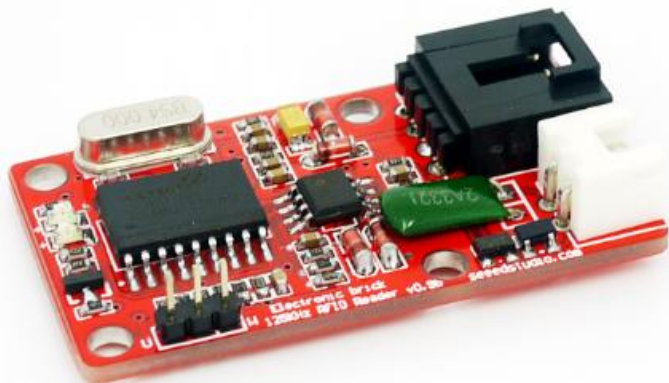# 125K RFID READER

Seeed 125K RFID reader is a module used to read uem4100 RFID card information with two output formats: Uart and Wiegand. It has high sensitivity with maximum 7cm sensing distance. The 4pins of Electronic Brick Interface make it be very easily used with Arduino or Seeeduino.

CONTENTS

FEATURES

- Selectable output format : Uart or Wiegand.
- 4Pins Electronic Brick Interface
- High Sensitivity

KEY SPECIFICATIONS

- Supply voltage: 5v
- Max sensing distance: 7cm
- Uart output: TTL output, 9600baudrate, 8 data bits, 1 stop bit, and no verify bit.
- Wiegand output: 26 bits wiegand format, 1 even verify bit, 24 data bits, and 1 odd verify bit;
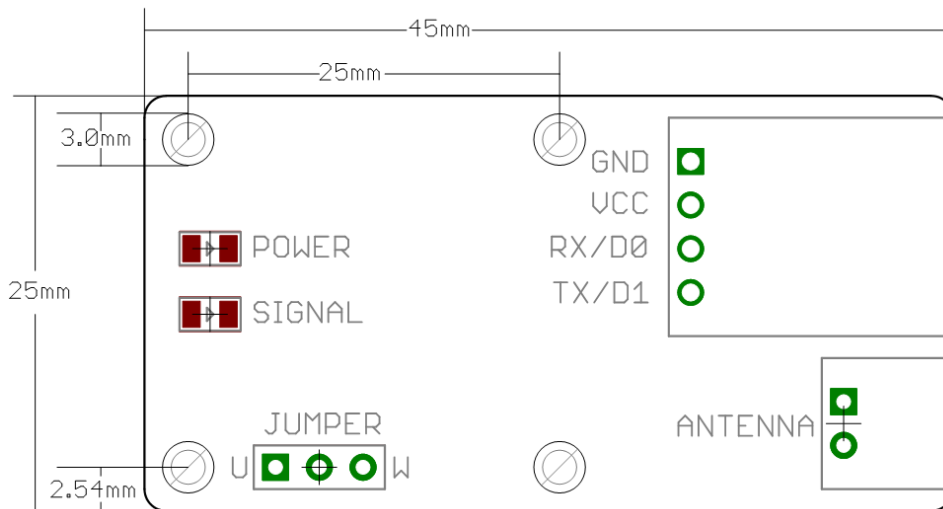
APPLICATIONS

- Internet of Thing
- Pet Toy
- Access Control System

LICENSING

BLOCK DIAGRAM

PIN DEFINITION AND RATING

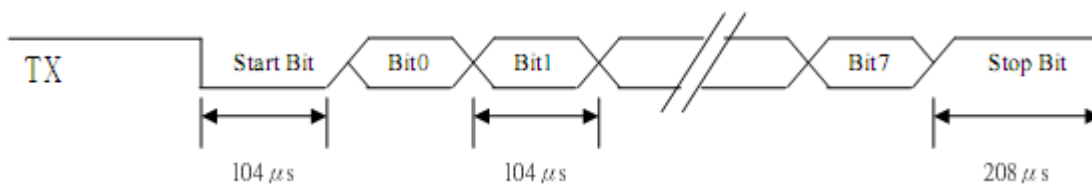| Pin Name	Function and Note	Rating
GND	Connect to the Host GND	-
VCC	Power supply	5v
RX/D0	RX- In Uart mode, it is unused	-
	D0-In Wiegand mode, it represents Data0	5v or 0v
TX/D1	TX- In Uart mode, it represents TX data	5v or 0v
	D1- In Wiegand mode, it represents Data1	5v or 0v

USAGE

UART MODE (JUMPER SET TO THE LEFT TWO PINS)
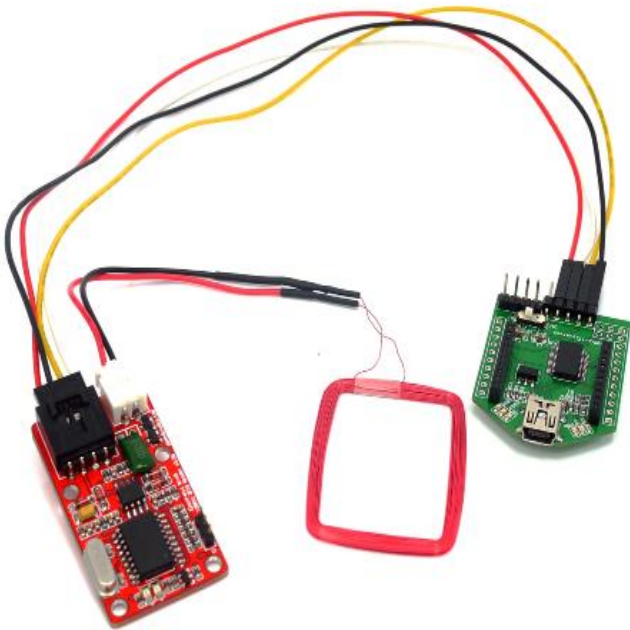
Set up: 9600bps, N, 8, 1, TTL output

Output Time sequence

Output Data Format:

0x02	10 ASCII Data Characters	Checksum	0x03

0x02 - 1 byte start flag
10 ASCII Data Characters – Card number info
Checksum - 2 bytes
0x03 - 1 byte end flag
Example:

Card number: 62E3086CED

Checksum:(62H)XOR(E3H)XOR(08H)XOR(6CH)XOR(EDH)=08H

Note: The 10 ASCII characters grouped as 5 hex data needs to be further processed as you may find that the 5 hex data is not equal to the number marked on the tags in Decimal. Actually the tag number is equal to the later

4 bytes in decimal. For example, the card number is 62E3086CED, the corresponding number marked on the tag should be 60717296877 which is the Decimal format of E3086CED.

WIEGAND MODE (JUMPER SET TO THE RIGHT TWO PINS)
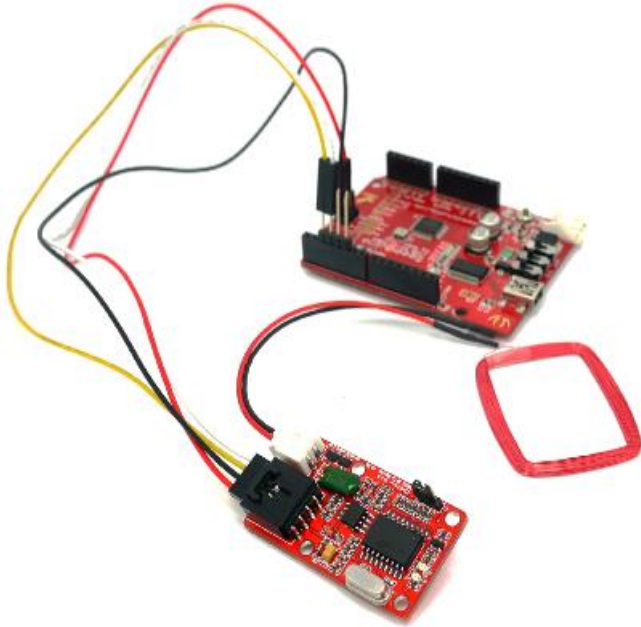
In Wiegand Mode, output data is formatted with 26bits including 24bits card info and 2 bits parity.

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
	PE												D													PO
		E												O												
		D2[7..0]								D1[7..0]								D0[7..0]							

- PE is even bit, PO is odd bit;
- E is the data bit which was involved in even, O is the data bit which was involved in odd;
- DX[7..0] is the data bit which correspond to Mifare@ Standard & Light card read only ID;
- Wiegand Format 26bits' output time sequence;
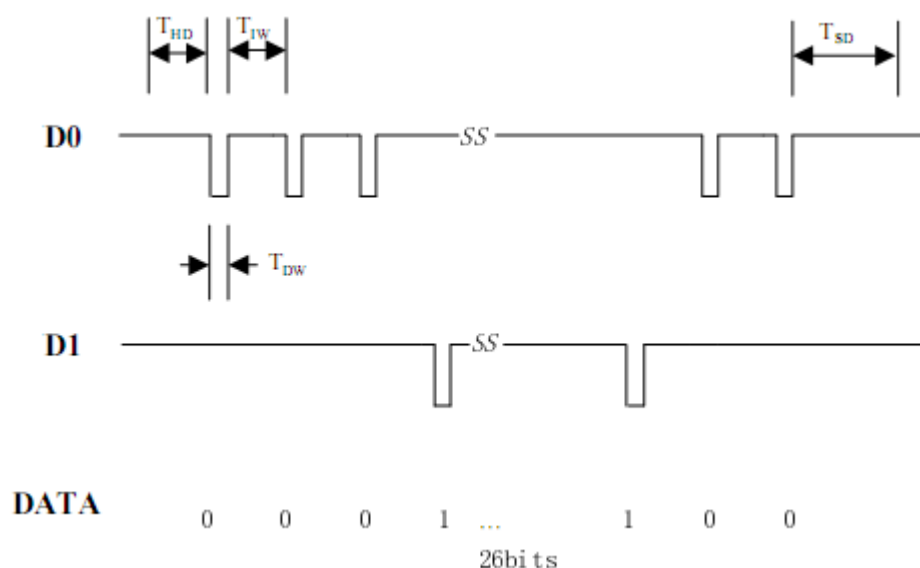
Notes:

Symbol	Specification	Representative value
THD	Sending Start Delay	1.2ms
TSD	Sending Stop Delay	1ms
TDW	Data pulse width	160μ s
TIW	Data pulse interval width	880μ s

Demo code:

The demo code for Arduino is designed to read Wiegand data in interrupt mode.

SUPPORT

Please refer to product page for latest documents and development resources, any product related issue could be inquired via info@seeedstudio.com

REVISION HISTORY

Rev.	Descriptions	Editor	Release date
V1.0	Intermediate version	KFJ	Sept 20, 2010
V1.01	More compact	Icing	Oct 11, 2010