WIRELESS DIGITAL ACCESS CONTROL KEYPAD

CE RoHS Compliance

DK-2310

Operating Instructions

FOR ELECTRIC LOCK AND SECURITY SYSTEM

AEI PROTECT-ON SYSTEMS LIMITED
www.apo-hk.com

VERSION: 05/2012

TABLE OF CONTENTS

THE COMPATIBLE RECEIVERS

Three receivers from us are compatible with the DK-2310 wireless keypad. Their features are listed briefly for your reference.

DA-2311 -- Access Control Receiver

DA-2311 is a 4-channel economic receiver designed to work with the DK-2310 for wireless access control purpose. The 4-chanel controls the master output relay, the two open collector auxiliary outputs and a built-in door chime.

- 12-24VDC Operation
- N.C. & N.O. Relay Dry Contacts for Fail-safe or Fail-secure Electric Lock
- Adjustable Timer for Door Lock
- Wireless Controlled Door Chime
- Two Open Collector Output Channels for Auxiliary Controls
- Auxiliary Connection Terminals for Wired Egress Button And Door Bell Button
- Compatible with Wireless Keypad (DK-2310) and Keyfobs (DA-12)

AD-2322 -- Access Control Power Supply with Receiver

AD-2322 is an uninterrupted power pack. It has a 12VDC/3A and a 12VDC/0.5A regulated power supply inside for powering the electric lock and the associated electronic device, such as keypad. It is also built-in with a 2-channel receiver compatible with the DK-2310 to control the door lock and the built-in door chime. A split-decoder compatible with our DK-2800 series keypads for split-decoded operation is also incorporated in this equipment.

- 220-240VAC Operation
- Power The 12VDC Device, Mainly The Electric Lock in Access Control System
- Compatible with Fail-safe or Fail-secure Electric Lock
- Built-in Charger for a 12V/7.0Ah Back-up Battery
- Adjustable Timer for Door Lock
- Wireless Controlled Door Chime
- Auxiliary Connection Terminals for Wired Egress Button And Door Bell Button
- Compatible with Wireless Keypad (DK-2310) and Keyfobs (DA-12)

DA-2800 -- Split-decoded Access Controller with Receiver

DA-2800 is a split-decoder designed to work with the DK-2800 keypads for split-decoded operation. It is also built-in with a 4-channel receiver compatible with the DK-2310. The 4-channel controls the 3 output relays and a built-in door chime providing full features in access control and other auxiliary controls.

- 12-24VDC Operation
- N.C. & N.O. Relay Dry Contacts for Fail-safe or Fail-secure Electric Lock
- Adjustable Timer for Door Lock
- Wireless Controlled Door Chime
- Two Output Relays with N.C. & N.O. Dry Contacts for Auxiliary Controls
- Auxiliary Connection Terminals for Wired Egress Button And Door Bell Button
- Compatible with Wireless Keypad (DK-2310) and Keyfobs (DA-12)

BACK-LIT ON-OFF SELECTION (Location 9)

LOCATIONS	FUNCTION MODES	VALIDATION
9	0 or 1	#

CODE FOR BACK-LIT MODE

Two codes are available for selection.

0 **--- Back-lit OFF (Default)**

No back-lit at all. The keypad consumes less power and results in longer battery life.

1 **--- Back-lit ON**

The keyboard lights up when a key is pressed, which is convenient for the owner at night. The illumination is OFF automatically 10 seconds after the last key is pressed and the keypad is left in rest.

The back-lit function will slightly shorten the battery life.

CLOSE THE PROGRAMMING MODE (* *)

Always close programming mode with * * to set system back to normal Operation after programming.

VALIDATION

* * ---------- System is back to normal operation mode

INTRODUCTION

The DK-2310 is a 9V battery operated 433Mhz wireless keypad designed to work in conjunction with the receiver for access control. The products from us with receiver include the DA-2311 self-contained access controller, the AD-2322 controller power pack, and the DA-2800 split-decoded access controller. It is also compatible with most of the 433Mhz receivers on the market. The keypad has the flexibility to be positioned anywhere within range of the receiver without the need for wires. Its 4 controlling channels send out the commands to control the outputs and actuate the door bell in the receiver. It is low power consumption. A 9V alkaline battery gives battery life of 1 year approximately with 10-30 operations daily.

- 10 User Codes for output 1 (channel 1)
- 10 User Codes for output 2 (channel 2)
- 10 User Codes for output 3 (channel 3)
- 1 Door Bell Actuator (channel 4)
- 10 Visitor Codes for output 1
- 1 Super User Code for operating of all the 3 outputs and making inhibit authorization for output 1
- 1 Master Code for programming authorization
- 1 DAP Code 8080 for programming authorization without master code

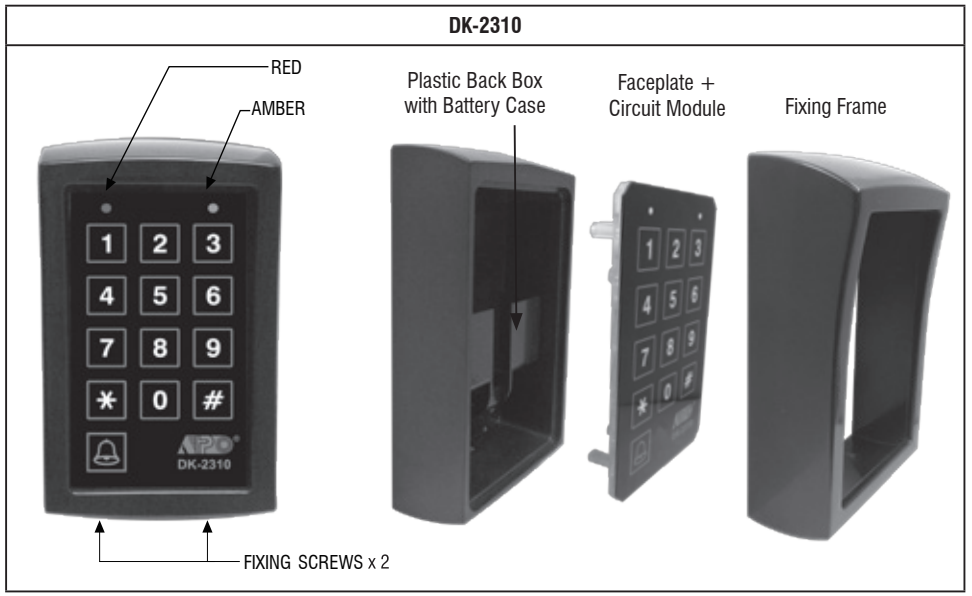
Remark : Please see your receiver's manual for the available output channel(s).
Please see page 15 for the feature brief of the compatible receivers DA-2311, AD2322 and DA-2800.

SPECIFICATIONS

- Operating Voltage : 9V Alkaline Battery
- Operating Current : 10uA in Quiescent; 10mA in Transmitting
- Operation Temperature : -20 °C to +70 °C
- Environmental Humidity : 5-95% Relative Humidity Non-condensing
- Working Environment : Indoor or Outdoor; IP-55, Weatherproof
- Number of User Codes : 10 for Each Channel, Total 30 User Code for The 3 O/P Channels
- Number of Visitor Codes : 10 Visitor Codes for Output 1
- User Code Length : 4-8 Digits, Over 100 Million Combinations
- Timing for Code Entry : 10 Seconds
- Keypad ID Code : One of the 1 Million ID Codes; Pre-programmed
- Operating Frequency : 433Mhz
- Maximum Distance : 50 Meters Approximate in Open Space
- Dimensions : 126.3(H) X 75.6(W) X 40(D)
- Weight : 208g Net
- Housing : ABS Plastic

Specifications are subject to change for modification without notice

INSTALLATION



- Place the keypad outside that is convenient to reach but far from metal structure
- The location for the keypad must be within the receiving range of the receiver
- Open the box by loosing the screws of the fixing frame with the supplied hex screw wrench. Take the circuit module (fixed on the faceplate) out carefully
- Fix the back box on wall with the screws supplied
- Snap the battery clip on the 9V alkaline battery and put it in the battery compartment
- Put the circuit module back to the box carefully. Push it in tightly and hold it to prevent drop-out.
- Put the fixing frame back to the box. Make sure the rubber gasket is in the right position in the frame for weatherproof shielding
- Secure the frame tightly on the box with the two screws at the bottom side. Fix them tightly with the wrench.

USER CODE ENTRY MODE - Auto or Manual Mode (Location 7)

LOCATIONS	ENTRY MODES	VALIDATION
7	1 or 2	#

USER CODE ENTRY MODES

Two entry modes are available for owner's selection.

1 --- Auto Entry Mode -- (Default)

The keypad checks the User Code automatically when the number of digits is reached. It is not required to press of the # key to confirm. In auto entry mode, the User Codes **MUST** be set in the same digit length of the Master Code. For example, if the Master Code is 4 digits, then all User Codes are also 4 digits. Good for public access control.

2 --- Manual Entry Mode

Manual Entry Mode always requires the # key to follow the User Code for code checking. The User Codes can be 4-8 digits and they are NOT required to set in the same digit length with the Master Code. Manual Entry increases the level of security in code trial.

PACIFIER TONES ON-OFF SELECTION (Location 8)

LOCATIONS	FUNCTION MODES	VALIDATION
8	1 , 2 or 0	#

PACIFIER TONES FUNCTION MODES

The Pacifier Tone is the Beep Tones from the keypad, which include the tones of Successful Key entry (1 beep), Successful User Code entry (2 beeps) and the Unsuccessful User Code entry (5 beeps).

NOTE : The beeps for Power-up Delay do not belong to pacifier tone and can not be OFF.

1 --- Pacifier Tone Partially ON – (Default)

Only the Pacifier Tones for Successful Code (2 beeps) and the Unsuccessful User Code entry (5 beeps) are available. The key entry pacifier tone is disabled for power saving.

2 --- Pacifier Tone ON

All the Pacifier Tones available from the keypad are enabled. This mode is only good for low traffic entry/exit usage due to higher power consumption.

0 --- Pacifier Tone OFF

All the Pacifier Tones are OFF. Good for power saving and silent environment.

VISITOR CODES (FOR OUTPUT 1 ONLY) (Locations 5)

The Visitor Codes are temporary codes for operating Output 1 only. They can be programmed as one time codes or codes with valid time limit. The Visitor Codes will be cleared automatically after use if they are one time codes, or, when the allowed time expires.

LOCATION	VISITOR ID	VALID PERIOD	VISITOR CODE	VALIDATION
5	0 to 9	0 0 or 01 to 99	4-8 DIGITS	#

VISITOR ID

10 Visitor Codes can be programmed. They are represented by an ID Number of 0 to 9.

VALID TIME

The time codes in this box MUST be two digits.

0 0 **--- One Time Code**

One Time Code has no time limit but it can only be used for ONCE. It is cleared by the system automatically after use.

01 to 99 **--- Time Limit in Hour(s)**

The Visitor Code can be set with valid time limit of 1 Hour to 99 Hours with a two digit time code of 01 to 99. The visitor code is cleared by the system when the time limit reaches.

VISITOR CODES

- The Visitor Codes can be 4-8 digits.
- When a new Visitor Code is keyed in an ID box and confirmed, the old Visitor Code in that box is erased
- To delete a Visitor Code from its ID box --- 5 0 to 9 #

PERSONAL SAFETY AND SYSTEM LOCK-UP (Location 6)

LOCATIONS	LOCK-OUT MODES	VALIDATION
6	1 , 2 or 0	#

LOCK-UP MODES

The Code Entry for the Lock-up Mode:

1 **---** After 10 successive false User Code trials, the keypad locks during 30 seconds. **-- (Default)**

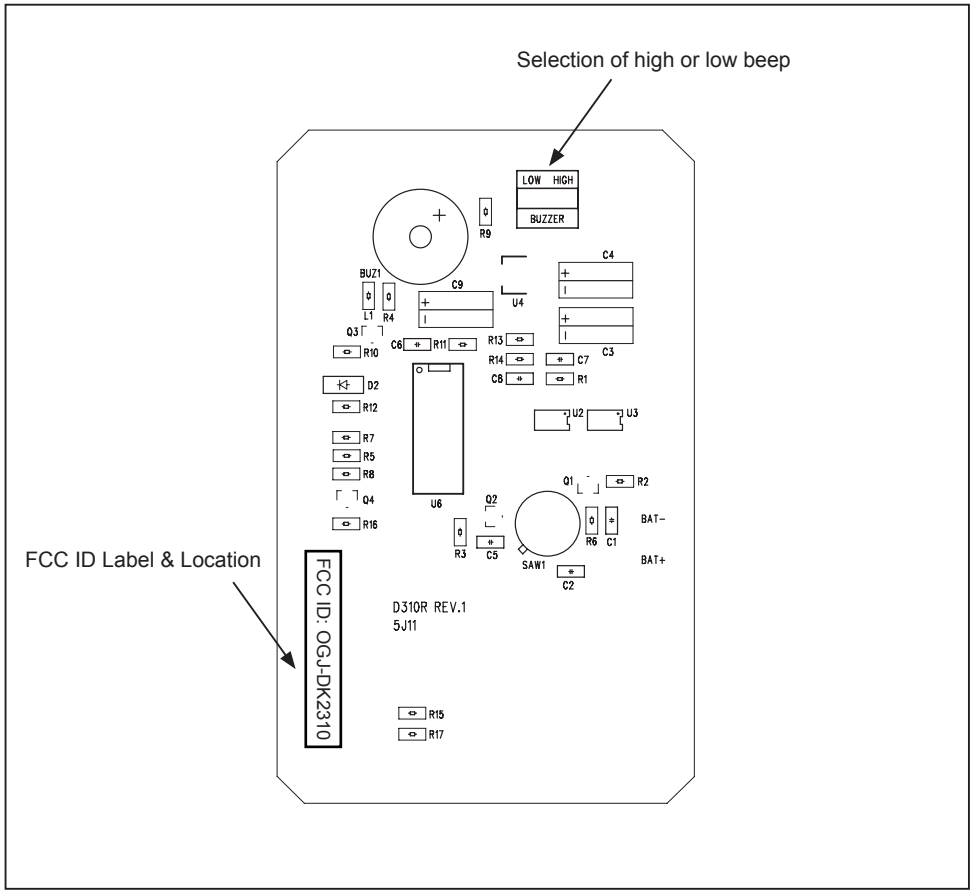
2 **---** After 10 successive false User Code trials, the keypad locks during 15 minutes.

Remark: Both of the above lock-ups can be released with the Super User Code at anytime.

Example : To release the lock-up SUPER USER CODE #

0 **---** Disappearance of all the above lock-up securities.

THE CIRCUIT BOARD



POWER UP THE KEYPAD

After snapping the 9V battery on the battery clip, the keypad is in the power up delay of one minute and the keypad gives beep sound during the period. It goes to normal operation after the time expired. The power up delay allows the keypad circuit to stabilize and it is also the only time for the keypad to accept the DAP code for setting it into programming mode in case of the Master Code is forgotten. See the programming option “Direct Access to Programming Mode with “DAP” Code – 8 0 8 0” for the details.

Battery Low Indication :

The keypad checks the battery each time when it is used. The keypad will generate continuous warning beeps for 10 seconds when low battery is detected. Replace with new battery immediately.

LEARN THE KEYPAD ID

It is necessary to register the keypad with the receiver prior to use. The receiver can be the DA-2311, AD-2322, or the DA-2800 from our company.

1) Press and hold the **LEARN** button on the receiver unit (It is equipped on the main circuit board of the receiver) for 1 second until the **STATUS** LED turns ON.
2) The receiver is in a Waiting Period of 10 Seconds after the Status LED turning ON. It is waiting for the keypad to send out its ID.
3) Press the **BELL** sign button on the keypad once within the waiting period. The keypad will send out its ID immediately for the receiver to learn.

   If your keypad already programmed with User Code(s), key in one of the user codes can also achieve the learning of the keypad ID by the receiver.
4) The Status LED in the receiver turns OFF after the ID is learned.
5) Repeat the above learning procedures 1-4 for other keypads and/or remote keyfobs that are used with the receiver. Total 40 keypads or keyfobs are allowed.

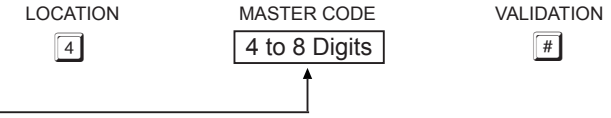
DELETE A KEYPAD OR A KEYFOB

If a keypad or a keyfob is lost it is necessary to delete it from the receiver. Every time the receiver will clear all the keypad & keyfob IDs from its memory. Re-learning of the existing keypads / keyfobs are required.

1) Press and hold the **LEARN** button for 8 seconds (The Status LED turns ON) until the LED gives 2 flashes to confirm that all the IDs are erased. After that, the LED turns OFF.
2) Record the new keypad and those not lost keyfobs again one by one with the procedures states in the above section “Learn The Keypad ID”.

RECORD A SUPER USER CODE (Location 4)

The Super User Code is prepared for the owner to simply use it to operate the three outputs of the system and to effect the prohibit function for Output 1.



- The Super User Code has TWO functions. It can operate the three outputs or make inhibition to the User Codes for the Output 1.
- The Super User Code can be 4 to 8 digits.
- When a new Super User Code is keyed in and confirmed, the old Super User Code is erased.
- To delete the Super User Code from memory --- [4] [#]

OPERATION AND FUNCTIONS OF THE SUPER USER CODE

1) Operate Output 1, 2 and 3

The operation of the Super User Code is just like a normal User Code Plus a specific output number.

SUPER USER PIN [#] [1] ---------- Output 1 Activates (Channel 1 Transmits)

SUPER USER PIN [#] [2] ---------- Output 2 Activates (Channel 2 Transmits)

SUPER USER PIN [#] [3] ---------- Output 3 Activates (Channel 3 Transmits)

2) Inhibit The User Codes For Output 1

The Super User Code can be used to inhibit the User Codes for the Output 1. It enhances the security level of the access control system, such as stop the keypad after office hour or while the house is nobody inside. Once the User Codes for Output 1 is inhibited, they become invalid. The inhibit function is toggled in Start / Stop mode. The User Codes resume valid when the Super User Code with the specific command number 9 is keyed-in again.

SUPER USER PIN [#] [9] ---------- All User Codes in Group 1 Disabled or Enabled in Toggle

NOTE: The above inhibition only applies to the User Codes and the Visitor Codes for output 1 but does not affect the operation of Output 1, 2 and 3 with Super User Code.

FEATURE PROGRAMMING

After setting the system into programming mode, the feature values can be put into the system one by one with the Programming Locations. Programming can be made continuously and it is not necessary to be in order sequence. Just go to the desired location and key in the feature value.

RECORD A MASTER CODE (Location 0)

LOCATION [0] | MASTER CODE [4 to 8 Digits] | VALIDATION [#]

MASTER CODE

- Master Code is the authorization code for setting the system into programming mode.
- The master code can be 4 to 8 digits.
- When a new master code is keyed in and confirmed, the old one is erased.

RECORD THE USER CODES FOR OUTPUT 1, 2 AND 3 (Location 1, 2 & 3)

10 User Codes are available for each output 1, 2 and 3 respectively. The User Codes MUST be unique and not repeated. The owner can put one User Code at each Code ID box.

LOCATION [1] - [3] | CODE ID [0 to 9] | USER CODE [4 to 8 Digits] | VALIDATION [#]

PROGRAMMING LOCATIONS

[1] --- User Codes for Output 1
[2] --- User Codes for Output 2
[3] --- User Codes for Output 3

THE USER CODE ID BOX

a) Code IDs [0 to 9] for storing the 10 User Codes to operate Output 1
b) Code IDs [0 to 9] for storing the 10 User Codes to operate Output 2
c) Code IDs [0 to 9] for storing the 10 User Codes to operate Output 3

THE USER CODES

Put one User Code of 4 to 8 digits in each User ID box.

Remark

To delete a NOT used User Code from its ID box :

[1] [0 to 9] [#] --- Deletion of an Output 1 User Code at ID box 0 to 9
[2] [0 to 9] [#] --- Deletion of an Output 2 User Code at ID box 0 to 9
[3] [0 to 9] [#] --- Deletion of an Output 3 User Code at ID box 0 to 9

VALIDATION

- Press [#] to confirm an User Code is recorded. Two-beep confirms valid entry and the old User Code is replaced.

OPERATION

After the keypad and keyfob are registered in the receiver it can be used for door release in access control or other controls with the auxiliary channels.

NOTE: Only the receiver incorporates with 3 channels can operate the auxiliary outputs with the keypad or the kefob.

Keypad

1) Key in one of the User Codes in Group 1 to operate the Output 1 of the receiver (door release).
2) Key in one of the User Codes in Group 2 to operate the Output 2 of the receiver (auxiliary O/P).
3) Key in one of the User Codes in Group 3 to operate the Output 3 of the receiver (auxiliary O/P).
4) Press the Bell Sign to operate the built-in door chime of the receiver.

Keyfob (Optional -- if it is also learned by the receiver)

1) Press button A, B or C to operate the Output 1, 2 or 3 of the receiver respectively
2) Press the button D to operate the built-in door chime of the receiver.

THE PACIFIER TONES & THE LED SIGNALS

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

STATUS	TONES *	LED SIGNALS
1) On Programming Mode	-----	1 Flash / Sec (Amber LED)
2) Successful Key Entry	1 Beep	-----
3) Successful Code in Programming	2 Beeps	-----
4) Successful Code in Operation	2 Beeps	1 Flash (Amber LED)
5) Unsuccessful Code Entry	5 Beeps	-----
6) Power Up Delay (1 Minute)	Continuous Beeps	-----
7) Output 1 Locked or Inhibited	-----	1 Flash / Sec During the Wake-up Time (Red LED)
8) System Refreshing	-----	Fast Flashes (Amber LED)
9) Code Already Existing in System	1 Long Beep (Refuse Beep)	-----
10) Battery Low Warning	Continuous Beeps for 10 Sec	-----

NOTE:

* The Tones can be ON, Partially ON or OFF through the programming options at Location 8
* * The Amber LED – Status indication
* * * The Red LED – Output 1 locked out or inhibited indication

THE LOUDNESS OF THE PACIFIER TONE

Two loudness levels can be set for the pacifier tone with the **BEEP** jumper on the circuit board.

i) Low -- Power Save Mode (factory set)
ii) High -- Louder Sound Mode -- (higher sound level but will slightly shorten battery life)

SET SYSTEM IN PROGRAMMING MODE OR REFRESH THE SYSTEM

SET SYSTEM INTO PROGRAMMING MODE WITH THE MASTER CODE

It is necessary to set the system into programming mode to accept the new programming values.

MASTER CODE

- The Master Code can be a factory set master code or the private master code set by the owner to replace the factory set master code.
- Validate the master code with * *

NOTE:

a) For the owner's convenience in programming for the first time, a Master Code "0 0 0 0" has been put in the keypad before exiting factory. To compromise security, in all cases, the owner should program a personal Master Code to **invalidate** the factory set master code.

b) 2-beep confirms that the master code is valid and the amber LED flashes during keypad in Programming Mode.

DIRECT ACCESS TO PROGRAMMING MODE WITH THE "DAP" CODE – 8 0 8 0

In case of the Master Code is forgotten. The owner requires to apply the following procedures 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. Press any button will shorten the discharging time.

2) Switch ON power again. The system will be in Power-up Mode for 1 minute and the buzzer starts to give beeps during the period. This is the only time that the system allows entry of the DAP code.

DAP CODE

- The DAP code is fixed at **8 0 8 0** .
- The system will go back to normal operation after the power up period expired.To set it back to power-up mode, repeat procedures (1) & (2) are required.
- Validate the DAP code with the * * .
- 2-beep confirms the system is in Programming Mode. The amber LED flashes. The OLD Master Code is cleared.
- See "RECORD A MASTER CODE" for the details of programming a new master code.

REFRESH THE SYSTEM WITH THE "DEFAULT CODE" --- 9 9 9 9

The system can be refreshed with the Default Code to clear all the old data.

DEFAULT CODE

- The Default Code **9 9 9 9** is for setting the system back to default values. Once the default code is entered and validated, all the old values will be cleared **except the Master Code**. Re-programming of the features is necessary.
- Make sure that you really want to clear the OLD values before entering the Default Code.

THE DEFAULT VALUES OF THE KEYPAD

PROGRAMMING

LOCATION	PARAMETERS	DEFAULT FUNCTIONS & VALUES
0	Master Code	Not Affected *
1	User Codes for O/P 1	Nil ----- User Program Required
2	User Codes for O/P 2	Nil ----- User Program Required
3	User Codes for O/P 3	Nil ----- User Program Required
4	Super User Code	Nil ----- User Program Required
5	Visitor Codes	Nil ----- User Program Required
6	Personal Safety & Lock-out	Code = 1, 10 False Code Lock-out 30 S
7	User Code Entry Mode	Code = 1, Auto Entry Mode
8	Pacifier Tones ON-OFF Selection	Code = 1, Pacifier Tone Partially ON
9	Back-lit ON-OFF Selection	Code = 0, Back-lit OFF

NOTE:

i) The master code is NOT a default value. It is not affected in system refreshing.

ii) The DAP Code **8 0 8 0** and the Refreshing Code **9 9 9 9** are fixed in the system program. It can not be changed in any ways or be influenced by the system in the default setting.