# KPX-100™
## Programmable Keypad

# Instruction Manual

The KPX-100 is a dual relay output, programmable keypad. It features a durable metal housing and metal backlit keys designed for high traffic areas and harsh environments. Connect this keypad to door strike controls, security systems or automatic gate and door operators. The KPX-100 easily mounts on gooseneck stands, posts or walls.

## Specifications

| | |
|---|---|
| Power | 12-24 VDC/AC |
| Standby Current | 16 mA |
| Detection Current | 78 mA |
| Environmental Rating | IP66 |
| Operating Temperature | -4º to 158ºF (-20º to 70ºC) 5 to 95% relative humidity |
| Housing Material | Powder coated steel with stainless steel faceplate |
| Dimensions (L x W x H) | 6.14" (156 mm) x 4.1" (103 mm) x 2.76" (50 mm) |

## Indicators

| Status | Tones | Left LED | Orange LED | Right LED |
|---|---|---|---|---|
| Programming Mode | --- | --- | Flashes | --- |
| Successful Key Entry Relay 1 | Determined by code 81 | --- | 1 flash | Solid green LED |
| Successful Key Entry Relay 2 | Determined by code 81 | Solid red LED | 1 flash | --- |
| Unsuccessful Key Entry | 5 beeps | --- | 3 flashes | --- |
| Successful Code Entry | 2 beeps | --- | 2 flashes | --- |
| Unsuccessful Code Entry | 5 beeps | --- | 5 flashes | --- |
| DAP Jumper Not Replaced | Continuous beeps | --- | Flashes continuously | --- |
| Standby Mode | --- | --- | 1 flash every 2 seconds | --- |
| Lock-Up Mode | 5 beeps | On | 1 flash every 2 seconds | Solid red LED |

# Wiring Connections

**1. Power (+):** 12-24 VDC/AC

**2. Power (-):** 12-24 VDC/AC

**3. Output 1:** N.C. (normally closed contact)

**4. Output 1:** COM (common contact)

**5. Output 1:** N.O. (normally open contact)

**6. Output 2:** N.C. (normally closed contact)

**7. Output 2:** COM (common contact)

**8. Output 2:** N.O. (normally open contact)

**9. Egress Input:**

N.O. (normally open) input terminal.
More than one button can be connected in parallel.
Leave this terminal open if not in use.

**10. Keypad Active Output:**

This is an NPN transistor open collector output with a maximum rating of 100mA sink and 24V DC. It switches to ground for 10 seconds after each key stroke. It is often used to turn on lights, CCTV cameras or buzzers.

**11. Duress Output:**

This is an NPN transistor open collector output with a maximum rating of 100mA sink and 24V DC. It switches to ground after a duress key has been entered. It is often used to trigger an alarm, an auto dialer, or a buzzer.
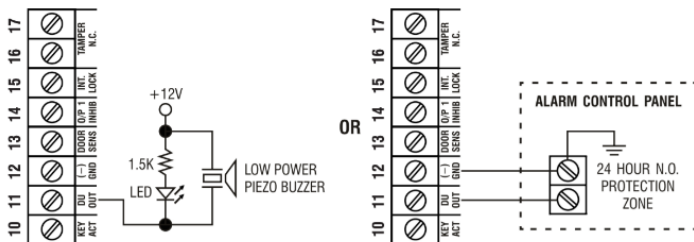
**12. Common Ground**

**13. Door Position Sensor Input:**

N.C. (normally close) input terminal. See door sensor wiring diagram to the right.

**Always connect terminal 13 to ground if not in use.**

**14. Output 1 Inhibit:**

N.O. (normally open) input terminal. Both relay 1 user keys and egress button cannot activate output 1 while this terminal is tied to ground. It is used in cross wire connections for inter-lock applications.

**15. Inter-Lock Control Output:**

This is an NPN transistor open collector output. It switches to ground for the first 5 seconds after a valid user key is entered or after the egress button is pressed. Use this output to control other keypads in inter-lock applications.
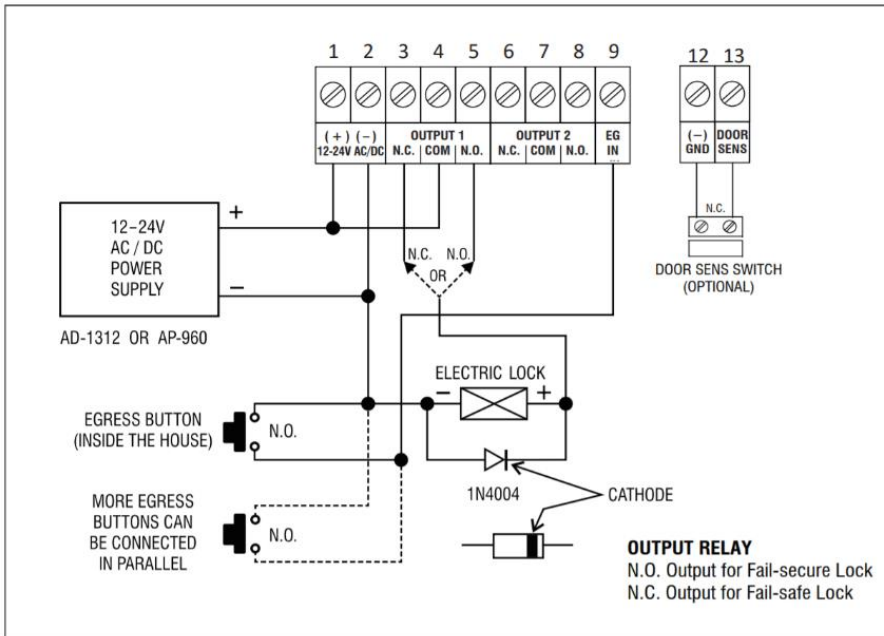
**16. & 17. Tamper N.C.:**

N.C. (normally closed) contact while the keypad is secured in the housing. It opens when the keypad is separated from the housing. To prevent tampering connect this N.C. terminal to an alarm. See wiring diagram to the right.
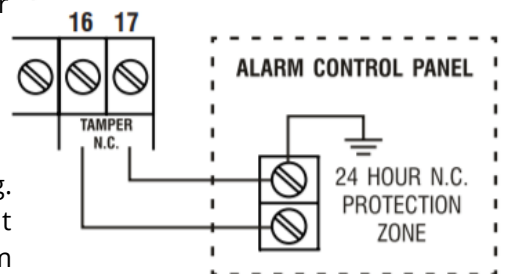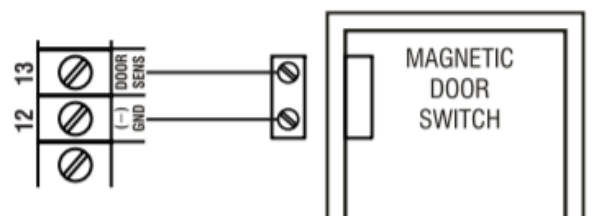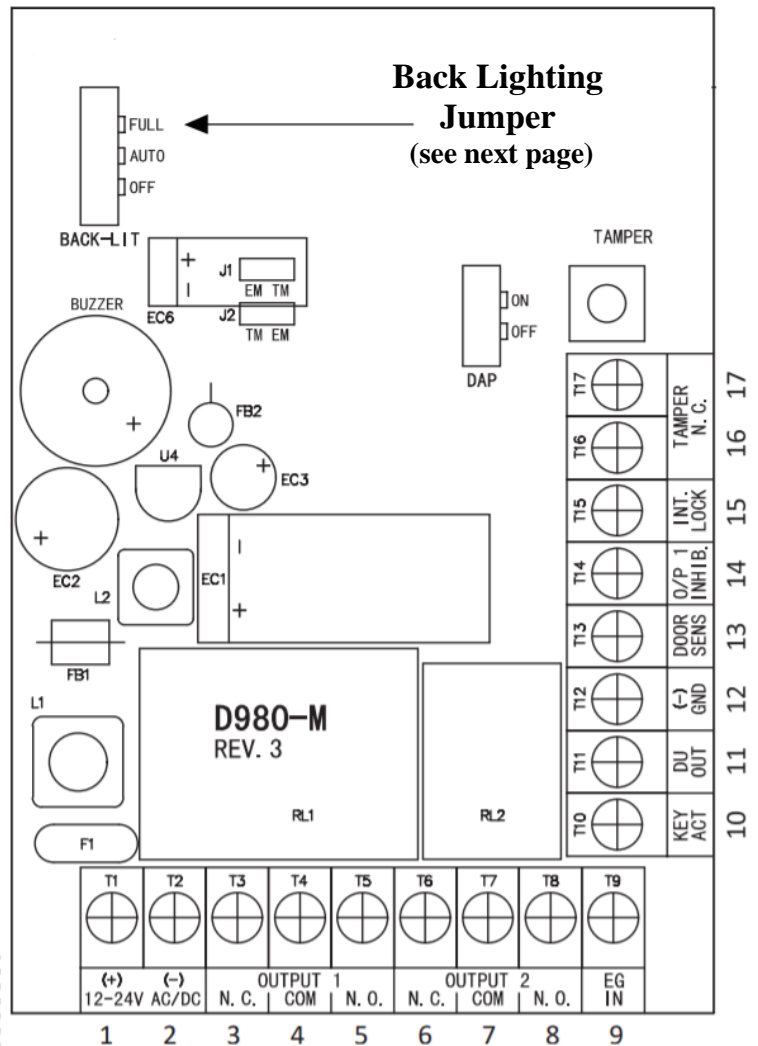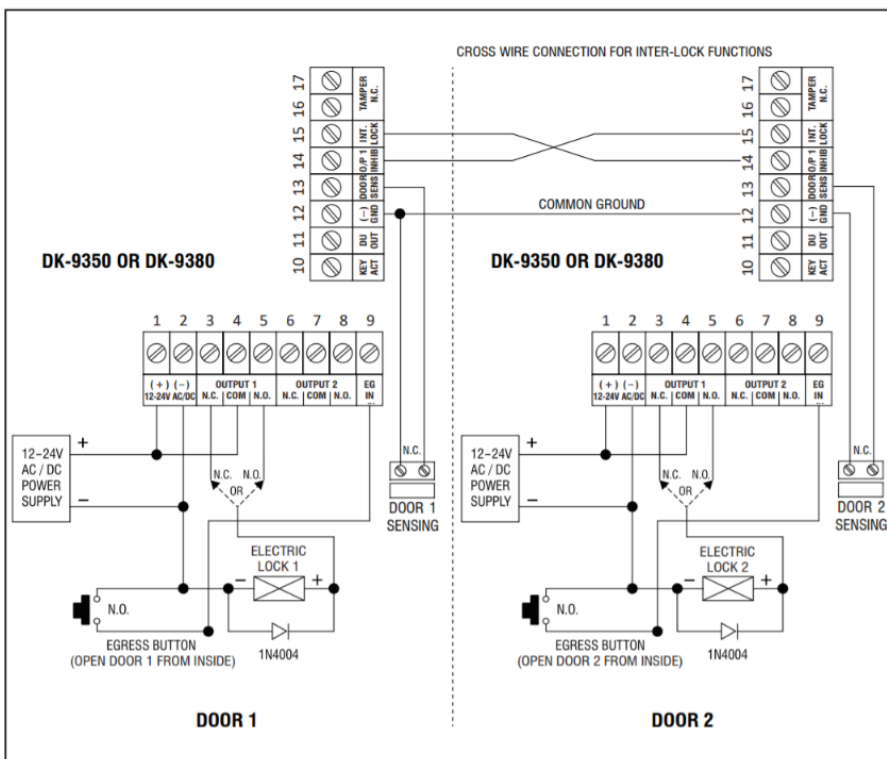
## Wiring Diagrams

### Single Door Wiring



- Connect the 1N4004 diode in parallel with the lock terminals to absorb the back EMF and prevent damage to the keypad. This is not required if the lock is AC powered.
- Connect common ground terminal (12) to earth ground.
- Connect door position sensor terminal (13) to ground if not in use.

### Inter-Lock Wiring



- This inter-lock system uses two KPX-100 with cross wire connections on the output 1 inhibit (14) and inter-lock control output (15) terminals.
- Connect the common ground terminals (12) of the two keypads.
- Use N.O. relay output for fail secure locking and N.C. output for fail safe locking.
- An inter-lock system prevents both doors from being open at the same time for a more secure entry.

### Keypad Back Lighting (jumper selected)

1. Backlit — The keypad is dimly lit standby. It turns to full back lighting with any keystroke.

2. Auto Backlit — The keypad is not lit standby. It turns to full back lighting with any keystroke. It turns off 10 seconds after the last key stroke.

3. No Backlit — The keypad is never lit.

## Installation

| | |
|---|---|
| **1.** | Connect power to terminals 1 and 2, 12-24 VDC/AC. The terminals are polarized. |
| **2.** | Connect the operator OPEN contacts to output 1 N.O. (5) and COM (4). |
| **3.** | Enter programing mode by pressing… The orange LED will turn on.   `0` `0` `0` `0` `*` |

**TIP:**
- 0000 is the factory set programming key. At any time, you can enter the programming key followed by * to enter programming mode.
- You must enter programming mode to enter any codes or add any user keys.

| **Multi-User** | **Single-User** |
|---|---|
| **4.** The KPX-100 is factory set to multi-user mode.  To enter Multi-user mode press…  `8` `9` `0` `1` `#` | **4.** To enter single user mode press…  `8` `9` `0` `0` `#` |
| **5.** To change the programming key, press 0 and then 4-8 digits of your choice followed by #.  `0` `?` `?` `?` `?` `?` `?` `?` `?` `#` | **5.** To change the programming key, press 0 and then 4 digits of your choice followed by #.  `0` `?` `?` `?` `?` `#` |
| **6.** To create user keys for relay 1 and 2, press the relay number, the user number and then 4-8 digits of your choice followed by #. Relay 1 can have 100 user keys, relay 2 can have 10 user keys.  **Relay** / **User #** / **User Key** / **Confirm**  Output 1  `1`  00-99  4-8 Digits  `#`  Output 2  `2`  0-9  4-8 Digits  `#`  **TIP:** User keys must be the same length as the programming key if planning on using auto entry mode. | **6.** To create the user keys for relay 1 and 2, press the relay number followed by 4 digits of your choice. User keys are 4 digits in length.  Relay 1  `1` `?` `?` `?` `?` `#`  Relay 2  `2` `?` `?` `?` `?` `#` |
| **7.** To set the output length, the time the door will remain unlocked, press 40, then the time in seconds (1-999) followed by #.  `4` `0` `1-999` `#` ||
| **8.** To exit programming mode press…  `*` ||

## Programming Options

### Enter/Exit Programming Mode

| Programming Key | * | Enters programming mode. Orange LED should turn on. **You must enter programming mode to enter any code.** |
|---|---|---|
| | * | Exits programming mode. |

### Super User Keys

| 4 | 5 | 4-8 digits | # | Owner's multi-task user key. Can be used to escape from locking mode. |

### Duress Keys

| 4 | 6 | 0-9 | 4-8 digits | # |

Duress keys activate output 1 and duress outputs simultaneously to report a user is under duress. 10 duress keys may be used at once.

### Visitor Keys

| | | User ID | Operation Time | | | |
|---|---|---|---|---|---|
| 4 | 7 | 0-9 | 00-99 | 4-8 digits | # |

10 visitor keys may be used at once.
Operation Time:
00 = one-time use only
01-99 = valid for xx hours

### Single User Mode/Reset

| 8 | 9 | 0 | 0 | # |

Sets the mode and clears all previously stored data and modes except for the programming key. Single user mode assigns one user key per relay.

### Multi-User Mode/Reset

| | 9 | 0 | 1 | # |

Sets the mode and clears all previously stored data and modes except for the programming key. Multi-user mode assigns up to 100 user keys for relay 1 and up to 10 user keys for relay 2.

### Output Modes

For configuring Output 1, the Output # below = 4

For configuring Output 2, the Output # below = 5

| Output # | 0 | 1-999 | # |

Momentary Mode:
Leaves OUTPUT 1 open for 1-999 seconds upon user key entry.

| Output # | 1 | | # |

Start/Stop Mode: Leaves OUTPUT 1 open until re-entry of user key.

| Output # | 2 | | # |

Start/Stop Mode: Opens OUTPUT 1 with first two digits of user key followed by #. OUTPUT 1 closes when entire user key is entered.

| Output # | 3 | | # |

Start/Stop Mode: Opens OUTPUT 1 with first three digits of user key followed by #. OUTPUT 1 closes when entire user key is entered.

## False Key Lock-Up & Reporting

| | | | | |
|---|---|---|---|---|
| **7** | **0** | **1** | **#** | After 10 successive false keys, keypad locks for 30 seconds. (default) |
| **7** | **0** | **2** | **#** | After 10 successive false keys, duress output activates. |
| **7** | **0** | **5-10** | **#** | Keypad locks for 15 minutes after specified number (5-10) of false keys. Locking is released with user super key followed by #9. |
| **8** | **5** | **3** | **#** | Clears all lock-up and reporting codes. |

## Door Forced Open Alarm

| | | | | |
|---|---|---|---|---|
| **8** | **0** | **0** | **#** | Nothing occurs when the door is forced open. (default) |
| **8** | **0** | **1** | **#** | Alarm sounds for 60 seconds when the door is forced open. Output through terminal 13. |

## Correct Key Entry Tones

| | | | | |
|---|---|---|---|---|
| **8** | **1** | **0** | **#** | Keypad does not beep upon correct key entry. |
| **8** | **1** | **1** | **#** | Keypad beeps twice upon correct key entry. |
| **8** | **1** | **2** | **#** | Keypad beeps once upon correct key entry. (default) |

## User Key Entry Mode

| | | | | |
|---|---|---|---|---|
| **8** | **2** | **0** | **#** | Keypad does not require # after user key is entered. **All user keys must match Programming key length.** |
| **8** | **2** | **1** | **#** | Keypad requires # after user key is entered. (default) |

## Keystroke Tones

| | | | | |
|---|---|---|---|---|
| **8** | **3** | **0** | **#** | Keystrokes are silenced. |
| **8** | **3** | **1** | **#** | Keypad beeps on every keystroke. (default) |

## Orange LED Standby

| | | |
|---|---|---|
| **8** **4** | **0** | **#** | Orange LED is OFF during system standby. |

Orange LED is OFF during system standby.

**8** **4**  **1**  **#**

Orange LED flashes during system standby. (default)

## Door Propped Open Alarm

**9**  **0**  **#**

No alarm for a propped open door.

**9**  **1-999**  **#**

Alarm sounds for a propped open door after the specified time (1-999 seconds).

## Egress (Exit) Delay & Warning

**8** **5**  **0**  **#**

After pressing the egress button, output 1 activates with no delay or warning.

**8** **5**  **1**  **#**

After pressing the egress button, the keypad will beep for 5 seconds before output 1 activates.

**8** **5**  **2**  **#**

After pressing the egress button, the keypad will beep for 10 seconds before output 1 activates.
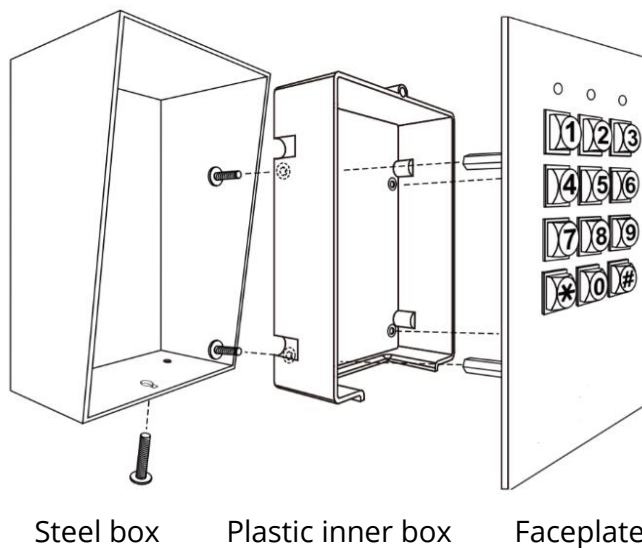
**8** **5**  **3**  **#**

Press and hold the egress button for 5 seconds, the keypad will beep before output 1 activates.

**8** **5**  **4**  **#**

Press and hold the egress button for 10 seconds, the keypad will beep before output 1 activates.

## Mounting the Keypad



Steel box          Plastic inner box          Faceplate

## Troubleshooting

| Symptom | Possible Cause | Solution |
|---|---|---|
| Forgotten programming key | Forgotten programming key | 1. Disconnect the power supply.<br><br>2. Move the DAP jumper from OFF to ON.<br><br>3. Reconnect the power supply. The keypad will start beeping.<br><br>4. Move the DAP jumper back to the OFF position. The keypad will stop beeping.<br><br>5. The keypad is now in programming mode and the programming key is now 0000.<br><br>(This does not affect stored data, only the programming key is forgotten.) |

## Warranty

EMX Industries, Inc. products have a warranty against defects in materials and workmanship for a period of two years from date of sale to our customer.