 additional outputs for elevator and other applications
- Sounder for key press and alert conditions
- All outputs can be programmed independently if required
- Door Bell Feature
- Option for Secure installation with control electronics in protected area
- Widest array of user type options including single use and two man rule
- 10-30 VDC and 12-24 VAC operation
- Over-Voltage and Under-Voltage protection for reliable operation
- UL 294 pending
- Programmable Wiegand formats
- 8-Bit burst Mode
- Works as a reader for all IEI access systems
1.3 Basic Keypad Operation

The 2000 Series e/eM Keypad has three operating modes: Standalone Mode, Secured Series Front End Mode and Wiegand Front End Mode. Below is a brief explanation of how the keypad operates in each mode.

1.3.1 Standalone Mode

By default, the keypad is programmed for Standalone Mode. In this mode, all the users and other programming options are maintained within the keypad and no additional controller is required. The lock and all other inputs and outputs are connected directly to the keypad.

To operate the keypad simply enter your code on the keypad, followed by the * key. (Note: If you enable the auto-entry feature, the * key is not required) If you've entered a valid code, the keypad then activates the lock output to open the door.

1.3.2 Secured Series Front End Mode

In Secured Series Front End Mode, an IEI Secured Series Controller is required. The IEI Secured Series Controller maintains the users and programming options and makes all the access control decisions. The locking device and all inputs and outputs are connected to the controller.

To operate the keypad simply enter your code on the keypad, followed by the * key. (Note: If you enable the auto-entry feature, the * key is not required) Once you completed entering your code, the data is sent to the IEI controller and if you've entered a valid code, the controller then activates the lock to open the door.

1.3.3 Wiegand Front End Mode

In Wiegand Front End Mode, a separate Wiegand Access Control panel is required. The control panel maintains the users and programming options and makes all the access control decisions. The locking device and all inputs and outputs are connected to the control panel.

In standard Wiegand Mode, you simply enter your code on the keypad, followed by the * key. (Note: If you enable the auto-entry feature, the * key is not required) Once you completed entering your code, the data is sent to the Wiegand control panel as Wiegand card data depending on which format you've programmed it for.

If you are using the keypad in 8-bit burst mode, each key is sent as it is pressed as an 8-bit number. Refer to the section on 8-bit burst mode for further details.
1.4 Keypad Specifications

The following table contains electrical, mechanical and environmental specifications.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage Requirements</td>
<td>10-30 VDC; 12-24VAC</td>
</tr>
<tr>
<td>Current requirements (Max)</td>
<td>VDC</td>
</tr>
<tr>
<td>10V: 82mA</td>
<td>12V: 110mA</td>
</tr>
<tr>
<td>30V: 115mA</td>
<td>24V: 140mA</td>
</tr>
<tr>
<td>Note: Does not include relay board.</td>
<td></td>
</tr>
<tr>
<td>Relay Contact Rating</td>
<td>2A @ 30VAC/DC (Main &amp; Aux)</td>
</tr>
<tr>
<td>REX Input</td>
<td>Normally Open Dry Contact</td>
</tr>
<tr>
<td>Door Position Switch Input</td>
<td>Normally Closed Dry Contact</td>
</tr>
<tr>
<td>Mechanical Dimensions</td>
<td>4.5&quot; H x 2.75&quot; W x 0.60&quot; D</td>
</tr>
<tr>
<td>Environment</td>
<td>Indoor or Outdoor</td>
</tr>
<tr>
<td>Temperature Tolerance</td>
<td>-31°F to 151°F (-35ºC to 66°C)</td>
</tr>
</tbody>
</table>

1.5 LED and Sounder Indications

The table below describes the various LED and Sounder Indications

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steady Red</td>
<td>Door Locked</td>
</tr>
<tr>
<td>Steady Green</td>
<td>Door Unlocked (timed or latched)</td>
</tr>
<tr>
<td>Yellow Flashing Slowly</td>
<td>Program Mode</td>
</tr>
<tr>
<td>Solid Yellow</td>
<td>Program Error or Error Lockout</td>
</tr>
<tr>
<td>Alternating Red/Green</td>
<td>Awaiting 2nd PIN of Two-Part User</td>
</tr>
<tr>
<td>LED's Cycling Left to Right</td>
<td>Over Voltage Warning</td>
</tr>
<tr>
<td>LED's Cycling Right to Left</td>
<td>Under Voltage Warning</td>
</tr>
<tr>
<td>3 Rapid Beeps</td>
<td>Invalid Code</td>
</tr>
<tr>
<td>Pair of Double Beeps</td>
<td>User Lockout Activated</td>
</tr>
<tr>
<td>Single Double Beep</td>
<td>User Lockout Canceled</td>
</tr>
<tr>
<td>1 Long Beep, 1 Short Beep</td>
<td>Access Denied, User Disabled</td>
</tr>
<tr>
<td>1 Long Beep, 3 Short Beeps</td>
<td>Access Denied, User Lockout</td>
</tr>
<tr>
<td>1 Long Beep, 5 Short Beeps</td>
<td>Access Denied, Code Mismatch</td>
</tr>
<tr>
<td>6 Quick Beeps</td>
<td>Toggle Mode Activated</td>
</tr>
<tr>
<td>Sounder ¼ sec on, ¼ sec off</td>
<td>Audio Alert 1</td>
</tr>
<tr>
<td>Beep Every 2 seconds</td>
<td>Audio Alert 2</td>
</tr>
</tbody>
</table>
## 1.6 Keypad Default Settings

<table>
<thead>
<tr>
<th>Option</th>
<th>Default Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master Code</td>
<td>1234</td>
</tr>
<tr>
<td>Main Relay Function</td>
<td>Lock Output</td>
</tr>
<tr>
<td>Auxiliary Relay Function</td>
<td>Alarm Shunt Output</td>
</tr>
<tr>
<td>Audio Alert #1 Function</td>
<td>Forced Door Output</td>
</tr>
<tr>
<td>Audio Alert #2 Function</td>
<td>Propped Door Output</td>
</tr>
<tr>
<td>REX Output</td>
<td>Lock Output</td>
</tr>
<tr>
<td>Lock Output Time</td>
<td>5 Seconds</td>
</tr>
<tr>
<td>Forced Door Output Time</td>
<td>10 Seconds</td>
</tr>
<tr>
<td>Propped Door Output Time</td>
<td>30 Seconds</td>
</tr>
<tr>
<td>OUT2-10 Output Time</td>
<td>5 Seconds</td>
</tr>
<tr>
<td>Duress Output Duration</td>
<td>5 Seconds</td>
</tr>
<tr>
<td>Panic Output Duration</td>
<td>5 Seconds</td>
</tr>
<tr>
<td>Error Lockout Threshold</td>
<td>3 Attempts</td>
</tr>
<tr>
<td>Error Lockout Duration</td>
<td>10 Seconds</td>
</tr>
<tr>
<td>Audio Keypress Feedback</td>
<td>Enabled</td>
</tr>
<tr>
<td>Visual Keypress Feedback</td>
<td>Enabled</td>
</tr>
<tr>
<td>Auto-Entry</td>
<td>Disabled</td>
</tr>
<tr>
<td>Auto-Entry Count</td>
<td>4 Digits</td>
</tr>
<tr>
<td>Error Lockout</td>
<td>Enabled</td>
</tr>
<tr>
<td>User Lockout</td>
<td>Enabled</td>
</tr>
<tr>
<td>Two-Part Users</td>
<td>Enabled</td>
</tr>
<tr>
<td>Keypad Backlighting</td>
<td>Enabled</td>
</tr>
<tr>
<td>Keypad Backlight Dimming</td>
<td>Enabled</td>
</tr>
<tr>
<td>REX Processing Select</td>
<td>Always Operates</td>
</tr>
<tr>
<td>Red LED Dimming</td>
<td>Always On</td>
</tr>
<tr>
<td>Secured Series IN/OUT</td>
<td>Records IN</td>
</tr>
<tr>
<td>8-Bit Burst Mode</td>
<td>Disabled</td>
</tr>
<tr>
<td>WFE Red LED Select</td>
<td>Enabled</td>
</tr>
<tr>
<td>WFE Red LED Active State</td>
<td>Low</td>
</tr>
<tr>
<td>WFE Green LED Select</td>
<td>Enabled</td>
</tr>
<tr>
<td>WFE Green LED Active State</td>
<td>High</td>
</tr>
<tr>
<td>Wiegand Format</td>
<td>26 Bit</td>
</tr>
<tr>
<td>Wiegand Pulse Width</td>
<td>160μS (micro-seconds)</td>
</tr>
<tr>
<td>Wiegand Interpulse Spacing</td>
<td>640μS (micro-seconds)</td>
</tr>
<tr>
<td>Wiegand Site ID</td>
<td>0</td>
</tr>
<tr>
<td>Wiegand Group ID</td>
<td>0</td>
</tr>
</tbody>
</table>
Section 2: Installation and Wiring

Section 2 contains information and diagrams regarding the installation and wiring of the keypad.

2.1 Mounting the Keypad

The keypad is designed to be flush mounted using a standard single-gang electrical box. Mounting height can vary depending on requirements. An appropriate range is typically between 48 and 52 inches on center off the floor, as shown in the diagram below.

For outdoor installations, use a weatherproof back box and seal the wire entry locations with silicone and provide a drain hole. In addition, use the anti-oxidant grease pack for the wire harness connectors.

![Door Mounting Height Diagram](image)

Figure 1: Door Mounting Height

IEI offers two styles of surface mount back-boxes for use with the 2000 Series e/eM keypad:

- 285 Surface Mount Back Box - Black
- 286 Surface Mount Back Box – Chrome Finish
2.2 Circuit Board Diagram/Connector Locations

The diagram below shows a diagram of the keypad circuit board when looking from the rear of the unit. It points out the locations of the Main Wire Harness Connector (P2), the Auxiliary Relay Connector (J2), the External Relay Board Connector (J3) as well as the relay locations for reference. Please refer to the subsequent sections for the wire harness configurations.

Note: J3 is for the Output Expansion Module.

Figure 2: Keypad Circuit Board Diagram
2.3 Main Keypad Wire Harness

The diagram and table below show the connections on the main keypad wire harness. This harness is connected to P2 on the keypad circuit board as shown in the diagram in section 2.2.

![Main Keypad Wire Harness Diagram]

Figure 3: Main Keypad Wire Harness

<table>
<thead>
<tr>
<th>Pin</th>
<th>Wire Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Red</td>
<td>V+ (Keypad Power)</td>
</tr>
<tr>
<td>2</td>
<td>Black</td>
<td>V- (Keypad Power)</td>
</tr>
<tr>
<td>3</td>
<td>White/Black</td>
<td>Wiegand Data 0/Secured Series Data</td>
</tr>
<tr>
<td>4</td>
<td>White/Yellow</td>
<td>Wiegand Data 1/Secured Series Data</td>
</tr>
<tr>
<td>5</td>
<td>Brown</td>
<td>Request to Exit (REX)/LED1</td>
</tr>
<tr>
<td>6</td>
<td>White/Orange</td>
<td>Loop Common</td>
</tr>
<tr>
<td>7</td>
<td>White</td>
<td>Door Position Switch Input</td>
</tr>
<tr>
<td>8</td>
<td>Green</td>
<td>Main Relay Normally Open</td>
</tr>
<tr>
<td>9</td>
<td>Blue</td>
<td>Main Relay Common</td>
</tr>
<tr>
<td>10</td>
<td>Gray</td>
<td>Main Relay Normally Closed</td>
</tr>
</tbody>
</table>

2.4 Auxiliary Relay Wire Harness

The table below shows the Auxiliary Relay Wire Harness. This harness plugs into connector J2, as shown in section 2.2.

<table>
<thead>
<tr>
<th>Pin</th>
<th>Wire Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Green</td>
<td>Aux Relay Normally Open</td>
</tr>
<tr>
<td>2</td>
<td>Blue</td>
<td>Aux Relay Common</td>
</tr>
<tr>
<td>3</td>
<td>Gray</td>
<td>Aux Relay Normally Closed</td>
</tr>
</tbody>
</table>
2.5 Standalone Mode Wiring

Section 2.5 contains diagrams and instructions on wiring the keypad in Stand Alone Mode.

2.5.1 Wiring a Maglock (Fail-Safe)

Follow the instructions below and refer to the diagram to wire a Maglock to the Main Relay on the keypad.

1. Connect the red wire (V+) to the blue wire (common), and then connect them to the positive on the power supply.
2. Connect the gray wire (normally closed) to the positive on the Maglock.
3. Connect the black wire (V-) to the negative on the Maglock, and then connect them to the negative on the power supply.

![Diagram showing wiring of a Maglock to the Main Relay](image)

Figure 4: Wiring an Maglock to the Main Relay
2.5.2  **Wiring an Electric Door Strike (Fail-Secure)**

Follow the instructions below and refer to the diagram to wire an Electric Door Strike to the Main Relay on the keypad.

1. Connect the red wire (V+) to the blue wire (common), and then connect them to the positive on the power supply.
2. Connect the green wire (normally open) to the positive on the strike.
3. Connect the black wire (V-) to the negative on the strike, and then connect them to the negative on the power supply.

![Diagram of wiring an Electric Door Strike](image)

**Figure 5: Wiring an Electric Door Strike to the Main Relay**

2.5.3  **Shunting a Normally Closed Zone**

Follow the instructions below and refer to the diagram to wire the main relay on the keypad to shunt a normally closed zone:

1. Connect the blue wire (common) to the common connection on the door position switch.
2. Connect the green wire (normally open) to the normally closed connection on the door position switch.

![Diagram of shunting a Normally Closed Zone](image)

**Figure 6: Shunting a Normally Closed Zone**
2.5.4 Wiring a Request to Exit (REX) Device and Door Position Switch

Follow the instructions below and refer to the diagram to connect the keypad to a normally open REX device and normally closed door switch:

1. Connect the brown wire (REX Input) to the normally open connection on the REX device.
2. Connect the white/orange (loop common) to the common on the REX device and the common on the door switch.
3. Connect the white wire (door loop) to the normally closed connection on the door switch.

![Diagram of wiring a Request to Exit Device and Door Position Switch]

**Note:** By default, the REX function operates the virtual lock output only, but you can program it to operate additional outputs using command 49, if required in your application. In addition, the door loop doesn’t need to be closed for the REX function to operate, by default, but you can program the keypad so the door loop must be closed for the REX to operate. Perform the following command: `30 # 8 # 0 # **`. This prevents the REX from re-triggering when the door is open.
2.5.5  Wiring the Aux Relay for Alarm Shunt

The diagram and instructions below show how to wire the Aux Relay for Alarm Shunt. The door contacts represent the contacts used by an existing alarm panel. The intention is to short out the terminals so the system doesn't go into alarm when the door is opened.

Note: For this feature to operate, you must wire an additional set of door contacts to the keypad as shown in section 2.5.4.

To wire the Aux Relay for Alarm Shunt do the following:

1. Connect the Blue wire (Common) to the common terminal on the door contacts.
2. Connect the Green wire (Normally Open) to the normally closed terminal on the door contacts.

Figure 8: Wiring the Aux Relay for Alarm Shunt
2.5.6 Wiring the Aux Relay for Forced Door or Propped Door

The diagram and instructions below show how to wire the Aux Relay for Forced Door or Propped Door. By default, the Propped Door and Forced Door Outputs are assigned to the Audio Alerts. You must assign these outputs to the Aux Relay to use them in this manner. The commands to re-assign these outputs and change the output times are stated below. If you don't want the audio alerts to operate you must disable them. It's also important to remember that you must disable the Alarm Shunt virtual output from operating the Aux Relay otherwise you will set off you alarm each time you enter a code to operate the Lock Output. Note: You can assign both outputs to operate the same relay. Refer to section 3.8.4 for further details on assigning outputs and sections 3.8.2 and 3.8.3 for changing the propped door and forced door times.

- To assign the Propped Door Output to the Aux Relay enter: 10 # 3 # 2 # **
- To assign the Forced Door Output to the Aux Relay enter: 10 # 4 # 2 # **
- To disable Audio Alert #1 enter: 10 # 0 # 11 # **
- To disable Audio Alert #2 enter: 10 # 0 # 12 # **
- To disable the Alarm Shunt Output enter: 10 # 2 # 0 # **
- To change the propped door time enter: 44 # time # 0 # **
- To change the forced door time enter: 45 # time # 0 # **

Note: For this feature to operate, you must wire an additional set of door contacts to the keypad as shown in section 2.5.4.

To make this connection following these instructions:

1. Connect the Blue wire (Common) to positive (V+) on your power supply.
2. Connect the Green wire (Normally Open) to the positive connection on the alarm device.
3. Connect the negative connection on the alarm device to the negative (V-) on your power supply.

Figure 9: Wiring the Aux Relay for Forced Door or Propped Door
2.5.7 Connecting the Output Expansion Module

To connect the Output Expansion Module to the keypad, simply connect J1 on the Relay Module to J3 on the keypad as shown in the diagram below. The maximum distance from the keypad is 100 feet using six-conductor 22 AWG stranded and shielded cable. Connect the drain wire, at the keypad end only, to your power supply ground.

![Diagram of connecting the Output Expansion Module](image)

Figure 10: Connect the Output Expansion Module
2.6 Wiring a Doorbell to the Aux Relay

Before wiring a doorbell to the Aux Relay you must first assign the Doorbell Output to it. When using the keypad in Standalone Mode, it's important to remember that you must disable the Alarm Shunt virtual output from operating the Aux Relay otherwise you will operate the doorbell each time you enter a code to operate the Lock Output.

- To assign the Doorbell Output to the Aux Relay enter: 10 # 17 # 2 # **
- To disable the Alarm Shunt Output enter: 10 # 2 # 0 # **

**Note:** The door bell function also operates in Wiegand and Secured Series Front End modes. While in front end mode, you can only assign the Door Bell Output to either the Main or Aux Relay. In Standalone mode you can assign it to any relay, including those on the Relay Expansion Module.

To make this connection following these instructions:

1. Connect the Blue wire (Common) to positive (V+) on your power supply.
2. Connect the Green wire (Normally Open) to the positive connection on the doorbell.
3. Connect the negative connection on the doorbell to the negative (V-) on your power supply.

![Diagram](image.png)

**Figure 11: Wiring a Doorbell to the Aux Relay**
2.7 Front End Wiring

This section describes how to wire the keypad in either front end mode. You must use stranded wire cable with overall foil shield and drain wire. The drain wire must be connected at the controller side only. The table below indicates the appropriate wire gauge and distance.

<table>
<thead>
<tr>
<th>Wire Gauge</th>
<th>Maximum Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 AWG</td>
<td>1000 Feet</td>
</tr>
<tr>
<td>20 AWG</td>
<td>500 Feet</td>
</tr>
<tr>
<td>22 AWG</td>
<td>250 Feet</td>
</tr>
</tbody>
</table>

2.7.1 Secured Series Front End Wiring

To use the keypad as a Secured Series Front End, connect the Red, Black White/Black and White/Yellow wires on the main keypad wire harness to the corresponding terminals on the Secured Series Door Control Module.

![Diagram of Secured Series Front End Wiring](figure_12)

**Note:** To use the keypad as a Secured Series Front End you must configure the keypad to operate in this mode. While in program mode enter the following command: 1032 # 0 # 2 # **.

2.7.2 Wiegand Front End Wiring

To use the keypad as a Wiegand Front End, connect the Red, Black White/Black, White/Yellow and Brown wires on the main keypad wire harness to the corresponding terminals on the Wiegand Control Panel.

![Diagram of Wiegand Front End Wiring](figure_13)

**Note:** To use the keypad as a Wiegand Front End you must configure the keypad to operate in this mode. While in program mode enter the following command: 1032 # 0 # 1 # **.
Section 3: Programming

Section 3 contains information about programming the keypad.

3.1 Entering Program Mode

The first step in programming the keypad is to place it into program mode by using the master code, which is defaulted to 1234. To place the keypad in program mode, press: 99 # Master Code *.

When the keypad is in program mode the yellow LED flashes slowly. When you are done programming, to exit program mode press the * key.

If at any point you make a programming error (either press a wrong key or perform a command the unit does not recognize), the unit produces a program error by turning on the yellow LED solid. To clear a program error, simply press the * key.

3.2 Changing the Master Code

The first step in setting up your keypad is to change the master code. The master code is is stored in user memory location 1 and the default code is 1234.

1. Enter Program Mode.
   Press: 99 # master code *
   Yellow LED Flashes Slowly
2. Change the Master Code.
   Press: 1 # new master code * repeat code *
   Yellow LED Flashes Slowly
3. Exit Program Mode
   Press: *
   The Yellow LED Stops Flashing

Note: If you don't know the master code, perform the program mode loopback to enter program mode. Refer to the troubleshooting section at the end of this manual.

3.3 Programming a Supervisor Code

Use the following command sequence to program a supervisor code, which is stored user memory location 2. The supervisor is only allowed to add, delete and disable users.

1. Enter Program Mode.
   Press: 99 # master code *
   Yellow LED Flashes Slowly
2. Program a Supervisor Code.
   Press: 2 # supervisor code * repeat code *
   Yellow LED Flashes Slowly
3. Exit Program Mode
   Press: *
   The Yellow LED Stops Flashing
3.4 Selecting Secured Series Front End Mode

Perform the following command sequence to select Secured Series Front End Mode.

1. Enter Program Mode.
   Press: 99 # master code *
   Yellow LED Flashes Slowly
2. Select Secured Series Front End Mode
   Press: 1032 # 0 # 2 # **
   Yellow LED Flashes Slowly
3. Exit Program Mode
   Press *
   The Yellow LED Stops Flashing

3.5 Selecting Wiegand Front End Mode

Perform the following command sequence to select Wiegand Front End Mode.

1. Enter Program Mode.
   Press: 99 # master code *
   Yellow LED Flashes Slowly
2. Select Secured Series Front End Mode
   Press: 1032 # 0 # 1 # **
   Yellow LED Flashes Slowly
3. Exit Program Mode
   Press *
   The Yellow LED Stops Flashing

3.6 Setting the Keypad Back to Standalone Mode

By default, the keypad is already programmed for Standalone Mode. If you've changed the operating mode and want to revert back to standalone mode you can either default the unit entirely, which will erase all your settings, or perform the command sequence below.

1. Enter Program Mode.
   Press: 99 # master code *
   Yellow LED Flashes Slowly
2. Select Standalone Mode
   Press: 1032 # 0 # 0 # **
   Yellow LED Flashes Slowly
3. Exit Program Mode
   Press *
   The Yellow LED Stops Flashing
3.7 Programming Users

(Standalone Mode Only)

This section contains information on programming users. The unit can store up to 500 users with codes from 1 to 10 digits long. Each user is stored in a unique memory address in the unit. This is referred to as the user location. User locations 1 and 2 are reserved for the master code and supervisor.

3.7.1 Programming Enhanced Users

The table below describes the eight user types available in the keypad. The programming command is shown below the table.

<table>
<thead>
<tr>
<th>User Types</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toggle User (0)</td>
<td>A toggle user latches the Lock Output. This user acts like an on/off switch. When you enter the code the first time, the Lock Output is activated and remains activated until you enter any toggle code (not necessarily the same one).</td>
</tr>
<tr>
<td>Standard User (1)</td>
<td>This user type is a standard timed user that activates the lock output for the time duration programmed with command 11 or with the master code.</td>
</tr>
<tr>
<td>Lockout User (3)</td>
<td>A Locks Out User is used to lock out users from the keypad. After entering a lock out code, users in a higher user location are denied access. For example, if you program user #10 as a lock out user, users 11 through 500 are denied access. If you entered another lock out user in a lower location (such as 5) it moves the lock out location so users 6 through 500 are denied access. To clear a lock out, enter the same lock out code you used to enter lock out mode.</td>
</tr>
<tr>
<td>Single Use Code (5)</td>
<td>This user code can only be used once. After entering the code, the user is deleted from memory. This would be useful in a situation where someone needs access through the door only once, such as a repair person. If you want to verify a single use code is still programmed, enter 5 # code *. If the code has not been used yet, the green LED will flash for ½ a second.</td>
</tr>
<tr>
<td>Emergency User (7)</td>
<td>An emergency user operates as a standard timed user, with one exception, it can't be Locked Out by a lock out user. This user should be reserved for emergencies in case the someone has entered a lockout code and you must gain access through the door.</td>
</tr>
<tr>
<td>Duress User (8)</td>
<td>The duress user is another type of emergency user. This user activates both the Lock and Duress Outputs. You would use this code if you wanted to activate an alarm, as well as gain entrance through the door without alerting anyone you've done so.</td>
</tr>
<tr>
<td>Two-Part User Type A (9)</td>
<td>This user type is one half of a two-part user combination. When you enter a type A user code, you must enter a Type B user code to gain access through the door. After entering the code the bi-color LED alternates red and green. You have 15 seconds to enter the second code.</td>
</tr>
<tr>
<td>Two-Part User Type B (10)</td>
<td>This user type is the second half of a two-part user combination. After entering a Type B code you must enter a Type A code to gain access through the door.</td>
</tr>
</tbody>
</table>

The following command sequence shows how to program an enhanced user. Where it says “user type” in the command enter corresponding user type number as indicated in the table above (ie. Enter 0 for toggle user).

1. Enter Program Mode.
   Press: 99 # master code *
   Yellow LED Flashes Slowly
2. Program Enhanced User.
   Press: 60 # user type # user location # code * repeat code *
   Yellow LED Flashes Slowly
3. Exit Program Mode
   Press *
   The Yellow LED Stops Flashing
3.7.2 Programming a Standard Timed User (short version)

The command below shows how to program a standard timed user. This user follows the time programmed in command 11 or with the master code.

1. Enter Program Mode.
   - Press: **99 # master code ***
   - Yellow LED Flashes Slowly
2. Program User.
   - Press: **user location # code * repeat code ***
   - Yellow LED Flashes Slowly
3. Exit Program Mode
   - Press *
   - The Yellow LED Stops Flashing

3.7.3 Programming a Standard User with a Specific Unlock Time

The following command sequence shows how to program a user with a specific unlock time. You can program users from 1 to 255 seconds or enter a 0 for toggle. If you program the master code using this command, all standard users are affected and use that time.

1. Enter Program Mode.
   - Press: **99 # master code ***
   - Yellow LED Flashes Slowly
2. Program User.
   - Press: **unlock time # user location # code * repeat code ***
   - Yellow LED Flashes Slowly
3. Exit Program Mode
   - Press *
   - The Yellow LED Stops Flashing
3.7.4 Programming Users to Trigger Specific Outputs

You can use the following command to program a user to trigger specific outputs. These outputs include the lock output and outputs OUT2 through OUT10. For OUT2-10 to operate you must assign these outputs to the desired relays. Refer to section 3.8.4 for details on configuring the outputs. See below for a description of the output list.

1. Enter Program Mode.
   Press: 99 # master code *
   Yellow LED Flashes Slowly
2. Program User
   Press: 59 # output list # user location # code * repeat code *
   Yellow LED Flashes Slowly
3. Exit Program Mode
   Press *
   The Yellow LED Stops Flashing

The table below shows the numbers to enter in the “output list” portion of the command. For example, if you want to operate the Lock Output, OUT2, OUT3 and OUT10 enter: 59 # 12310 # user location # code * code *.

<table>
<thead>
<tr>
<th>Output</th>
<th>Output Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock Output</td>
<td>1</td>
</tr>
<tr>
<td>OUT2</td>
<td>2</td>
</tr>
<tr>
<td>OUT3</td>
<td>3</td>
</tr>
<tr>
<td>OUT4</td>
<td>4</td>
</tr>
<tr>
<td>OUT5</td>
<td>5</td>
</tr>
<tr>
<td>OUT6</td>
<td>6</td>
</tr>
<tr>
<td>OUT7</td>
<td>7</td>
</tr>
<tr>
<td>OUT8</td>
<td>8</td>
</tr>
<tr>
<td>OUT9</td>
<td>9</td>
</tr>
<tr>
<td>OUT10</td>
<td>10</td>
</tr>
</tbody>
</table>
3.7.5 Disabling Users

Use the following command to disable/enable users. When you disable a user the code is not deleted from the unit, but when you attempt to enter the code you are denied access. This is indicated by a one long beep followed by one short beep. The master code can't be disabled.

1. Enter Program Mode.
   Press: 99 # master code *
   Yellow LED Flashes Slowly

2. Disable User
   Press: 56 # 1 # user location # **
   Enable User
   Press: 56 # 0 # user location # **
   Yellow LED Flashes Slowly

3. Exit Program Mode
   Press *
   The Yellow LED Stops Flashing

3.7.6 Deleting Users

Use the following command to delete a user from memory.

1. Enter Program Mode.
   Press: 99 # master code *
   Yellow LED Flashes Slowly

2. Disable User
   Press: user location # **

3. Exit Program Mode
   Press *
   The Yellow LED Stops Flashing
3.8 Configuring Outputs

(Standalone Mode Only)

The keypad contains two relay outputs and two audio alerts. You have the option of attaching the relay expansion module for an additional eight relays. Section 3.8 contains information about configuring these outputs. The outputs include the Lock Output, Alarm Shunt, Propped Door, Forced Door, the individually assignable outputs OUT2 through OUT10, the Duress Output, Panic Output and Keypad Active Output. Included in this section are the programming commands to change these output times, as well as re-assign the outputs to different relays or audio alerts.

3.8.1 Changing the Lock Output Time

By default, the Lock Output is assigned to Main Relay. You have the option of re-assigning the Lock Output to another output if you choose. This is discussed in section 3.8.4. The following command changes the lock output time, which affects all standard users. You can program this time from 1 to 255 seconds and is defaulted to 5 seconds.

1. Enter Program Mode.
   Press: 99 # master code *
   Yellow LED Flashes Slowly
2. Program the Lock Output Time
   Press: 11 # time # 0 # **
3. Exit Program Mode
   Press *
   The Yellow LED Stops Flashing

3.8.2 Setting the Propped Door Output Time

To program the Propped Door Output time use command 44. By default, the Propped Door Output is assigned to Audio Alert #2. If you've re-assigned it this time applies to that output also. You can program it from 10 to 990 seconds in 10 second increments. The default value is 30 seconds, which means the output triggers if the door position switch is held open for 30 seconds. The command sequence is as follows:

1. Enter Program Mode.
   Press: 99 # Master Code *
   The yellow LED flashes slowly.
2. Enter the propped door time (time = 10 to 990 seconds).
   Press: 44 # time # 0 # **
   For example, to enter 60 seconds, press: 44 # 60 # 0 # **
   The yellow LED continues to blink slowly.
3. Exit Program Mode.
   Press: *
   The yellow LED stops flashing.
3.8.3 Setting the Forced Door Output Time

To program the Forced Door Output time use command 45. By default, the Forced Door Output is assigned to Audio Alert #1. If you've re-assigned it this time applies to that output also. You can program it from 10 to 990 seconds in 10 second increments. The default value is 10 seconds, which means the output triggers immediately after 10 seconds. The command sequence is as follows:

1. Enter Program Mode.
   Press: **99 # Master Code * **
   The yellow LED flashes slowly.

2. Enter the forced door time (time = 10 to 990 seconds).
   Press: **45 # time # 0 # **
   For example, to enter 60 seconds, press: **45 # 60 # 0 # **
   The yellow LED continues to blink slowly.

3. Exit Program Mode.
   Press: *
   The yellow LED stops flashing.
3.8.4 Assigning Outputs

The keypad is equipped with 16 virtual outputs and 12 physical outputs (when using external relay board). A virtual output is a function that you assign to the relays and audio alerts. The relays and audio alerts are referred to as physical outputs.

The following two rules apply to assigning outputs:

- You can assign a single virtual output to multiple physical outputs.
  - For example, you can assign the Forced Door Output to External Relays 1 and 2.
- You can assign multiple virtual outputs to a single physical output.
  - For example, you can assign both the Propped Door and Forced Door Outputs to External Relay 1.

By default, the keypad has the following output assignments:

- Lock Output is assigned to the Main Relay
- Alarm Shunt Output is assigned to the Aux Relay
- Propped Door Output is assigned to Audio Alert 2
- Forced Door Output is assigned to Audio Alert 1

Use the following command sequence to assign a virtual output to a physical output. Section 3.8.4c contains some examples.

1. Enter Program Mode.
   - Press: 99 # Master Code *
   - The yellow LED flashes slowly.

2. Assign Virtual Output to Physical Output
   - Press: 10 # virtual output # physical output # **
   - The yellow LED continues to blink slowly.

3. Exit Program Mode.
   - Press: *
   - The yellow LED stops flashing.

**Note:** Refer to the table on the next page for a complete list of virtual and physical outputs.
### Table 7: Virtual and Physical Outputs

<table>
<thead>
<tr>
<th>Virtual Outputs</th>
<th>Physical Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – Lock Output</td>
<td>1 – Main Relay</td>
</tr>
<tr>
<td>2 – Alarm Shunt</td>
<td>2 – Aux Relay</td>
</tr>
<tr>
<td>3 – Propped Door</td>
<td>3 – External Relay 1</td>
</tr>
<tr>
<td>4 – Forced Door</td>
<td>4 – External Relay 2</td>
</tr>
<tr>
<td>5 – OUT2</td>
<td>5 – External Relay 3</td>
</tr>
<tr>
<td>6 – OUT3</td>
<td>6 – External Relay 4</td>
</tr>
<tr>
<td>7 – OUT4</td>
<td>7 – External Relay 5</td>
</tr>
<tr>
<td>8 – OUT5</td>
<td>8 – External Relay 6</td>
</tr>
<tr>
<td>9 – OUT6</td>
<td>9 – External Relay 7</td>
</tr>
<tr>
<td>10 – OUT7</td>
<td>10 – External Relay 8</td>
</tr>
<tr>
<td>11 – OUT8</td>
<td>11 – Audio Alert 1</td>
</tr>
<tr>
<td>12 – OUT9</td>
<td>12 – Audio Alert 2</td>
</tr>
<tr>
<td>13 – OUT10</td>
<td></td>
</tr>
<tr>
<td>14 – Duress Output</td>
<td></td>
</tr>
<tr>
<td>15 – Panic Output</td>
<td></td>
</tr>
<tr>
<td>16 – Keypad Active Output</td>
<td></td>
</tr>
<tr>
<td>17 – Door Bell Output</td>
<td></td>
</tr>
<tr>
<td>18 – REX Input Active</td>
<td></td>
</tr>
<tr>
<td>19 – Door Loop Input Active</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** If you choose to assign a different output to the Main Relay, Aux Relay or the Audio Alerts or re-assign a physical output you already programmed, you must disable any virtual outputs already assigned to the output. This can occur because you can assign more than one virtual output to a physical output.
3.8.4.a Disabling a Virtual Output

If you want to disable a virtual output enter the command below.

1. Enter Program Mode.
   - Press: 99 # Master Code *
   - The yellow LED flashes slowly.
2. Disable Virtual Output
   - Press: 10 # virtual output # 0 # **
   - For example, enter 10 # 3 # 0 # ** to disable the propped door output.
   - The yellow LED continues to blink slowly.
3. Exit Program Mode.
   - Press: *
   - The yellow LED stops flashing.

3.8.4.b Disabling a Physical Output

If you want to disable a physical output enter the command below. When you disable a physical output, any virtual outputs that were assigned to it, no longer operate that output.

1. Enter Program Mode.
   - Press: 99 # Master Code *
   - The yellow LED flashes slowly.
2. Disable Physical Output
   - Press: 10 # 0 # physical output **
   - For example, enter 10 # 0 # 3 # ** to disable external relay 1.
   - The yellow LED continues to blink slowly.
3. Exit Program Mode.
   - Press: *
   - The yellow LED stops flashing.
3.8.4.c Assigning Outputs – Examples

This section contains some examples of assigning outputs using command 10. These commands must be performed while the keypad is in programming mode by entering 99 # master code *.

Example #1
The following example shows how to assign the Propped Door Output to External Relay 1, assign the Forced Door Output to External Relay 2 and disable the Audio Alerts. If you choose not to disable the Audio Alerts, these outputs would then operate both the Audio Alert and the External Relay.

1. Assign Propped Door to External Relay 1: 10 # 3 # 3 # **
2. Assign Forced Door to External Relay 2: 10 # 4 # 4 # **
3. Disable Audio Alert 1: 10 # 0 # 11 # **
4. Disable Audio Alert 2: 10 # 0 # 12 # **

Example #2
The following example shows how to assign both the Duress and Panic outputs to External Relay 8. You would do this if you wanted both outputs to operate the same device, such as an alarm. Notice that only the Virtual Output number changes when performing the command, since both are using the same Physical Output.

1. Assign the Duress Output to External Relay 8: 10 # 14 # 10 # **
2. Assign the Panic Output to External Relay 8: 10 # 15 # 10 # **

Example #3
The following example shows how to program OUT2 and OUT3 to operate External Relays 4 and 5. These outputs are used when programming users using command 59 (see section 3.7.4) or programming the REX (see section 3.8.5).

1. Assign OUT2 to External Relay 4: 10 # 5 # 6 # **
2. Assign OUT3 to External Relay 5: 10 # 5 # 7 # **
3.8.5 Programming the REX and Door Loop Outputs

You can use the following command to program the REX and Door Loop to trigger several specific timed outputs when activated. These outputs include the Lock Output and outputs OUT2 through OUT10. For OUT2-10 to operate you must assign these outputs to the desired relays.

You also have the option to assign an output to directly follow the status of the REX and Door Loop Inputs. These outputs are called the REX Input Active and Door Loop Input Active virtual outputs. The REX Input Active output activates when the REX Loop closes and deactivates when the REX Loop opens. The Door Loop Input activates when the Door Loop opens and deactivates when the Door Loop closes. The purpose of these outputs is to activate a device every time either loop is opened/closed (ie. ring a bell every time someone opens the door).

Both options are discussed in the sections below.

3.8.5.a Programming the REX and Door Loop to Trigger Specific Timed Outputs

Use the following programming sequence to program the REX and Door Loop to trigger specific outputs.

1. Enter Program Mode.
   Press: 99 # master code *
   Yellow LED Flashes Slowly

2. Program the REX Outputs
   Press: 49 # output list # 0 # **
   Program the Door Loop Outputs
   Press: 49 # output list # 1 # **
   Yellow LED Flashes Slowly

3. Exit Program Mode
   Press *
   The Yellow LED Stops Flashing

The table below shows the numbers to enter in the “output list” portion of the command. For example, if you want the REX to operate the Lock Output, OUT3, OUT4 and OUT5 enter: 49 # 1345 # 0 # **.

<table>
<thead>
<tr>
<th>Output</th>
<th>Output Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock Output</td>
<td>1</td>
</tr>
<tr>
<td>OUT2</td>
<td>2</td>
</tr>
<tr>
<td>OUT3</td>
<td>3</td>
</tr>
<tr>
<td>OUT4</td>
<td>4</td>
</tr>
<tr>
<td>OUT5</td>
<td>5</td>
</tr>
<tr>
<td>OUT6</td>
<td>6</td>
</tr>
<tr>
<td>OUT7</td>
<td>7</td>
</tr>
<tr>
<td>OUT8</td>
<td>8</td>
</tr>
<tr>
<td>OUT9</td>
<td>9</td>
</tr>
<tr>
<td>OUT10</td>
<td>10</td>
</tr>
</tbody>
</table>

Note: Enter a 0 in the output list to restore the REX/Door Loop back to the original configuration.
### 3.8.5.b Assigning the REX Input Active and Door Loop Input Active Virtual Outputs

The following command sequence describes how to assign these outputs. Refer to the list of physical outputs in section 3.8.4.

1. **Enter Program Mode.**
   - Press: 99 # master code *
   - Yellow LED Flashes Slowly

2. **Assign the REX Input Active Output**
   - Press: 10 # 18 # physical output # *
     - Example: 10 # 18 # 3 # ** to assign the output to External Relay 1.
   - Assign the Door Loop Input Active Output
   - Press: 10 # 19 # physical output # **
     - Example: 10 # 19 # 4 # ** to assign the output to External Relay 2.
   - Yellow LED Flashes Slowly

3. **Exit Program Mode**
   - Press *
   - The Yellow LED Stops Flashing

### 3.8.5.c Programming Door Loop Output Processing

There is an additional option called Door Loop Output Processing. This refers to whether or not you want the additional Door Loop outputs (programmed above) to operate when the Lock Output is latched. By default, this option is set to 1 and these outputs activate regardless of the Lock Output state. If you set this option to 0, the additional Door Loop outputs will not activate if the Lock Output is latched.

1. **Enter Program Mode.**
   - Press: 99 # Master Code *
     - The yellow LED flashes slowly.

2. **To program the outputs to always operate,** press: 30 # 10 # 1 # **
   - The yellow LED continues to blink slowly.
   - To program the outputs so they don't operate when the Lock Output is latched, press: 30 # 10 # 0 # **
     - The yellow LED continues to blink slowly.

3. **Exit Program Mode.**
   - Press: *
   - The yellow LED stops flashing.
3.8.6 Setting Outputs OUT2 – OUT10 Activation Time

Outputs OUT2 through OUT10 are used when programming users through command 59 (see section 3.7.4) or programming the REX (see section 3.8.5). You can assign each of the outputs a separate time duration. The ttt portion of the command refers to time units and mmm is the multiplier. To calculate the number of seconds multiply ttt by mmm. For example to set and output for 10 seconds enter 12 # 5 # 2 # ** (5 time units multiplied by 2 seconds equals 10 seconds). The maximum value you can enter for either value is 255 (255 time units multiplied by 255 seconds equals approximately 18 hours). To toggle an output enter 0 for both values (12 # 0 # 0 # **).

The command sequence below shows how to program OUT2 time duration.

1. Enter Program Mode.
   Press: 99 # master code *
   Yellow LED Flashes Slowly
2. Program the OUT2 Output Time
   Press: 12 # ttt # mmm # **
3. Exit Program Mode
   Press *
   The Yellow LED Stops Flashing

The list below shows the commands to program the other outputs OUT3 through OUT10

- OUT3: 13 # ttt # mmm # **
- OUT4: 14 # ttt # mmm # **
- OUT5: 15 # ttt # mmm # **
- OUT6: 16 # ttt # mmm # **
- OUT7: 17 # ttt # mmm # **
- OUT8: 18 # ttt # mmm # **
- OUT9: 19 # ttt # mmm # **
- OUT10: 110 # ttt # mmm # **
### 3.8.7 Setting the Duress Output Duration

The Duress Output activates when a Duress User enters their code. The default time is 5 seconds, but using the command below you can program it from 1 to 255 seconds. For this output to operate you must assign it to one of the physical outputs. Refer to section 3.8.4 for details about assigning outputs.

1. Enter Program Mode.
   - Press: **99 # master code ***
   - Yellow LED Flashes Slowly
2. Program the Duress Output Time
   - Press: **32 # 0 # time # **
3. Exit Program Mode
   - Press *
   - The Yellow LED Stops Flashing

### 3.8.8 Panic Output Operation and Setting the Output Duration

The Panic Output is activated by pressing both the * and # keys at the same time. The default time is 5 seconds, but using the command below you can program it from 1 to 255 seconds. For this output to operate you must assign it to one of the physical outputs. Refer to section 3.8.4 for details about assigning outputs.

1. Enter Program Mode.
   - Press: **99 # master code ***
   - Yellow LED Flashes Slowly
2. Program the Panic Output Time
   - Press: **32 # 1 # time # **
3. Exit Program Mode
   - Press *
   - The Yellow LED Stops Flashing

### 3.8.9 Keypad Active Output Operation

The Keypad Active Output activates every time you press a key. This is useful if you wanted to turn on a device each time a key was pressed, like a light or a camera. This output activates for 15 seconds and can’t be changed. For this output to operate you must assign it to one of the physical outputs. Refer to section 3.8.4 for details about assigning outputs.
3.8.10 Programming the Door Bell Output

The keypad is equipped with a Door Bell Output. For this output to operate you must assign it to operate one of the relays. To operate this output you must hold down the # key for about a second. The output stays activated only while the key is held down. Refer to the list of physical outputs in section 3.8.4.

1. Enter Program Mode.
   Press: 99 # Master Code *
   The yellow LED flashes slowly.

2. Assign the Door Bell Output
   Press: 10 # 17 # physical output **
   For example, enter 10 # 17 # 3 # ** to assign to External Relay #1.
   The yellow LED continues to blink slowly.

3. Exit Program Mode.
   Press: *
   The yellow LED stops flashing.

**Note:** In Wiegand and Secured Series Front End Mode you can only assign the door bell to either the Main or Aux Relay on the keypad.
3.9 Programming Keypad Options and Settings

This section details various keypad programming options and settings. Some of the options apply only when the keypad is programmed as a particular operating mode. If this is the case, there is a note in a parenthesis that indicate the operating mode. Unless specifically stated, the option applies to all modes.

3.9.1 Enabling/Disabling Audio Keypress Feedback

Audio Keypress Feedback refers to the sounder beeping momentarily each time a key is pressed. This feedback indicates the key was pressed hard enough for the keypad to acknowledge and recognize which key you pressed. By default this option is enabled, but if you need to change it, use the following programming sequence:

4. Enter Program Mode.
   Press: **99 # Master Code *
   The yellow LED flashes slowly.
5. To enable this feature, press: **30 # 0 # 1 # **
   The yellow LED continues to blink slowly.
To disable this feature, press: **30 # 0 # 0 # **
   The yellow LED continues to blink slowly.
6. Exit Program Mode.
   Press: *
   The yellow LED stops flashing.

3.9.2 Enabling/Disabling Visual Keypress Feedback

Visual Keypress Feedback refers to the yellow LED flashing momentarily each time a key is pressed. This feedback indicates the key was pressed hard enough for the keypad to acknowledge and recognize which key you pressed. By default this option is enabled, but if you need to change it, use the following programming sequence:

1. Enter Program Mode.
   Press: **99 # Master Code *
   The yellow LED flashes slowly.
2. To enable this feature, press: **30 # 1 # 1 # **
   The yellow LED continues to blink slowly.
   To disable this feature, press: **30 # 1 # 0 # **
   The yellow LED continues to blink slowly.
3. Exit Program Mode.
   Press: *
   The yellow LED stops flashing.
### 3.9.3 Programming Auto-Entry

Auto-Entry is a feature that determines whether or not you need to press the * key after entering your access code on the keypad. By default, the feature is disabled, which means you are required to enter the * key after your access code to gain entry. If you enable the feature you are not required to enter the * key after entering your code to gain entry. This feature applies only to codes that are the same length as you've programmed in the auto-entry count (default = 4). For example if the auto-entry count is set to four-digits, your user code must be four digits to use the auto-entry feature. All codes less than four digits require the * key. Codes longer than the auto-entry count are not allowed, since you'll reach that number of digits prior to entering the * key, unless you use the auto-entry suspend features (see below).

**Note:** When auto-entry is enabled you do not have to press the * key after “99 # master code” to enter program mode.

#### 3.9.3.a Enabling/Disabling Auto-Entry

Use the following command sequence to enable or disable Auto-Entry.

1. **Enter Program Mode.**
   
   Press: **99 # Master Code ***
   
   The yellow LED flashes slowly.

2. **To enable this feature, press:** **30 # 2 # 1 # **
   
   The yellow LED continues to blink slowly.

   To disable this feature, press: **30 # 2 # 0 # **
   
   The yellow LED continues to blink slowly.

3. **Exit Program Mode.**

   Press: *

   The yellow LED stops flashing.

#### 3.9.3.b Auto-Entry Count

Use the following command sequence to change the Auto-Entry Count.

1. **Enter Program Mode.**

   Press: **99 # Master Code ***

   The yellow LED flashes slowly.

2. **Enter the Auto-Entry Count (value = 2 to 10; default = 4 digits).**

   Press: **32 # 4 # value # **

3. **Exit Program Mode.**

   Press: *

   The yellow LED stops flashing.

#### 3.9.3.c Auto-Entry Suspend

If you want to use a code longer with more digits than the Auto-Entry Count, such as the master code, you must use the Auto-Entry Suspend feature. Prior to entering you code you must press the * key three times (**3 # code *”) to gain accesses.

This is also required when performing the self-test since it you will likely reach the limit prior to finishing the sequence. Press **3 # 7890#123456*.

If the master code is longer than the auto-entry count you must press **3 # 99 # master code * to enter program mode.
3.9.4 Programming Error Lockout

(Standalone Mode Only)

This feature refers to the number of invalid keypad attempts you can make before the keypad locks up. It’s used to keep people from continually attempting to gain access to the door by entering various code combinations by trying to guess a code. This also applies to attempting to enter program mode by guessing the master code or supervisor. As attempts are made, the keypad maintains a count of the number of consecutive invalid attempts. When the number reaches the value programmed in the Error Lockout Threshold, the unit locks up for the amount of time programmed in the Error Lockout Duration. When the unit locks up, the yellow LED remains on solid for the time duration.

3.9.4.a Enabling/Disabling Error Lockout

(Standalone Mode Only)

By default, Error Lockout is enabled. The command sequence below shows how to enable or disable this feature.

1. Enter Program Mode.
   Press: 99 # Master Code *
   The yellow LED flashes slowly.
2. To enable this feature, press: 30 # 3 # 1 # **
   The yellow LED continues to blink slowly.
   To disable this feature, press: 30 # 3 # 0 # **
   The yellow LED continues to blink slowly.
3. Exit Program Mode.
   Press: *
   The yellow LED stops flashing.

3.9.4.b Error Lockout Threshold

(Standalone Mode Only)

The Error Lockout Threshold is the number attempts you can make before the unit locks up. This defaults to 3 attempts. The programming sequence is as follows:

4. Enter Program Mode.
   Press: 99 # Master Code *
   The yellow LED flashes slowly.
5. Enter the Error Lockout Threshold (value = 1 to 50; default = 3 attempts).
   Press: 32 # 2 # value # **
6. Exit Program Mode.
   Press: *
   The yellow LED stops flashing.
3.9.4.c Error Lockout Duration

(Standalone Mode Only)

The Error Lockout Duration is the amount of time the unit is locked out for, when the threshold is reached. The time is defaulted to 10 seconds. The programming sequence is as follows:

1. Enter Program Mode.
   Press: **99 # Master Code ***
   The yellow LED flashes slowly.

2. Enter the Error Lockout Duration (value = 1 to 255; set in 1 second increments; default = 10 seconds).
   Press: **32 # 3 # value # **
   For example: To set for 30 seconds press 32 # 1 # 30 # **

3. Exit Program Mode.
   Press: *
   The yellow LED stops flashing.

3.9.5 Enabling/Disabling User Lockout

(Standalone Mode Only)

By default, user lockout is enabled. If you wish to turn it off see the command below.

1. Enter Program Mode.
   Press: **99 # Master Code ***
   The yellow LED flashes slowly.

2. To enable this feature, press: **30 # 4 # 1 # **
   The yellow LED continues to blink slowly.
   To disable this feature, press: **30 # 4 # 0 # **
   The yellow LED continues to blink slowly.

3. Exit Program Mode.
   Press: *
   The yellow LED stops flashing.
3.9.6 Enabling/Disabling Two-Part Users

(Standalone Mode Only)

This feature refers to the Two-Part A and B user types discussed in the user programming section. By default, this feature is enabled allowing two-part user combinations. If you disable this feature these user types are not allowed. In addition, if you've previously programmed two-part user types, when you disable this feature those users are converted into standard users. When you enable the feature again, they are converted back into two-part users.

1. Enter Program Mode.
   Press: **99 # Master Code ***
   The yellow LED flashes slowly.

2. To enable this feature, press: **30 # 5 # 1 # **
   The yellow LED continues to blink slowly.
   To disable this feature, press: **30 # 5 # 0 # **
   The yellow LED continues to blink slowly.

3. Exit Program Mode.
   Press: *
   The yellow LED stops flashing
3.9.7 Programming Keypad Backlighting

Keypad backlighting is available only on e style keypad. There are two options related to this feature. You can enable/disable backlighting and control the dimming feature.

3.9.7.a Enabling/Disabling Backlighting

The following command sequence describes how to enable or disable keypad backlighting.

1. Enter Program Mode.
   Press: 99 # Master Code *
   The yellow LED flashes slowly.

2. To enable this feature, press: 30 # 6 # 1 # **
   The yellow LED continues to blink slowly.
   To disable this feature, press: 30 # 6 # 0 # **
   The yellow LED continues to blink slowly.

3. Exit Program Mode.
   Press: *
   The yellow LED stops flashing.

3.9.7.b Enabling/Disabling Backlight Dimming

The following feature refers to whether or not you want the keypad backlighting to dim or remain bright all the time. By default, this feature is enable. That means that normally the backlighting is dim and when you press a key it brightens to full illumination. If you disable this feature the keypad remain bright constantly and does not dim.

1. Enter Program Mode.
   Press: 99 # Master Code *
   The yellow LED flashes slowly.

2. To enable this feature, press: 30 # 7 # 1 # **
   The yellow LED continues to blink slowly.
   To disable this feature, press: 30 # 7 # 0 # **
   The yellow LED continues to blink slowly.

3. Exit Program Mode.
   Press: *
   The yellow LED stops flashing.
3.9.8 Programming Request to Exit (REX) Operation

(Standalone Mode Only)

By default, the REX is programmed to operate regardless of the door position switch. That means it will work whether the door position switch is open or closed. However, if you want the REX to only operate when the door position switch is closed, that option is available. The command sequence below shows how to program both options.

1. Enter Program Mode.
   Press: **99 # Master Code ***
   The yellow LED flashes slowly.
2. To set the REX to operate regardless of the door position switch, press: **30 # 8 # 1 # **
   The yellow LED continues to blink slowly.
   To set the REX to operate only when the door position switch is closed, press: **30 # 8 # 0 # **
   The yellow LED continues to blink slowly.
3. Exit Program Mode.
   Press: *
   The yellow LED stops flashing.

3.9.9 Programming Red LED Dimming

(Standalone Mode Only)

You have the option in this keypad to program the red LED to turn off when the backlighting dims. By default, it's programmed to remain on all the time. See the command sequence below to change this option.

1. Enter Program Mode.
   Press: **99 # Master Code ***
   The yellow LED flashes slowly.
2. To set the Red LED to always be on, press: **30 # 9 # 1 # **
   The yellow LED continues to blink slowly.
   To set the Red LED to turn off when the backlighting dims, press: **30 # 9 # 0 # **
   The yellow LED continues to blink slowly.
3. Exit Program Mode.
   Press: *
   The yellow LED stops flashing.

**Note:** If you program the Red LED to turn off when the backlighting dims, the LED turns on initially when you power up the keypad, then dims 5 seconds later.
3.9.10 Selecting Secured Series Front End In/Out Event Recording

(Secured Series Front End Mode Only)

When using the keypad as a Secured Series Front End you need to determine how you want user access to be recorded in the controllers transaction event log. The keypad is set to record as IN, by default, but if you have the option to program it to record as OUT.

1. Enter Program Mode.
   Press: 99 # Master Code *
   The yellow LED flashes slowly.
2. To set the keypad to record as OUT, press: 30 # 16 # 1 # **
   The yellow LED continues to blink slowly.
   To set the keypad to record as IN, press: 30 # 16 # 0 # **
   The yellow LED continues to blink slowly.
3. Exit Program Mode.
   Press: *
   The yellow LED stops flashing.
3.9.11 Programming Wiegand Front End Mode Options

This section contains programming commands that apply only to Wiegand Front End Mode.

3.9.11.a Enabling/Disabling 8-Bit Burst Output

8-Bit Burst Mode is an alternate keypad output format. This mode functions only when the keypad is programmed as a Wiegand Front End. When enabled, normal Wiegand operation is disabled and each key press is sent as a separate 8-bit number. The chart below shows these numbers.

1. Enter Program Mode.
   Press: 99 # Master Code *
   The yellow LED flashes slowly.

2. To enable 8-Bit Burst Output, press: 30 # 18 # 1 # **
   The yellow LED continues to blink slowly.
   To disable 8-Bit Burst Output, press: 30 # 18 # 0 # **
   The yellow LED continues to blink slowly.

3. Exit Program Mode.
   Press: *
   The yellow LED stops flashing.

<table>
<thead>
<tr>
<th>Key</th>
<th>Binary Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>11100001</td>
</tr>
<tr>
<td>2</td>
<td>11010010</td>
</tr>
<tr>
<td>3</td>
<td>11000011</td>
</tr>
<tr>
<td>4</td>
<td>10110100</td>
</tr>
<tr>
<td>5</td>
<td>10100101</td>
</tr>
<tr>
<td>6</td>
<td>10010110</td>
</tr>
<tr>
<td>7</td>
<td>10001111</td>
</tr>
<tr>
<td>8</td>
<td>01111000</td>
</tr>
<tr>
<td>9</td>
<td>01101001</td>
</tr>
<tr>
<td>0</td>
<td>11110000</td>
</tr>
<tr>
<td>*</td>
<td>01011010</td>
</tr>
<tr>
<td>#</td>
<td>01001011</td>
</tr>
</tbody>
</table>
3.9.11.b Enabling/Disabling Wiegand Red LED Operation

The keypad is equipped with a Bi-Color red/green LED. You have the option of enabling or disabling the red LED operation in Wiegand Front End Mode. By default, the red LED is enabled and turns on/off depending on which state you have programmed RED LED active state (high or low).

1. Enter Program Mode.
   Press: **99 # Master Code *
   The yellow LED flashes slowly.
2. To enable the red LED, press: **30 # 19 # 1 # **
   The yellow LED continues to blink slowly.
   To disable the red LED, press: **30 # 19 # 0 # **
   The yellow LED continues to blink slowly.
3. Exit Program Mode.
   Press: *
   The yellow LED stops flashing.

3.9.11.c Selecting Wiegand Red LED Active State

In Wiegand Front End Mode you can control how the red LED operates using the LED wire, which is the brown wire on the main keypad wire harness. When you program this option for an active high state, the red LED turns on when the wire is connected to positive voltage. When you program this option for an active low state, the red LED turns on when the wire is connected to ground. The default is an active low state.

1. Enter Program Mode.
   Press: **99 # Master Code *
   The yellow LED flashes slowly.
2. To set the red LED for an active high state, press: **30 # 20 # 1 # **
   The yellow LED continues to blink slowly.
   To set the red LED for an active low state, press: **30 # 20 # 0 # **
   The yellow LED continues to blink slowly.
3. Exit Program Mode.
   Press: *
   The yellow LED stops flashing.
3.9.11.d Enabling/Disabling Wiegand Green LED Operation

The keypad is equipped with a Bi-Color red/green LED. You have the option of enabling or disabling the green LED operation in Wiegand Front End Mode. By default, the green LED is enabled and turns on/off depending on which state you have programmed Green LED active state (high or low).

1. Enter Program Mode.
   Press: 99 # Master Code *
   The yellow LED flashes slowly.

2. To enable the green LED, press: 30 # 21 # 1 # **
   The yellow LED continues to blink slowly.
   To disable the green LED, press: 30 # 21 # 0 # **
   The yellow LED continues to blink slowly.

3. Exit Program Mode.
   Press: *
   The yellow LED stops flashing.

3.9.11.e Selecting Wiegand Green LED Active State

In Wiegand Front End Mode you can control how the green LED operates using the LED wire, which is the brown wire on the main keypad wire harness. When you program this option for an active high state, the green LED turns on when the wire is connected to positive voltage. When you program this option for an active low state, the green LED turns on when the wire is connected to ground. The default is an active high state.

1. Enter Program Mode.
   Press: 99 # Master Code *
   The yellow LED flashes slowly.

2. To set the green LED for an active high state, press: 30 # 22 # 1 # **
   The yellow LED continues to blink slowly.
   To set the green LED for an active low state, press: 30 # 22 # 0 # **
   The yellow LED continues to blink slowly.

3. Exit Program Mode.
   Press: *
   The yellow LED stops flashing.
### 3.9.11.f Selecting the Wiegand Format

The keypad Wiegand Format is programmable. By default, it is set to 26-Bit. Refer to the Wiegand Format Chart for details on the various formats.

1. Enter Program Mode.
   
   Press: **99 # Master Code * **
   
   The yellow LED flashes slowly.

2. Enter the Wiegand Format
   
   Press: **32 # 10 # value # **

3. Exit Program Mode.
   
   Press: *
   
   The yellow LED stops flashing.

### Table 8: Wiegand Format Chart

<table>
<thead>
<tr>
<th>Format Value</th>
<th>Wiegand Format</th>
<th>Largest PIN Value</th>
<th>Largest Site Value</th>
<th>Largest Group Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>26 bit</td>
<td>65535</td>
<td>255</td>
<td>N/A</td>
</tr>
<tr>
<td>2</td>
<td>28 bit</td>
<td>32767</td>
<td>255</td>
<td>N/A</td>
</tr>
<tr>
<td>3</td>
<td>29 bit</td>
<td>524287</td>
<td>255</td>
<td>N/A</td>
</tr>
<tr>
<td>4</td>
<td>30 bit</td>
<td>65535</td>
<td>255</td>
<td>15</td>
</tr>
<tr>
<td>5</td>
<td>31 bit</td>
<td>65535</td>
<td>255</td>
<td>31</td>
</tr>
<tr>
<td>6</td>
<td>32 bit</td>
<td>8191</td>
<td>2047</td>
<td>63</td>
</tr>
<tr>
<td>7</td>
<td>36 bit</td>
<td>999999</td>
<td>1023</td>
<td>N/A</td>
</tr>
<tr>
<td>8</td>
<td>29 bit</td>
<td>524287</td>
<td>255</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### 3.9.11.g Programming Wiegand Signal Pulse Width

If your panel requires a specific pulse width (the width of each individual data bit) you can program that with the command below. It's programmable from 20μS (micro-seconds) to 5100μS; the default value is 160μS. The value field in the command requires a number from 1 to 255 in 20μS increments. For example is you want 200μS enter a value of 10 in the field. Only change this option if your panel specifically states you need a specific pulse width.

1. Enter Program Mode.
   
   Press: **99 # Master Code * **
   
   The yellow LED flashes slowly.

2. Enter the pulse width (value = 1 to 255; 20μS increments; default = 8, 160μS).
   
   Press: **32 # 11 # value # **

3. Exit Program Mode.
   
   Press: *
   
   The yellow LED stops flashing.
3.9.11.h  Programming Wiegand Signal Inter-Pulse Spacing

If your panel requires a specific inter-pulse spacing (the width between each data bit) you can program that with the command below. It's programmable from 20μS (micro-seconds) to 5100μS; the default value is 640μS. The value field in the command requires a number from 1 to 255 in 20μS increments. For example is you want 200μS enter a value of 10 in the field. Only change this option if your panel specifically states you need a specific inter-pulse spacing.

1. Enter Program Mode.
   Press: 99 # Master Code *
   The yellow LED flashes slowly.
2. Enter the pulse width (value = 1 to 255; 20μS increments; default = 32, 640μS).
   Press: 32 # 12 # value # **
3. Exit Program Mode.
   Press: *
   The yellow LED stops flashing.

3.9.11.i  Setting the Wiegand Site ID

If your Wiegand panel requires a certain Site ID within the Wiegand data, use the command below to change it. By default, this value is set to 0. Refer to the Wiegand Format Chart for allowed Site IDs.

1. Enter Program Mode.
   Press: 99 # Master Code *
   The yellow LED flashes slowly.
2. Enter the Site ID
   Press: 34 # 0 # value # **
3. Exit Program Mode.
   Press: *
   The yellow LED stops flashing.

3.9.11.j  Setting the Wiegand Group ID

If your Wiegand panel requires a certain Group ID within the Wiegand data, use the command below to change it. By default, this value is set to 0. Refer to the Wiegand Format Chart for allowed Group IDs.

1. Enter Program Mode.
   Press: 99 # Master Code *
   The yellow LED flashes slowly.
2. Enter the Group ID
   Press: 34 # 1 # value # **
3. Exit Program Mode.
   Press: *
   The yellow LED stops flashing.
3.10 Resetting the Keypad and Erasing Memory

There are two methods for deleting information from the keypad. One method only resets the default settings and the other erases the entire keypad.

### 3.10.1 Resetting Defaults Only

Entering command 40 resets the keypad's default settings, including the master code. It does not erase the user memory or change the operating mode (i.e., Standalone, Secured Series or Wiegand Front End Mode). This is useful if the unit has experienced programming problems, or you wish to delete earlier programming.

1. Enter Program Mode.
   - Press: 99 # Master Code *
   - The yellow LED flashes slowly.
2. Enter the command to reset system defaults.
   - Press: 40 # 00000 # 00000 # **
   - The yellow LED continues to blink slowly.
3. Exit Program Mode.
   - Press: *

### 3.10.2 Reset Entire Keypad and All Delete Users

Entering command 46 deletes everything from the keypad memory including the user list but does not change the operating mode (i.e., Standalone, Secured Series or Wiegand Front End Mode) and restores the default settings.

1. Enter Program Mode.
   - Press: 99 # Master Code *
   - The yellow LED flashes slowly.
2. Enter the command to erase memory.
   - Press: 46 # 00000 # 00000 # **
   - The yellow LED blinks rapidly for several seconds until the memory is deleted.
3. Exit Program Mode.
   - Press: *
3.11 Programming Options Chart

This section contains a complete list of the programming commands available in the keypad.

Table 9: User Programming Command List

<table>
<thead>
<tr>
<th>Command/Action</th>
<th>Keys to Enter/Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add Standard User (short)</td>
<td>user location # code * code *</td>
</tr>
<tr>
<td>Add Standard User with Specific Unlock Time</td>
<td>unlock time # user location # code * code *</td>
</tr>
<tr>
<td>Add Enhanced User</td>
<td>60 # user type # user location # code * code *</td>
</tr>
<tr>
<td>Add User to Trigger Specific Outputs</td>
<td>59 # outputs # user location # code * code *</td>
</tr>
<tr>
<td></td>
<td>(1 = Lock, 2 = OUT2, 3 = OUT 3, Etc)</td>
</tr>
<tr>
<td>Disable User</td>
<td>56 # 1 # user location # **</td>
</tr>
<tr>
<td>Enable User</td>
<td>56 # 0 # user location # **</td>
</tr>
<tr>
<td>Delete User</td>
<td>user location # **</td>
</tr>
</tbody>
</table>

Table 10: User Types - Brief

<table>
<thead>
<tr>
<th>User Types</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toggle User 0</td>
<td>Latches the Lock Output</td>
</tr>
<tr>
<td>Standard User (1)</td>
<td>Standard Timed User</td>
</tr>
<tr>
<td>Lockout User (3)</td>
<td>Locks Out other Users</td>
</tr>
<tr>
<td>Single Use Code (5)</td>
<td>Can only be Used Once</td>
</tr>
<tr>
<td>Emergency User (7)</td>
<td>Can't be Locked Out</td>
</tr>
<tr>
<td>Duress User (8)</td>
<td>Activates Lock and Duress Outputs</td>
</tr>
<tr>
<td>Two-Part User Type A (9)</td>
<td>One half of two-part user combination</td>
</tr>
<tr>
<td>Two-Part User Type B (10)</td>
<td>One half of two-part user combination</td>
</tr>
</tbody>
</table>

Table 11: Default/Resetting Keypad Command List

<table>
<thead>
<tr>
<th>Command/Action</th>
<th>Keys to Enter/Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reset Defaults Only</td>
<td>40 # 00000 # 00000 # **</td>
</tr>
<tr>
<td>Reset Entire Keypad</td>
<td>46 # 00000 # 00000 # **</td>
</tr>
</tbody>
</table>

Table 12: Keypad Operating Mode Command List

<table>
<thead>
<tr>
<th>Command/Action</th>
<th>Keys to Enter/Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set Keypad to Standalone Mode</td>
<td>1032 # 0 # 0 # **</td>
</tr>
<tr>
<td>Set Keypad to Wiegand Front End Mode</td>
<td>1032 # 0 # 1 # **</td>
</tr>
<tr>
<td>Set Keypad to Secured Series Front End Mode</td>
<td>1032 # 0 # 2 # **</td>
</tr>
</tbody>
</table>
### Table 13: Output Configuration Programming Command List

<table>
<thead>
<tr>
<th>Command/Action</th>
<th>Keys to Enter/Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change Lock Output Time</td>
<td>11 # time # 0 # ** (1-255 sec)</td>
</tr>
<tr>
<td>Assign Outputs</td>
<td>10 # virtual output # physical output # **</td>
</tr>
</tbody>
</table>

#### Virtual Outputs
- 1 – Lock Output
- 2 – Alarm Shunt
- 3 – Propped Door
- 4 – Forced Door
- 5 – OUT2
- 6 – OUT3
- 7 – OUT4
- 8 – OUT5
- 9 – OUT6
- 10 – OUT7
- 11 – OUT8
- 12 – OUT9
- 13 – OUT10
- 14 – Duress Output
- 15 – Panic Output
- 16 – Keypad Active Output
- 17 – Door Bell Output
- 18 – REX Input Active
- 19 – Door Loop Input Active

#### Physical Outputs
- 1 – Main Relay
- 2 – Aux Relay
- 3 – External Relay 1
- 4 – External Relay 2
- 5 – External Relay 3
- 6 – External Relay 4
- 7 – External Relay 5
- 8 – External Relay 6
- 9 – External Relay 7
- 10 – External Relay 8
- 11 – Audio Alert 1
- 12 – Audio Alert 2
- 13 – Audio Alert 3
- 14 – Audio Alert 4
- 15 – Audio Alert 5
- 16 – Audio Alert 6
- 17 – Audio Alert 7
- 18 – Audio Alert 8
- 19 – Audio Alert 9
- 20 – Audio Alert 10

| Disable Virtual Output             | 10 # virtual output # 0 # **               |
| Disable Physical Output            | 10 # 0 # physical output # **             |
| Programming the REX Outputs        | 49 # outputs # 0 # **                     |
|                                   | (1 = Lock, 2 = OUT2, 3 = OUT 3, Etc)     |
| Programming the Door Loop Outputs  | 49 # outputs # 1 # **                     |
|                                   | (1 = Lock, 2 = OUT2, 3 = OUT 3, Etc)     |
| Set OUT2 Time Duration             | 12 # ttt # mmm # **                      |
| Set OUT3 Time Duration             | 13 # ttt # mmm # **                      |
| Set OUT4 Time Duration             | 14 # ttt # mmm # **                      |
| Set OUT5 Time Duration             | 15 # ttt # mmm # **                      |
| Set OUT6 Time Duration             | 16 # ttt # mmm # **                      |
| Set OUT7 Time Duration             | 17 # ttt # mmm # **                      |
| Set OUT8 Time Duration             | 18 # ttt # mmm # **                      |
| Set OUT9 Time Duration             | 19 # ttt # mmm # **                      |
| Set OUT10 Time Duration            | 110 # ttt # mmm # **                     |
| Set Propped Door Time              | 44 # time # 0 # ** (10-990 sec)           |
| Set Forced Door Time               | 45 # time # 0 # ** (10-990 sec)           |
## Table 14: Keypad Programming Options Command List

<table>
<thead>
<tr>
<th>Command/Action</th>
<th>Keys to Enter/Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change Keypad Options</td>
<td>30 # option # setting # **</td>
</tr>
<tr>
<td>Option</td>
<td>Setting</td>
</tr>
<tr>
<td>0 – Audio Keypress Feedback</td>
<td>0 = Disabled</td>
</tr>
<tr>
<td>1 – Visual Keypress Feedback</td>
<td>0 = Disabled</td>
</tr>
<tr>
<td>2 – Auto Entry</td>
<td>0 = Disabled</td>
</tr>
<tr>
<td>3 – Error Lockout</td>
<td>0 = Disabled</td>
</tr>
<tr>
<td>4 – User Lockout</td>
<td>0 = Disabled</td>
</tr>
<tr>
<td>5 – Two-Part Users</td>
<td>0 = Disabled</td>
</tr>
<tr>
<td>6 – Keypad Backlighting</td>
<td>0 = Disabled</td>
</tr>
<tr>
<td>7 – Keypad Backlight Dimming</td>
<td>0 = Disabled</td>
</tr>
<tr>
<td>8 – REX Processing Select</td>
<td>0 = Only when door closed</td>
</tr>
<tr>
<td>9 – Red LED Dimming</td>
<td>0 = Off when backlighting</td>
</tr>
<tr>
<td>10 – Door Loop Output Processing</td>
<td>0 = Not when lock output latched</td>
</tr>
<tr>
<td>16 – Secured Series In/Out</td>
<td>0 = Records IN</td>
</tr>
<tr>
<td>18 – 8-Bit Burst Output</td>
<td>0 = Disabled</td>
</tr>
<tr>
<td>19 – WFE Red LED Select</td>
<td>0 = Disabled</td>
</tr>
<tr>
<td>20 – WFE Red LED Active State</td>
<td>0 = Low</td>
</tr>
<tr>
<td>21 – WFE Green LED Select</td>
<td>0 = Disabled</td>
</tr>
<tr>
<td>22 – WFE Green LED Active State</td>
<td>0 = Low</td>
</tr>
</tbody>
</table>

**Note:** WFE means Wiegand Front End

| Change Keypad Parameters        | 32 # parameter # value # ** |
| Parameter                       | Value                     |
| 0 – Duress Output Duration      | 1 – 255 Seconds (default = 5) |
| 1 – Panic Output Duration       | 1 – 255 Seconds (default = 5) |
| 2 – Error Lockout Threshold     | 1 – 50 Attempts (default = 3) |
| 3 – Error Lockout Duration      | 1 – 255 Seconds (default = 10) |
| 4 – Auto-Entry Count            | 2 – 10 Digits (default = 4) |
| 10 – Wiegand Format             | 1 – 8 (default = 1, 26-Bit) |
| 11 – Wiegand Pulse Width        | 1 – 255 in 20μS Increments (default = 8, 160μS) |
| 12 – Wiegand Interpulse Spacing | 1 – 255 in 20μS Increments (default = 32, 640μS) |

| Change Wiegand Parameters       | 34 # parameter # value # ** |
| Parameter                       | Value                     |
| 0 – Wiegand Site ID             | Refer to Wiegand Format Chart |
| 1 – Wiegand Group ID            | Refer to Wiegand Format Chart |

**Note:** The default setting for both settings is 0.
Section 4: Troubleshooting

This section contains information about the programming mode loopback, the keypad self-test and a list of common problems with possible solutions.

4.1 Technical Support

Service Company: Before calling IEI for installation assistance, refer to the following sections. To contact IEI’s Technical Support department, call 1- 800-343-9502 between 8:00 a.m. - 7:00 p.m. (Eastern Standard Time), Monday through Friday. Questions can also be submitted through our website at www.ieib.com.

End User: Please contact your service company.

4.2 Performing the Programming Mode Loopback

The keypad has a special loopback connection you can make to enter program mode if you do not know the master code. Use the following steps below and refer to the diagram.

1. Power down the keypad.
2. Connect the White/Yellow, Brown and White wires together and disconnect any other connections to these wires.
3. Power up the keypad
4. Change the master code or default the keypad
5. Power down the keypad and remove the loopback connections and reconnect any other wiring to these wires.
6. Power up the keypad.

![Diagram of Programming Mode Loopback]

Figure 14: Programming Mode Loopback
4.3 Performing the Keypad Self-Test

After installing the keypad, IEI recommends that you perform the keypad self-test once a year, to ensure that the keypad is working properly.

1. To perform the self-test, with the unit powered up, press the following keys on the keypad: 7890#123456*
2. If all 12 key presses are accepted, the keypad enters self-test mode.
3. The LEDs then turn on one at time with a beep in the following order Red, Yellow then Green.
4. After the Green LED, the unit then flashes an LED to indicate which operating mode the keypad is programmed mode. Below shows which LED flashes for each mode:
   - Standalone Mode: Red Flash
   - Wiegand Front End Mode: Green Flash
   - Secured Series Front End Mode: Yellow Flash followed by rapid yellow flicker.

**Note:** If the unit is not connected to a controller in Secured Series Front End Mode, the yellow LED turns on solid after the yellow flash.
4.4 Common Problems and Solutions

The following table contains several common problems with possible solutions.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>The LEDs are slowly cycling from right to left and backlighting is off.</td>
<td>The keypad is designed to monitor the input voltage and this is an indication of under-voltage. The under-voltage threshold is set to 8.5VDC, and when the voltage drops below this limit, the low voltage warning starts and backlighting is turned off. To solve, raise the voltage to between 10-30V/12-24VAC.</td>
</tr>
<tr>
<td>The LEDs are rapidly cycling from left to right and the keypad has lost all operation.</td>
<td>The keypad is designed to monitor the input voltage, and this is an indication of over-voltage. The over-voltage threshold is set to 36VDC, and when the voltage rises above this limit, the over-voltage warning starts and the keypad loses all operation. To solve, lower the voltage to between 10-30VDC/12-24VAC.</td>
</tr>
<tr>
<td>The master code does not work.</td>
<td>Perform the programming mode loopback and reset the master code using the programming command.</td>
</tr>
<tr>
<td>No LEDs are lit on the keypad</td>
<td>Power is not reaching the keypad. Using a voltmeter, confirm that there is voltage at the keypad on the red and black wires. If there is no voltage at the keypad, verify that there is voltage at the power supply. If there is no voltage at the power supply, call the manufacturer of the power supply. If there is voltage at the power supply but not at the keypad, verify there is no break in the wires, then check continuity in the whole length of the wire run. To verify that the keypad is working, you can power the keypad with a 12 Volt Battery.</td>
</tr>
<tr>
<td>The keypad indicates access was granted, but the relay is not activating.</td>
<td>Perform the power supply integrity test in section 4.5.</td>
</tr>
</tbody>
</table>

4.5 Power Supply Integrity Test

This test confirms whether or not the power source is providing sufficient amperage to support all the equipment. It indicates whether or not a stable electrical environment exists by revealing fluctuating voltages during operation. A fluctuation in voltage exists when the equipment draws more amperage than the power supply offers.

1. As the keypad cycles the equipment ON and OFF, power must remain constant. If a voltage fluctuation of one-quarter volt or more occurs during testing, in either the positive or negative direction, the test results indicates a “fail” response. If the voltage retains proper amplitude (remains constant), the test indicates a “pass” response.
2. Set the meter to read voltage and place meter probes on the red and black wires of P2, located on the keypad. The voltage reading is monitored throughout the entire test.
3. With power being applied to the keypad, enter a valid code on the keypad. The REX input can be used in place of a valid code; the test results remain the same.
4. Observe the meter as the keypad cycles the system ON and OFF. The voltage must remain constant during this operation, indicating that the electrical system is stable and adequate. Constant voltage during the test indicates a “PASS” response. If the voltage changes more than one-quarter of a volt (.25), the test indicates a “FAIL” response.
5. If the test indicates a “FAIL” response, then there is likely and issue with your power supply. Correct the problem, then run the test again. If the test indicates a “PASS” response, then continue troubleshooting the issue.