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MODEL 3000 MULTIFUNCTION DOOR CONTROLLER WITH DELAYED EGRESS
PROGRAMMING MANUAL
FIRMWARE VERSION 2.1.0
DOCUMENT NUMBER: 980-3000-2.1.0

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CONTROLLER DESCRIPTION

The Highpower Multifunction Door Controller is a control circuit used to provide delayed egress for one door and access control functions for two doors. The controller is designed to store access codes by interfacing with keypads, card readers and biometrics, and can control electromagnetic locks and electric strikes. Additionally, the controller can be used to interface locks with a fire alarm, can turn on video recorders during door activity and can provide alarms for unsecured door conditions. This document will describe the features of this controller for simplified installation and setup.

KEY FEATURES

- Delayed Egress Controller with BOCA and NFPA 101 compatibility modes. Controller provides both an audible and visual LED response on one door.
- Integrated Access Control with both 26-Bit Wiegand Input and 7-Wire Matrix Keypad Input. Unit can store 510 users in non-volatile EEPROM memory. Access control module is designed to work with two doors.
- Wiegand interface has automatic transmission speed adjustment for compatibility with 26-bit Wiegand readers from many different manufacturers.
- Wiegand port supports multiple Wiegand devices connected simultaneously.
- Integrated Fire Alarm Relay for interfacing the controller to a fire alarm system.

- Four main outputs controlled by five timers. Two outputs are 15 Amp relay outputs and two are 10 Amp FET Transistor outputs.
- Outputs are fused and have surge suppression circuitry.
- Door Monitoring on one door with LED response including Anti-Tailgating and Forced Door Alarm.
- Active Camera output for turning on video cameras and recorders during door events.
- Fully stand-alone programmable through integrated keypad and led indicators.

ACCESS CONTROL FEATURES

CODE TYPES

The access control portion of the controller has a memory that is able to hold 510 codes. You may program codes in memory that can be of six types. Code types include master codes, user codes, one-time-use codes, "programming add" codes and "programming remove" codes.

Master codes are codes that allow access to programming features. These codes should only be given to system administrators. They allow an administrator to enter programming mode.

User codes are codes that activate outputs, but do not allow access to programming features. These codes are given to users for entry.

"One-Time-Use" codes are often called "Service Codes". These are codes that only allow access one time. These codes can be given to maintenance people or real-estate salespeople to provide one-time entry into a door. Since any code can be a one-time-use code, you can have up to 510 one-time-use codes in memory. You may make a particular one-time-use code work for more than one time. By adding the code to memory multiple times, the code will work for as many times as it was programmed.

SHADOW CARD SYSTEMS

A new feature added to the controller (with Firmware Version 2.0.0) is support for a "Shadow Card Systems". Shadow Card Systems are systems that are designed to simplify the management of user codes.

In a basic shadow card system, there are two identically coded cards for every user. One of the cards is issued to the user. The second card is kept with administration. In addition to the sets of user cards, there are two special cards. These cards are the "Programming Add" and "Programming Remove" cards.

When Programming Add card is swiped, the controller enters a special programming mode. All cards swiped after the Programming Add card, are stored in memory as a user card. The Programming Add card is then swiped at the end of adding all of the user cards, exiting the add mode. All cards swiped at a particular reader will only work on that reader. If the card is already in memory, the controller will not allow the addition of the card a second time.

Programming Remove cards allow administration to delete a user code, when a user must be removed from the system. By swiping the Programming Remove card at a particular reader, the controller enters another programming mode. Every card swiped after the Programming Remove card is removed from memory. The second user card that was kept with administration for a particular user is used in the case where a user card has not been returned or is damaged. This programming mode deletes all instances of the swiped code in memory for a particular reader. When all the desired codes have been removed, the same Programming Remove card is again swiped in order to return back to normal operation. These operations can be performed with no keystrokes on the keypad and is fast and simple for maintaining a few user codes.

MATRIX AND WIEGAND INTERFACES DESCRIBED

There are two interfaces that can be used to send codes to the controller. The controller has both a matrix keypad interface and two 26-Bit Wiegand interfaces. The matrix keypad interface allows the installer to connect a standard matrix keypad to the controller. The matrix keypad can be used for both access and programming. Multiple matrix keypads can be connected to the matrix keypad port for this purpose.

In addition to the matrix keypad input, the controller has two Wiegand interfaces can be used to connect the controller to any standard 26-bit Wiegand device. Since the Wiegand device only sends ID numbers back to the controller, the matrix keypad must be used for most programming sequences. For convenience, there is a matrix keypad mounted on the controller's board, so that users who use just the Wiegand ports can readily program the unit.

This controller does not use the site code portion of the 26-bit Wiegand data. The controller is designed to store the lower 16-bits of the data values in order to store codes. Despite this, the Highpower Wiegand Interface provides full Data Parity Checking over the entire 26-bits to ensure code integrity. In addition, the Wiegand interface is fully signal de-bounced, in order to filter noisy Wiegand data, and has automatic detection of data transmission rate, so that 26-bit Wiegand devices from many brands should work properly. The interface will timeout and recover in the case where the Wiegand data transmission is incomplete or corrupted.

USING THE MATRIX KEYPAD

The matrix keypad can be used to both program the controller, and send user codes to the controller. User codes that have been stored in memory as "Reader 1" codes can be activated using the matrix keypad. For example, if you program the controller to unlock on Port 1 with the code "1234", code "1234" will work when the code is entered on the Wiegand Reader 1 or the matrix keypad.

PROGRAMMABLE OUTPUT TIMERS

The controller has 4 programmable outputs. Two of these outputs are 15 Amp relays and the other two are 10 Amp FET (transistor) outputs. These outputs control up to a 35V control voltage.

Access codes are individually programmed to actuate output timers. There are five output timers in the controller. The first two output timers activate output 1 (relay) and the additional three timers are assigned to Outputs 2 through Outputs 4.

When a code is entered, the controller looks up which output timer(s) the code is programmed to actuate. The duration of each of these timers is programmable. Since each output has a timer associated to it, the output stays unlocked for the programmed time when actuated. If the timers are programmed to open for "zero" seconds, the output will toggle instead of time.

Since Relay 1 has two output timers associated with it, you can have two different unlock delays for Door 1. This feature is commonly used to provide handicapped access. The second timer can be set for a longer duration, so that Door 1 is left unlocked for a longer time when a handicapped user is trying to enter.

REMOTE RELEASE INPUTS

In addition to using codes to activate timers, two "remote release" inputs on the controller can be used. The remote release inputs will activate Timer 1 and Timer 2 with an external signal. This signal can be a pushbutton or other type of switch that is used to unlock a door from a remote location. **Do not rely on these inputs as a sole form of egress**. **For most systems, it is required to have (2) forms of egress, one using the controller, and a second, such as a pneumatic push button**

switch, that directly cuts the power to an electromagnetic lock. This port is useful when using electronic devices for egress like a proximity sensor or remote pushbutton.

DELAYED EGRESS FUNCTIONS

The controller is designed to provide delayed egress functions on Door 1 in addition to access control functions. The "delayed egress cycle" is a timed unlock of Door 1 that is triggered by a "Request to Exit" input. This feature is used to allow users to exit out of a locked door after waiting for a 15 or 30 second unlock countdown. There are two standards for this type of operation. These standards are described in BOCA and NFPA 101 documentation.

In NFPA mode, the controller starts counting down after the Request to Exit input is actuated. There is a 2 second nuisance delay on the Request to Exit input that prevents false alarms. After a user holds down the request to exit device for more than two seconds, the delayed egress countdown begins. The countdown duration is programmable between 15 and 30 seconds. For the next 15 or 30 seconds, the controller "beeps" an audible output and interchanges the led colors between green and red. At the end of the countdown period, Output 1 unlocks, allowing the user to egress. Once the door is unlocked, the audible alarm stays on continuously and the Red LED is lit. The unit stays in this state until a manual reset procedure occurs. An administrator must (1) open the door for more than one second, (2) close the door and actuate a "manual reset" switch. This switch is usually a key-switch. After doing the reset, the alarm is halted and the controller returns to run mode.

In BOCA mode, a similar countdown occurs but the reset procedure is different. At the end of the unlock cycle, a second relock cycle takes place. The relock cycle occurs once the door has been opened and then re-closed. This relock cycle relocks the door automatically. If the door is re-opened during this 30 second relock cycle, the relock cycle starts over again. This ensures that there is always a 30 second window between user passages.

DOOR POSITION SWITCH FEATURES

Because both of the delayed egress modes rely on the opening and closing of the door, a Door Position Switch (DPS) must be used. Typically, this is a magnetic reed switch that is part of an electromagnetic lock, or a latch sensor in an electric strike. There is an input in the Delayed Egress Terminal Block that provides a connection for this switch.

When using a DPS, the controller provides additional features. These features include an anti-tail-gating feature and a forced door alarm feature on Door #1. The anti-tail-gating feature will relock Output 1 immediately after a door closure. This prevents another user from "tail-gating"; tail-gating is passing through the door immediately after another user has entered their code, effectively allowing two people to pass using the first user's code.

The Forced Door Alarm is triggered when the locking mechanism of a door is defeated. In this case, the door is supposed to be locked, but the door position sensor is open. When this occurs, the audible alarm turns on in order to alert a guard or administrator. The video recorder output is also activated.

REQUEST TO EXIT OVERRIDE

The delayed egress key switch is used to reset the controller when the controller is in NFPA 101 mode. After counting down, the door unlocks and the controller waits until an administrator performs a reset using the key switch. Normally, this key switch is a momentary type switch. If you use a two-position maintained type key switch, instead of the momentary type, the key switch can be used to override the delay egress countdown. When the countdown is overridden, the request to exit switch will act as a remote release switch, instead of triggering the delayed egress cycle. This allows an administrator to use the request to exit device to act as a remote release during special occasions. In

doing this the remote release device will allow immediate passage through door 1. Turning the key switch back to the run position will cause the controller to perform the delayed egress countdown.

FIRE ALARM INTERFACE

The controller has a relay circuit that is used to interface with a fire alarm system. This relay is a latching relay circuit that can immediately cut the power to a connected electromagnetic door lock. In addition to cutting power to a lock, there are relay outputs that can be used for monitoring the status of the fire alarm.

This fire alarm relay circuit (FAR) can be configured for both manual and automatic reset. In the manual configuration, the unit will not re-energize an electromagnetic lock unless an external manual reset is actuated. This manual reset is typically a key-switch. In the automatic configuration, the power is restored to the locks when the fire alarm is reset. **Whenever the fire alarm circuit is used, check with the Authority Having Jurisdiction for approval of the proposed system connections**.

When using the controller without connection to a fire alarm, place a wire jumper from terminals #57 and #60 for proper controller operation.

ADDITIONAL CONTROLLER FEATURES

VIDEO RECORDER OUTPUT

There is an output on the controller that is specifically designed to trigger an event on a video recorder. This output is activated when (1) a push on a key on a matrix keypad occurs, (2) a code is sent to the controller over one of the Wiegand ports, or (3) the Door Position Switch is open due to an alarm. This output is programmed to stay on for 8 seconds after the event ends. If another event that occurs during the timing cycle, the second event will cause the cycle to restart.

PANIC SIGNALLING

The controller has a special mode that can be used for panic emergencies or external signaling. If the matrix keypad is installed as an access device, a user can press both "*" and "#" on the keypad to activate panic mode. Panic mode will activate programmed output timers. The programmed outputs can be used to signal a guard or administrator that there is a panic situation. The outputs that the panic mode activates can be programmed.

AUTOMATIC KEY PRESS CLEARING

The controller will dump any key presses that are entered on the matrix keypad if the code is not completed in 8 seconds. This feature is disabled when the controller is in programming mode.

WIEGAND LED CONTROL

The Wiegand LED control lines reflect the conditions of Relay 1 and Relay 2. If Relay 1 is triggered, the LED Control Line on Wiegand Port 1 changes the state of the LED on the Wiegand Device that is connected to Port 1. If Relay 2 is triggered, the LED Control Line on Wiegand Port 2 changes the state of the LED on the Wiegand Device that is connected to Port 2.

LED INDICATOR OUTPUTS

The controller has outputs for driving external LED indicators. There is an output for the Red, Amber and Green status LEDs. These outputs allow for external monitoring of the controller status and provide indications during the Delayed Egress Modes.

BACKUP BATTERY PASS-THROUGH

The controller provides wires that pass the voltage of a back up battery through to an external power supply.

EEPROM MEMORY

The EEPROM memory on the controller stores all 510 codes and features settings. This data is retained no matter if there is power to the controller or not. This memory has been tested to perform over 1,000,000 write cycles, and can provide an infinite number of read cycles. The unit should retain data for over 90 years without external power. The controller performs internal operations that self-tests the EEPROM memory, and fully verifies all of the codes that are added to the memory.

SELF-RESETTING DESIGN

The processor of this controller is designed to reset itself if circuit faults should occur.

CODES SPECIFIC TO EACH READER

When a user code is added to the controller, the controller stores which port the code is to be used on. User codes can be programmed to work on either Reader 1 or Reader 2. In doing this, codes for a two-door system remain independent to each of the doors.

PROGRAMMING THE CONTROLLER

The controller is a stand-alone unit that is fully programmable from the onboard keypad, or from an external matrix keypad.   Some programming procedures can also occur using the Wiegand Readers. In order to use any programming features of the unit, the controller must first be put into "program mode". After entering program mode, keypad sequences are used to perform programming actions.

ENTERING PROGRAM MODE

To enter program mode:

1. The jumper JP1 is used to prevent programming when a master code is used. This jumper is labeled "PREVENT PROGRAMMING?" Ensure that jumper JP1 is set to "NO" when attempting to enter program mode.
2. Enter a master code on the keypad. The factory default master code is "12345"
3. When the unit enters program mode, both the red and the green status LEDs will be illuminated.

Once in programming mode, use the keypad to enter command sequences. During some programming steps, the controller accepts data from the external Readers. Temporarily unplug a Reader's terminal block if data coming in off that Reader is going to affect your programming.

The default master code is set at the factory as "12345". This code should be changed immediately in order to make sure the factory master code is not functioning. To do this, the installer should delete the master code (function 15) and add a new master code (function 16).   The programming procedures in the next section will describe how to perform these operations.

After entering program mode, both the Red and Green LEDs will remain lit. While entering programming sequences, the Green LED will go out if there is an error in the sequence. The key

presses that follow the "Entering Program Mode" sequence allows you to program specific functions of the controller. These functions are listed in following sections.

If all of the master codes in program memory are erased or forgotten, you can use JP2 to force the controller into programming mode. This jumper is labeled as "FORCE PROGRAM?" and is used to jump into program mode if all master codes are lost. To do this, change jumper JP2 from "NO" to "YES", and cycle the power on the controller. When the controller powers up, it will be in program mode. Replace the jumper back to the "NO" position once in program mode.

PROGRAMMING FEATURE LIST

FUNCTION NUMBER	FUNCTION
0	PASSAGE MODE
1	ADD A USER CODE TO READER 1
2	ADD A USER CODE TO READER 2
3	BULK ENROLL USER CODES TO READER 1
4	BULK ENROLL USER CODES TO READER 2
5	DELETE A USER CODE FROM READER 1
6	DELETE A USER CODE FROM READER 2
7	DELETE A RANGE OF USER CODES FROM READER 1
8	DELETE A RANGE OF USER CODES FROM READER 2
9	ADD A ONE-TIME-USE CODE TO READER 1
10	ADD A ONE-TIME-USE CODE TO READER 2
11	BULK ENROLL ONE-TIME-USE CODES TO READER 1
12	BULK ENROLL ONE-TIME-USE CODES TO READER 2
13	DELETE A RANGE OF ONE-TIME-USE CODES FROM READER 1
14	DELETE A RANGE OF ONE-TIME-USE CODES FROM READER 2
15	ADD A MASTER CODE
16	DELETE A MASTER CODE
17	ADD A "PROGRAMMING ADD" CODE
18	ADD A "PROGRAMMING REMOVE" CODE
19	DELETE A PROGRAMMING CODE
20	SET OUTPUT TIMER DELAY
21	SET PANIC MODE OUTPUTS
22	SET PASSAGE MODE OUTPUTS
23	SET MATRIX KEYPAD CODE LENGTH
24	AUTO-SHUT-DOWN ENABLE/DISABLE
25	SET DELAYED EGRESS MODE
26	SET DELAYED EGRESS DELAY
27	FACTORY RESET

PROGRAMMING COMMANDS

(1) ADD A USER CODE TO READER 1

User codes allow passage through a particular door, but do not allow access to programming features. Any code entered using this command will work with both the matrix keypad and Reader 1.

1 # <OUTPUTS> # <NEW USER CODE> # #

You may also add multiple user codes with this command. Use this command when you have to add a lot of user codes that are not in consecutive order:

1 # <OUTPUTS> # <NEW USER CODE 1> # <NEW USER CODE 2> # <etc…> # #

Any Wiegand Reader can also be used to enter the user code:

1 # <OUTPUTS> # (CARD SWIPE) # #

You can also use any Wiegand Reader to enter multiple user codes. Use this command when you have to add a lot of user codes that are not in consecutive order:

1 # <OUTPUTS> # (CARD SWIPE 1) (CARD SWIPE 2) (etc…) # #

OUTPUTS = the output timers that this code will activate (**0-4**). There are five output timers on the controller. These are numbered "0" through "4". Timers 0 and 1 both actuate Relay 1. Timer 2 actuates Relay 2. Timer 3 and 4 actuate each of the transistor outputs. By having two timers available for Output 1, you can have two codes that operate Output 1 for two different lengths of time. A code may operate any number of timers when typed into the keypad. For example, if you want a code to actuate Output 1 and Output 3, you type "13" for the "timers" value. You may enter the timer values in any order, you may also type "31" for example.

It is recommended using Timer 1 as the primary timer for Output 1. Use Timer 0 when programming Handicapped access.

SHORTCUT: When you are using Timer 1 as the output, you do not have to specify a "1" when entering the TIMERS selection. If there is no TIMERS input, the controller will assume Timer 1.

Example: **1 # # 54321 #**

NEW USER CODE = the new User code to be added. After you enter a user code, you will see the Red LED quickly blink of and then on again, indicating that the code was stored valid. If you see the Green LED go out, it means that there was an error in the sequence. If this occurs, press the "*" (clear) key and try the sequence again.

(2) ADD A USER CODE TO READER 2

User codes allow passage through a particular door, but do not allow access to programming features. Any code entered using this command works with Reader 2.

2 # <OUTPUTS> # <NEW USER CODE> # #

You may also add multiple user codes with this command. Use this command when you have to add a lot of user codes that are not in consecutive order:

2 # <OUTPUTS> # <NEW USER CODE 1> # <NEW USER CODE 2> # <etc…> # #

Any Wiegand Reader can also be used to enter the user code:

2 # <OUTPUTS> # (CARD SWIPE) # #

You can also use any Wiegand Reader to enter multiple user codes. Use this command when you have to add a lot of user codes that are not in consecutive order:

2 # <OUTPUTS> # (CARD SWIPE 1) (CARD SWIPE 2) (etc…) # #

> OUTPUTS = the output timers that this code will activate (**0-4**).
> NEW USER CODE = the new User code to be added.

(3) BULK ENROLL USER CODES TO READER 1

User codes allow passage through a particular door, but do not allow access to programming features. Bulk Enrolling allows you quickly add a sequential range of user codes to memory. Any user code entered using this command works with Reader 1.

3 # <OUTPUTS> # <FIRST USER CODE IN RANGE> # <LAST USER CODE IN RANGE> #

You can also use any Wiegand Reader to enter codes. Use this command when you have the first and last cards in a series:

3 # <OUTPUTS> # (FIRST USER CARD SWIPE) (LAST USER CARD SWIPE)

After using this command, the amber LED will blink while the controller is adding the cards to memory.

> OUTPUTS = the output timers that this code will activate (**0-4**).
> FIRST USER CODE = the first User Code in a series to be added.
> LAST USER CODE = the last User Code in a series to be added.

Example:

You have a stack of proximity cards with IDs from 2000-4200 and you want to add these cards to Reader 1 without entering all of the cards manually, or swiping all of the cards individually. You want these cards to activate Timer 1 when swiped. Using the keyboard, you use the bulk enroll feature in the following way:

3 # 1 # 2000 # 4200 #

This command allows any card in the series from 2000 – 4200 work as a user card on Reader 1.

You may also swipe the cards with this command:

3 # 1 # (2000 ID Card Swipe) (4200 ID Card Swipe)

SHORTCUT: When you are using Timer 1 as the output, you do not have to specify a "1" when entering the TIMERS selection. If there is no TIMERS input, the controller will assume Timer 1.

Example: **3 # # 54321 #**

(4) BULK ENROLL USER CODES TO READER 2

User codes allow passage through a particular door, but do not allow access to programming features. Bulk Enrolling allows you quickly add a sequential range of user codes to memory. Any user code entered using this command works with Reader 2.

4 # <OUTPUTS> # <FIRST USER CODE IN RANGE> # <LAST USER CODE IN RANGE> #

You can also use any Wiegand Reader to enter codes. Use this command when you have the first and last cards in a series:

4 # <OUTPUTS> # (FIRST USER CARD SWIPE) (LAST USER CARD SWIPE)

After using this command, the amber LED will blink while the controller is adding the cards to memory.

> OUTPUTS = the output timers that this code will activate (**0-4**).
> FIRST USER CODE = the first User Code in a series to be added.
> LAST USER CODE = the last User Code in a series to be added.

(5) DELETE USER CODE FROM READER 1

This command is used to delete a master code from Reader 1. User Code(s) to be deleted can be both typed on the Keypad or swiped at any Reader.

5 # <USER CODE TO DELETE> # #

You may also delete multiple user codes with this command. Use this command when you have to add a lot of master codes that are not in consecutive order:

5 # <USER CODE TO DELETE 1> # <USER CODE TO DELETE 2> # <etc…> # #

Any Wiegand Reader can also be used to delete a user code:

5 # (CARD SWIPE) # #

You can also use any Wiegand Reader to delete multiple master codes. Use this command when you have to add a lot of user codes that are not in consecutive order:

5 # (CARD SWIPE 1) (CARD SWIPE 2) (etc…) # #

> USER CODE TO DELETE = the User code to be removed from Reader 1. After you delete user code, you will see the Red LED quickly blink of and then on again, indicating that the code was removed from memory. If you see the Green LED go out, it means that there was an error in the sequence. If this occurs, press the "*****" (clear) key and try the sequence again.

(6) DELETE USER CODE FROM READER 2

This command is used to delete a user code from Reader 2. User Code(s) to be deleted can be both typed on the Keypad or swiped at any Reader.

6 # <USER CODE TO DELETE> # #

You may also delete multiple user codes with this command. Use this command when you have to add a lot of master codes that are not in consecutive order:

6 # <USER CODE TO DELETE 1> # <USER CODE TO DELETE 2> # <etc…> # #

Any Wiegand Reader can also be used to delete a user code:

6 # (CARD SWIPE) # #

You can also use any Wiegand Reader to delete multiple master codes. Use this command when you have to add a lot of user codes that are not in consecutive order:

6 # (CARD SWIPE 1) (CARD SWIPE 2) (etc…) # #

USER CODE TO DELETE = the User code to be removed from Reader 1. After you delete user code, you will see the Red LED quickly blink of and then on again, indicating that the code was removed from memory. If you see the Green LED go out, it means that there was an error in the sequence. If this occurs, press the "*" (clear) key and try the sequence again.

(7) DELETE A RANGE OF USER CODES FROM READER 1

This command is used to delete a consecutive group of user codes from Reader 1. User Code(s) to be deleted can be both typed on the Keypad or swiped at any Reader.

7 # <FIRST USER CODE TO DELETE> # <LAST USER CODE TO DELETE> #

You can also use any Wiegand Reader to delete a range of codes:

7 # (FIRST USER CARD TO DELETE) (LAST USER CARD TO DELETE)

FIRST USER CODE = the first User Code in a series to be deleted.
LAST USER CODE = the last User Code in a series to be deleted.

Example:

You want to disable a bunch of consecutive cards IDs from 1500-1700 from Reader 1. It takes too long to type or swipe each card. Using the keyboard, you use the range delete feature in the following way:

7 # 1500 # 1700 #

All the codes on Reader 1 from 1500 – 1700 are deleted from memory.

You may also swipe the first and last cards with this command:

7 # (1500 ID Card Swipe) (1700 ID Card Swipe)

(8) DELETE A RANGE OF USER CODES FROM READER 2

This command is used to delete a consecutive group of user codes from Reader 2. User Code(s) to be deleted can be both typed on the Keypad or swiped at any Reader.

8 # <FIRST USER CODE TO DELETE> # <LAST USER CODE TO DELETE> #

You can also use any Wiegand Reader to delete a range of codes:

8 # (FIRST USER CARD TO DELETE) (LAST USER CARD TO DELETE)

FIRST USER CODE = the first User Code in a series to be deleted.
LAST USER CODE = the last User Code in a series to be deleted.

(9) ADD A ONE-TIME-USE CODE TO READER 1

One-Time-Use codes are often called "Service Codes". These are codes that allow passage for only one entry. They are automatically deleted from memory once they are used. These codes can be given to maintenance workers or real-estate salespeople to provide one-time entry into a door. Any code entered using this function will work with both the Matrix Keypad and with Reader 1.

9 # <OUTPUTS> # <NEW OTU CODE> # #

You may also add multiple codes with this command. Use this command when you have to add a lot of user codes that are not in consecutive order:

9 # <OUTPUTS> # <NEW OTU CODE 1> # <NEW OTU CODE 2> # <etc…> # #

Any Wiegand Reader can also be used to enter codes:

9 # <OUTPUTS> # (CARD SWIPE) # #

You can also use any Wiegand Reader to enter multiple user codes. Use this command when you have to add a lot of codes that are not in consecutive order:

9 # <OUTPUTS> # (CARD SWIPE 1) (CARD SWIPE 2) (etc…) # #

> OUTPUTS = the output timers that this code will activate (**0-4**).
> NEW OTU CODE = the new One-Time-Use code to be added.

Since any code can be a One-Time-Use code, you can have up to 510 one-time-use codes in memory. You can make a particular One-Time-Use code work for more than just one time. By programming the same code multiple time, the code will work for as many times as it was programmed in.

(10) ADD A ONE-TIME-USE CODE TO READER 2

One-Time-Use codes are often called "Service Codes". These are codes that allow passage for only one entry. They are automatically deleted from memory once they are used. These codes can be given to maintenance workers or real-estate salespeople to provide one-time entry into a door. Any code entered using this function will work with Reader 2.

10 # <OUTPUTS> # <NEW OTU CODE> # #

You may also add multiple One-Time-Used codes with this command. Use this command when you have to add a lot of codes that are not in consecutive order:

10 # <OUTPUTS> # <NEW OTU CODE 1> # <NEW OTU CODE 2> # <etc…> # #

Any Wiegand Reader can also be used to enter codes:

10 # <OUTPUTS> # (CARD SWIPE) # #

You can also use any Wiegand Reader to enter multiple codes. Use this command when you have to add a lot of user codes that are not in consecutive order:

10 # <OUTPUTS> # (CARD SWIPE 1) (CARD SWIPE 2) (etc…) # #

> OUTPUTS = the output timers that this code will activate (**0-4**).
> NEW OTU CODE = the new One-Time-Use code to be added.

After you enter a code, you will see the Red LED quickly blink of and then on again, indicating that the code was stored valid. If you see the Green LED go out, it means that there was an error in the sequence. If this occurs, press the "*" (clear) key and try the sequence again.

(11) BULK ENROLL ONE-TIME-USE CODES TO READER 2

One-Time-Use codes allow passage for only one entry. Bulk Enrolling allows you quickly add a sequential range of one-time-use codes to memory. Any code entered using this command works with Reader 1.

11 # <OUTPUTS> # <FIRST OTU CODE> # <LAST OTU CODE> #

You can also use any Wiegand Reader to enter codes. Use this command when you have the first and last cards in a series:

11 # <OUTPUTS> # (FIRST OTU-CARD SWIPE) (LAST OTU-CARD SWIPE)

After using this command, the amber LED will blink while the controller is adding the cards to memory.

> OUTPUTS = the output timers that this code will activate (**0-4**).
> FIRST OTU-CODE = the first One-Time-Use Code in a series to be added.
> LAST OTU-CODE = the last One-Time-Use Code in a series to be added.

(12) BULK ENROLL ONE-TIME-USE CODES TO READER 2

One-Time-Use codes allow passage for only one entry. Bulk Enrolling allows you quickly add a sequential range of one-time-use codes to memory. Any code entered using this command works with Reader 2.

12 # <OUTPUTS> # <FIRST OTU CODE> # <LAST OTU CODE> #

You can also use any Wiegand Reader to enter codes. Use this command when you have the first and last cards in a series:

12 # <OUTPUTS> # (FIRST OTU-CARD SWIPE) (LAST OTU-CARD SWIPE)

After using this command, the amber LED will blink while the controller is adding the cards to memory.

> OUTPUTS = the output timers that this code will activate (**0-4**).
> FIRST OTU-CODE = the first One-Time-Use Code in a series to be added.
> LAST OTU-CODE = the last One-Time-Use Code in a series to be added.

(13) DELETE A RANGE OF ONE-TIME-USE CODES FROM READER 1

This command is used to delete a consecutive group of one-time-use codes from Reader 1.

13 # <FIRST USER CODE TO DELETE> # <LAST USER CODE TO DELETE> #

You can also use any Wiegand Reader to delete a range of codes:

13 # (FIRST USER CARD TO DELETE) (LAST USER CARD TO DELETE)

> FIRST OTU-CODE = the first One-Time-Use Code in a series to be deleted.
> LAST OTU-CODE = the last One-Time-Use Code in a series to be deleted.

(14) DELETE A RANGE OF ONE-TIME-USE CODES FROM READER 2

This command is used to delete a consecutive group of one-time-use codes from Reader 2.

14 # <FIRST USER CODE TO DELETE> # <LAST USER CODE TO DELETE> #

You can also use any Wiegand Reader to delete a range of codes:

14 # (FIRST USER CARD TO DELETE) (LAST USER CARD TO DELETE)

> FIRST OTU-CODE = the first One-Time-Use Code in a series to be deleted.
> LAST OTU-CODE = the last One-Time-Use Code in a series to be deleted.

(15) ADD A MASTER CODE

Master codes provide entry into programming mode. Master codes can be used by being typed on the Keypad or swiped at any Reader.

15 # <NEW MASTER CODE> # #

You may also add multiple master codes with this command. Use this command when you have to add a lot of master codes that are not in consecutive order:

15 # <NEW MASTER CODE 1> # <NEW MASTER CODE 2> # <etc…> # #

Any Wiegand Reader can also be used to enter the master code:

15 # (MASTER CARD SWIPE) # #

You can also use any Wiegand Reader to enter multiple master codes. Use this command when you have to add a lot of master codes that are not in consecutive order:

15 # (MASTER CARD SWIPE 1) (MASTER CARD SWIPE 2) (etc…) # #

> NEW MASTER CODE = the new Master code to be added. After you enter a new master code, you will see the Red LED quickly blink of and then on again, indicating that the code was stored valid. If you see the Green LED go out, it means that there was an error in the sequence. If this occurs, press the "*" (clear) key and try the sequence again.

(16) DELETE A MASTER CODE

This command is used to delete a Master code from memory. Master code(s) to be deleted can be both typed on the Keypad or swiped at any Reader.

16 # <MASTER CODE TO DELETE> # #

You may also delete multiple master codes with this command. Use this command when you have to add a lot of master codes that are not in consecutive order:

16 # <MASTER CODE TO DELETE 1> # <MASTER CODE TO DELETE 2> # <etc…> # #

Any Wiegand Reader can also be used to delete a master code:

16 # (MASTER CARD SWIPE) # #

You can also use any Wiegand Reader to delete multiple master codes. Use this command when you have to add a lot of master codes that are not in consecutive order:

16 # (MASTER CARD SWIPE 1) (MASTER CARD SWIPE 2) (etc…) # #

MASTER CODE TO DELETE = the Master code to be removed from memory. After you delete master code, you will see the Red LED quickly blink of and then on again, indicating that the code was removed from memory. If you see the Green LED go out, it means that there was an error in the sequence. If this occurs, press the "*" (clear) key and try the sequence again.

(17) ADD A "PROGRAMMING ADD" CARD

"Programming Add" cards are used to add user cards to a particular Reader, without entering programming mode and without using the keypad. Use this command to add a "Programming Add" card to memory.

When a Programming Add card is swiped at a reader, all cards swiped following are added to memory. This process continues until the "Programming Add" card used is re-swiped. User cards swiped after the "Programming Add" will work as a user code on the reader that was used to store the card. If the card was swiped at Reader 1, Timer 1 is activated with the user card. If the card was swiped at Reader 2, Timer 2 is activated with the user card. When you enter the ADD PROGRAMMING mode, only the Reader that the Programming Add card was used, will be scanned for new user cards. In this mode, the keyboard can be used to add codes as well, no matter what reader is being used. Codes entered at the keyboard will be added to the Reader that the add card was used.

Using "Programming Add" cards and "Programming Remove" cards, a "Shadow Card" system can be implemented.

17 # <NEW PROGRAMMING ADD CODE> # #

You may also add multiple "Programming Add" codes with this command. Use this command when you have to add a lot of codes that are not in consecutive order:

17 # <NEW P-ADD CODE 1> # <NEW P-ADD CODE 2> # <etc…> # #

Any Wiegand Reader can also be used to enter the Programming Add code:

17 # (P-ADD CARD SWIPE) # #

You can also use any Wiegand Reader to enter multiple user codes. Use this command when you have to add a lot of codes that are not in consecutive order:

17 # (P-ADD CARD SWIPE 1) (P-ADD CARD SWIPE 2) (etc…) # #

PROGRAMMING ADD CODE = the new Programming Add code to be added to memory. After you enter a code, you will see the Red LED quickly blink of and then on again, indicating that the code was stored valid. If you see the Green LED go out, it means that there was an error in the sequence. If this occurs, press the "*" (clear) key and try the sequence again.

(18) ADD A "PROGRAMMING REMOVE" CARD

"Programming Remove" cards are used to remove user cards from a particular Reader, without entering programming mode and without using the keypad. Use this command to add a "Programming Add" card to memory.

When a Programming Add card is swiped at a reader, all cards swiped following are added to memory. This process continues until the "Programming Add" card used is re-swiped. User cards swiped after the "Programming Add" will work as a user code on the reader that was used to store the card. If the card was swiped at Reader 1, Timer 1 is activated with the user card. If the card was swiped at Reader 2, Timer 2 is activated with the user card. When you enter the REMOVE PROGRAMMING mode, only the Reader that the Programming Remove card was used, will be scanned for new user cards. In this

mode, the keyboard can be used to delete codes as well, no matter what reader is being used. Codes entered at the keyboard will be deleted from the Reader that the add card was used.

Using "Programming Add" cards and "Programming Remove" cards, a "Shadow Card" system can be implemented.

18 # <NEW PROGRAMMING REMOVE CODE> # #

You may also add multiple "Programming Remove" codes with this command. Use this command when you have to add a lot of codes that are not in consecutive order:

18 # <NEW P-REMOVE CODE 1> # <NEW P-REMOVE CODE 2> # <etc…> # #

Any Wiegand Reader can also be used to enter the Programming Add code:

18 # (P-REMOVE CARD SWIPE) # #

You can also use any Wiegand Reader to enter multiple user codes. Use this command when you have to add a lot of codes that are not in consecutive order:

18 # (P-REMOVE CARD SWIPE 1) (P-REMOVE CARD SWIPE 2) (etc…) # #

PROGRAMMING REMOVE CODE = the new Programming Remove code to be added to memory. After you enter a code, you will see the Red LED quickly blink of and then on again, indicating that the code was stored valid. If you see the Green LED go out, it means that there was an error in the sequence. If this occurs, press the "*" (clear) key and try the sequence again.

(19) DELETE A PROGRAMMING CARD

This command is used to delete any "Programming Add" or "Programming Remove" code from memory. Code(s) to be deleted can be both typed on the Keypad or swiped at any Reader.

19 # <PROGRAMMING CARD TO DELETE> # #

You may also delete multiple codes with this command. Use this command when you have to add a lot of cards that are not in consecutive order:

19 # <CODE TO DELETE 1> # <CODE TO DELETE 2> # <etc…> # #

Any Wiegand Reader can also be used to delete a programming code:

19 # (PROGRAMMING CARD SWIPE) # #

You can also use any Wiegand Reader to delete multiple master codes. Use this command when you have to add a lot of master codes that are not in consecutive order:

19 # (CARD SWIPE 1) (CARD SWIPE 2) (etc…) # #

PROGRAMMING CODE TO DELETE = the "Programming Add" or "Programming Remove" code to be deleted from memory. After you delete a code, you will see the Red LED quickly blink of and then on again, indicating that the code was removed from memory. If you see the Green LED go out, it means that there was an error in the sequence. If this occurs, press the "*" (clear) key and try the sequence again.

(20) SETUP OUTPUT TIMERS

This programming command sets the delay of each of five timers. Timers are connected to a particular output. Timer 0 and Timer 1 are associated with Output 1. Timers 2, 3 and 4 are associated with Outputs 2, 3 and 4. Since Output 1 has two timers associated with it, you can have two codes that open Door 1 for different amount of time. In this case, you can even program one code that times Output 1 and another code that toggles Output 1. This is useful if you want to create a user code that temporarily leaves Door 1 open. If the timers are programmed for "zero" seconds, the output will toggle instead of time.

20 # <TIMER NUMBER> # <DELAY IN SECONDS> #

TIMER NUMBER = is the timer number from 0 to 4.
DELAY IN SECONDS = is the length of time the timer actuates an output. If the value of seconds is set to zero "0", the output associated with the timer will toggle instead of delay.

When using timers 0 and 1 simultaneously with a code, the longer delay of each of the timers will take precedence.

Timer **0** is connected to Relay 1.
Timer **1** is also connected to Relay 1.
Timer **2** is connected to Relay 2.
Timer **3** is connected to Transistor Output 3.
Timer **4** is connected to Transistor Output 4.

(21) SETTING THE PANIC MODE OUTPUTS

Panic mode occurs when a user hits the "*****" and "**#**" keys on an external matrix keypad, when the keypad is being used as an access device. By pressing these two keys on the matrix keypad simultaneously, a user can signal that help is needed during a panic situation, or the feature can be used to signal a guard or administrator. The panic feature triggers output(s), which are monitored at a remote location. The outputs that the panic condition trigger can be programmed with the following command:

21 # <OUTPUTS> #

OUTPUTS = the outputs that are actuated when pressing * and # keys simultaneously. A code may operate any number of timers when typed into the keypad. For example, if you want a code to actuate Output 1 and Output 3, you type "13" for the "timers" value. You may enter the timer values in any order, you may also type "31" for example.

(0) ACTIVATE PASSAGE MODE

Passage mode latches certain outputs. With this mode, administrators that have a Master code can leave doors unlocked during special occasions. User codes will have no effect on latched outputs when the controller is in this mode. Once you enter this mode, the Red LED on the controller will light and the Green LED will shut off indicating that you are in passage mode. You can set which outputs are affected by the passage mode with programming feature #22.

0 #

To exit passage mode, simply re-enter Program Mode and reissue the Passage Mode command.

(22) SETTING THE PASSAGE MODE OUTPUTS

The passage mode outputs are actuated when the passage mode is used.

22 # <OUTPUTS> #

Where:

OUTPUTS = the outputs that are actuated when passage mode is invoked.

(23) SET CODE LENGTH WHEN USING THE MATRIX KEYPAD

The variable code feature allows the controller to accept any code, from 1 to 7 digits in length. If the code length is not specified, the user must press the # key to look up the code.

If the code length is set to a value (between 1 and 7), the controller will only accept the set amount of digits during code entry. In this configuration, the user will not have to press the # key after entering a code. For example, if the "code length" value is set to 5, the controller will only accept 5-digit codes (i.e. 12345).

Setting the value of the code length to zero will re-enable the variable code length feature. After setting the "code length" value to zero, the controller will accept any code from 1 to 8 digits followed by a # (i.e. 12345#).

23 # <CODE LENGTH >

Where:

CODE LENGTH = the number of digits accepted during code entry. Entering a Code Length of "0" (zero) puts the controller back into variable code length mode.

Notes: This changing this mode does not delete codes in memory. If you set the controller to only accept codes of a certain length, the codes in memory that are not of this length can not be accessed. Since you can change this feature on the fly, "code banking" can be accomplished. You can use this mode to accept only codes of a given length at different times. This mode does not affect the keystrokes necessary to enter program mode. In program mode, the controller is always in variable mode.

(24) AUTO-SHUT-DOWN

24 # <MODE> #

Turns off or on the auto-shut-down feature. The Auto-Shut-Down feature prevents the controller from accepting codes for 8 seconds if 5 wrong code entries are entered. The feature is used to reduce code hacking.

MODE = **0** to disable, **1** to enable.

(25) DELAYED EGRESS MODE

This feature sets the mode that the delayed egress controller should comply with. In the NFPA 101 egress mode, the key-switch input must be actuated in order to reset the door backed to the secure state. In the BOCA Delayed egress mode, the door is automatically placed back into a secure state after a 30 second delay. For a detailed description of delayed egress operation see the *Delayed Egress Modes* description. Use the following command to set the delayed egress mode:

25 # <MODE> #

MODE = **0** for NFPA compliance, MODE = **1** for BOCA compliance.
The default mode from the factory is set as the NFPA mode.

(26) DELAYED EGRESS COUNTDOWN DELAY

This feature sets the duration of the delayed egress countdown. By invoking this command, the controller will toggle between a 15 and 30-second countdown delay.

26 #

The factory default setting for the delayed egress delay is 15 seconds.

(27) FACTORY RESET

Warning! Be VERY careful when using this command, as codes that are deleted from memory cannot be recovered. This command is especially destructive since all codes in memory are cleared when this command is invoked!

This feature clears all of the EEPROM memory of codes, and resets all features back to factory defaults. After this function is complete, there will be a factory default master code of "12345" in memory. The output delays and settings will also be cleared back to factory defaults.

27 # 00000000 #

Note: When using this command, *please be patient,* as it will take a few seconds before this operation is complete. The amber LED will blink while the controller is working. The controller will signal to you when the operation is complete by turning both the red and green LEDs back on.

PROGRAMMING MODE COMMAND SUMMARY

COMMAND	FUNCTION
0	PASSAGE MODE Keeps passage mode outputs latched until the command is invoked again. Passage mode outputs are selected with programming feature #22. **0 #**
1	ADD A USER CODE TO READER 1 Adds user code(s) to Reader 1. A code programmed with this command will allow passage on the matrix keypad or on Reader 1. You may use the keyboard or any Reader to add codes. **1 # <OUTPUTS> # <NEW USER CODE> # #** **1 # <OUTPUTS> # <NEW USER CODE 1> # <NEW USER CODE 2> # <etc…> # #** **1 # <OUTPUTS> # (CARD SWIPE) # #** **1 # <OUTPUTS> # (CARD SWIPE 1) (CARD SWIPE 2) (etc…) # #**
2	ADD A USER CODE TO READER 2 Adds user code(s) to Reader 2. A code programmed with this command will allow passage on Reader 2. You may use the keyboard or any Reader to add codes. **2 # <OUTPUTS> # <NEW USER CODE> # #** **2 # <OUTPUTS> # <NEW USER CODE 1> # <NEW USER CODE 2> # <etc…> # #** **2 # <OUTPUTS> # (CARD SWIPE) # #** **2 # <OUTPUTS> # (CARD SWIPE 1) (CARD SWIPE 2) (etc…) # #**
3	BULK ENROLL USER CODES TO READER 1 Bulk Enrolling allows you quickly add a sequential range of user codes to memory. **3 # <OUTPUTS> # <FIRST USER CODE IN RANGE> # <LAST USER CODE IN RANGE> #** **3 # <OUTPUTS> # (FIRST USER CARD SWIPE) (LAST USER CARD SWIPE)**

4	<u>BULK ENROLL USER CODES TO READER 2</u> Bulk Enrolling allows you quickly add a sequential range of user codes to memory. **4 # \<OUTPUTS> # \<FIRST USER CODE IN RANGE> # \<LAST USER CODE IN RANGE> #** **4 # \<OUTPUTS> # (FIRST USER CARD SWIPE) (LAST USER CARD SWIPE)**
5	<u>DELETE A USER CODE FROM READER 1</u> Removes a user code from Reader 1. You may use the keyboard or any Reader to delete codes. **5 # \<USER TO DELETE> # #** **5 # \<USER TO DELETE 1> # \<USER TO DELETE 2> # \<etc…> # #** **5 # (CODE SWIPE) ##** **5 # (CODE SWIPE 1) (CODE SWIPE 2) (etc…) # #**
6	<u>DELETE A USER CODE FROM READER 2</u> Removes a user code from Reader 2. You may use the keyboard or any Reader to delete codes. **6 # \<USER TO DELETE> # #** **6 # \<USER TO DELETE 1> # \<USER TO DELETE 2> # \<etc…> # #** **6 # (CODE SWIPE) ##** **6 # (CODE SWIPE 1) (CODE SWIPE 2) (etc…) # #**
7	<u>DELETE A RANGE OF USER CODES FROM READER 1</u> This command is used to delete a consecutive group of user codes from Reader 1. User Codes to be deleted can be both typed on the Keypad or swiped at any Reader. **7 # \<FIRST USER CODE TO DELETE> # \<LAST USER CODE TO DELETE> #** **7 # (FIRST USER CARD TO DELETE) (LAST USER CARD TO DELETE)**
8	<u>DELETE A RANGE OF USER CODES FROM READER 2</u> This command is used to delete a consecutive group of user codes from Reader 2. User Codes to be deleted can be both typed on the Keypad or swiped at any Reader. **7 # \<FIRST USER CODE TO DELETE> # \<LAST USER CODE TO DELETE> #** **7 # (FIRST USER CARD TO DELETE) (LAST USER CARD TO DELETE)**
9	<u>ADD A ONE-TIME-USE CODE TO READER 1</u> Adds a One-Time-Use code(s) to Reader 1. A code programmed with this command will allow passage once, on the matrix keypad or on Reader 1. You may use the keyboard or any Reader to add codes. **9 # \<OUTPUTS> # \<NEW OTU CODE> # #** **9 # \<OUTPUTS> # \<NEW OTU CODE 1> # \<NEW OTU CODE 2> # \<etc…> # #** **9 # \<OUTPUTS> # (CARD SWIPE) # #** **9 # \<OUTPUTS> # (CARD SWIPE 1) (CARD SWIPE 2) (etc…) # #**
10	<u>ADD A ONE-TIME-USE CODE TO READER 2</u> Adds a One-Time-Use code(s) to Reader 2. A code programmed with this command will allow passage once, on Reader 2. You may use the keyboard or any Reader to add codes. **10 # \<OUTPUTS> # \<NEW OTU CODE> # #** **10 # \<OUTPUTS> # \<NEW OTU CODE 1> # \<NEW OTU CODE 2> # \<etc…> # #** **10 # \<OUTPUTS> # (CARD SWIPE) # #** **10 # \<OUTPUTS> # (CARD SWIPE 1) (CARD SWIPE 2) (etc…) # #**
11	<u>BULK ENROLL ONE-TIME-USE CODES TO READER 1</u> This command allows you quickly add a sequential range of user codes to Reader 1. **11 # \<OUTPUTS> # \<FIRST USER CODE IN RANGE> # \<LAST USER CODE IN RANGE> #** **11 # \<OUTPUTS> # (FIRST USER CARD SWIPE) (LAST USER CARD SWIPE)**
12	<u>BULK ENROLL ONE-TIME-USE CODES TO READER 2</u> This command allows you quickly add a sequential range of user codes to Reader 2. **12 # \<OUTPUTS> # \<FIRST USER CODE IN RANGE> # \<LAST USER CODE IN RANGE> #** **12 # \<OUTPUTS> # (FIRST USER CARD SWIPE) (LAST USER CARD SWIPE)**

13	DELETE A RANGE OF ONE-TIME-USE CODES FROM READER 1
	This command is used to delete a consecutive group of one-time-use codes from Reader 1.
	13 # <FIRST USER CODE TO DELETE> # <LAST USER CODE TO DELETE> #
	13 # (FIRST USER CARD TO DELETE) (LAST USER CARD TO DELETE)
14	DELETE A RANGE OF ONE-TIME-USE CODES FROM READER 2 (14)
	This command is used to delete a consecutive group of one-time-use codes from Reader 2.
	14 # <FIRST USER CODE TO DELETE> # <LAST USER CODE TO DELETE> #
	14 # (FIRST USER CARD TO DELETE) (LAST USER CARD TO DELETE)
15	ADD A MASTER CODE
	Adds master code to memory. A code programmed with this command allows access to the controllers programming features. You may use the keyboard or any Reader to add codes.
	15 # <NEW MASTER CODE> # #
	15 # <NEW MASTER CODE 1> # <NEW MASTER CODE 2> # <etc…> # #
	15 # (CODE SWIPE) # #
	15 # (CODE SWIPE 1) (CODE SWIPE 2) (etc…) # #
	Note that cards swiped as master codes cannot be used for passage.
	Entering a master code at the keypad or swiping a master card on any reader allows entry to programming mode. Use the "Prevent Programming" jumper JP1 to prevent inadvertent usage.
16	DELETE A MASTER CODE
	Removes a master code in memory. You may use the keyboard or any Reader to delete codes.
	16 # <MASTER TO DELETE> # #
	16 # <MASTER TO DELETE 1> # <MASTER TO DELETE 2> # <etc…> # #
	16 # (CODE SWIPE) # #
	16 # (CODE SWIPE 1) (CODE SWIPE 2) (etc…) # #
17	ADD A "PROGRAMMING ADD" CODE
	"Programming Add" cards allow you to add user codes without using the keypad.
	17 # <NEW PROGRAMMING ADD CODE> # #
	17 # <NEW ADD CODE 1> # <NEW ADD CODE 2> # <etc…> # #
	17 # (ADD CARD SWIPE) # #
	17 # (ADD CARD SWIPE 1) (ADD CARD SWIPE 2) (etc…) # #
18	ADD A "PROGRAMMING REMOVE" CODE
	"Programming Remove" cards allow you to delete user codes without using the keypad.
	18 # <NEW PROGRAMMING REMOVE CODE> # #
	18 # <NEW REMOVE CODE 1> # <NEW REMOVE CODE 2> # <etc…> # #
	18 # (REMOVE CARD SWIPE) # #
	18 # (REMOVE CARD SWIPE 1) (REMOVE CARD SWIPE 2) (etc…) # #
19	DELETE A PROGRAMMING CODE
	Removes a Shadow Programming Card from Memory.
	19 # <CARD TO DELETE> # #
	19 # <CARD TO DELETE 1> # <CARD TO DELETE 2> # <etc…> # #
	19 # (PROGRAMMING CARD SWIPE) ##
	19 # (CARD SWIPE 1) (CARD SWIPE 2) (etc…) # #
20	SET OUTPUT TIMER DELAY
	Sets the delay for each timer from 0 to 99 seconds. 0 seconds causes timer to toggle the associated output.
	20 # <TIMER NUMBER> # <DELAY IN SECONDS> #
21	SET PANIC MODE OUTPUTS
	Sets the outputs that are triggered when the * and # keys are hit on the matrix keypad. Used for signaling with an external matrix keypad.
	21 # <OUTPUTS> #

22	SET PASSAGE MODE OUTPUTS Sets the outputs that are triggered when passage mode is invoked. **22 # <OUTPUTS> #**
23	SET MATRIX KEYPAD CODE LENGTH Sets the number of keystrokes accepted when a code is entered. Set to 0 to enable variable code length mode. **23 # <CODE LENGTH> #**
24	AUTO-SHUT-DOWN ENABLE/DISABLE Turns off or on the auto-shut-down feature that locks up the controller if 5 wrong code entries are entered. Used to prevent code hacking. **24 # <MODE> #** MODE = **0** to disable, **1** to enable.
25	SET DELAYED EGRESS MODE Sets the delayed egress operation mode to be either BOCA or NFPA compliant. **25 # <MODE> #** MODE: **0** = NFPA, **1** = BOCA
26	SET DELAYED EGRESS DELAY Toggles the delayed egress countdown for either 15 or 30 seconds. **26 #**
27	FACTORY RESET Causes the controller to clear memory and restore all settings to factory defaults. Puts the master code of "12345" into memory. **27 # 00000000 #**

HOW TO START YOUR PROGRAM SEQUENCE OVER IF YOU MAKE A MISTAKE

If you are programming the controller and you hit the wrong key, just press the "*" (clear) key. Doing this will bring you to the top of the programming mode, and allow you to repeat the sequence from the beginning.

ERROR TRAPPING AND RANGE CHECKING DURING PROGRAM MODE

If you are programming the controller and you see the Green LED turn off, the controller is telling you that a key that you pressed is out of range. In this case, the controller was expecting certain keys but another was hit. Just hit the "*****" key to exit this error mode if it occurs, and start the sequence over. After hitting the "*****" key, the Green LED should come back on, indicating that you can re-enter your sequence.

HOW TO EXIT PROGRAM MODE

The controller is designed to accept multiple programming commands without having to leave programming mode between commands. This speeds up the programming of the unit by minimizing the number of keystrokes required between commands. When you are done with a programming sequence, you can exit program mode, just by pressing the "**#**" (enter) key. If you are not completed with the sequence, you must first hit the "*****" key followed by the "**#**" key to exit.

JUMPER FUNCTIONS

Jumpers are provided on the controller to both change the functions of the controller and to reduce the complexity of wiring the controller. These jumper functions include the following:

JP1: <u>Prevent Programming Jumper</u> – This jumper prevents programming from the matrix keypad, even if a correct master code is entered.

JP2: <u>Force Programming Jumper</u> – This jumper forces the controller into programming mode in the case where all master codes are lost. Once in this mode you have access to all programming features; you can program a new master code into the unit.

JP3: <u>Remote Release 1 Enable Jumper</u> – This jumper is set to a "YES" position when using an external remote release on Door 1. Since the remote release is a normally closed loop, this jumper eliminates the need to have an external jumper when the remote release feature is not used.

JP4: <u>Remote Release 2 Enable Jumper</u> – This jumper is set to a "YES" position when using an external remote release on Door 2. Since the remote release is a normally closed loop, this jumper eliminates the need to have an external jumper when the remote release feature is not used.

JP5: <u>Delayed Egress Enable Jumper</u> – This jumper is set to a "YES" position when you wish to use the Delayed Egress Features. Since the delayed egress Request To Exit signal is a normally closed loop, this jumper eliminates the need to have an external jumper when the remote release is not used.

JP6: <u>Door Position Switch (DPS) Enable Jumper</u> – This jumper is set to a "YES" position when you wish to use the Door Position Switch Features. Since the Door Position Switch is a normally closed loop, this jumper eliminated the need to have an external jumper when the Door Position Switch is not used.

JP7: <u>Output 1 Common Jumper</u> – Connects the common terminal to either Positive (+V) Voltage or Ground (0V) in order to simplify external wiring.

JP8: <u>Output 2 Common Jumper</u> – Connects the common terminal to either Positive (+V) Voltage or Ground (0v) in order to simplify external wiring.