

GENERAL DESCRIPTION

RHOMBUSMF502 transceiver unit is designed for reading the Serial Number of the Mifare I compatible IC cards and is a major component in RFID(Radio Frequency Identification) reader system. It supports a 3x4 keypad to facilitate auxiliary password input. It can be applied in office/home security, personal identification, access control and production control systems etc.

FEATURES

- Built-in transceiver antenna;
- Maximum effective distance up to 75mm;
- Less than 200ms decoding time;
- Low power dissipation with single power supply;
- Wiegand 26bits or other format interface optional;
- Support Mifare I compatible IC cards;
- Support 3x4 keypad for password input;
- Built-in bi-color LED and buzzer.

INTERFACE DESCRIPTION

NUMBER	COLOR	SYMBOL	DESCRIPTION
1	Red	VCC	Positive Power Supply
2	Black	GND	GND
3	Green	WD0	Output as DATA0 in Wiegand
4	White	WD1	Output as DATA1 in Wiegand
5	Brown	HOLD	Output as HOLD in Wiegand
6	Blue	LED	Input, internally pulled up to +5V. Connected to GND will change the color of LED.
7	Grey	BUZ	Input, internally pulled up to +5V. Connected to GND will activate the BUZZER.
8	Yellow	BELL1	Doorbell switch
9	Orange	BELL2	Doorbell switch

CHARACTERISTICS

● Absolute Maximum Ratings

ITEM	SYMBOL	VALUE	UNIT
Power Supply	VCC	15	V
Operating Temp.	TOPR	0~+70	°C
Storage Temp.	TSTR	-55~+125	°C

● Electrical and Mechanical Specification

Under $T_A = 25^{\circ}\text{C}$, $V_{CC} = +12\text{V}$ unless specified

ITEM	SYMBOL	MIN	TYP	MAX	UNIT
Power Supply	VCC	10		15	V
Current Supply	IC		70	100	A
Operation Freq.	FREQ		13.56		MHZ
Effective Distance*	DIS	0	50	75	mm
Decoding Time	TDEC		120	200	ms

- Effective Distance depends on tags and operating environment.

APPLICATION INFORMATION

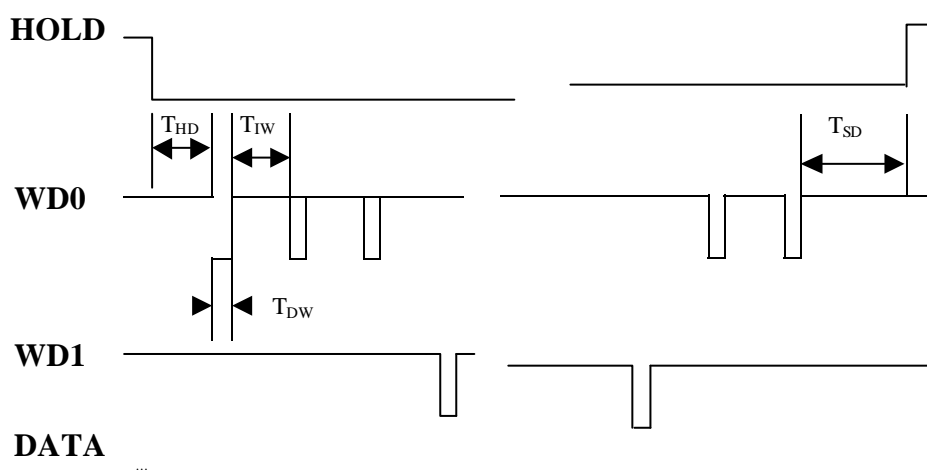
1. Wiegand 26bits Format Interface

Wiegand 26bits Format Interface comprises of 26bits data including 24 user bits and 2 parity check bits. The 24 user bits correspond to the latter serial number bits of Mifare I card.

Bit	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	P	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	P
		E	E	E	E	E	E	E	E	E	E	E	O	O	O	O	O	O	O	O	O	O	O	O	O	O

- PE as even parity check bit and PO as odd parity check bit;
- The bits marked with E go for even parity check and the bits marked with O go for odd parity check;

2. Wiegand 26bits Format Timing



SYMBOL	DESCRIPTION	VALUE(Typ.)
T_{HD}	Sending Start Delay	0.06ms
T_{SD}	Sending Stop Delay	2ms
T_{DW}	Data pulse width	0.4ms
T_{IW}	Data pulse interval width	2ms

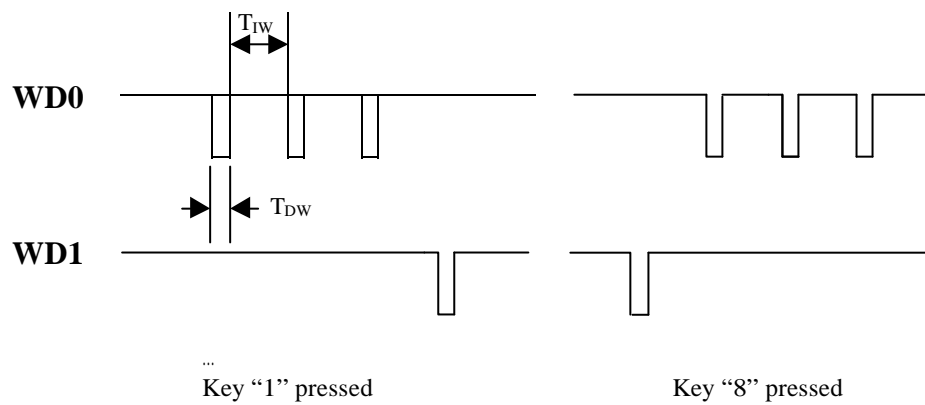
3. 3x4 Keypad Interface

RHOMBUSMF502 support a 3x4 keypad to facilitate auxiliary password input. Every key is 4bit encoded as following (MSB first):

0=0000 1=0001 2=0010 3=0011 4=0100 5=0101
6=0110 7=0111 8=1000 9=1001 *=1010 #=1011

RHOMBUSMF502 output the key code when a key pressed.

4. Key Code Output Timing



Note: Rhombus' products must work with linear regulated power supply, and other kinds of power supply are prohibited.