

Instruction for RF ID receiving module

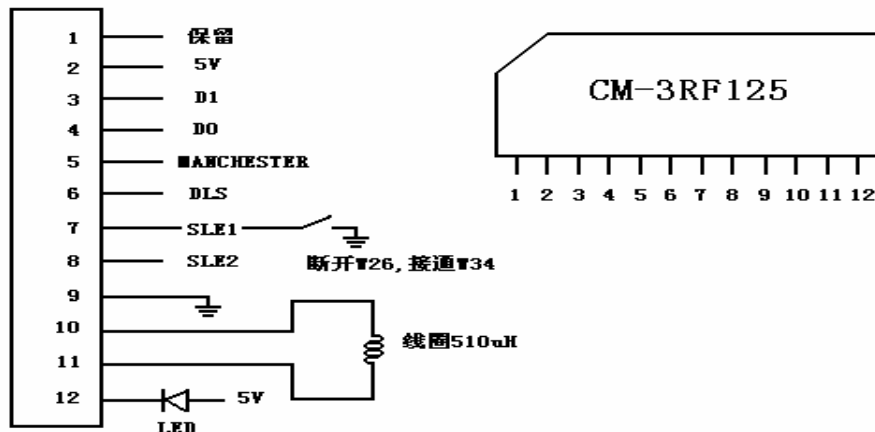
1. Summary

The series 125KHz RF ID with item No. CM-3RF125 is designed by advanced RF receiving circuit and also inset by micro-controller ,united high-efficient decode arithmetic to receive the information from 64 bits Read-Only EM4100 and compatible ID card, it has high-sensitive receiving , low operating current, DC power, low price and good capability, it can be used to many RF application scopes, for example, Identification Validation, check on work attendance, POS and going the rounds and so on.

2. Characteristic

- Completely support EM4100 and compatible ID card (64 bits, Manchester code).
- Availability distance: more than 10cm.
- Size of antenna: 65mmX70mm, working frequency: 125KHz.
- Receiving information time in availability distance: less than 100ms.
- DC power: +5V, operating current: less than 70mA.
- Wiegand 26/34,/ABA,/RS232 data output in standard format.
- Size: 35mmX25mmX10mm.
- Working temperature: -15—75C, storage temperature: -25—85C.

3. Interface description



Pin	Name	Input/ output I/O	description
1	hold		
2	5V	Input	
3	D1	Output	For to Wiegand DATA1 ,For to ABA CLK
4	D0	Output	For to Wiegand DATA0, For to ABA DAT, For to RS232 TX
5	MANCHESTER	Output	Manchester output
6	DLS	Output	For to ABA DLS(卡到位)
7	SLE1	Input	Select output
8	SLE2	Input	SLE1, SLE2=00 RS232 =01 WG34 =10 ABA =11 WG26
9	GND	Input	
10	ANT1	Input	In contact with coil
11	ANT2	Input	
12	LED	Output	Driver LED light

4. Application information:

(1) ID card data format

CM-3RF125 supports EM4100 and compatible 64 bits RAM ID card, Manchester code format, data rate: RF/64,ID card output data format as follows:

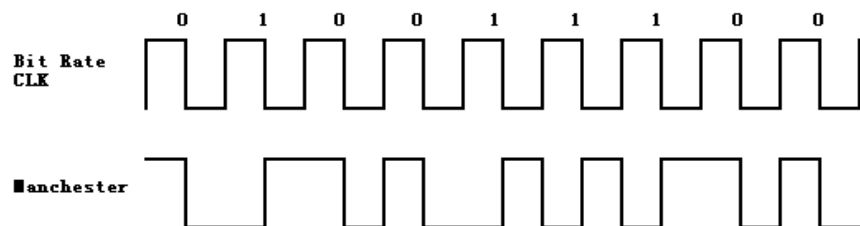
1	1	1	1	1	1	1	1	1
				D00	D01	D02	D03	P0
				D10	D11	D12	D13	P1
				D20	D21	D22	D23	P2
				D30	D31	D32	D33	P3
				D40	D41	D42	D43	P4
				D50	D51	D52	D53	P5
				D60	D61	D62	D63	P6
				D70	D71	D72	D73	P7
				D80	D81	D82	D83	P8
				D90	D91	D92	D93	P9
				PC0	PC1	PC2	PC3	S0

In the above table:

- l Head-data is continuous nine “1”.
- l D00-D93 is consumer using data.
- l P0-P9 is the position for row parity even, for example: if the D00-D03 IS “0101”, the P0 is “0”.
- l PC0-PC3 is the position for column parity even.
- l The last S0 of data is always “0”.

(2) Manchester code output

- Card Bit Rate CLK=125KHz/64.
- Bit Rate CLK is the basic of time inside card to make Manchester code output.
- Manchester time sequence table: “0” from high to low, and “1” from low to high.



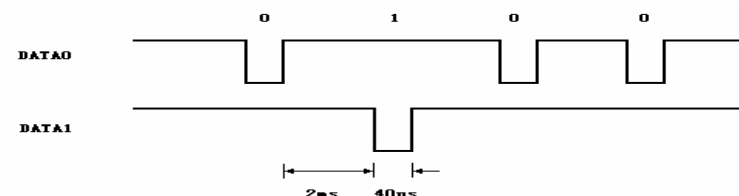
(3) Wiegand 26 output

Wiegand 26 format is composed with 26 bits data, thereinto including 24 bits consumer data and 2 bits inspection position. The front 12 bits of 24 bits is for parity even, the rest is for parity odd. Regarding to CM-3RF125 receiving mould, 24 bits data is corresponding to the last 24 bits of ID card 40 bits consumer data, i.e. D40-D93. time sequence table as follows:

P	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	40	41	42	43	50	51	52	53	60	61	62	63	70	71	72	73	80	81	82	83	90	91	92	93	0

In the above table, PE is for parity even to D40-D63, P0 is for parity odd to D70-D93.

The below is time sequence table:



(4) wiegand 34 output

Wiegand 34 format is composed with 34 bits data, thereinto including 32 bits consumer data and 2 bits inspection position. The front 16 bits of 32 bits is for parity even, the rest is for parity odd. Regarding to CM-3RF125 receiving mould, 24 bits data is corresponding to the last 32 bits of ID card 40 bits consumer data, i.e. D20-D93. Output data format and time sequence table refer to wiegand 26.

(5) ABA Track2 output

0000000000	11010	1248P	1248P	1248P	1248P	1248P	1248P	1248P	1248P
1248P	1248P	11111	LRC	00000					

- l Head-data is continuous ten “0”.
- l The first character is hex “B”(the first bit is low bit,1248P, P is for parity odd).
- l Card No.is 0000000000—9999999999(ten digit).
- l The finish character is hex “F”.(11111, the first bit is low bit,1248P, P is for parity odd).
- l Line redundancy check is the first character+card No.+ The finish character
- l Data tail mark is combine to continuous five “0”.
- l All output data is in anti-code, i.e. “0” is high-voltage, “1” is low-voltage.

For example:

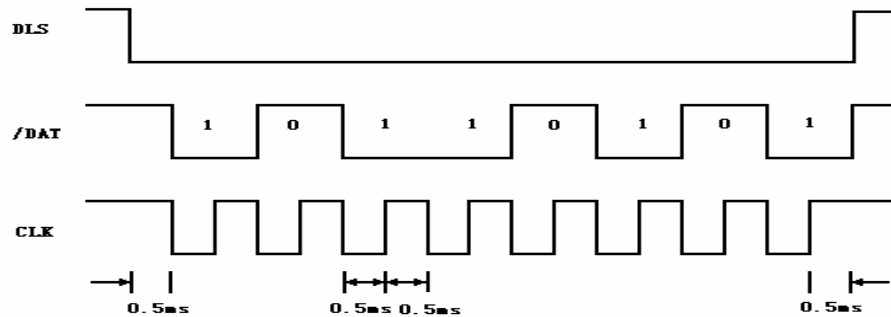
EM card data: 62 E3 08 6C ED

E3 08 6C ED (BIN) → 3808980205 (BCD)

Send sequence:

0000000000 11010 11001 00010 00001 00010 10011 00010 00001 01000 00001 10101 11111
10001 00000。

ABA Track2 sequence:



(6) RS232 Output

RS232 output format: 1200, N, 8, 1.

Data format:

STX(0x02)	DATA(10HEX)	CR(0x0D)	LF(0x0A)	ETX(0x03)
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For example:

EM card data: 62 E3 08 6C ED

Send sequence:

0x02 0x36 0x32 x45 0x33 0x30 0x38 0x36 0x43 0x45 0x44 0x0D 0x0A 0x03。

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