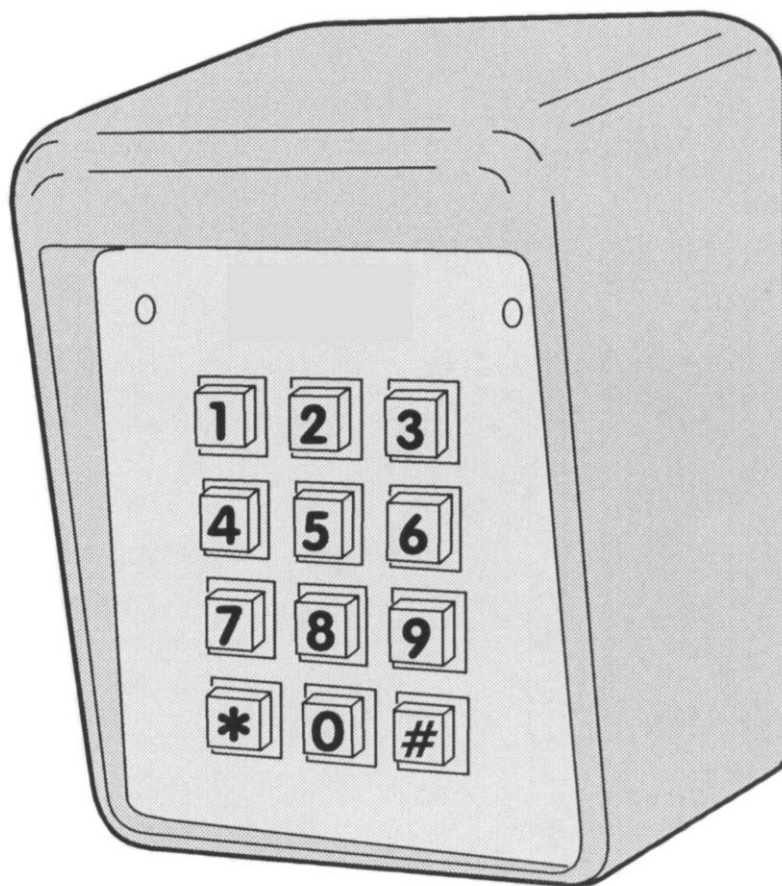**DORMA**

AC-225 KEYPAD

GENREAL

480 entry codes, from 1 to 6 digits in length, can be programmed. They can activate either, or both of the relay outputs. Relay #1 has a 5 Amp capacity. Relay #2 has a 1 Amp capacity.

Two LED indicators show the status of the entry system. The left LED lights red to indicate power, then turns green when access is granted. The right LED lights yellow when the keypad is in "lockout" condition (from too many incorrect code entries). The keypad's courtesy light illuminates the keys for two minutes after any key is pressed. An internal sounder beeps when each key is pressed.
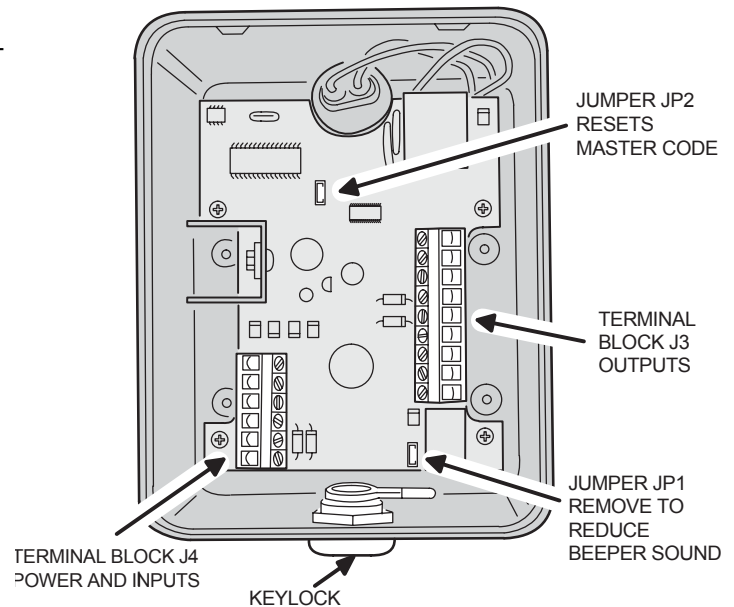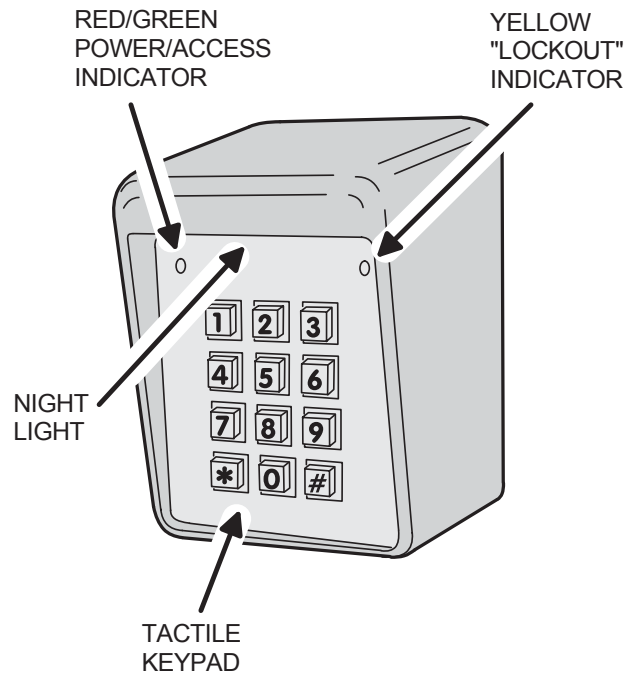
The DOOR SENSE/INHIBIT RELAY #1 input can be used two ways. If used for "door position switch", the switch on the door detects forced entry or door ajar situations. If used for "inhibit/disable", the input can be wired to a "service" switch or automatic timer that will disable the Relay #1 when required.

REQUEST-TO-ENTER/EXIT input can be wired to a pushbutton or fire access keyswitch to provide codeless entry for authorized personnel. In a door control application, this input is also known as a request-to-exit. The "anti-passback" feature prevents using the same code twice before the programmed time elapses.

The ALARM SHUNT output activates when access is granted. This output can be wired to shunt alarm contacts on the access door/gate to prevent triggering of an alarm when authorized access occurs.

Two solid state outputs, capable of switching 100 mA to common, are programmable to signal forced entry, door ajar, lockout, alarm circuit shunting, request-to-enter/exit and keypad active conditions.

The AC-225 is powered from a 12-24 Volt AC or DC source. Power can be obtained from the access device or a separate power supply. The EEPROM memory retains all entry codes and programming, even without power.

RED/GREEN POWER/ACCESS INDICATOR

YELLOW "LOCKOUT" INDICATOR

NIGHT LIGHT

TACTILE KEYPAD

JUMPER JP2 RESETS MASTER CODE

TERMINAL BLOCK J3 OUTPUTS

JUMPER JP1 REMOVE TO REDUCE BEEPER SOUND

TERMINAL BLOCK J4 POWER AND INPUTS

KEYLOCK

SPECIFICATIONS

ELECTRICAL

    Voltage:12-24 Volts AC or DC
        (AC supply must be transformer isolated)
    Current:10 mA typical, 150 mA maximum
    Outputs:Relay #1
        Form "C" 5 Amps @ 24 Volts maximum
        Relay #2
        Solid state outputs (Outputs #3 & #4)
        Short-to-common 100 Ma
        @ 30 VDC maximum

MECHANICAL

    Case dimensions:4.0" W x 5.5" H x 3.0" D

ENVIRONMENTAL

   Temperature:-20°F to 130°F (-29°C to 54°C)
   Humidity:5% to 95% non-condensing

INSTALLATION

To avoid damage to the unit from static discharges, con-
nect the EARTH GROUND terminal to a good earth-
grounding point. Suggested wiring size is 18 AWG for
earth ground and for power, up to 500ft. (use larger wire
for longer runs). Use22 AWG or larger (depending on the
load) for all other connections.
**CAUTION: Do not ground either side of the power
inputs when using AC power.**

Select a location for the keypad. For door access control
installations, mount the keypad near the controlled door.
For gate control installations, mount the keypad in clear
view of the gate, but far enough from the gate so the user
cannot touch the gate from the keypad.
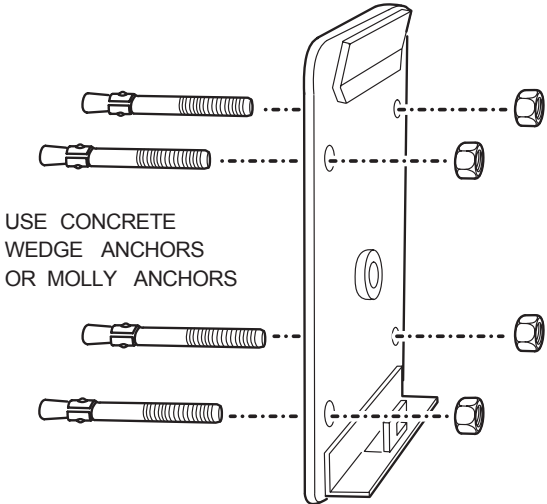
USE CONCRETE
WEDGE ANCHORS
OR MOLLY ANCHORS
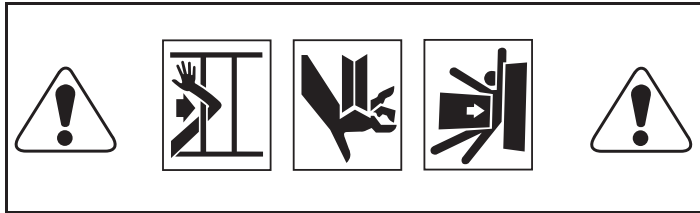
**WARNING: TO AVOID SERIOUS INJURY OR DEATH,
MAKE SURE THAT THE UNIT IS FAR ENOUGH FROM
THE GATE SO THAT THE USER CANNOT TOUCH
THE GATE WHILE OPERATING THE KEYPAD. HOW-
EVER, THE GATE MUST BE FULLY VISIBLE FROM
THE KEYPAD.**

MOUNTING

The AC-225 keypad can be mounted directly to a wall or
flat surface. Use the appropriate fasteners to secure the
keypad's backplate to the mounting surface. When
mounting the keypad to a concrete wall, use concrete
wedge anchors or molly anchors.

EXPOSED MOUNTING

The AC-225 keypad can be mounted on a standard
pedestal or exterior frame assembly. Use four security
bolts and locking nuts to secure the keypad's backplate to
the pedestal or exterior frame assembly.

PEDESTAL OR EXTERIOR
FRAME ASSEMBLY
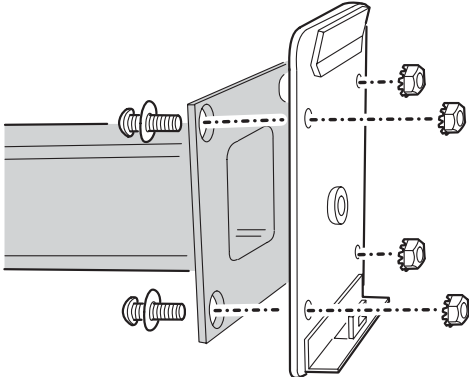
MOUNT BACKPLATE WITH
SECURITY BOLTS AND LOCKNUTS

Mounting Keypad Backplate

Gate Installation

Gate Control

1. Route four wires between the gate and the keypad (two for power, two for control).

2. Connect the gate operator's auxiliary or radio power output terminals to the keypads POWER input terminals (observe wiring polarity if using DC power).
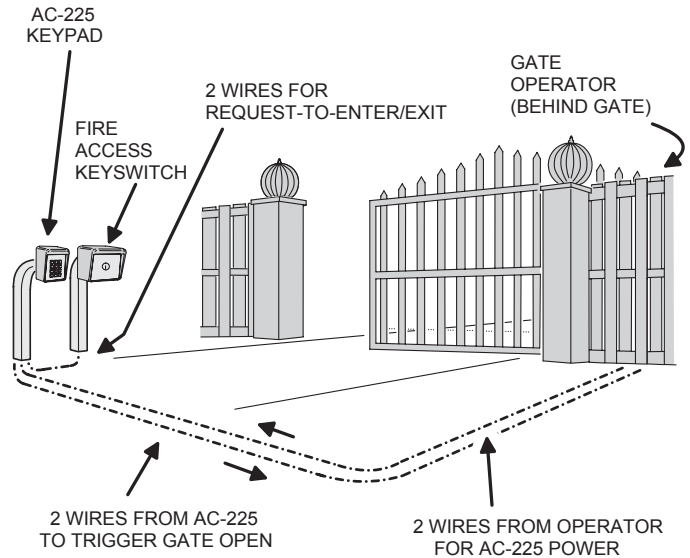
3. Connect the gate operator's OPEN terminals to the keypad's Relay #1 COMMON & N.O. terminals.
NOTE: For operator wiring specifics, refer to the gate operator's installation instructions.

4. When a REQUEST-TO-ENTER pushbutton or fire access keyswitch is going to be used, route two wires from the keypad to the normally open switch. Connect the wires to the normally open switch and to the keypad's REQUEST-TO-ENTER and COMMON terminals.

5. If an inhibit switch or timer is going to be used, route two wires from the keypad to the INHIBIT/DISABLE switch or timer relay. Connect the INHIBIT/DISABLE switch/timer terminals to the keypad's DOOR SENSE/INHIBIT and COMMON terminals.
NOTE: If the DOOR SENSE/INHIBIT input is going to be used, it must be programmed to select that input type. See the Programming Options section of this instruction manual.

TYPICAL GATE INSTALLATION   WIRING

Wiring Diagram

4
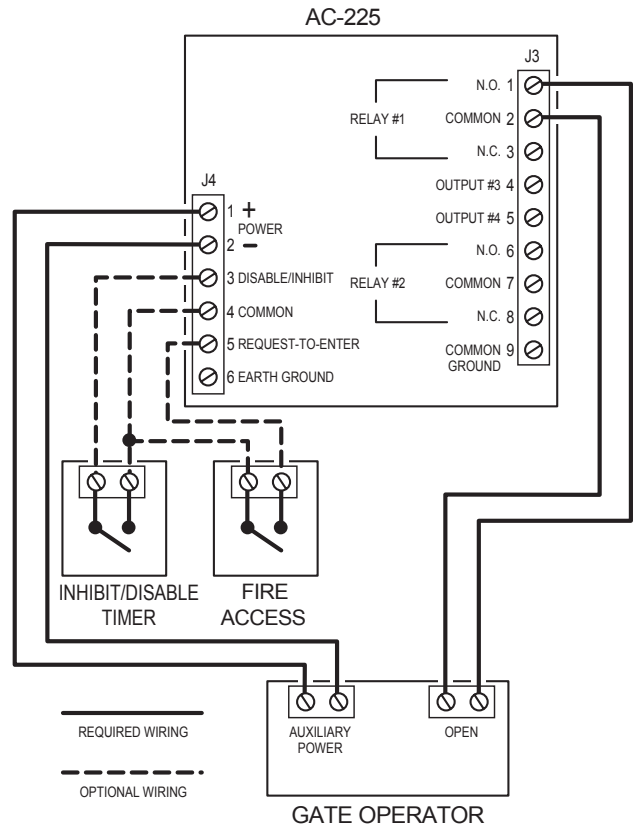
Door Control

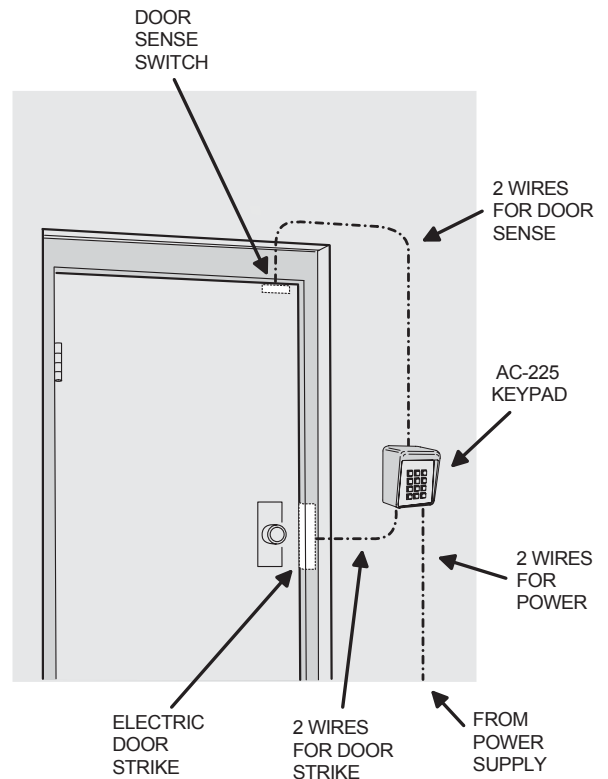1. Install a low voltage electric door strike for unlocking the door.

2. Choose a location for the power supply or transformer.

3. Route two wires between the power supply and the keypad. Connect the power supply's output terminals to the keypads POWER input terminals (observe wiring polarity if using DC power).

4. Route two wires between the door strike and the keypad. Connect one of the door strike wires to the keypad's Relay #1 N.O. terminal. Connect the other door strike wire to the keypad's POWER + terminal. Connect a wire between the keypad's POWER - terminal and the Relay #1 COMMON terminal.

5. When a request-to-enter pushbutton or fire access keyswitch is going to be used, route two wires from the keypad to the normally open switch. Connect the wires to the normally open switch and to the keypad's REQUEST-TO-ENTER and COMMON terminals.

6. To use the DOOR SENSE/INHIBIT (Door Position Switch) feature to detect forced entry or door ajar conditions, install a normally closed door switch on the door and route two wires from the switch to the keypad. Connect the door switch to the keypad's DOOR SENSE/INHIBIT and COMMON terminals.

7. When an inhibit/disable switch or timer is going to be used, route two wires from the switch or timer to the keypad. Connect the inhibit/disable switch/timer terminals to the keypad's DOOR SENSE/INHIBIT and COMMON terminals.
NOTE: Either door sense or inhibit/disable can be used. Both features cannot be used at the same time.

Door Installation

TYPICAL DOOR INSTALLATION WIRING

NOTE: WIRING SHOWN FOR FAIL SECURE LOCK. FOR FAIL SAFE LOCK, MOVE WIRE FROM POS. #1 TO POS. #3.

5
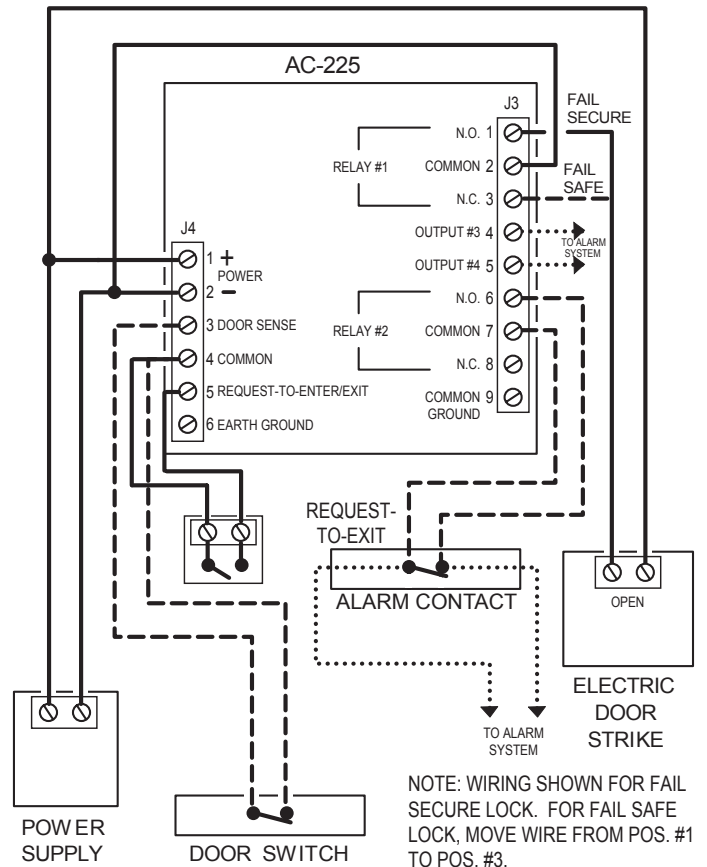
FACTORY DEFAULTS

MASTER PROGRAMMING CODE. 123456
ENTRY CODE LENGTH. . . . . .4 DIGITS
REQUEST-TO-ENTER OUTPUT. . . . . .RELAY #1
ALARM SHUNT OUTPUT. . . . . .RELAY #2
FORCED ENTRY OUTPUT. . . . . .OUTPUT #3
DOOR AJAR OUTPUT. . . . . OUTPUT #4
RELAY #1 ON TIME. . . . . .2 SECONDS
RELAY #2 ON TIME. . . . . .2 SECONDS
SOLID STATE OUTPUT #3 ON TIME. . . . 2 SECONDS
SOLID STATE OUTPUT #4 ON TIME. . . . .2 SECONDS
DOOR SENSE/INHIBIT INPUT. . . . . DOOR SENSE
KEYPAD LOCKOUT OUTPUT. . . . . DISABLED
KEYPAD ACTIVE OUTPUT. . . . . .DISABLED
BEEPER SOUNDS WHEN KEY PRESSED. . .. . YES
BEEPER SOUNDS DURING RELAY #1. . . .. .NO
BEEPER SOUNDS DURING RELAY #2. . . . . .NO
BEEPER SOUNDS DURING OUTPUT #3. .. . . NO
BEEPER SOUNDS DURING OUTPUT #4. . . . . .NO
KEYPAD LOCKOUT COUNT . . . . 3 TRIES
BEFORE LOCKOUT
ANTI-PASSBACK TIME. . . . . .3 MIN. UNTIL
CODE CAN BE USED AGAIN

BASIC PROGRAMMING

When the AC-225 is in programming mode, both LEDs will turn off until programming begins. After a programming option number is entered the yellow LED will blink. This indicates that the AC-225 is ready to accept the new programming data. After the new data entry is complete, the green LED will light while the data is being stored. The red LED will light if any programming data is entered incorrectly, and the command will have to be fully re-entered. In the following programming instructions, the characters "X" or "Y" represent the programming data to be entered while the unit is in programming mode. The possible values for "X" or "Y" along with the factory default for the value is listed with each programming option.

Entering Programming Mode
The Master Programming Code (default = 123456) is used to enter Programming Mode.
Press: # 9 # X
X= the current 6-digit Master Programming Code

Exiting Programming Mode
Press: * * #
The red LED will light when Programming Mode is exited.
NOTE: The AC-225 will automatically exit Programming Mode after two minutes of inactivity.

Re-entering a Command After a Mistake
If the red LED lights, indicating an incorrect entry, or a wrong key is pressed during programming, to clear the keypad and re-enter the command:
Press: * 9 #

Setting Entry Code Length   Default: 4 digits
Press: 0 3 # X #
X = 1 - 6 for entry code length
NOTE: If the Entry Code Length is going to be changed from the factory default of four digits, make this change first, before programming any entry codes.

Adding a New Entry Code
Press: 0 1 # X # X # Y #
X = The new entry code:
1-999999, depending on code length
Y = Relay output entry code will activate:
1 = Relay #1   2 = Relay #2
3 = Both Relays   0 = No Relays
The yellow LED will flash quickly while the AC-225 searches its memory for available space and duplicate entries. The green LED will light when the new code is stored.
If the new entry code chosen is already being used for another entry code, the red LED will light. A new unique code needs to be entered.

NOTE: Leading zeros (zeros before the code number, i.e. 0001) do not need to be entered when programming a new entry code. The Entry Check will internally add any zeros to fill all digits determined by the entry code length setting. Leading zeros will have to be entered by the user when entering their code to gain access.

Erasing a Single Entry Code
Press: 0 2 # X # X #
X = The entry code to delete.
The yellow LED will flash quickly while the AC-225 searches its memory for the code to erase. The green LED will light when the code is erased.

Erasing All Entry Codes
WARNING: Performing this command will remove all entry codes from the memory.
Press: 9 7 # 0 0 0 0 0 0 # 0 0 0 0 0 0 #
NOTE: The green LED will light while the memory is being erased. This may take up to 15 seconds.

Changing the Master Programming Code
Press: 9 8 # X # X #
X = The new 6-digit Master Programming Code
New master code: _____

PROGRAMMING OPTIONS

There are several AC-225 programming options. For most installations, the factory set default options are sufficient. **The keypad must be in programming mode to make these change.**

Door Sense/Inhibit Input   Default: Door Sense
The input on terminal block J4, terminal #3 can be programmed for DOOR SENSE/INHIBIT.
Press: 1 0 # X #
X = 0 for Door Sense, 1 for Inhibit
When programmed for DOOR SENSE (door position), if an open condition on the input occurs before access is granted (with an entry code or with the request-to-enter input) a FORCED ENTRY output will occur. If an open condition remains 60 seconds after a relay activation for access, a DOOR AJAR output will occur.
When programmed for INHIBIT(disable), a closed condition on the input will prevent relay #1 from activating when access is requested (with an entry code). This mode is typically used with an external timer to disable the access device at certain times.

Select Forced Entry Output   Default: Output #3
Sets which output activates if the Door Sense input opens before access is granted.
Press: 1 1 # X #
X = Output number
1 = Relay #1   2 = Relay #2   3 = Output #3
4 = Output #4   0 = No Output

Select Door Ajar Output   Default: Output #4
Sets which output activates if the Door Sense input stays open after access is granted.
Press: 1 2 # X #
X = Output number
1 = Relay #1   2 = Relay #2   3 = Output #3
4 = Output #4   0 = No Output

Select Keypad Lockout Output   Default: No Output
Sets which output activates when the keypad is "locked out" after too many incorrect entry code attempts.
Press: 1 3 # X #
X = Output number
1 = Relay #1   2 = Relay #2   3 = Output #3
4 = Output #4   0 = No Output

Select Keypad Active Output   Default: No Output
Sets which output activates when any keys are pressed.
Press: 1 4 # X #
X = Output number
1 = Relay #1   2 = Relay #2   3 = Output #3
4 = Output #4   0 = No Output

Select Alarm Shunt Output   Default: Relay #2
Sets which output activates during the time access is granted. (Use this output to shunt alarm contacts attached to the access door.)
Press: 1 5 # X #
X = Output number
1 = Relay #1   2 = Relay #2   3 = Output #3,
4 = Output #4   0 = No Output

Select Request-to-Enter Output   Default: Relay #1
Sets which output activates when the Request-to-Enter/Exit input is grounded.
Press: 1 6 # X #
X = Output number
1 = Relay #1   2 = Relay #2   3 = Output #3
4 = Output #4   0 = No Output

Relay #1 On-time   Default: 2 Seconds
Sets the length of time Relay #1 activates when triggered.
Press: 2 1 # X #
X = Output time in seconds (0-60)

Relay #2 On-time   Default: 2 Seconds
Sets the length of time Relay #2 activates when triggered.
Press: 2 2 # X #
X = Output time in seconds (0-60)

Solid-state Output #3 On-time   Default: 2 Seconds
Sets the length of time Output #3 activates when triggered.
Press: 2 3 # X #
X = Output time in seconds (0-60)

Solid-state Output #4 On-time   Default: 2 Seconds
Sets the length of time Output #4 activates when triggered.
Press: 2 4 # X #
X = Output time in seconds (0-60)

Beep Sounds on Keystrokes   Default: Yes
Selects whether or not the keypad beeps as each key is pressed.
Press: 4 0 # X #
X = 1 for Yes, 0 for No

Beep Sounds During Relay #1   Default: No
Selects whether or not the keypad beeps during Relay #1 activation.
Press: 4 1 # X #
X = 1 for Yes, 0 for No

Beep Sounds During Relay #2   **Default: No**

Selects whether or not the keypad beeps during Relay #2 activation.

Press: 4 2 # X #
X = 1 for Yes, 0 for No

Beep Sounds During Output #3   **Default: No**

Selects whether or not the keypad beeps during Output #3 activation.

Press: 4 3 # X #
X = 1 for Yes, 0 for No

Beep Sounds During Output #4   **Default: No**

Selects whether or not the keypad beeps during Output #4 activation.

Press: 4 4 # X #
X = 1 for Yes, 0 for No

Keypad Lockout Count   **Default: 3 Tries**

Sets the number of incorrect entry code attempts allowed before the keypad "locks out".

Press: 5 0 # X #
X = Number of attempts before lockout (2-7)

Anti-passback Time   **Default: 3 Minutes**

Sets the length of time an entry code will not function after it is used.

Press: 5 1 # X #
X = Time in Minutes (1-4, 0 = No Anti-passback)

MASTER RESET

CAUTION: Performing a master reset will clear the entire memory of the AC-225 and return all programmable options to the factory default values.
ALL ENTRY CODES WILL BE ERASED.

STEP 1 Disconnect power from the keypad.
STEP 2 Press and hold down the * and # keys.
STEP 3 Apply power to the keypad, continue holding the keys down until the red LED starts flashing.
STEP 4 Release the keys. The red and yellow LEDs will remain lit until the process is complete, then the yellow LED will go out.

RESETTING THE MASTER CODE

STEP 1 Open the AC-225 case.
STEP 2 Locate jumper JP2. This jumper is used to reset the master code.
STEP 3 With power applied to the keypad, remove jumper JP2. The keypad will begin to beep, signaling that the code has been reset.
STEP 4 Replace jumper JP2.
THE MASTER PROGRAMMING CODE IS NOW 123456.

Solid State Outputs

The two solid state outputs (Output #3 & Output #4) can be programmed to activate during various conditions. These outputs can be used to activate indicators or sounders. See below for wiring examples using the solid state outputs.

EXAMPLE 1: OUTPUT #3 LIGHTS AN LED,
OUTPUT #4 LIGHTS AN LED AND SOUNDS A BEEPER

EXAMPLE 2: OUTPUT #3 LIGHTS A LAMP POWERED FROM AN EXTERNAL SOURCE, OUTPUT #4 TRIGGERS A NORMALLY OPEN ALARM PANEL ZONE

Using the Solid State Outputs
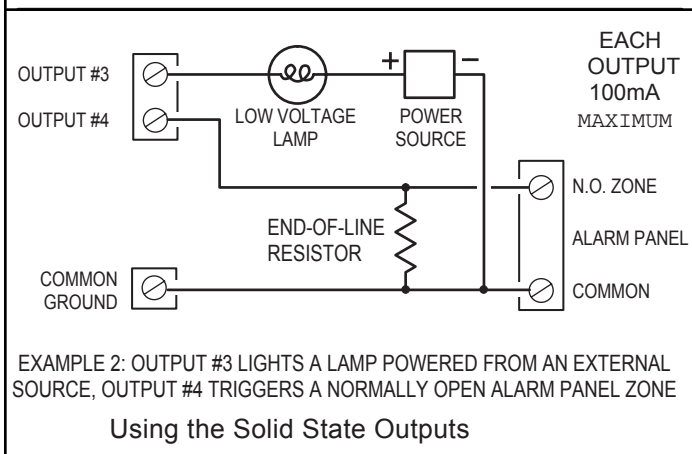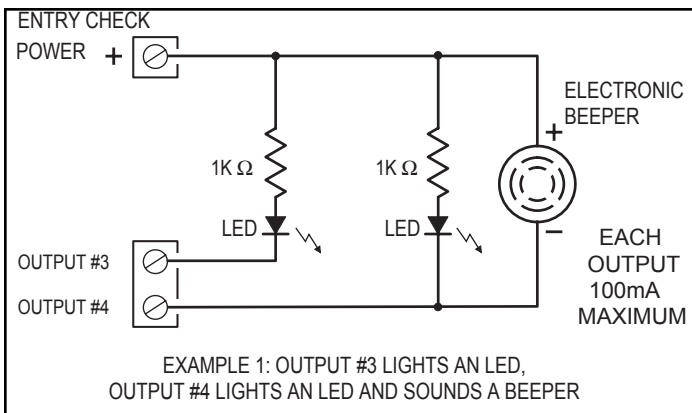
Beeper Sound Level

The keypad's beeper can be set to low or high level by removing jumper JP1.

REMOVE JUMPER JP1 TO REDUCE THE SOUND LEVEL OF THE BEEPER
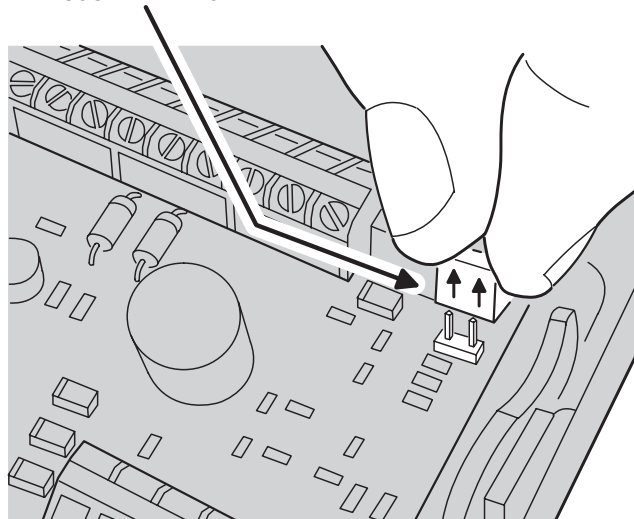
Removing Beeper Jumper

Locking Keypad

After the installation is complete. Lock the keypad using the keylock.

HOOK KEYPAD
ONTO BACKPLATE

USE KEY TO
LOCK KEYPAD

Locking the Keypad Case

RED LED TURNS
GREEN WHEN
ACCESS IS GRANTED

YELLOW LED WILL LIGHT
DURING KEYPAD LOCKOUT IF
TOO MANY INCORRECT CODES
ARE ENTERED

PRESS STAR KEY TO
RESET KEYPAD IF THE
WRONG KEY IS PRESSED

USERS HAVE UP TO
40 SECONDS TO ENTER
THEIR COMPLETE CODE

ENTRY CHECK OPERATION

1 Users of the AC-225 have up to 40 seconds to key in their entry code.
2 Up to eight seconds are allowed between each keystroke.
3 All digits of the entry code must be entered. Example: If the code is 0042, the user must enter "0 0 4 2".
4 If the wrong key is pressed, pressing the * key will reset the keypad. The correct code can then be re-entered.
5 After a correct code is entered, the red LED will turn green and the programmed relay will activate for the programmed time.
6 If the number of incorrect codes entered exceeds the keypad lockout count, the yellow LED will light, indicating that the keypad is locked out. The lockout will remain for one minute.
7 After a valid code has been entered, it will be unusable until the anti-passback time expires.
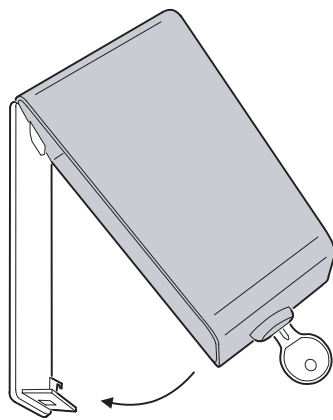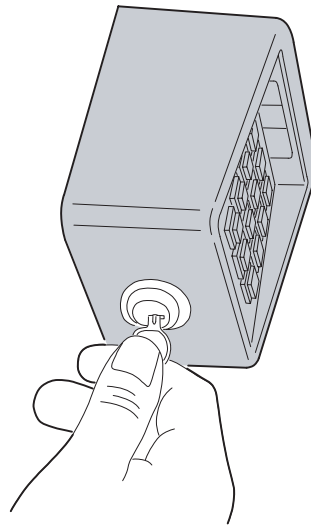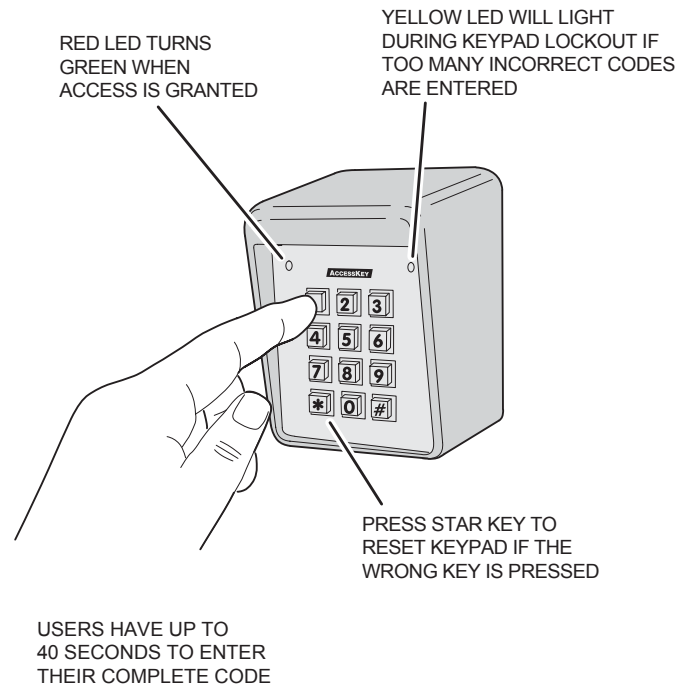
FCC NOTICE

Changes or modifications not expressly described in this instruction manual or approved by the manufacturer could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

MANAGER'S ENTRY CODE LOG

NAME	ADDRESS OR APARTMENT NUMBER	ENTRY CODE	RELAY NUMBER
			◊ 1 ◊ 2
			◊ 1 ◊ 2
			◊ 1 ◊ 2
			◊ 1 ◊ 2
			◊ 1 ◊ 2
			◊ 1 ◊ 2
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