



SPLIT DECODED SECURITY KEYPAD THREE OUTPUT SYSTEM WITH DOOR ALARM

DK-9680
DK-9880
SERIES

FOR DOOR STRIKE AND SECURITY CONTROL APPLICATIONS



INTRODUCTION

DK-9680 / DK-9880 is the combination of access control keypad, door alarm and door chime in one system. It is an ideal system for office and home security installations.

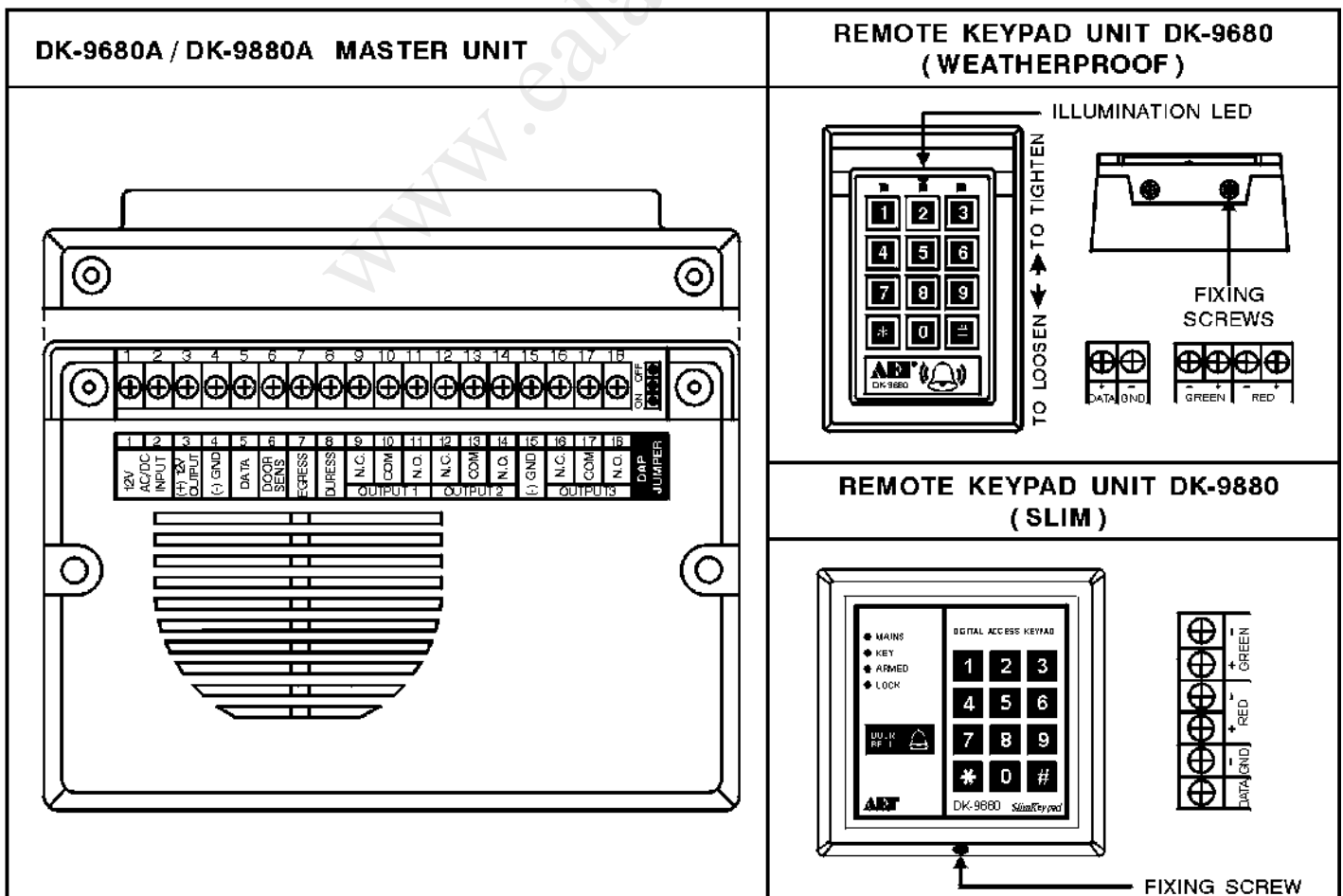
The system is adopting "Split Decoded" design philosophy to give highest security. Each DK-9680 / DK-9880 is split into two parts, the remote keypad unit and the master decoder unit, they communicate with each other in digital data. Anyone who tries to cut or short the connection wires at the remote keypad can not compromise the security of the system or bypass the keypad function. The DK-9680 / DK-9880 uses current mode data bus communication, one master unit can accommodate up to 3 remote keypad units connected in parallel for totally independent operation.

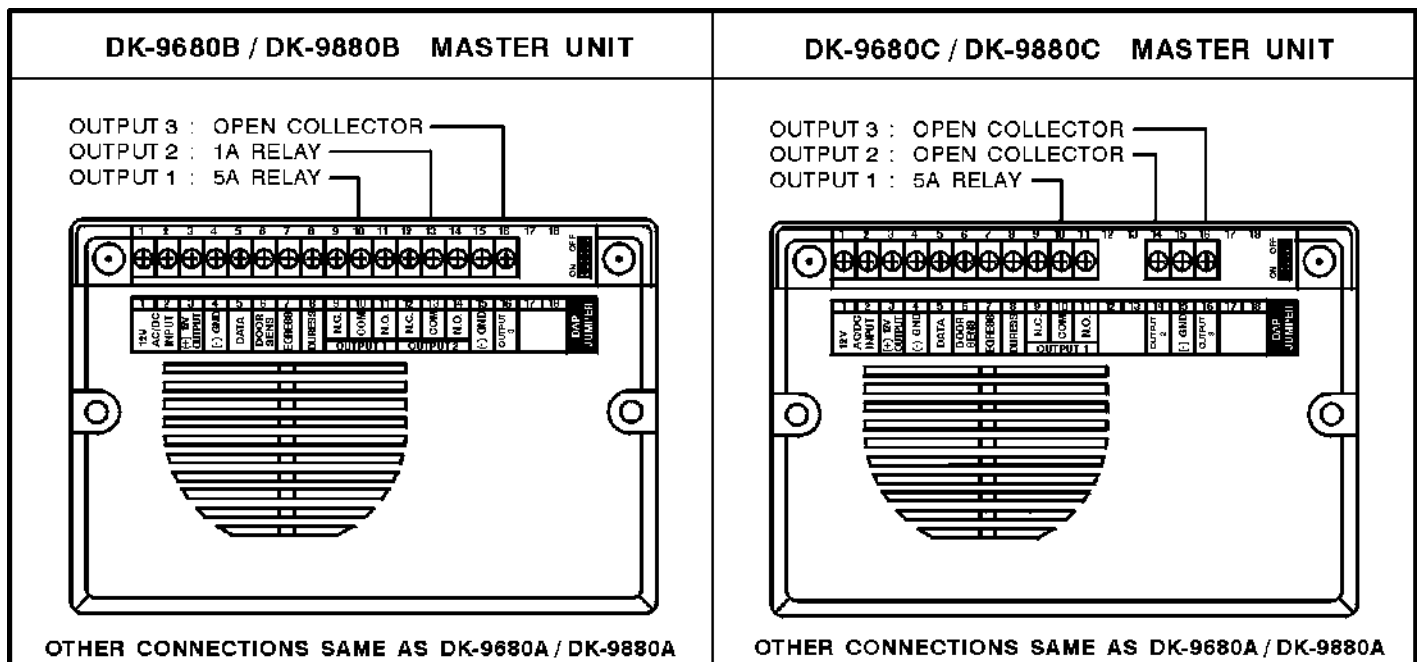
DK-9680 / DK-9880 employs 3 User Codes (code 1, code 2, and code 3) and one Super User Code for operating of the 3 outputs which are designed for door strike and other security and access control applications. With its EEPROM memory, the system's programmed data is nonvolatile in case of power failure. Over 100 million combinations are possible for the 3 User Codes, the Master Code (it also acts as the Super User Code) and the Duress Code. Other security features include duress output and door sensing for door forced open alarm, door open-too-long alarm and door auto re-lock functions. Facility for connecting an egress button for easy exit is also incorporated. The plastic case of the weatherproof keypad unit (DK-9680) is precisely engineered, in which, the front panel and the mounting box is sealed with a water resistant gasket making the keypad unit suitable for both in-door and out-door installations; while the slim keypad unit (DK-9880) is designed in the fashion that blends smoothly into any residential and office decors.

The DK-9680 / DK-9880 is available with versions A, B and C. They are having identical specifications except their outputs:

PRODUCT \ OUTPUT	OUTPUT 1	OUTPUT 2	OUTPUT 3
DK-9680A/DK-9880A	5 Amp Relay	1AmpRelay	
DK-9680B/DK-9880B	5 Amp Relay		NPN TransistorOpenCollector
DK-9680C/DK-9880C		NPN Transistor Open Collector	NPN TransistorOpenCollector

CONNECTION TERMINALS





THE MASTER UNIT (The voltage value in bracket is for 24V version only)

- **POWER IN AC/DC**
 Power supply input, 12V (24V) AC or DC power is possible, No polarity discrimination for the terminals is required.
- **DC OUTPUT (+)**
 12V (24V) output power for the DC operated door latch. Output current 2Amp maximum.
- **COMMON GROUND (-)**
 The common grounding point of the keypad system.
- **DATA**
 This is the communication data bus of the master unit and the remote keypad unit(s). It is also the power supply line for the remote keypad unit(s). Connect it to the DATA terminal at the remote keypad unit(s).
- **DOOR SENSING**
 A Normally Closed (N.C.) input circuit refers to ground. With the help of a magnetic contact (e.g. AEI MC-01) to monitor the door which is controlled by output 1. The circuit is open when the door is open. It initiates the following functions:
 - 1) Door Forced Open Alarm : When the door is FORCED OPEN -- the door is opened without the use of a valid code or the EGRESS button, the door forced open alarm (built-in) will be active for 60 seconds.
 - 2) Door Open-too-long Alarm : When the door is LEFT OPEN longer than the pre-set allowable door open time, the door open-too-long alarm will be active continuously until the door is closed again.
 - 3) Door Auto Re-lock : When the door is opened and then re-closed, the keypad will release the electric latch immediately to re-lock the door before the end of the operation time in momentary mode, or you do not require to enter Code 1 again to re-lock the door in Start/Stop mode.
 - 4) Visitor Announcer : Each time when the door is opened, the door chime activates for 2 seconds.

NOTE: 1)The above functions are available for Output 1 only. Please see "PROGRAMMING" to enable the desired functions.
 2)Connect this terminal to Common Ground (-) if door sensing is not used.
- **EGRESS INPUT**
 A Normally Open (N.O.) input terminal refers to (-) ground. Connect it to Common Ground (-) via a momentary push-button switch to activate Output 1. Allows user to bypass the security code 1 by pushing the push-button switch. This switch is normally put inside the protected premise near the door to allow those inside the protected premise to exit without keying in the code.
 Leave this terminal open if it is not used.
- **DURESS OUTPUT**
 An NPN transistor open collector output. It switches to ground (-) when the Duress Code is entered. Connect to activate an alarm control panel or telephone dialer.
 Output transistor rating: Ic max -- 100mA sink, Vce max -- 12V (24V) DC

- **OUTPUT 1** (Version A, B & C)

5 Amp relay dry contacts, with Normally Open (N.O.) and Normally Closed (N.C.) terminals. This relay is primarily prepared for door strike application, or for other security and access controls. Use the N.O. contact for door strike connection. If for other security and access control applications, please consult the manual of your system for the appropriate pair of terminals (N.C. or N.O.) for the connection. The relay output is programmable for momentary or start/stop operation.

- **OUTPUT 2**

Output 2 is prepared for other security and access control applications. The output is programmable for momentary or start/stop operation. Version A & B use relay output, and the Version C uses transistor output. Version A & B : 1 Amp relay dry contacts, with N.O. and N.C. output terminals.

Version C : An NPN transistor open collector output. It switches to ground (-) when Code 2 is entered (activates). Transistor ratings: Ic max -- 100mA sink, Vce max -- 12V (24V) DC

- **OUTPUT 3**

Output 3 has identical function as output 2. It is also prepared for other security and access control applications. The output is programmable for momentary or start/stop operation. Version A uses relay output, and Version B & C use transistor output.

Version A : 1 Amp relay dry contacts, with N.O. and N.C. output terminals.

Version B & C : An NPN transistor open collector output. It switches to ground (-) when Code 3 is entered (activates).

Transistor ratings: Ic max -- 100mA sink, Vce max -- 12V (24V) DC

THE REMOTE KEYPAD UNIT

- **DATA (+)**

This is the communication data bus of the system. It is also the power supply input terminal of the remote keypad unit. Link it up with the "DATA" terminal at the master unit.

- **GND (-)**

The common grounding point of the remote keypad.

- **GREEN & RED LEDS**

Two LED lamps are prepared for free connection in case of alarm status or access control operation indication is required. Each LED is connected with a 1.5K Ohm current limiting resistor.

- **VISIBLE AND AUDIBLE INDICATORS**

The built-in buzzer at remote keypad (or the speaker at the master) and the amber LED generates the following tones and signals for operation status:

STATUS	TONES	LED SIGNALS
1. In 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. DAP jumper not replaced	Continuous Beeps (speaker)	1 Flash every 2 seconds
6. Standby mode	- - -	1 Flash every 2 seconds

KEYBOARD ILLUMINATION LED (DK-9680), KEY LED (DK-9880)

The LED lights up for 10 seconds when a key button is pressed, which indicates the duration of the allowable time for each digit in code entry. The digit of code entry is invalid when the LED is off.

THE FACTORY-SET DATA -- IMPORTANT NOTE

For the owner's convenience in programming at the first time, the factory has put a Master Code 0000 into the keypad. The owner has to put his own Unique Codes & Data into the keypad before use. To compromise security, in all cases, the owner should program a Personal Master Code to invalidate the factory-set Master Code.

PROGRAMMING THE KEYPAD -- SUMMARY

A) Use the factory-set Master Code entry in programming -- When starting for first-time

Entry of Code	Validation	Comments
0000	*	Enter in programming mode by the factory-set Master Code

B) Recording of Personal Master Code & User Codes -- User Programming

Access Keys	Entry of Codes	Validation	Comments
0	From 1 to 8 digits	#	Personal Master Code & Super User Code
1	From 1 to 8 digits	#	User Code 1, Duress Code & Door Forced-open-alarm OFF Code
2	From 1 to 8 digits	#	User Code 2
3	From 1 to 8 digits	#	User Code 3

C) Configuration of Relay Outputs -- Installer Programming

Access Keys	Code Duration	Validation	Comments
4 0	From 1 to 999	#	Output 1 in Momentary mode from 1 to 999 seconds
4 1		#	Output 1 in Start/Stop mode without accelerated code
4 2		#	Output 1 in Start/Stop mode with accelerated code
5 0	From 1 to 999	#	Output 2 in Momentary mode from 1 to 999 seconds
5 1		#	Output 2 in Start/Stop mode without accelerated code
5 2		#	Output 2 in Start/Stop mode with accelerated code
6 0	From 1 to 999	#	Output 3 in Momentary mode from 1 to 999 seconds
6 1		#	Output 3 in Start/Stop mode without accelerated code
6 2		#	Output 3 in Start/Stop mode with accelerated code

Auto re-lock is possible, see "Door Sensing" for details.

D) Personal Safety -- Installer Programming

Access Keys	Validation	Comments
7 0	#	After 10 successive false codes, the keypad locks during 30 seconds
7 1	#	After 10 successive false codes, the Duress Output switches to ground (activates)
7 2	#	Disappearance of the 2 above securities

E) Door Forced-open-alarm -- Visitor Announcing -- Installer Programming

Access Keys	Validation	Comments
8 0	#	Door Forced-open-alarm detection is Disabled
8 1	#	Door Forced-open-alarm detection is Enabled
8 2	#	Visitor announcing chime is given if User Code 1 is not keyed in when the door is opened.
8 3	#	Visitor announcing chime is always given when the door is opened

F) Allowable Door-left-open Time (Door Open-too-long Alarm) -- Installer Programming

Access Keys	Code Duration	Validation	Comments
9	0	#	The timer is Disabled. Allows the door an infinite time to open for
9	From 1 to 9999	#	Allowable time from 1 to 9999 seconds for door open before the door Open-too-long alarm is triggered

G) Exit Programming Mode

Validation	Comments
*	Exits programming mode, returns to normal operation

PROGRAMMING THE KEYPAD -- EXAMPLE

1) REQUIREMENT -- The following data are required to be stored:

- Change the factory-set Master Code 0000 to a Personal Master Code 3289
- Set User Code 1 in 8321
- Set User Code 2 in 6854
- Set User Code 3 in 9270
- Set Output 1 in Momentary mode, 5 seconds
- Set Output 2 in Start/Stop mode without accelerated code
- Set Output 3 in Start/Stop mode with accelerated code
- Set the keypad to lock itself during 30 seconds after 10 successive false codes
- Set the keypad with door Forced-open-alarm enabled
- Set the allowable time for door left open to 60 seconds before the door open-too-long alarm is triggered

2) PROGRAMMING -- Put the required data above into the keypad:

0	0	0	0	*	Enter the programming mode using the factory-set Master Code	
0	3	2	8	9	#	3289 has been stored as the new personal Master Code & Super User Code
1	8	3	2	1	#	8321 has been stored as User Code 1, Duress Code & door Forced-open-alarm OFF code
2	6	8	5	4	#	6854 has been stored as User Code 2
3	9	2	7	0	#	9270 has been stored as User Code 3
4	0	5	#			Output 1 has been set in Momentary Mode, 5 seconds
5	1	#				Output 2 has been set in Start/Stop Mode without accelerated code
6	2	#				Output 3 has been set in Start/Stop Mode with accelerated code
7	0	#				The keypad has been set to lock during 30 seconds after 10 successive false codes
8	1	#				The keypad has been set with door forced-open-alarm enabled
9	6	0	#			The keypad has been set with 60 seconds allowable time for door left open
*						Exit programming mode, with all the data above stored. Ready for use

NOTE: In case of wrong entry during programming, cancel it with # key or wait 10 seconds, then re-enter.

USING THE KEYPAD -- TAKING THE DATA PROGRAMMED ABOVE AS REFERENCE

1) To command the output 1, 2 & 3, enter the corresponding codes into the keypad and validate via the # key.

8	3	2	1	#	Output 1 activates for 5 seconds
6	8	5	4	#	Output 2 starts (or stops)
9	2	7	0	#	Output 3 starts (or stops)

2) The Personal Master Code is also the **SUPER USER CODE** for outputs 1, 2 & 3. It allows the owner to use **ONLY ONE CODE** to operate the 3 outputs. To command output 1, 2 & 3, enter the Personal Master Code into the keypad and validate via the # key **PLUS** the corresponding output number(s).

3	2	8	9	#	1	Output 1 activates for 5 seconds
3	2	8	9	#	2	Output 2 starts (or stops)
3	2	8	9	#	3	Output 3 starts (or stops)

3) The **DURESS CODE** does not need to be programmed. The keypad determines it automatically by increasing the first digit of the **USER CODE 1** of **TWO** units.

For example: If the User Code 1 is "1234", then the Duress Code is "3234". If the User Code 1 is "8321", then the Duress Code is "0321".

To command the **DURESS OUTPUT**, enter the Duress Code and validate via the # key.

0	3	2	1	#	Duress output activates, Output 1 activates for 5 seconds
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The Duress Code has a double action. It controls the Relay Output 1 at the same time as like the User Code 1 and activates the Duress Output. The Duress Code can always activate and deactivate the Relay Output 1, but can not deactivate the Duress Output. **ONLY** the composition of User Code 1 can deactivate (reset) the Duress Output.

NOTE: All alarms will be stopped, including the door forced-open-alarm and the door open-too-long alarm, when Duress function is in operation (the Duress Code is keyed in).

- 4) The **ACCELERATED CODE**, if the one output from 1 to 3, has been programmed in Start/Stop mode with Accelerated Code, it is possible to activate with only the **FIRST TWO DIGITS**, from Code 1 to Code 3, of the corresponding code. Deactivating of this output always requires the composition of the Complete Code. In this example, Output 3 has been programmed in Start/Stop Mode with Accelerated Code. The Complete Code of Code 3: **9270** The Accelerated Code of Code 3: **92**

9 2 # Output 3 starts

9 2 7 0 # Output 3 stops

- 5) Try to put some 1 to 8 digits random false codes to the keypad to test its **SAFETY**. The keypad generates 5 beeps for each unsuccessful code entry after the # key is pressed. The keypad locks itself during 30 seconds after 10 successive false codes are entered. Normal operation will be resumed after the 30 seconds expired.

NOTE: The maximum allowable time for a **SUCCESSIVE DIGIT** and a **SUCCESSIVE CODE** are 10 seconds and 30 seconds respectively. The keypad refreshes itself automatically after the allowable times are expired.

- 6) In this example, the system has been programmed with **DOOR FORCED-OPEN-ALARM** enabled. Try to open the door which is equipped with **DOOR SENSING SWITCH**, without the use of **CODE 1** or the **EGRESS BUTTON**. The alarm will activate instantly for 60 seconds. The alarm can be stopped by keying in the User Code 1 before the end of the alarm time.

NOTE: This testing may not be feasible if the door is locked. It is necessary to un-lock the door by use of the mechanical key before the testing.

- 7) The **DOOR OPEN-TOO-LONG ALARM**, try to command Output 1 by use of **CODE 1** or the **EGRESS BUTTON**. Open the door which is equipped with **DOOR SENSING SWITCH**, and leave it open for more than 60 seconds (the programmed time). The alarm starts to activate. Close the door, the alarm stops. This feature reminds the owner to close the door in case it is stuck.

- 8) This keypad incorporates **DOOR CHIME**. To activate the door chime, just simply press the **BELL** sign key.

RE-PROGRAMMING THE KEYPAD FOR OTHER OPERATION MODES

- 1) To access to **PROGRAMMING MODE**, enter your Personal Master Code and validate via the * key.

3 2 8 9 * The keypad is in Programming Mode & ready to receive new data

- 2) Set Relay Output 1 in Start/Stop Mode without accelerated code.

4 1 # Output 1 has been changed from Momentary Mode to Start/Stop Mode

- 3) Set keypad to activate **DURESS OUTPUT** after 10 successive false codes.

7 1 # The keypad has been changed from locks 30 seconds to activates Duress Output

- 4) Set the keypad to give **VISITOR ANNOUNCING CHIME** when the door is open.

8 3 # The keypad has been changed from giving door forced-open-alarm to visitor chime

- 5) Set the keypad to allow the door an infinite time to open for.

9 0 # The door-left-open timer is disabled, the door is allowed infinite time of opening

- 6) Re-programming is finish. Exit programming mode.

***** The keypad is back to normal operation mode with all re-programmed data stored

USING THE KEYPAD WITH THE NEWLY RE-PROGRAMMED DATA

- 1) To command Relay Output 1, enter the User Code 1 and validate via the # key.

8 3 2 1 # Relay Output 1 starts

In Start/Stop operation mode, it is necessary to enter Code 1 again to **STOP** Output 1. If Output 1 is for door strike application, it is suggested to work with a **DOOR SENSING SWITCH** (the same sensing switch for the alarms) to initiate the **AUTO RE-LOCK (STOP)** function, in which, enter Code 1 again for re-locking the door is not necessary.

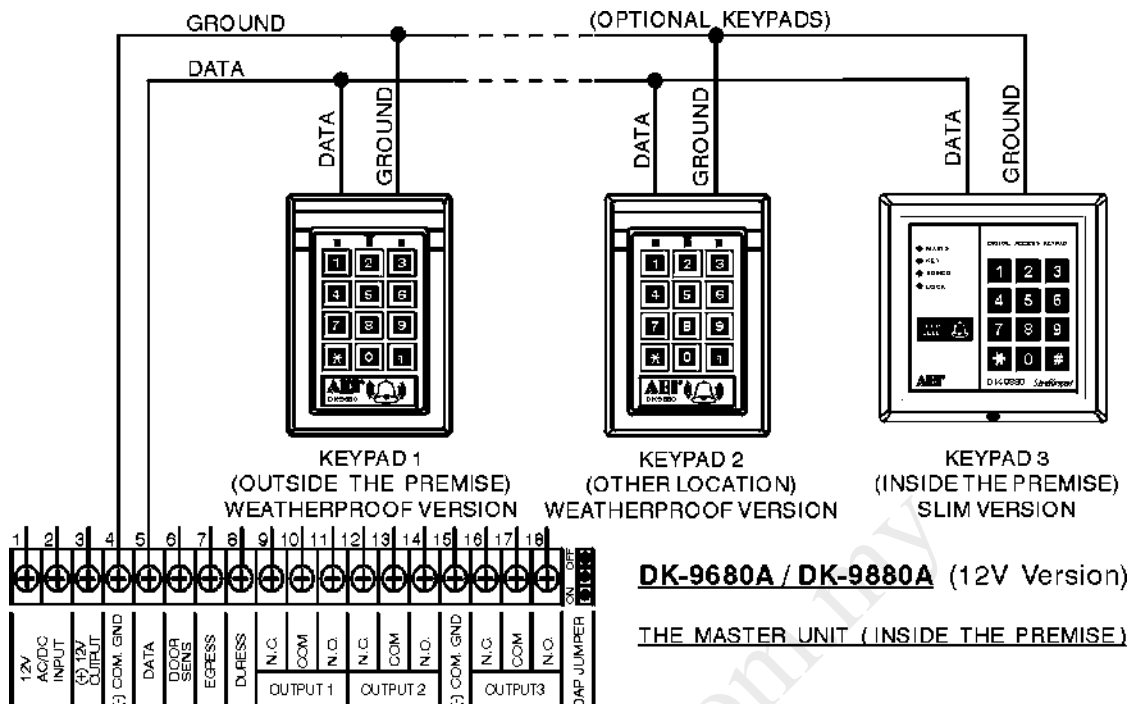
- 2) Try to put some 1 to 8 digits false codes to the keypad to test its **SAFETY**. The keypad will activate the **DURESS OUTPUT** after 10 successive false codes are entered. To reset (deactivate) the Duress Output, you are required to enter the composition of the User Code 1 and validate via the # key.

- 3) Try to open the door, the system will always give **VISITOR ANNOUNCING CHIME**.

- 4) Try to open the door, and leave it open. No door open-too-long alarm will be given.

CONNECTING THE REMOTE KEYPAD UNIT(S) TO THE MASTER UNIT

The basic DK-9680 / DK-9880 system comes with one Master unit and one Remote Keypad unit. Actually, each master unit allows maximum 3 remote keypad units connecting to it. The DK-9680 / DK-9880 system uses current mode data bus communication, which makes the additional keypad connections very simple, just connecting all the "DATA" and "GND" terminals of the keypad units and the master unit in parallel as the diagram shown below.



FOR OPERATION - All the remote keypad units in the system give identical control function to the master unit in normal operation.

FOR PROGRAMMING - Any one of the remote keypad units in the system can be used for programming. Once the one has been selected for programming, the other keypads in the system will be disabled until the system exits the programming mode. Any one of the keypad units can be selected as a programming keypad under one of the following conditions:

- 1) When the Personal Master Code has been keyed-in to that keypad unit.
- 2) After use of the DAP jumper entering to programming mode, all the keypad units in the system are prepared for the selection. When the one is first keyed-in with any code, it is considered to be selected as the programming keypad automatically.

THE TAMPER SWITCH OF THE REMOTE KEYPAD UNIT

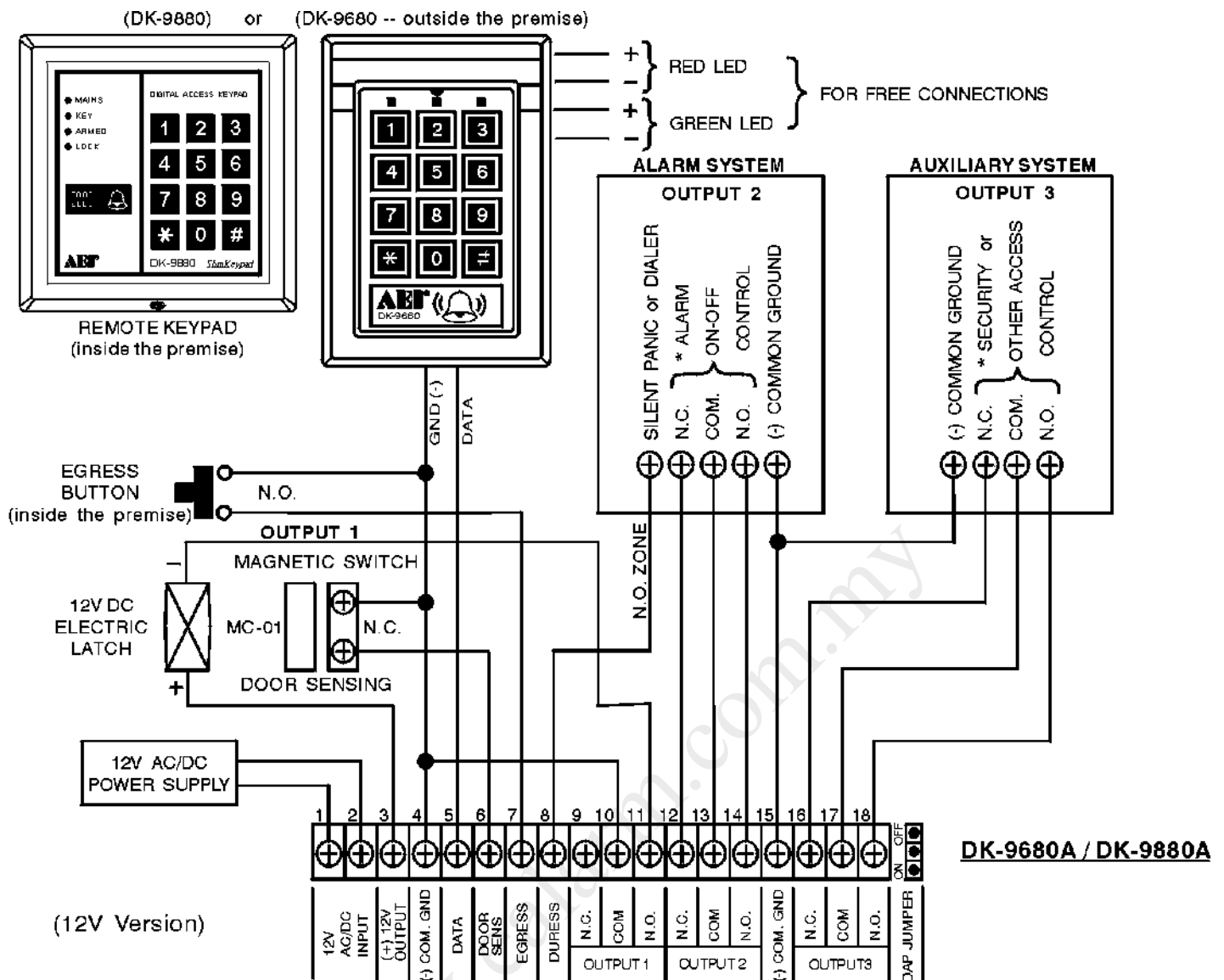
Each keypad unit employs a tamper switch which is normally depressed. When the keypad unit is separated from the mounting box, it will be released and will make the keypad unit to send an alarm command to the Master to generate alarm output for 60 seconds. The alarm can be stopped by keying-in the User Code 1 before the end of the alarm time.

SPECIFICATIONS

- Operation Voltage : 12V Version - 12V Nominal , 10-14V AC/DC; 24V Version - 24V Nominal, 20-28V AC/DC
- Current Drain : 50 - 160mA (Version A), 50 - 120mA (Version B), 50 - 80mA (Version C)
- Operational Codes : Master, User 1, 2 & 3, Super User, Duress and Accelerated Codes
- Code Combinations : 111,111,100
- Relay Output : Output 1 -- 5 Amp N.O. & N.C. dry contacts, 30V DC maximum
Output 2 & 3 -- 1 Amp N.O. & N.C. dry contacts, or NPN transistor open collector output, 100 mA sink, 12V DC (24V DC) max.
: NPN transistor open collector switching to ground, 100mA sink, 12V (24V) DC max.
:
- Duress Output : 10 seconds, auto refresh
- Digit Entry Time : 30 seconds, auto refresh
- Code Entry Time : Master -- 120(W)mm X 87(D)mm X 32.5(H)mm
- Dimensions (approx.) Keypad : (DK-9680) -- 84(W)mm X 41(D)mm X 129(H)mm ;
(DK-9880) -- 117(W)mm X 21(D)mm X 117(H)mm
- Weight (approx.) : Master -- 200g (net)
Keypad (DK-9680) -- 155g (net) ; (DK-9880) -- 130g (net)

TYPICAL APPLICATION

Output 1: Door Strike **Output 2 :** Alarm Control **Output 3 :** Auxiliary Security or Access Control



* Please consult your alarm/security system manual for the selection of N.C. or N.O. for the system ON-OFF control. For those Open Collector Outputs at the DK-9680B / DK-9880B and DK-9680C / DK-9880C, please consider them as N.O. output contacts referring to (-) ground.

APPENDIX

● DRY CONTACT

A dry contact means that no electricity was connected to it. It is prepared for free connections. Usually the relay output contacts provided in a keypad system are dry contacts.

● N.C.

Stands for Normally Closed, the contact is closed circuit at normal status. It is open circuit when activated.

● N.O.

Stands for Normally Open, the contact is open circuit at normal status. It is closed circuit when activated.

● TRANSISTOR OPEN COLLECTOR OUTPUT

An open collector output is equivalent to a Normally Open (N.O.) contact referring to ground similar to an N.O. relay contact referring to ground. The transistor is normally OFF, and its output is switched to ground (-) when activated. The open collector transistor can only provide switching function for small power but it is usually good enough for controlling an alarm system.

Output 2 & 3 in DK-9680C / DK-9880C, output 3 in DK-9680B / DK-9880B, and the Duress Output in all 3 keypads are open collector outputs.