CL-83, CL-83M

Anti-Vandal, Access Control Keypad

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Installation Guide

1. INTRODUCTION

1.1 Description

The CL-83 is a digital programmable access control keypad. The CL-83M is a similar keypad - mullion type. Each system includes an outdoor, rugged, vandal resistant keypad and an indoor sophisticated microprocessor-controlled keypad, as shown in figure 1.
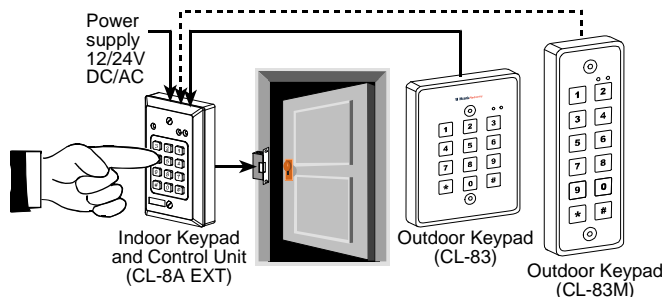

Figure 1 - Using CL-83/CL-83M as an Access Control System

The system users have 56 individual, preprogrammed digital codes (each code includes 1-8 digits), that they must key on the outdoor / indoor keypads, to unlock electrically controlled doors or barriers. More than 100 million code combinations are possible. A penalty timer locks out the keypads for 30 seconds after entering three consecutive erroneous codes. User codes may be individually deleted.

The system has programmable AUXILIARY open-collector output with seven powerful operating modes. Each user code can be programmed to operate the internal RELAY, the AUXILIARY output, or BOTH.

An AMBUSH digit, if entered after the last digit of the user code, causes a one-second pulse of the PANIC output, used to send a message to the security personnel if the user is forced to disarm the system under violence or menace.

1.2 Indoor Keypad & Control Unit Features

- Functions as the "brain" of the access control system.
- Includes 12 push-buttons, 3 LEDs and buzzer.
- Designed to accept data from both its own keys and from the outdoor keypad.
- Suitable for flush and surface mounting (supplied with a surface mounting box).
- Includes a 10A relay that activates the door strike or performs any desired switching function.
- Programmable on site by use of its own keyboard.
- Non-volatile EEPROM stores programmed data, unaffected by power failure.
- Programmable relay contact closure duration; toggle (latch/ unlatch) mode may be selected if required.
- PANIC output is triggered by pressing the # and * keys simultaneously, on the indoor or outdoor keypad.
- REQUEST TO EXIT remote input trips the relay with a remote switch or a detector.
- Tamper switch option available.

1.3 Outdoor Keypad Features

- Rugged, water and vandal resistant keypad.
- Includes 12 push-buttons and 2 LEDs.
- Any of the functions that can be performed by using the indoor keypad push-buttons can also be done by the outdoor keypad push-buttons.
- Tamper protected.
- Suitable for surface mounting.
- Power is received from the indoor keypad.
- Environmental Protection: IP68

2. SPECIFICATIONS

Indoor Keypad and Control Unit (CL-8A EXT)

Code composition: 1 to 8 digits, any combination

Keypad type: 12 keys, 3 X 4, tactile operation

Operating voltage: 9-16 or 22-26 V AC/DC, selected with jumper

Current drain: 15 mA in the standby state, 55 mA with relay and AUXILIARY output active.

Power failure immunity: EEPROM retains all programmed information even during total power loss.

Other protections: Watch-dog protection from processor hang-up.

Relay contact rating: 10A /30V AC or DC

Relay control: Programmable for 1 – 98 seconds pull-in duration, or for toggle (latching/unlatching) mode.

AUX and PANIC output current sinking: Up to 100 mA (each protected by an 18 ohm series resistor).

LEDs: Green indicates keypad status
Red and yellow have 1K ohm series resistors and terminals for external connections

Operating temperature range: -20°C to 65°C (-4°F to 149°F)

Size: (H x W x D): 118 x 72 x 33 mm (4-5/8 x 2-3/16 x 1-3/8 in.)

Weight: 122 g (4.3 oz)

Color: White

Compliance with Standards: CE

Outdoor Keypads (CL-83, CL-83M)

Housing Material: Aluminum 6061 T6

Number of Keys: 12 (CL-83: 3 x 4 matrix, CL-83M: 2 X 6 matrix)

Number of LEDs: 1 green, 1 red

Operating Voltage: Supplied from CL-8A EXT keypad

Operating & Storage Temps: -20°C to 65°C (-4°F to 149°F)

Dimensions (H x W x D):
CL-83: 130 x 81 x 19mm (5-1/8 x 3-3/32 x 3/4in.)
CL-83M: 180 x 44 x 21mm (7-1/8 x 1-3/4 x 27/32 in.)

Weight: CL-83: 290g (10 oz)   CL-83M: 310g (10.9 oz)

Color: Metallic gray (anodized aluminum)

Compliance with Standards: CE

Environmental Protection: Waterproof and dustproof (IP68)

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3. INSTALLATION

3.1 Indoor Keypad Mounting

Do not install outdoors!

Surface Mounting

Mounting knockouts
Wiring knockout
Mounting knockouts
Supplied box
Wiring knockout (1 OF 2)

❶ Remove screws and remove the keypad from from the back box.

❷ Use back box as a template, mark & drill holes in mounting surface. Fasten the back box to the mounting surface. Fasten the keypad to its back box with 2 screws.

Flush Mounting Optional

Standard, single-gang electrical switch box

❶ Remove screws and remove the keypad back box (not used).

❷ Fasten the keypad to a single-gang electrical switch box, provided that its internal dimensions are not less than 5cm (2 in.) wide by 7cm (2.8 in.) high, by using 2 screws.

Figure 2 - Indoor Keypad Surface and Flush Mounting

3.2 Outdoor Keypad Mounting

Note: *The CL-83M is designed for installation on a door frame.*

Drill 2 holes in the mounting surface, insert wall anchors as necessary and fasten the outdoor keypad to the mounting surface by using 2 screws.
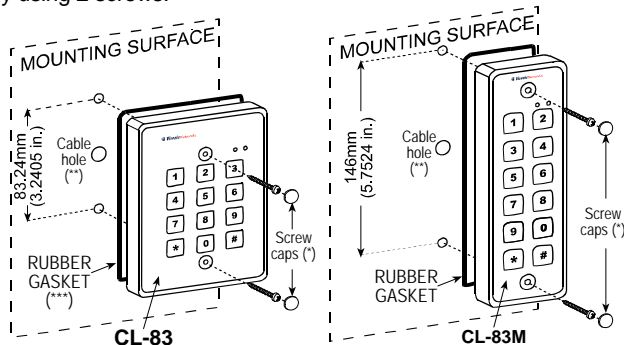
Figure 3 - Outdoor Keypad Mounting

* **Screw caps should be installed <u>only</u> after the system mounting and test is completed.**

** *Cable hole diameter: 10-12 mm.*

*** *The rubber gasket is designed for mounting the CL-83/CL-83M on an uneven surface and/or to prevent the formation of dampness and dust inside the keypad.*

3.3 Wire Gauges and Routing

Use # 20 AWG or larger diameters for relay connections to the door strike, to the control panel or any other system used. All other connections are to be made with # 22 AWG or larger. Route the wires through the wiring knockouts on the back box. Two cables (1 meter long) are supplied with the CL-83 / CL-83M, P/N PAW 80011, 6x6005/AWG#22.

3.4 Wiring

IMPORTANT! Before wiring be sure to set The indoor keypad jumper JP3 in the position that corresponds with the power source you are using:
9 - 16 Volts - mount the jumper across the two pins of JP3.
22-26 Volts - remove the jumper or mount it on a single pin of JP3.

Perform wiring as follows (see figure 4A/4B):

A. Connect the <u>door strike</u> leads between one of the door control power supply terminals and terminal **11** (N.O.) of the indoor keypad. In case of a magnetic door lock, connect the <u>lock's</u> leads between one of the door control power supply terminals and terminal **12** (N.C.) of the indoor keypad.

B. Connect the remaining terminal of the door control power supply to terminal **10** (COM) of the indoor keypad.

C. Connect the panic buzzer / relay (a 12 or 24 VDC unit, depending on power supply) between terminal **8** (PANIC) of the indoor keypad and power supply positive **(+)** terminal.

D. Connect the auxiliary buzzer or relay (a 12 or 24 VDC unit,

depending on the power supply) between terminal **9** (AUX) of the indoor keypad and the positive **(+)** terminal of the power supply.
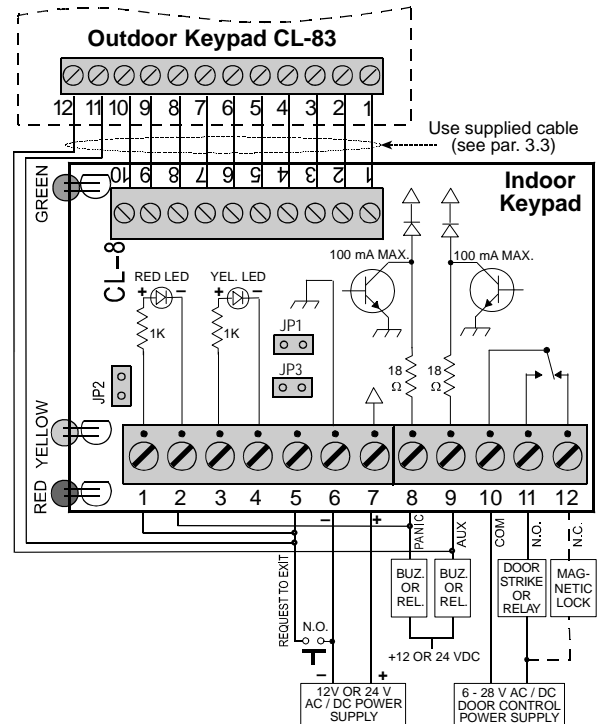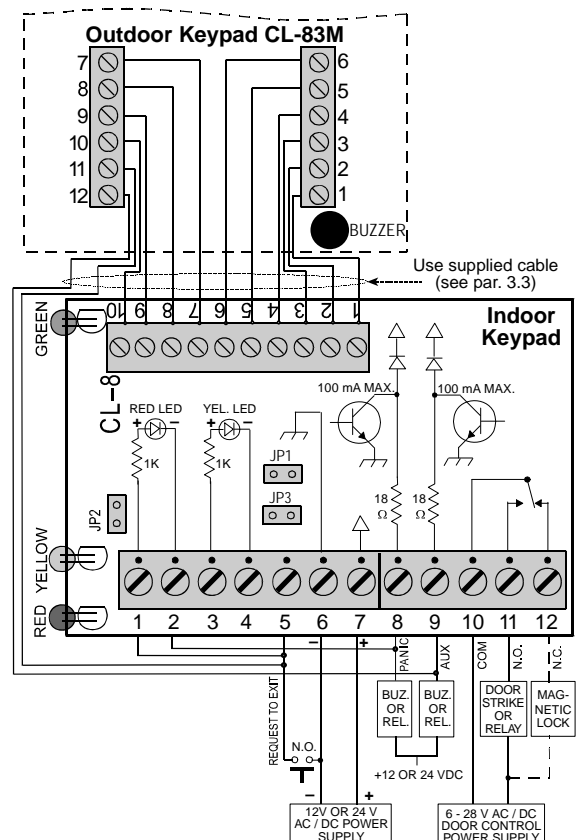

Figure 4A - Wiring with CL-83

Figure 4B - Wiring with CL-83M

Important: When a 12VAC power source is used, LEDs connected to the PANIC or AUX open collector outputs will light normally when the output pulls down. Buzzers will not function properly, and should therefore be avoided. When a 24VAC power source is used, neither LEDs nor buzzers should be connected to the PANIC and AUX.

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Notes:

*1. If the system is powered from a DC power supply, the **AUX** and **PANIC** relays can be connected to terminal **7** (+).*

*2. The **PANIC** and **AUXILIARY** outputs each include an 18 ohm resistor in series with the output. The maximum current switching capability of each output is 100 mA.*

E. Connect the AC or DC power supply leads to terminals **6**, **7**.

Caution! If the power supply provides AC, disregard polarity. If the power supply provides DC, connect the negative lead to terminal **6** and the positive lead to terminal **7** of the indoor keypad.

F. Connect the remote request-to-exit switch or PIR contacts across terminals 5 and 6 of the indoor keypad. To light the CL8A EXT's red LED: Connect the 12 or 24Volt power supply across both terminal 1(+) and 2 (–). To light the yellow LED: connect the 12 or 24Volt power supply across terminals 3 (+) and 4 (–).

3.5 Indoor Keypad Tamper Switch Option

The indoor keypad includes tamper switch option TAMP-1, a terminal block and a tamper switch on a separate PC board. The tamper switch can be used in two ways:

A. To protect the indoor keypad if tampering is attempted by removal of the front part of the case. In this configuration, the tamper actuator remains within the case, in physical contact with the inner surface of the keypad's back box.
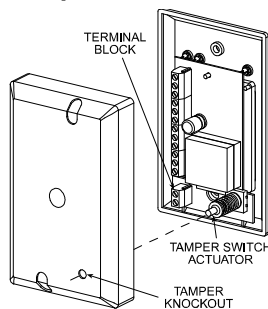
Fig. 5 - Tamper Sw. Installation

B. To protect the indoor keypad if tampering is attempted by removing the unit from the wall or by removing the front of the case. This is accomplished by opening the tamper knockout in the back box, allowing the tamper actuator to extend out of the back box and contact the wall (see Fig. 5).

Note: *The tamper switch is delivered as a separate item. For ordering, specify TAMP-1.*

When using a tamper switch, connect the tamper N.C. terminals to a control panel's normally-closed, 24-hour protection zone, or any other system used to monitor the tamper contacts.

3.6 Outdoor Keypads Tamper Option

To use the CL-83 / CL-83M Tamper switch: Connect the 2 tamper terminals (see figure 6) to the tamper N.C. terminals of the alarm control panel.
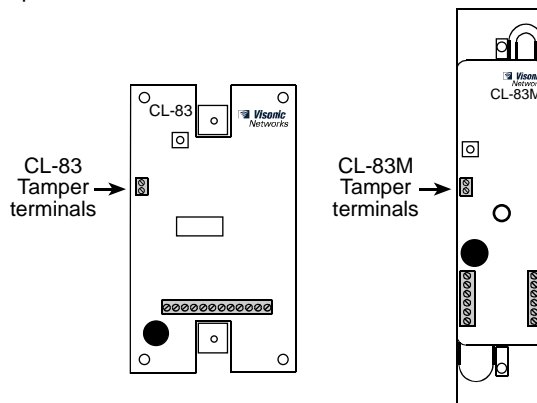
Figure 6 - Outdoor Keypads Tamper Switches

4. OPERATION

The main function of the system is to recognize valid user codes and respond according to pre-programmed instructions.

4.1 Keying Format

The user code is always followed by **[#]**: ☞ user code #

4.2 Keypad Response

When a valid access code is keyed, the keypad responds by activating the on-board relay (usually allocated to unlock the door), and/or activating the auxiliary circuit. Each of the 56 different access codes may be programmed to operate the on-board relay, the auxiliary output or both. The green LED illuminates for as long as the internal relay remains energized.

4.3 Latching the Relay

For special applications, the relay may be toggled, so that keying the code once causes the relay to latch, and keying the code again unlatches the relay.

4.4 Request to Exit

The REQUEST TO EXIT input activates the access control relay to open the door from inside without keying a code, thereby facilitating quick and simple exit from the protected area.

4.5 Automatic Reset

When keying user codes, the intervals between digits must not exceed 5 seconds. Should the user exceed this time, or enter a

wrong code, an automatic reset results, requiring the user to wait a few seconds and then to repeat entry of the code again.

4.6 Lockout

A penalty lockout is provided to defeat "code-crackers". Three wrong entries result in a 10 minute lockout, during which an auxiliary output is activated, **but** the keypad can be reset after 30 seconds by entering a valid user code.

4.7 Access under Duress

If you are forced to access under threat, press the programmed **AMBUSH** digit after the last digit of your code. This activates the **PANIC** output without arousing suspicion.
Enter the user code followed by the ambush digit

☞ user code ambush digit

4.8 Operating Tips

A. Do not wait more than 5 seconds between successive keystrokes, or else the keypad will reset.

B. To initiate an alarm without opening the door, press ✳# simultaneously. This activates the PANIC circuit which is usually connected to a silent alarm.

5. PROGRAMMING

Programming should be carried out as soon as installation is completed. This provides a set of "instructions" which determines how the keypad will react to various code inputs.

Programming changes can be made as many times as necessary, but for security reasons, this operation is restricted to the "**master code**" holder (the master user).

5.1 Accessing the Programming Menu

The programming menu is accessible only by the **master user**

The factory default user code is 1 2 3 4

As soon as code programming takes place, this default code is automatically replaced by the first newly allocated code - No. 01.

Because user code No. 01 will become the new master code, it should be assigned to the person in charge of security.

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All code allocations should be recorded, and a User Code Programming Chart - Appendix A, is supplied for this purpose.

> **Remember! To prevent unauthorized programming, it is important to assign a new master code which should be used for programming only.**

To access the programming menu:

☞ [✱][✱][master code][✱][✱]

The green LED will start flashing slowly, indicating that the programming menu is active. You can now select various programming functions by pressing a number key from 1 to 5 (see Table 1).

Table 1 - Programming Menu

No.	Function	Valid Entries	Description
1	Programming user codes & their extent of control	02 to 56 ⇒ # ⇒ [code] ⇒ # ⇒ [code (again)] ⇒ # ⇒ 1 or 2 or 3 ⇒ #	Assigns access codes (1 to 8 digit combination) to a person or a group of users - see Par. 5.3.
2	Setting the relay timer	01 to 98 ⇒ #	Sets relay pull-in duration between 1 and 98 seconds
	Latching the relay	99 ⇒ #	Converts the relay to the toggle mode (latch/unlatch)
3	Selecting the AUX output mode	1 to 7 ⇒ #	The number entered determines the operating mode (see Table 2)
4	Deleting a single user code	User number, 02 to 56 ⇒ # ⇒ [master code] ⇒ #	User code corresponding to the user number entered is deleted.
	Deleting all user codes	✱ ✱ ⇒ # ⇒ [master code] ⇒ #	All user codes are deleted together, except for code 01
5	Ambush digit	0 to 9 ⇒ #	The programmed digit will be valid until deleted or replaced
	Delete ambush digit	✱ ⇒ #	The ambush digit is canceled

*Note 1: If the system detects an **error** during programming, the green LED goes out for 3 seconds after [#] is pressed and then reverts to slow flashing. This indicates that the data has <u>not</u> been accepted and the entire programming sequence should be repeated.*
Note 2: If you make an error while programming, press [✱] for quick return to the programming menu.

5.2 Deleting all User Codes

Note: Besides the default master code (code No. 1), a specific code is programmed in the factory as code No. 2. It is therefore important to delete all codes before placing the system into service!

☞ [4][✱][✱][#][master code][#]

The response will be as follows:
After entering **[4]** – the green LED starts to flash <u>rapidly</u>
After entering **[✱✱]** followed by **[#]** – the green LED lights for 2 seconds, and resumes <u>rapid</u> flashing.
After entering the **[master code]** followed by **[#]** – the LED remains lit for 2 seconds and then reverts to <u>slow</u> flashing.

5.3 Programming New User Codes and Their Extent of Control

Prepare a list of user codes you want to program and record them in your **Programming Chart** (see Appendix A).

A. ☞ [1][user no.][#]
The user number is the number assigned to this user on the user list, not the code.
The green LED lights for 2 seconds and starts to flash rapidly
B. ☞ [user code][#] then repeat ☞ [user code][#] to verify
The user code is any combination of numbers, up to 8 digits.
The green LED lights for 2 seconds and resumes rapid flashing
C. ☞ [trip code][#]
  Select a trip code from the list below to determine which outputs will be tripped by the new user code.
    1 to trip the relay only
    2 to trip the auxiliary output only
    3 to trip both the relay and the auxiliary output

The green LED lights steadily for 2 seconds and then flashes <u>slowly</u>, indicating that the data has been saved and that you are back in the programming menu. To program additional user codes, follow the sequence A through C above, or quit by ☞[#].
Caution! Code No. 01 will now become the master code, and will provide the only access to future programming.

5.4 Deleting Selected User Codes

☞ [4][user no.][#][master code][#]

The response will be as follows:
After entering **[4]** – the green LED starts to flash <u>rapidly</u>
After entering **[user number]** followed by **[#]** – the green LED lights steadily for 2 seconds, then resumes <u>rapid</u> flashing.
After entering the **[master code]** followed by **[#]** – the green LED remains lit for 2 seconds and then begins flashing <u>slowly</u>.

5.5 Setting the Relay Timer

☞ [2][T][T][#]

[TT] is the relay pull-in time
To set duration from 1 to 98 seconds, enter a number from **01** to **98.**
To convert the relay to toggle mode (latch/unlatch), enter **99**.

5.6 Selecting the AUX Output Mode

☞ [3][M][#]

[M] is a number selected from the mode column in Table 2 below.
***Note:** User codes must be authorized to activate the auxiliary output.*

Table 2. Auxiliary Output Operating Modes

Mode	Description
1	Output is pulsed for 1 second by every user code authorized to operate the auxiliary output.
2	Output is toggled (latch/unlatch) by every user code authorized to operate the auxiliary output.
3	Output operates concurrently with the relay timer, but stays enabled 5 seconds longer than the relay (operation time: TT+5 seconds). If the toggle mode has been selected for the relay (TT= 99), the auxiliary output will be turned on for 5 seconds each time the relay is toggled. ***This mode does not work for user codes that are not programmed to operate the relay.***
4	Latches by user codes authorized to trip the auxiliary output, unlatches by pressing ✱.
5	Turned on for ten seconds by pressing any key.
6	Output oscillates at the rate of 1 Hz after 3 consecutive code errors. This condition will persist for 10 minutes, and may be reset only by entering a valid user code (resetting is possible only after the first 30 seconds, during which the keypad will be locked out as a result of the 3 code errors).
7	Output turned on by pressing 1 &3 simultaneously. Remains on while either key is kept pressed. ***Applicable indoor unit only.***

5.7 Deleting the Ambush Digit

☞ [5][✱][#]

If you <u>do not</u> intend to use an **ambush digit**, it is imperative that you delete the ambush digit code – to ensure that no previously programmed digit remains in memory.

5.8 Selecting an Ambush Digit

☞ [5][A][#]

[A] is the desired ambush digit, chosen from **0** to **9**.

> **IMPORTANT:** If you have programmed an ambush digit, you must restrict user codes to seven digits each (or less) and you must avoid choosing user codes ending with that same digit as the ambush one.

5.9 How to Quit Programming

☞ [#] while the green LED is flashing slowly

The green LED will extinguish.

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6. RESETTING THE DEFAULT MASTER CODE

If you forget or misplace the master code (code No. 01) and it becomes necessary to reprogram the keypad, you will have to reset the master code to the factory default (**1234**) as follows:

A. Open the keypad's case, revealing the printed circuit board.

B. Install the jumper across the two pins labeled **JP2**. (See Fig. 4).

C. Momentarily short circuit the pins labeled **JP1** using a screwdriver or jumper wire.

D. Wait ten seconds, remove the jumper from JP2, and immediately key **1234#**. The green LED will light steadily for

two seconds and after that will start flashing slowly, indicating that the programming menu is active.

Important Note: The master code has temporarily reverted to 1234. Remember, however, that all other data programmed previously remains intact!

E. Program a new master code (user code No. 01) immediately, and record it in a secret, safe place.

If you choose to quit programming at this stage, press **#** while the green LED is flashing slowly.

APPENDIX A: USER CODES LIST

USER No.	USER NAME	USER CODE (1–8 DIGITS)	ACTIVATES RELAY, AUX OR BOTH OUTPUTS (*)	USER NUMBER	USER NAME	USER CODE (1–8 DIGITS)	ACTIVATES RELAY, AUX OR BOTH OUTPUTS (*)	USER No.	USER NAME	USER CODE (1–8 DIGITS)	ACTIVATES RELAY, AUX OR BOTH OUTPUTS (*)
01				21				41			
02				22				42			
03				23				43			
04				24				44			
05				25				45			
06				26				46			
07				27				47			
08				28				48			
09				29				49			
10				30				50			
11				31				51			
12				32				52			
13				33				53			
14				34				54			
15				35				55			
16				36				56			
17				37							
18				38							
19				39							
20				40							

* Each user can activate **RELAY**, **AUX** OR **BOTH** outputs, as described in paragraph 5.3C.

APPENDIX B: PROGRAMMING SUMMARY

Important! First access to the programming menu is gained through the factory default master code 1234. After programming, User Code No. 01 becomes the master code.

No.	Function	Keying Format	Format Explanation and Correct Response
1	Access to Programming Menu	[✶✶] [Master Code] [✶✶]	• The green LED starts to flash slowly - the programming menu is active!
2	Deleting all previous User Codes	[4] [✶✶]# [Master Code] #	• After pressing **[4]** - rapid flashing; *[✶✶] deletes all user codes except for code No. 01;* • After keying **[✶✶]#** - steady light for 2 seconds and then rapid flashing • After keying **[Master Code]#** - steady light for 2 seconds and then slow flashing.
3	Relay timing	[2] [TT] #	• After pressing **[2]** - rapid flashing; *[TT] = 01 to 98 seconds; 99 selects the toggle mode, in which a user code will latch or unlatch the relay;* • After keying **[TT]#** - steady light for 2 seconds and then slow flashing.
4	Selecting AUX output operating mode	[3] [M] #	• After pressing **[3]** - rapid flashing; *[M] = A code specifying the operating mode of the AUX output (selected from Operating Modes Table below).* • After keying **[M]#** - steady light for 2 seconds and then slow flashing.
5	Defining an AMBUSH digit	[5] [A] #	• After pressing **[5]** - rapid flashing; *[A] = Ambush digit, 0 to 9 (see note C below)* • After keying **[A]#** - steady light for 2 seconds and then slow flashing.
6	Deleting the AMBUSH digit	[5] [✶] #	• After pressing **[5]** - rapid flashing; *[✶] = Deletes the Ambush digit* • After keying **[✶]#** - steady light for 2 seconds and then slow flashing.

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No.	Function	Keying Format	Format Explanation and Correct Response
7	Programming user codes (prepare a list - see Appendix A)	**[1] [NN] # [C]# [C]# [F] #**	• After pressing **[1]** - rapid flashing; *[NN]* = *The serial number of the code user, 01 to 56* • After keying **[NN]#** - steady light for 2 seconds and then rapid flashing. *[C]* = *The access code allocated to this user, 1 to 8 digits* • After keying **[C]#** - steady light for 2 seconds and then rapid flashing. • Repeat **[C]#** for verification; the LED responds as before. *[F]* = *A code defining which outputs will be tripped by this user code* *1: Authorization to trip the relay only* *2: Authorization to trip the AUX output only* *3: Authorization to trip both relay and AUX output* • After keying **[F]#** - steady light for 2 seconds and then slow flashing.
8	Deleting individual user codes	**[4] [NN] # [Master Code] #**	• After pressing **[4]** - rapid flashing; *[NN]* = *The serial number of the code user, 02 to 56* • After keying **[NN]#** - steady light for 2 seconds and then rapid flashing • After keying **[Master Code]#** - steady light for 2 seconds and then slow flashing.

Notes:

A. Quit programming by pressing [**#**] when the green LED flashes slowly.

B. If, while entering data, the green LED responds by going out for 3 seconds instead of lighting for 2 seconds, the data has not been accepted. Press [∗] and repeat the entire sequence from the beginning.

C. An AMBUSH digit can not be used with 8-digit user codes, and should not be identical with the last digit in any code.

D. The PANIC output is tripped by pressing [∗] and [**#**] simultaneously.

Auxiliary Output Operating Modes

Mode	Description
1	Pulsed for 1 second by every user code authorized to operate the auxiliary output.
2	Toggled (latch/unlatch) by every user code authorized to operate the auxiliary output.
3	Output operates concurrently with the relay timer, but stays enabled 5 seconds longer than the relay (operation time: TT+5 seconds). If the toggle mode has been selected for the relay (TT= 99), the auxiliary output will be turned on for 5 seconds each time the relay is toggled. *Note: this mode does not work for user codes that are not programmed to operate the relay.*
4	Latches by user codes authorized to trip the auxiliary output, unlatches by pressing [∗].
5	Turned on for ten seconds by pressing any key.
6	Oscillates at the rate of 1 Hz after 3 consecutive code errors. This condition will persist for 10 minutes, and may be reset only by entering a valid user code (resetting is possible only after the first 30 seconds, during which the keypad will be locked out a result of the 3 code errors).
7	Turned on by pressing 1 and 3 simultaneously. Remains on while either key is kept pressed.

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