Notes

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Keypad Programming Instructions

PT DC 70 MBPT

Vandal Resistant, Back-Lit Weatherproof, Access Control Keypad

For electric lock, inter-lock
and security system installations

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Notes

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Specifications & Connection

Specification

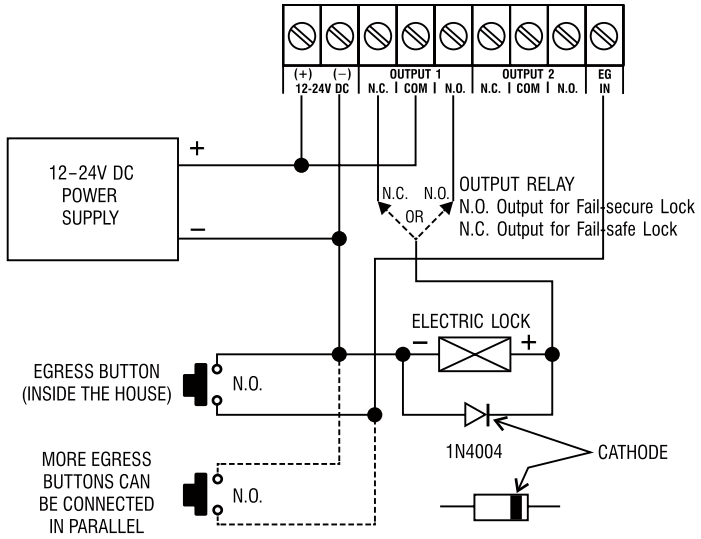
- **Operating Voltage:**
  12V-24V DC, Auto adjusting
- **Operating Current:**
  40mA (quiescent) to 100mA
  (three relays active)
- **Operation Temperature:**
  -20 C to +70 C
- **Environmental Humidity:**
  5-95% relative humidity non-condensing
- **Working Environment & Ingress Protection:**
  All weather, IP-66
- **Number of Users:**
  Output 1 – 1,000 User PINs
  Output 2 – 100 User PINs
  Output 3 – 100 User PINs
- **Timings for Code Entry:**
  10 seconds waiting for next digit entry
- **The Timers:**
  Three 1-99,999 Seconds
  (Over 24 Hours possible)
  Independent Programmable Timers for O/P 1, 2 & 3
- **Output Contact Ratings:**
  Output Relay 1 – N.C. &
  N.O. dry contacts, 5A/24VDC Max.

  Output Relay 2 – N.C. &
  N.O. dry contacts, 1A/24VDC Max.

  Output Relay 3 – N.C. &
  N.O. dry contacts, 1A/24VDC Max.

Application Example

Basic Wiring of a Stand Alone Door Lock



ALWAYS FIT A TRANSIENT SUPPRESSOR TO THE LOCK RELEASE TO PROTECT THE KEYPAD
Otherwise connect a 1N4004 diode as close as possible to the lock, in parallel with the power terminals of the lock to absorb the back EMF and prevent from it damaging the keypad.

A 1N4004 diode MUST NOT BE USED if the electric lock is AC operated !

To avoid Electro-Static-Discharge from interfering with the operation of the keypad, always ground the (-) terminal of the keypad to earth.

Always connect the DOOR SENSOR terminal to (-) ground if not used.

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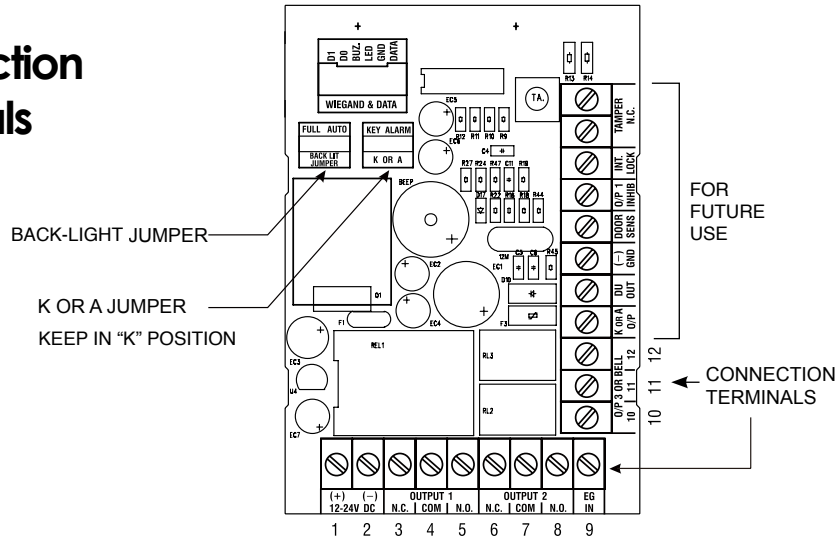
Connection Terminals



1 - 2 : 12-24V DC (Power Input Terminal)
Connect to 12-24V DC power supply. The (-) supply and the (-) GND are the common grounding points of the system. The system accepts full input voltage range with no jumper selection.

3 - 4 - 5 : OUTPUT 1 (Output Relay 1)
5 Amp relay dry contact controlled by the Group 1 User PINs for Output 1, recommended for door strike. Terminal 3 is Normally Closed (N.C.), terminal 5 is Normally Open (N.O.) and terminal 4 is the common point of the two contacts. Use N.C. output for Fail-safe locking device; and N.O. output for Fail-secure locking device. The relay is programmable for Start/Stop (toggle) mode or Momentary timing mode. See programming Location 51 for the details.

6 - 7 - 8 : OUTPUT 2 (Output Relay 2)
1 Amp relay dry contact controlled by the Group 2 User PINs for Output 2, it is an auxiliary output ideally for controlling security system or automatic operator. Terminal 6 is Normally Closed (N.C.), terminal 8 is Normally Open (N.O.) and terminal 7 is the common point of the two contacts. The relay is programmable for Start/Stop (toggle) mode or Momentary timing mode. See programming Location 52 for the details.

9 : EG IN (Egress Input)
A Normally Open (N.O.) input terminal referring to (-) ground. With the help of connecting a normally opened button to activate Output 1 for door opening in the same manner of using the Group 1 User PINs. Egress button is usually put inside the house near the door. More than one egress buttons can be connected in parallel to this terminal. Leave this terminal open if not used. See Programming Locations 90 and 91 for more information about the Egress Button with other features.

10 - 11 - 12 : OUTPUT 3 (Output Relay 3)
1 Amp relay dry contact controlled by the Group 3 User PINs for Output 3, it is an auxiliary output ideally for controlling security system or automatic operator. Terminal 10 is Normally Closed (N.C.), terminal 12 is Normally Open (N.O.) and terminal 11 is the common point of the two contacts. The relay is programmable for Start/Stop (toggle) mode or Momentary timing mode.
See programming Location 53 for the details.

The On-Board LED Indicators

RED / GREEN (left) — It lights up in Green for Output 1 activation; and Red for Output 2 activation.

AMBER (centre) — It flashes on Standby. It shows the system status in synchronization with the beep tones. The standby flashing can be set to OFF in programming. See Location 73 for the details.

RED (right) — It lights up while one of the outputs is inhibited.

Buzzer Tones & LED indicators

The buzzer and the amber LED indicator give following tones and signals respectively for system status:

STATUS	TONES	AMBER LED SIGNALS
1) On Programming Mode	-----	ON
2) Successful Key Entry	1 Beep	1 Flash
3) Successful Code Entry	2 Beeps	2 Flashes
4) Unsuccessful Code Entry	5 Beeps	5 Flashes
5) Power Up Delay	Continuous Beeps	Continuous Flashes
6) Output Relay Activation	1 Second Long Beep	
7) On Standby	-----	1 Flash in 1 second interval
8) System Refreshing	-----	Fast Flashes for 2.5 Minutes
9) PIN Already Stored in System	1 Long Beep	-----

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Jumper For Back Light Selection

Full Back-Light (Default Position)
The keypad gives dim back-light on standby. It turns to full back-light when a key button is pressed, then back to dim back-light 10 seconds after the last key button is pressed.

Auto Back Light
The back-light is OFF on standby. It turns to full back-light when a key button is pressed, then back to OFF10 seconds after the last key button is pressed.

Master Code & Direct Access to Programming

Set System Into Programming Mode With The Master Code

⚠ IMPORTANT NOTE

1. **DO NOT TURN THE POWER OFF while the keypad is in Programming Mode.**
   Otherwise, it may cause data lost/error to the programmed features in the memory.
2. The keypad beeps after power up. Wait 1 minute until the end of the power up delay, then key in the Master Code for setting the system into programming mode.
3. For the owner's convenience when programming for the first time, the factory has saved the Master Code **0 0 0 0** into the keypad **(It is NOT a default code)**. The owner should program a new Personal Master Code to invalidate the factory set Master Code after the keypad is owned, so as to not compromise security.

Master Code

[0][0][0][0] **The Master Code can be a factory set master code or the private master code that was set by the owner.**

[*][*] **Validate the master code with * * after entry.**
2 rapid beeps confirm a valid master code. The main LED (Amber) is constantly ON after the system is set into the programming mode.

Direct Access to Programming Mode with the "DAP" Code - 8 0 8 0

How to set the System into Programming Mode with the DAP Code in Case the Master Code is forgotten ! !

[8][0][8][0] The owner is required to apply the following procedure precisely to set the system into programming mode with the DAP code **8 0 8 0**

1. Switch OFF all the power for 1 minute to ensure that the system is fully discharged.
2. Swich ON power again. The system is in Power-up Mode for 1 minute and the buzzer beeps during the whole period. This is the only time limit for setting the system to Direct Access to Programming (DAP).
3. Press the Egress Button (EG IN) once first to enable the DAP function.
4. Key in the DAP Code [8][0][8][0] and validate it with [*][*], the existing Master Code in the memory is erased and the power up beep stops. The keypad turns itself into programming mode like using the Master Code and it is ready to accept the new programming data.
5. If the Egress Button is not pressed and the DAP code is not keyed in within the power up period, the system will set itself to normal operation mode. To set it back to power-up mode, repeat procedures 1-4

EGRESS BUTTON PRESS ONCE

DAP Code

- The DAP code is fixed as [8][0][8][0] and it is valid only during the Power-up Period after the Egress Button is pressed.
- Validate the DAP code with the [*][*]
- 2 rapid beeps confirms the system is in the Programming Mode; and the Mains LED is constantly ON.
- See "RECORD A MASTER CODE" at "Memory Location 01" for the details of programming a new master code.

Quick Start Programming Instructions

PROGRAMMING NOTE: When powering up please wait 1 minute until the end of the power up delay and the keypad stops beeping.

1 Set the Keypad into Programming Mode with the Master Code (0 0 0 0 is factory set from new)

[0][0][0][0] [*][*] ---- Listen for the 2 rapid beeps - The keypad is now in programming mode.

NOTE: If the Master Code is forgotten, use the DAP Code to set the keypad into programming mode. (See DAP CODE 8080 in the main instructions on page 9 for the details).

2 Change The Factory Set Master Code to the Owner's Private Master Code for Security Reasons

[0][1] [1][2][3][4] [#] ---- 2 rapid beeps, (1 2 3 4 is a Master Code for example here only)

1 2 3 4 is now the new Master Code and the factory set default of 0 0 0 0 is erased.

3 Set a "User PIN" to Operate The Output 1 (relay 1) for Door Open

[1][0] [2] [0][0][1] [4][3][2][1] [#]

(a) (b) (c) (d) (e)

(a) 10 = Programming Location for Output 1 (relay 1)
20 = Programming Location for Output 2 (relay 2)
30 = Programming Location for Output 3 (relay 3)

(b) 2 = Programming for User PIN

(c) 0 0 1 = One of the 1,000 User indexes for the User PIN ranging from 000-999

(d) 4 3 2 1 = The User PIN that is programmed for the door. *(4 3 2 1 is a User PIN for example only)*

(e) # = Confirm the User PIN, (listen for 2 rapid confirmation beeps after pressing #)

NOTE: A User PIN can not be the same as the Master Code

REMARK:

If more User PINs are required for output 1, repeat procedure 3 (above) with other User indexes, such as 002, 003, 004 --- 999 etc. A total of 1,000 users are allowed (See Programming Location 10 for the details in the main instruction booklet)

4 Exit The Programming Mode

[*][*] ---- Listen for 2 rapid confirmation beeps

The programming mode is complete and the keypad is back to normal operation mode.

OPERATION

5 Open The Door with The User PIN

(The door will release for the factory default time of 5 seconds - See page 17 to change this time)

[4][3][2][1] [#] ---- 1 long beep, the door is now open

REMARK:

To change the private master code or "User PIN" - simply repeat procedures 2 and 3 (above).

Factory Reset & Default Values

Refresh the System with the "Refreshing Code 9 9 9 9"

When in programming mode, the system can be refreshed to clear all the old data stored and return it to its ex-factory default values (with the exception of the master code.)

⚠ IMPORTANT NOTE

Make sure that you really want to clear ALL the OLD data before entering of the Refreshing Code. The keypad will return to its default values like a new unit. Re-programming the desired values is necessary. Do not turn the power off until you have exit the programming otherwise the keypad will become damaged.

Refreshing Code

The Code [9][9][9][9] is for the refreshing of the system. Once it is keyed in and validated with [#] all the values programmed previously will be cleared EXCEPT the Master Code.

The refreshing takes around 2.5 minutes. Whilst the keypad is being refreshed the Status LED (Amber) flashes fast until the end. 2 rapid beeps will confirm completion.
Exit Programming mode with - [*][*]

Default Values of the Keypad

MEMORY LOCATION	PARAMETERS	DEFAULT FUNCTIONS & VALUES
0 1	Master Code	[0][0][0][0] Factory Set, **Not a default value**
1 0	User PINs for O/P 1	Nil ----- User Program Required
2 0	User PINs for O/P 2	Nil ----- User Program Required
3 0	User PINs for O/P 3	Nil ----- User Program Required
5 1	O/P Mode of The O/P 1	Time = 5 Sec, Momentary
5 2	O/P Mode of The O/P 2	Time = 5 Sec, Momentary
5 3	O/P Mode of The O/P 3	Time = 5 Sec, Momentary
7 0	User Code Entry Mode	Code = 2, Manual Entry Mode

NOTE: The DAP Code 8 0 8 0 and the Refreshing Code 9 9 9 9 are fixed in the operating system program and can not be changed in any way or be influenced by the system in default setting.

Keep a Record of Settings

The feature values can be set and stored into the system one by one with the desired Programming Memory Locations. Programming can be made continuously and it is not necessary to be in sequence order. Just go to the desired programming location and key in the value for the desired feature.

⚠ IMPORTANT NOTE **Programming Criteria for Codes:**

a **The User PINs and Codes:**
All the User PINs + Master Code are Prime Codes in the system. They MUST be unique and can not be repeated in the programming.

b **Warning for a Repeated use of Prime Code:**
One long beep is given if a User Code/PIN is keyed in. It means that a Code/PIN was already in one of the PIN or Code Locations or IDs. The programming is invalid. Change for a new Code/PIN and program it again.

c **Make a List Recording of the user Names VS user Codes:**
Suggest that the owner makes a list recording of the User Names corresponding to the Codes/PINs that are going to be stored in the Memory Locations and the IDs before programming.
It will be a useful tool for the owner to easily program them smoothly and also to trace them from this multi-users system in the future.

EXAMPLE:

USER	NAME	MEMORY LOCATION	FUNCTION CODE	USER ID	PIN/CODE	REMARK
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						

1,000						

Programming

Setting the Master Code (MEMORY LOCATION 01)

MEMORY LOCATION	MASTER CODE	VALIDATION
0 1	4 to 8 Digits	#

MASTER CODE

- Master Code is the authorization code for setting the system to programming mode. It is **NOT** a User Code operating of the output relays.
- The Master Code can be 4 to 8 digits. Press # key to confirm code entry
- When a new master code is keyed in and confirmed, the old master code is replaced automatically.

Example: Set a Master Code with the number of "2 2 3 3" --- 0 1 2 2 3 3 #

Add or Delete User Pins for Outputs 1, 2, & 3 (MEMORY LOCATIONS 10, 20 & 30)

A total of 1,200 **User PINs** are available for the 3 user groups to control the 3 outputs.
1) 1,000 ---- for Output 1 (Group 1)
2) 100 ------ for Output 2 (Group 2)
3) 100 ------ for Output 3 (Group 3)
The Private User PINs in the 3 user groups **MUST** be unique. Repeated PINs will be rejected.

MEMORY LOCATION	RECORD/DELETE	USER ID	USER PIN	VALIDATION
1 0 - 3 0	2 or 5	0 0 0 - 9 9 9	USER PIN	#

USER GROUP LOCATIONS

- 0 1 **Group 1 --For User PINs Controlling Output 1**
  1,000 Users are allowed in group 1 for O/P 1
- 2 0 **Group 2 --For User PINs Controlling Output 2**
  100 Users are allowed in group 2 for O/P 2
- 3 0 **Group 3 -- For User PINs Controlling Output 3**
  100 Users are allowed in group 3 for O/P 3

SELECTION OF RECORD OR DELETE A PIN

- Number 2 represents recording of a User PIN.
- Number 5 is the authorization code for deleting of a PIN from its User ID.

2 = Record a User PIN

5 = Delete a User PIN from the selected User ID number

0 9 9 9 = Clear all the PINs from the selected Location. It takes few seconds to a minute to complete depending on the Location selected and the data stored.Please see the programming example below for the details.

USER ID NUMBER

A **3-digit** ID is an identified number for each User PIN.
Repeated ID number will be rejected by the system

a) ID Number 0 0 0 - 9 9 9 **for 1,000 User PINs to operate Output 1**
b) ID Number 0 0 1 - 1 0 0 **for 100 User PINs to operate Output 2**
c) ID Number 0 0 1 - 1 0 0 **for 100 User PINs to operate Output 3**

THE USER PINS

- The User PINs can be 4-8 digits. Key in the User PIN on each ID Number box, then confirm it with # key

Examples - Programming and Operation

1) EXAMPLE 1 -- USER PIN FOR OUTPUT 1

i) Programming

[1][0] [2] [0][0][1] [4][3][2][1] [#]

(a) (b) (c) (d) (e)

(a) The User PIN is programmed for Output 1

(b) Record a User PIN

(c) Take ID number 001 in Group 1 to store the User PIN, which is one of the IDs in 000-999

(d) Key in the User PIN "4 3 2 1" into the storage location

(e) Press # to store the "User PIN" into memory, two-beep confirms a valid entry

ii) Exit the programming mode. Key in [*][*] - Listen for 2 rapid beeps

iii) Operation : (when the system is back in operation mode)

[4][3][2][1] [#]

(a) (b)

(a) Key in the User PIN "4 3 2 1"

(b) Confirm it with the # key. Output 1 activates

2) EXAMPLE 2 -- USER PIN FOR OUTPUT 2

i) Programming

[2][0] [2] [0][0][1] [5][6][7][8] [#]

(a) (b) (c) (d) (e)

(a) The User PIN is programmed for Output 2

(b) Record a User PIN

(c) Take ID number 001 in Group 2 to store the User PIN, which is one of the IDs in 001-100

(d) Key in the User PIN "5 6 7 8" into the storage location

(e) Press # to store the "User PIN" into memory, two-beep confirms a valid entry

ii) Exit the programming mode. Key in [*][*] - Listen for 2 rapid beeps

iii) Operation : (when the system is back in operation mode)

[5][6][7][8] [#]

(a) (b)

(a) Key in the User PIN "5 6 7 8"

(b) Confirm it with the # key. Output 1 activates

Examples - Programming and Operation

PROGRAMMING

3) EXAMPLE 3 -- USER PIN FOR OUTPUT 3

i) Programming

[3][0] [2] [0][0][1] [1][3][5][7] [#]

(a) (b) (c) (d) (e)

(a) The User PIN is programmed for Output 3

(b) Record a User PIN

(c) Take ID number 0 0 1 in Group 3 to store the User PIN, which is one of the IDs in 001-100

(d) Key in the User PIN "1 3 5 7" into the storage location

(e) Press # to store the "User PIN" into memory, two-beep confirms a valid entry

ii) Exit the programming mode. Key in [*][*] - Listen for 2 rapid beeps

iii) Operation : (when the system is back in operation mode)

[1][3][5][7] [#]

(a) (b)

(a) Key in the User PIN "1 3 5 7"

(b) Confirm it with the # key. Output 3 activates

4) EXAMPLE 4 -- DELETE A USER PIN (FOR O/P 1, 2 OR 3)

i) Delete A User PIN

[1][0] [5] [USER ID] [#]

(a) (b) (c) (d)

a) Key in the User Group that the User ID belongs to. "10" for the Group 1, "2 0" for the Group 2, and "3 0" for the Group 3

b) Key in "5" that is the Command Code for making a deletion here

c) Key in the User ID that stored the User PIN

d) Press the # key. Two-beep confirms a valid entry and the User PIN in that User ID is cleared

ii) Exit the programming mode. Key in [*][*] - Listen for 2 rapid beeps

5) EXAMPLE 5 – CLEAR THE WHOLE GROUP OF USERS

i) Whole group of users can be cleared with the following command.

[1][0] [0][9][9][9] [#]

(a) (b) (c)

a) The User Group 1 – "1 0" is selected to be cleared. "2 0" for Group 2 & "3 0" for Group 3

b) Key in the Group Deletion Command, 0 9 9 9

c) Confirm the deletion with #. All the User PINs in the Group 1 are cleared. It takes few seconds to a minute to complete depending on the data stored.

ii) Exit the programming mode. Key in [*][*] - Listen for 2 rapid beeps

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(MEMORY LOCATIONS 51, 52 & 53)

Setting the Relay Times for Relay Outputs 1, 2, and 3

The three relay outputs of this keypad are programmable for Start/Stop or Timing modes. For door access control, they are universal timers for automatic door operators with their 99,999 seconds (over 24 hours) programmable timers.

MEMORY LOCATIONS **OUTPUT MODE & TIME** **VALIDATION**

[5][1]-[5][3] [0] or [1] to [9][9][9][9][9] [#]

OUTPUT MEMORY LOCATIONS

[5][1] **-- Location for Output 1**

[5][2] **-- Location for Output 2**

[5][3] **-- Location for Output 3**

OUTPUT MODE & TIMING

[0] **- Start / Stop Mode (Toggle)**
The number 0 sets the output to the **Start / Stop mode**. The output **Starts** when an User PIN is entered; the output **Stops** when an User PIN is entered again.

[1] to [9][9][9][9][9] **Seconds Momentary --- (Default -- Momentary 5 Seconds)**
The output can be set in **Momentary Mode** with the time of 1 second to 99,999 seconds. The output will reset automatically when the time expires.

User Pin Entry Mode - Auto or Manual

(MEMORY LOCATION LOCATION 70)

USER PIN ENTRY MODES

Two modes 1 and 2 are available for User PIN entry options.

[1] **--- Auto Entry Mode**

Auto Entry Mode requires no pressing of the [#] key following the User PIN for code checking. In the Auto Entry Mode, the **User PINs MUST be set in the same digit length of the Master Code** (For example, if the Master Code is 5 digits, then all User PINs must be in 5 digits as well. All other User PINs not in 5 digits become invalid). When the number of digits reaches, the system will check the User PIN automatically. Good for high traffic access control.

[2] **--- Manual Entry Mode – (Default)**

Manual Entry Mode always requires the [#] key following the User PIN for code checking. The User PINs can be **4-8 digits arbitrary** and they are **NOT** required to be in the same digit length of the Master Code. Manual Entry increases the level of security in the code trial by unauthorized people.

Exit the Programme Mode

(* *)

Always exit the programming mode with *** *** to set system back to normal Operation after programming

VALIDATION [*][*] ---------- System is back to normal operation mode

Programming Summary Chart

MEMORY LOCATION	FUNCTION	ENTRY LIMITS & CODE OPTIONS	CODE ENTRY	FACTORY DEFAULT
01	Master Code	4-8 Digits	[0][1] MASTER CODE [#]	NIL
10	User PINs for O/P 1	**CODE 1 - RECORD/DELETE:** 2--- Record an User PIN 5--- Deletion of an User PIN **CODE 2 - USER ID:** 000-999---Group 1(10) 001-100---Group 2(20) 001-100---Group 3(30) **CODE 3 - USER PINs:** 4-8 Digits	[1][0] CODE1 CODE2 CODE3 [#]	NIL
20	User PINs for O/P 2		[2][0] CODE1 CODE2 CODE3 [#]	NIL
30	User PINs for O/P 3		[3][0] CODE1 CODE2 CODE3 [#]	NIL
51	O/P Mode for O/P 1	**OUTPUT MODE & TIME:** 0--- Start / Stop 1---99999 Seconds, Momentary	[5][1] O/P MODE & TIME [#]	5 Seconds
52	O/P Mode for O/P 2		[5][2] O/P MODE & TIME [#]	5 Seconds
53	O/P Mode for O/P 3		[5][3] O/P MODE & TIME [#]	5 Seconds
70	PIN Entry Mode	**ENTRY MODE:** 1---Auto Mode 2---Manual Mode	[7][0] ENTRY MODE [#]	Mode = 2, Manual Mode

SYSTEM CODE	FUNCTION	CODE ENTRY	RESULTS
0000	Factory Set Master Code for User to set system into programming Mode for the first time. THIS IS NOT A PERMANENT SYSTEM CODE & IT IS CHANGED IF A NEW MASTER CODE IS PROGRAMMED.	[0][0][0][0] [*] [*] **OR** NEW MASTER CODE [*] [*]	System in Programming Mode
9999	REFRESH CODE -- Refresh the system and set all its function back to default values.	[9][9][9][9] [#]	All programmed data are cleared back to the default values **except the Master Code**
8080	DAP CODE-- Direct access to programming mode. Valid only in the power-up delay period	[8][0][8][0] [#]	System in Programming Mode
0999	USER PINs / Codes whole group clearance Code - Key in the Code to clear all the users in the Location LOCATIONS: 10--- User Group 1 20--- User Group 2 30--- User Group 3	LOCATION NO. [0][9][9][9] [#]	Whole group of users in the selected location are cleared
* *	Exit Programming Code	[*] [*]	The system is back to normal operation after programming

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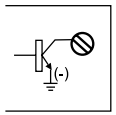
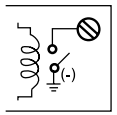
APPENDIX

- **DRY CONTACT**
  A dry contact means that no electricity is connected to it. It is prepared for free connections. The Relay Output contacts provided in this keypad system are dry contacts.
- **N.C.**
  Normally Closed, the contact is closed circuit at normal status. It is open circuit when active.
- **N.O.**
  Normally Open, the contact is open circuit at normal status. It is closed circuit when active.
- **TRANSISTOR OPEN COLLECTOR OUTPUT**
  An open collector output is equivalent to a Normally Open (N.O.) contact referring to ground similar to a relay contact referring to ground. The transistor is normally OFF, and its output switches to ground (-) when active. The open collector can only provide switching function for small power but it is usually good enough for controlling of an alarm system. The Duress, Interlock and Key Active/Alarm Outputs of the keypad are open collector outputs.



OPEN COLLECTOR OUTPUT ---- Output switches to ground when activated

EQUIVALENT



N.O. CONTACT OUTPUT ---- Output switches to ground when activated

Notes

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