English

CL-8A, CL-8A T

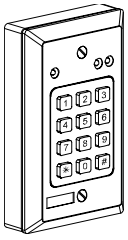
Microprocessor Controlled Digital Keypads

Visonic Technologies

Installation Instructions

1. INTRODUCTION

1.1 Description



The CL-8A and CL-8A T (version with tamper switch) are digital, code-operated keypads for indoor access control and remote control applications. The keypad can function with virtually every security control panel on the market, and is suitable for surface mounting or flush mounting in a standard single-gang switchbox.

1.2 Features

- Self-contained, suitable for flush and surface mounting; supplied with a surface mounting box.
- Includes a 10 A relay, which operates 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.
- Up to 56 different 1-8 digit user codes can be programmed.
- More than 100 million code combinations are possible.
- User codes may be individually deleted.
- Programmable AUXILIARY open-collector output with seven powerful operating modes.
- Each user code programmable to operate the RELAY, or the AUXILIARY output, or BOTH.
- Programmable relay contact closure duration; toggle (latch/ unlatch) mode may be selected if required.
- PANIC output triggered by pressing the # and * keys simultaneously.
- Three built-in LED indicators.
- REQUEST TO EXIT remote input trips the relay with a remote switch or a detector.
- A penalty timer locks out the keypad for 30 seconds after three consecutive inputs of erroneous codes.
- An AMBUSH digit, if entered after the last digit of the user code, sends a one-second pulse to the PANIC output.
- 9 to 16 or 22 to 26 Volts AC/DC operation.
- Tamper switch option available.

2. SPECIFICATIONS

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 control: Programmable for 1 – 98 seconds pull-in duration, or for toggle (latching/unlatching) mode
Relay contact rating: 10 A / 30 VAC or DC
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

3. INSTALLATION

3.1 Mounting

Do not install outdoors! Flush mounting is possible in standard, single-gang electrical switch boxes (see Figure 1), without the original back box. For surface mounting, use the back box supplied with the unit (Fig. 2).

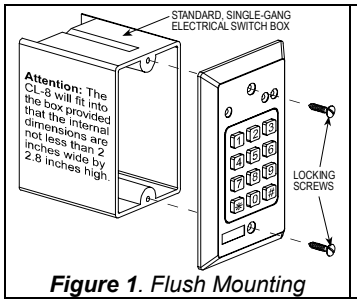


***Figure 1**. Flush Mounting*

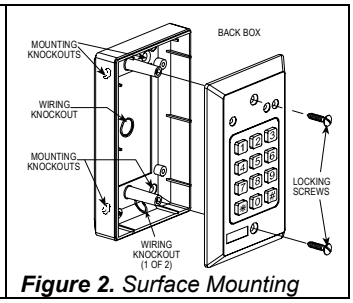


***Figure 2.** Surface Mounting*

3.2 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.

3.3 Wiring

***IMPORTANT!** Before wiring be sure to set 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.*

The connections to the terminal block are shown in Figure 3.

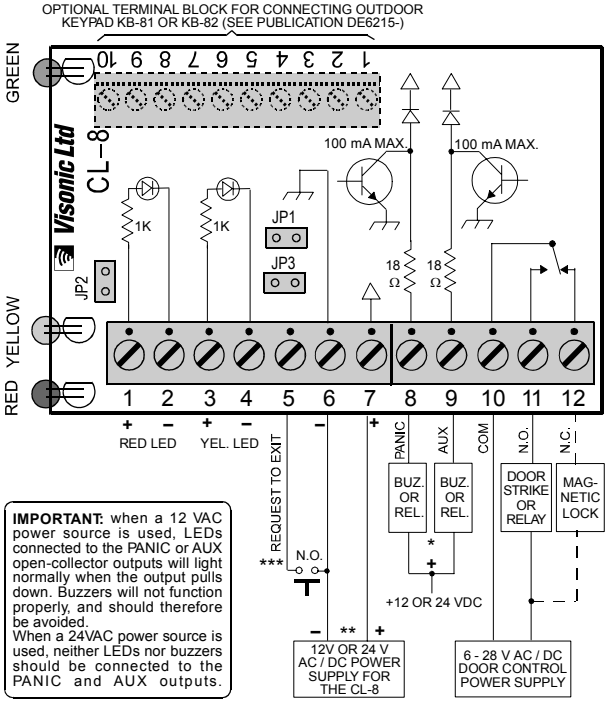


***Figure 3.** Terminal Block Wiring*

***Notes:**

1. *If the CL-8A/CL-8A T 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.*

****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**.

*** Connect the remote request-to-exit switch or PIR contacts across terminals 5 and 6. To light the red LED, connect the 12 or 24-Volt power supply across terminal 1 (+) and 2 (–). To light the yellow LED, connect the 12 or 24-Volt power supply across terminals 3 (+) and 4 (–).

3.4 Tamper Switch TAMP-1 (optional)

This option includes 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 CL-8A 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.

B. To protect the CL-8A 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. 4).

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

***Note:** 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.*

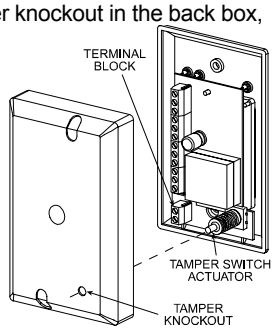


***Fig. 4.** Tamper Switch Installation*

4. OPERATION

The main function of the CL-8A/CL-8A T 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 unlocking 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 security 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.
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 Para. 5.3 for exact procedure.
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 CL-8A/CL-8A T 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 not been accepted and the entire programming sequence should be repeated.*
Note 2: *If you make an error while programming, press [✱] for instant 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 CL-8A/CL-8A T into service!*

☞ 4 ✱ ✱ # master code #

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

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 and 3 simultaneously. Remains on while either key is kept pressed.

5.7 Deleting the Ambush Digit

☞ 5 ✱ #

If you do not 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.

6. RESETTING THE DEFAULT MASTER CODE

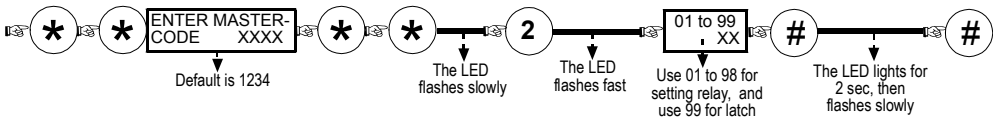
If you forget or misplace the master code (code No. 01) and it becomes necessary to reprogram the keypad, you will have to reset the master code to the factory default (**1234**) as follows:

A. Open the keypad's case, revealing the printed circuit board.
B. Install the jumper across the two pins labeled JP2. (See Fig. 3).
C. Momentarily short circuit the pins labeled JP1 using a screw-driver 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.

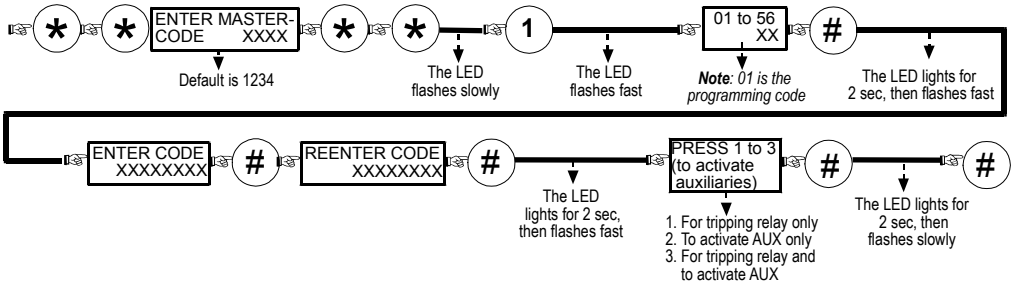
If you choose to quit programming at this stage, press **#** while the green LED is flashing slowly.

7. QUICK REFERENCE FLOW CHARTS

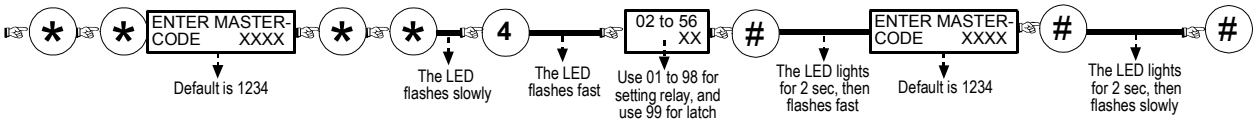
7.1 Setting the Relay Timer



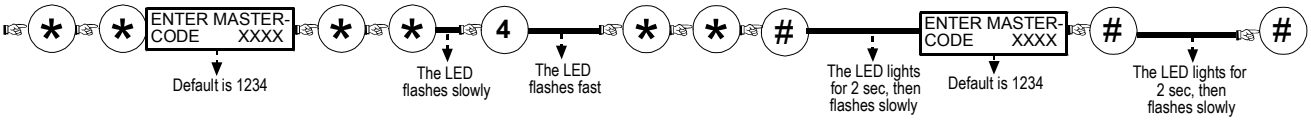
7.2 Programming New User Codes



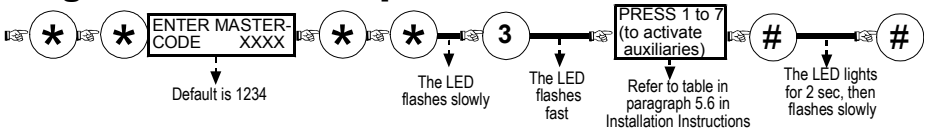
7.3 Deleting Single Codes



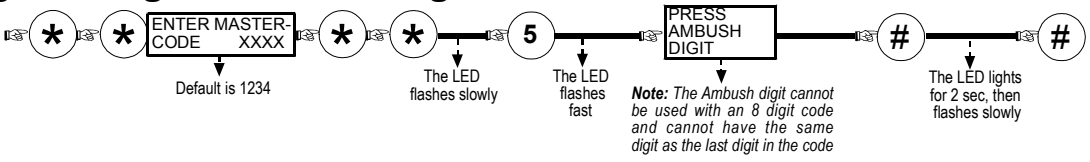
7.4 Deleting All User Codes



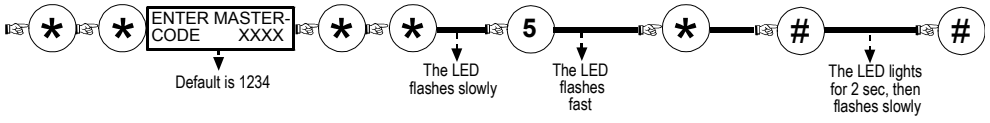
7.5 Programming the AUX Mode Operation



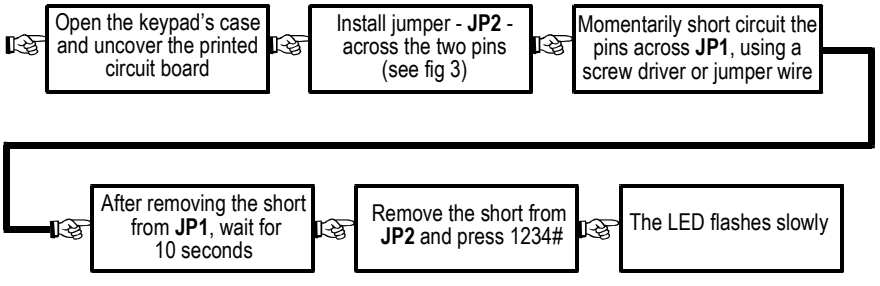
7.6 Programming the Ambush Digit



7.7 Deleting the Ambush Digit



7.8 Resetting the Default Master Code



Note: *The master code has temporarily reverted to 1234, however all other data programming remains the same.*

Appendix A. User Code Programming Chart

USER No.	USER NAME	USER CODE (1–8 DIGITS)	ACTIVATES RELAY, AUX OR BOTH OUTPUTS (*)
01			
02			
03			
04			
05			
06			
07			
08			
09			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

USER NUMBER	USER NAME	USER CODE (1–8 DIGITS)	ACTIVATES RELAY, AUX OR BOTH OUTPUTS (*)
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			

USER No.	USER NAME	USER CODE (1–8 DIGITS)	ACTIVATES RELAY, AUX OR BOTH OUTPUTS (*)
41			
42			
43			
44			
45			
46			
47			
48			
49			
50			
51			
52			
53			
54			
55			
56			

* 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	
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 Mode 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.
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.

No.	Function	Keying Format	
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.

WARRANTY

Visonic Technologies Ltd. and/or its subsidiaries and its affiliates ("the Manufacturer") warrants its products hereinafter referred to as "the Product" or "Products" to be in conformance with its own plans and specifications and to be free of defects in materials and workmanship under normal use and service for a period of twelve months from the date of shipment by the Manufacturer. The Manufacturer's obligations shall be limited within the warranty period, at its option, to repair or replace the product or any part thereof. The Manufacturer shall not be responsible for dismantling and/or reinstallation charges. To exercise the warranty the product must be returned to the Manufacturer freight prepaid and insured.

***This warranty does not apply in the following cases:** improper installation, misuse, failure to follow installation and operating instructions, alteration, abuse, accident or tampering, and repair by anyone other than the Manufacturer.*

This warranty is exclusive and expressly in lieu of all other warranties, obligations or liabilities, whether written, oral, express or implied, including any warranty of merchantability or fitness for a particular purpose, or otherwise. In no case shall the Manufacturer be liable to anyone for any consequential or incidental damages for breach of this warranty or any other warranties whatsoever, as aforesaid.

This warranty shall not be modified, varied or extended, and the Manufacturer does not authorize any person to act on its behalf in the modification, variation or extension of this warranty. This warranty shall apply to the Product only. All products, accessories or attachments of others used in conjunction with the Product, including batteries, shall be covered solely by their own warranty, if any. The Manufacturer shall not be liable for any damage or loss whatsoever, whether directly, indirectly, incidentally, consequentially or otherwise, caused by the malfunction of the Product due to products, accessories, or attachments of others, including batteries, used in conjunction with the Products.

The Manufacturer does not represent that its Product may not be compromised and/or circumvented, or that the Product will prevent any death, personal and/or bodily injury and/or damage to property resulting from burglary, robbery, fire or otherwise, or that the Product will in all cases provide adequate warning or protection. User understands that a properly installed and maintained alarm may only reduce the risk of events such as burglary, robbery, and fire without warning, but it is not insurance or a guarantee that such will not occur or that there will be no death, personal damage and/or damage to property as a result.

***The Manufacturer shall have no liability for any death, personal and/or bodily injury and/or damage to property or other loss whether direct, indirect, incidental, consequential or otherwise, based on a claim that the Product failed to function.** However, if the Manufacturer is held liable, whether directly or indirectly, for any loss or damage arising under this limited warranty or otherwise, regardless of cause or origin, the Manufacturer's maximum liability shall not in any case exceed the purchase price of the Product, which shall be fixed as liquidated damages and not as a penalty, and shall be the complete and exclusive remedy against the Manufacturer.*

***Warning:** The user should follow the installation and operation instructions and among other things test the Product and the whole system at least once a week. For various reasons, including, but not limited to, changes in environmental conditions, electric or electronic disruptions and tampering, the Product may not perform as expected. The user is advised to take all necessary precautions for his/her safety and the protection of his/her property.*

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Visonic Technologies

Visonic Technologies Ltd. (Israel): 24 Habarzel St. Tel Aviv 69710 ISRAEL. Tel: +972-3-768-1400 Fax: +972-3-768-1415
Visonic Technologies America (U.S.A.): 10 Northwood Drive, Bloomfield CT. 06002-1911. Tel: (860) 243-0833, (800) 223-0020 Fax: (860) 242-8094
Visonic (UK): Unit 1, Stratton Park, Dunton Lane, Biggleswade, BEDS. SG18 8QS. Tel: (01767)600857 Fax: (01767)601098
Internet: *www.visonictech.com*
Tech. Support E-mail:support@visonictech.com

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MADE IN ISRAEL