

DIY KIT KL042 / KL204 PROXIMITY CARD ACCESS CONTROLLER

INTRODUCTION

This is a low cost proximity card access controller with dual output for external controlling. One output from the relay directly with NC and NO connection. The other is a power output for driving external devices. The KL042 kit can accept a maximum of 42 proximity cards. The KL204 kit can accept a maximum of 204 proximity cards. A 9 to 12V DC supply is required to power the kit, which has a current consumption of less than 200mA. A 9VDC/300mA (2.1mm center positive) plug pack will do fine.

OPERATION

There is a 6-position dip switch for configure the operation of the unit.

POSITION	DESCRIPTION	FUNCTION
6	TMR0	To select the relay on time with authorization granted.
5	TMR1	
4	TMR2	
3	RVSE	ON: to reverse the operation of the relay.
2	CLRA	ON: to clear all memories.
1	CLRM	ON: to clear the master card memory.

TMR2	TMR1	TMR0	FUNCTION
OFF	OFF	OFF	Relay on for 1 second on authorization granted.
OFF	OFF	ON	Relay on for 2 seconds on authorization granted.
OFF	ON	OFF	Relay on for 5 seconds on authorization granted.
OFF	ON	ON	Relay on for 10 seconds on authorization granted.
ON	OFF	OFF	Relay on for 20 seconds on authorization granted.
ON	OFF	ON	Relay on for 50 seconds on authorization granted.
ON	ON	OFF	Relay on for 100 seconds on authorization granted.
ON	ON	ON	Relay state is toggled on each authorization granted.

Master Card Programming

Put either CLRA or CLRM to ON position and power up the unit. The unit is waiting for a master card to be read. Pick a proximity card and put on top (around 1 inch above) of the antenna, the card is read and stored as the master card. Then remove the power and put both CLRA and CLRM to OFF position. On next power on, the unit will be in normal operation.

Grant/Remove Card Authorization

When the unit in normal operation, put the master card on top of the antenna for 5 seconds, the unit will enter to programming mode with green LED stays lite. Then place a card on top of the antenna, if the unit responds with a single beep sound means authorization is granted to that card. On the other hand, if the unit responds with a dual beep sound means authorization is removed from that card. If no more card need to be added or removed, the unit will return to normal operation after 5 seconds idle. If a long beep is responded, it means all memory locations are occupied.

Normal Operation

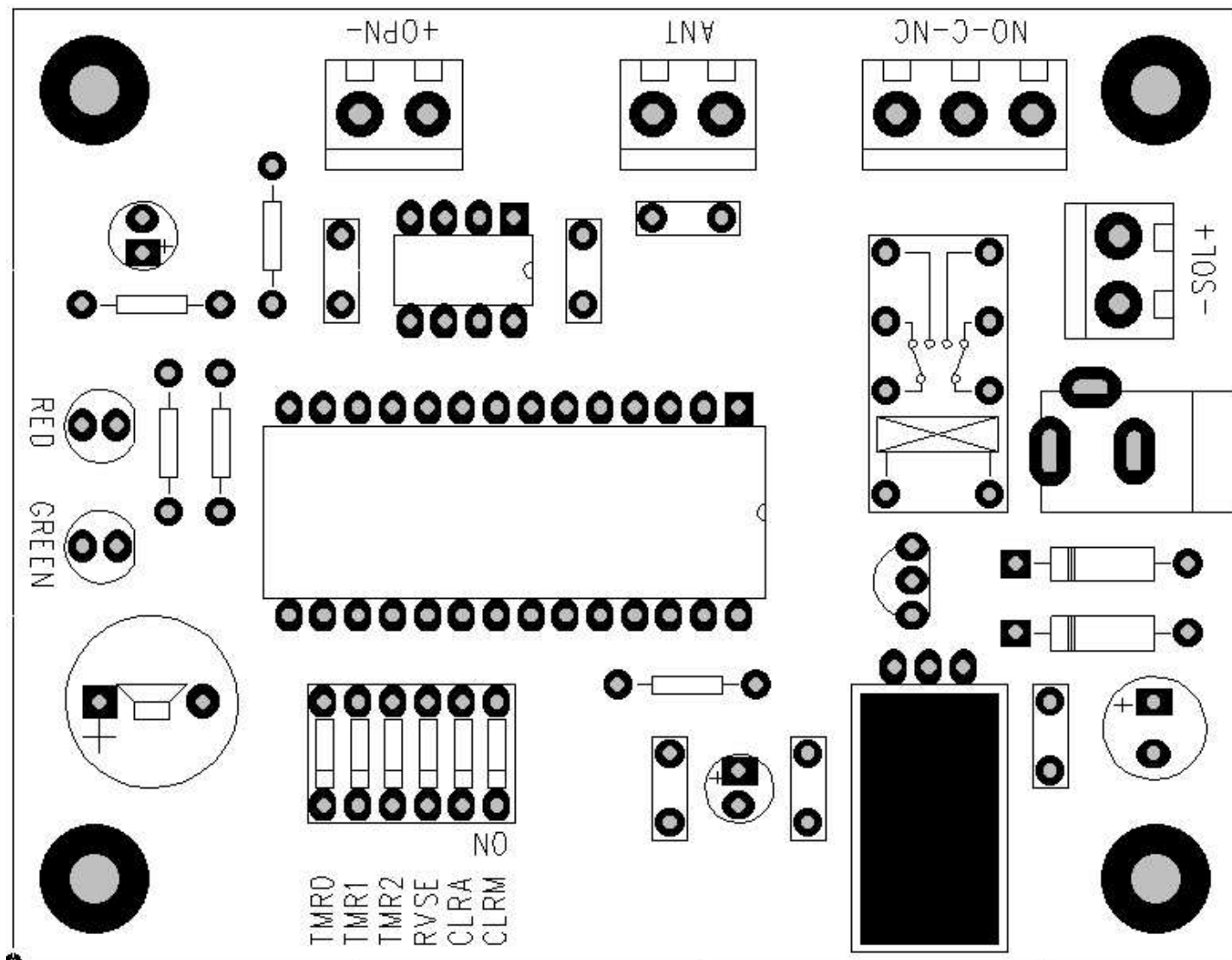
If an authorized granted card is placed over the antenna, the relay is turned on as set by TMR0, TMR1 and TMR2 with a beep sound. On the other hand, if an unauthorized card is placed over the antenna, the relay will have no action and no beep sound.

An input contacts is provided, if it is shorted, the unit will respond the same as an authorized card placed on top of the antenna.

CIRCUIT DESCRIPTION

The unit make use of an highly integrated module ML042 / ML204 which is the heart of the unit providing all the functionalities. By adding small amounts of surrounding components, the complete access unit is built. It can be used with an electric door lock unit, the door access can be controlled by using the proximity cards.

PCB LAYOUT



PART LIST (PCB Assembly)

ITEM	REFERENCE	COMPONENT	REMARK
1	U1	7805	Regulator
2	U2	ML204 / ML042 with IC socket	ML204 for KL204, ML042 for KL042.
3	U3	AT24C08 with IC socket	Not available for KL042.
4	C1	470uF 25V	
5	C2, 3, 7, 9	Mono. Capacitor 0.1uF	
6	C4, 10	E. Capacitor 10uF 25V	
7	C5, 6	C. Capacitor 470pF	Not used.
8	C8	DIP Switch 6 Position	
9	D1, 2	Rectifier 1N4001	
10	D3	Green LED	
11	D4	Red LED	
12	R1, 2, 3, 4	Resistor 390 ohm	
13	R5	Resistor 4.7 Kohm	
14	K1	5V DPDT Relay	
15	BZ1	5V Buzzer	
16	J3	2.1mm DC JACK	Center terminal is positive.
17	J4, 6, L1	2-Pin Terminal Block	L1 is used to connect the coil antenna.
18	J5	3-Pin Terminal Block	
19	Q1	8550 PNP Transistor	
20	PCB	scm-ap-04a	

SCHEMATIC DIAGRAM

