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.
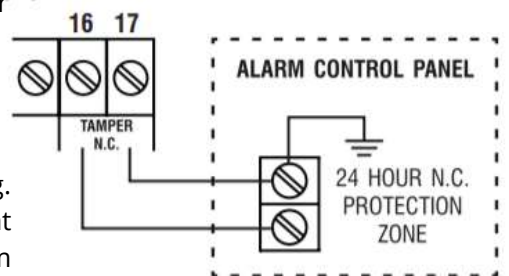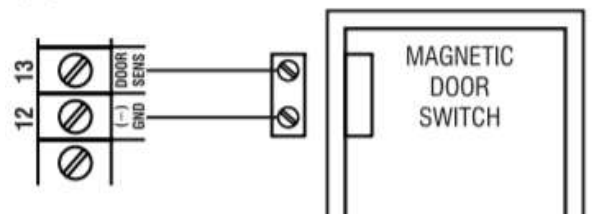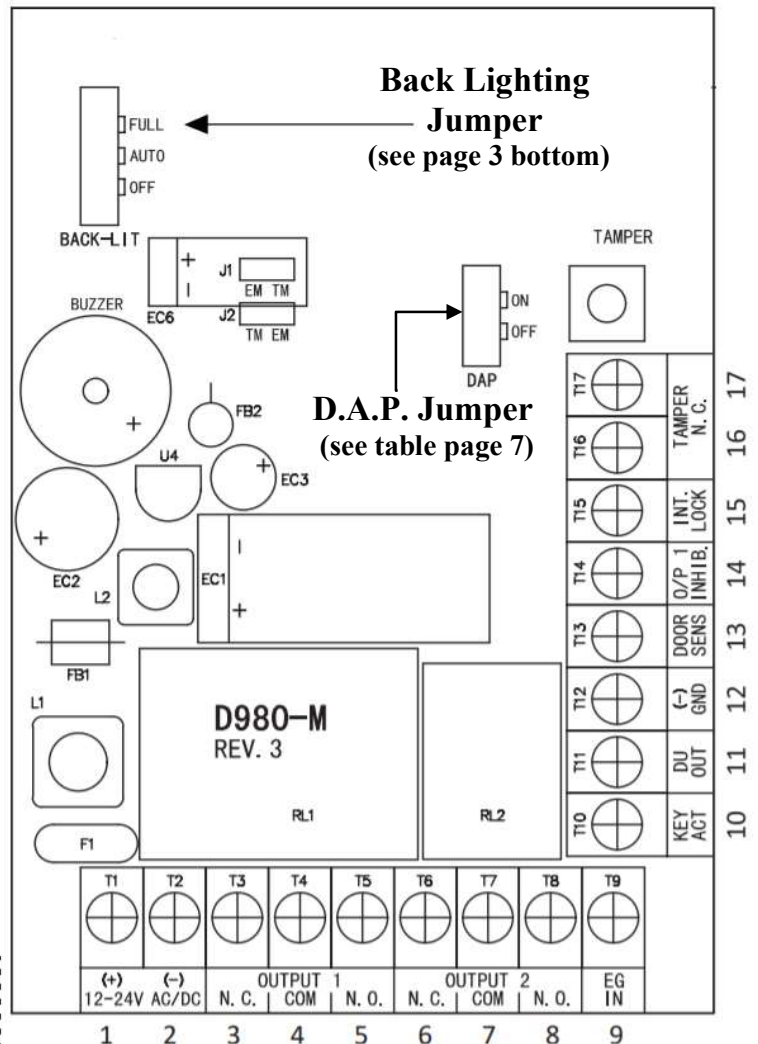

14. Output 1 Inhibit:

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.
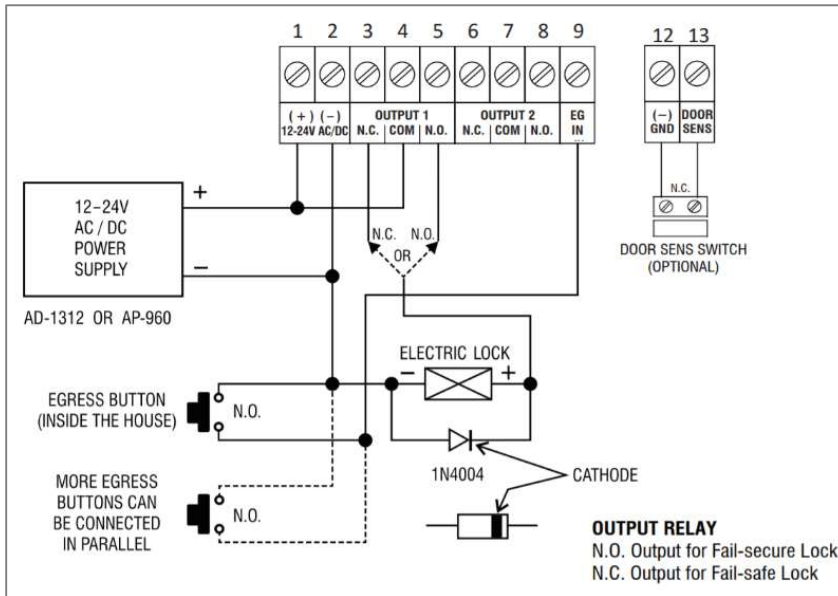
16. & 17. Tamper N.C.:

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.
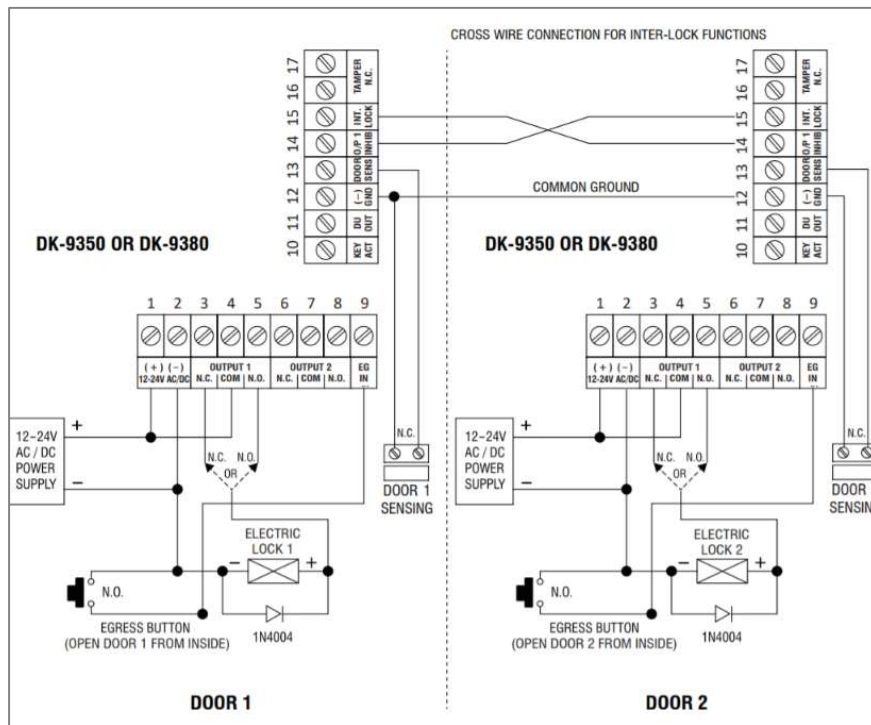
Single Door Wiring

- 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.

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 (Factory default)	**Single-User**
4. To enter Multi-user mode press… `8` `9` `0` `1` `#` Record user locations and codes for easier editing in the future!	**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. **Output 1** — Relay `1` User # `00-99` User Key `4-8 Digits` Confirm `#` **Output 2** — Relay `2` User # `0-9` User Key `4-8 Digits` Confirm `#` **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.	The output length and toggle mode can be adjusted using the codes shown in the tables.

Relay Output 1				Relay Output 2			
4	0	1-999	#	5	0	1-999	#
4	1	**Toggle Mode**		5	1	**Toggle Mode**	

Code 4 0 / 5 0 will change the output length – the time the door will remain unlocked.

Code 4 1 / 5 1 will change the output to toggle mode – the door will remain unlocked until a code is re-entered.

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	#

Only use to change modes will erase user codes and programming code. Must add programming code back after change
Sets the mode and clears all previously stored data and modes. Single user mode assigns one user key per relay.

Multi-User Mode/Reset

8	9	0	1	#

Only use to change modes will erase user codes and programming code. Must add programming code back after change
Sets the mode and clears all previously stored data and modes. Multi-user mode assigns up to 100 user keys for relay 1 and up to 10 user keys for relay 2.

Relay Output Mode Configuration

Output 1	40	1-999	#

Momentary Mode:
Keeps OUTPUT 1 triggered for 1-999 seconds upon user key entry.

Output 1	41	#

Start/Stop Mode: Keeps OUTPUT 1 triggered until re-entry of user key.

Output 2	50	1-999	#

Momentary Mode:
Keeps OUTPUT 2 triggered for 1-999 seconds upon user key entry.

Output 2	51	#

Start/Stop Mode: Keeps OUTPUT 2 triggered until re-entry of user key.

Note: Output 2 may be used as a supervisor mode to disable Output 1 if wired in series.

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

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.
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

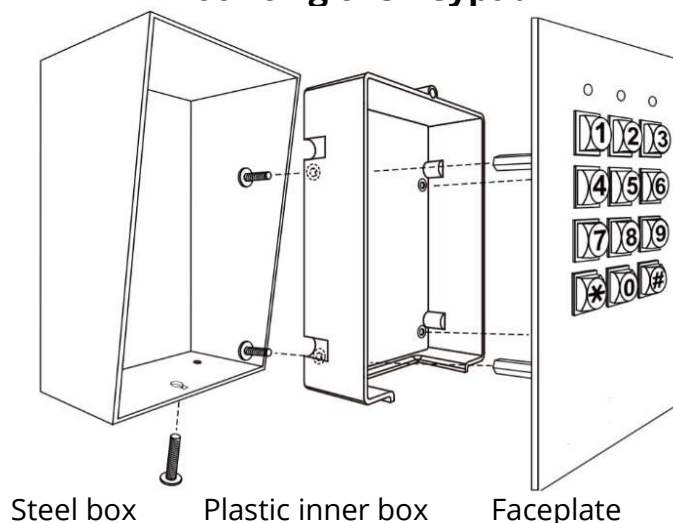| Code	Description
8 5 0 #	After pressing the egress button, output 1 activates with no delay or warning.
8 5 1 #	After pressing the egress button, the keypad will beep for 5 seconds before output 1 activates.
8 5 2 #	After pressing the egress button, the keypad will beep for 10 seconds before output 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.

Troubleshooting

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

Mounting the Keypad

Steel box   Plastic inner box   Faceplate

User Codes and Location Record

Loc	Code	Loc	Code
00		50	
01		51	
02		52	
03		53	
04		54	
05		55	
06		56	
07		57	
08		58	
09		59	
10		60	
11		61	
12		62	
13		63	
14		64	
15		65	
16		66	
17		67	
18		68	
19		69	
20		70	
21		71	
22		72	
23		73	
24		74	
25		75	
26		76	
27		77	
28		89	
29		79	
30		80	
31		81	
32		82	
33		83	
34		84	
35		85	
36		86	
37		87	
38		88	
39		89	
40		90	
41		91	
42		92	
43		93	
44		94	
45		95	
46		96	
47		97	
48		98	
49		99	

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.