



PROXIMITY MODULE

PIEM- FWAS-12V

Ver.13.1(20130402)

● Features

1. AM 125KHz contactless proximity reading module specially for EM cards,
2. Either Wiegand 26, ABA or ASCII format output selected by pin connection.
3. Read only for EM cards, and the data are sent by Data 0 and Data 1.
4. Lower cost with effective performance
5. Compact size



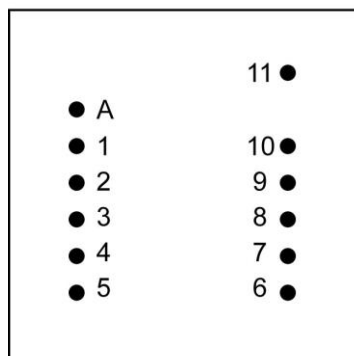
● Specification

Dimensions	26 (L) x 25 (W) x 7 (H) mm
Transmitting Frequency	AM 125 KHz
Card Format	EM 4102 or compatible
Read Range	Proximity card (T)0.8mm: 6cm
	Proximity card (T)1.8mm: 7cm
	Specific card: 11.5cm
Power Consumption	12VDC±10%
Standby Current	37mA ± 5%
Operating Current	38mA ± 5%
Encoding	Manchester 64-bit, modulus 64
Operating Temperature	-10℃ ~ 75℃
Storage Temperature	-10℃ ~ 85℃
Storage Humidity	5 ~ 95% RH
Net Weight	7g±5%

● Pin assignments

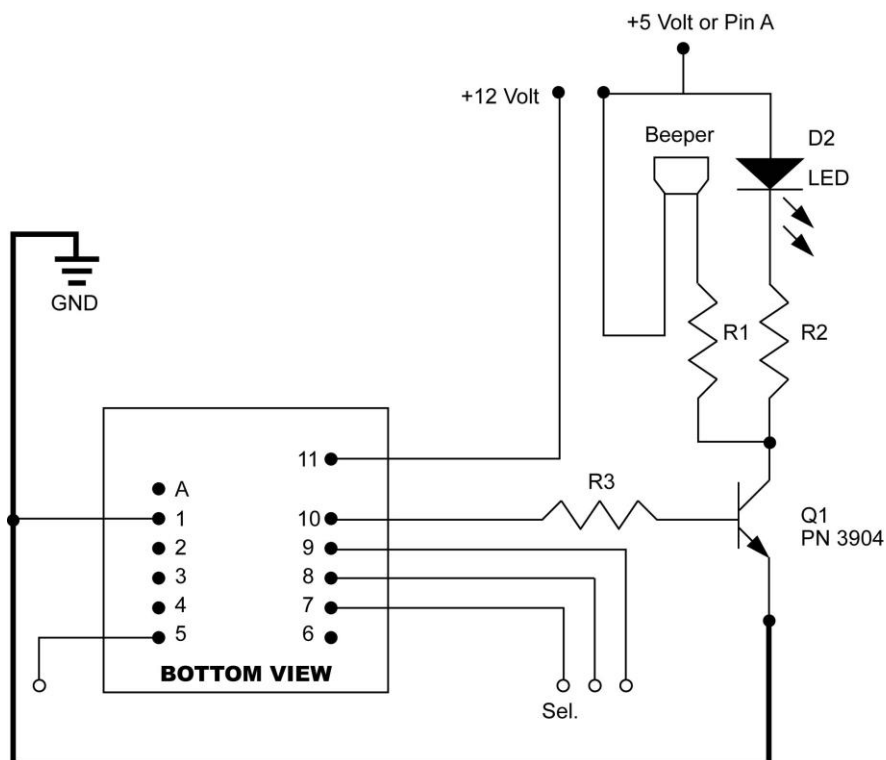
Pin No.	Description	Wiegand26	ABA	ASCII
Pin A	DC Voltage Output	+5V	+5V	+5V
Pin 1	Zero Volts and Tuning Capacitor Ground	GND 0V	GND 0V	GND 0V
Pin 2	Strap to +5V	N.C.	N.C.	N.C.
Pin 3	To External Antenna and Tuning Capacitor	Antenna	Antenna	Antenna
Pin 4	To External Antenna	Antenna	Antenna	Antenna
Pin 5	Card Present output	No function	Card Present output	No function
Pin 6	Future	Future	Future	Future
Pin 7	Format Selector(+/-)	Strap to Pin A	Strap to Pin 10	Strap to GND
Pin 8	Data 1	One Output*	Magstripe clock	CMOS
Pin 9	Data 0	Zero Output*	Data*	TTL(to IC UART)
Pin 10	3.1 kHz Logic	Beeper/LED	Beeper/LED	Beeper/LED
Pin 11	DC Voltage Supply	+12V	+12V	+12V

● Bottom view



- A. +5V**
1. GND
2. N.C.
3. ANT(Antenna)
4. ANT(Antenna)
5. Card present
6. N.C.
7. +/- (Format Selector)
8. Data 1
9. Data 0
10. LED(LED/Beeper)
11. +12V

● Circuit diagram



COMPONENT LIST

R1=100R
R2=1K
R3=1K
Beeper=2.7-3.5KHz 100R
D2=GREEN LED
Q1=PN3904

The 3.1KHz Beeper Logic is centered for most Beeper in range 2.7-3.5KHz

● Data formats

Output data structure-ASCII

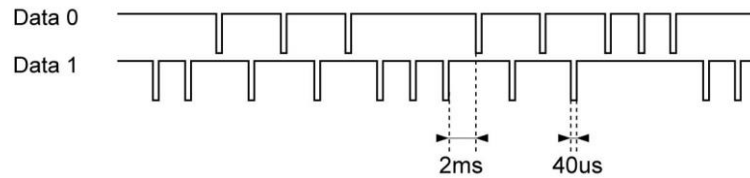
STX(02Hex)	DATA(10ASCII)	CHECK SUM(2 ASCII)	CR	LF	ETX(03Hex)
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The 1 byte (2 ASCII characters) Check sum is the "Exclusive OR" of the 5 hex bytes(10 ASCII)Data characters.

Output data structure-Wiegand26

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	26
P	E	E	E	E	E	E	E	E	E	E	E	E	O	O	O	O	O	O	O	O	O	O	O	O	P
Summed for even party(E)													Summed for Odd party(O)												

P=Parity start bit and stop bolt

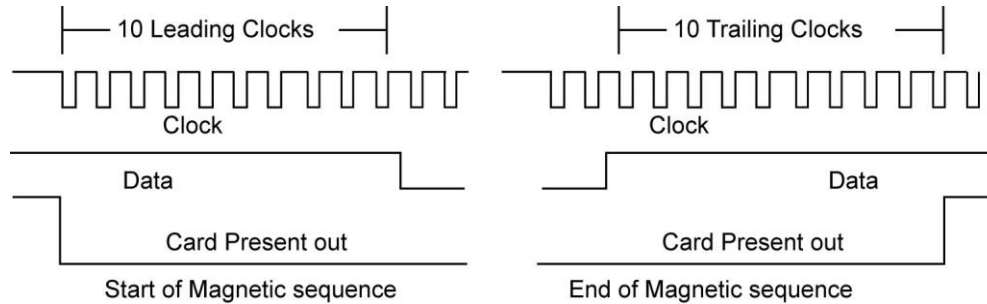


Output data structure-ABA Track2

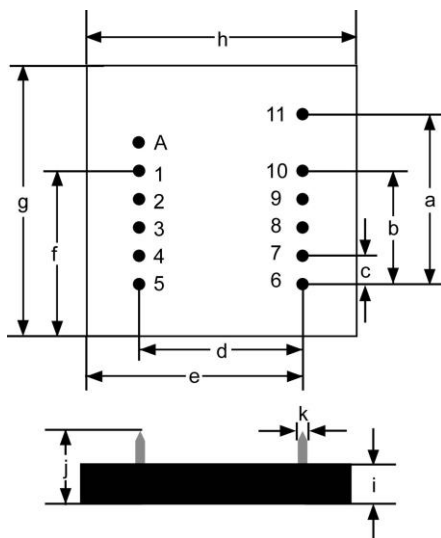
10 Leading Zeros	SS	Data(14 digits)	ES	LCR	10 Ending Zeros
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SS is the start character of 11010, ES is the end character of 11111, LRC is the longitudinal redundancy check.

Start and end sequences for magnetic timing

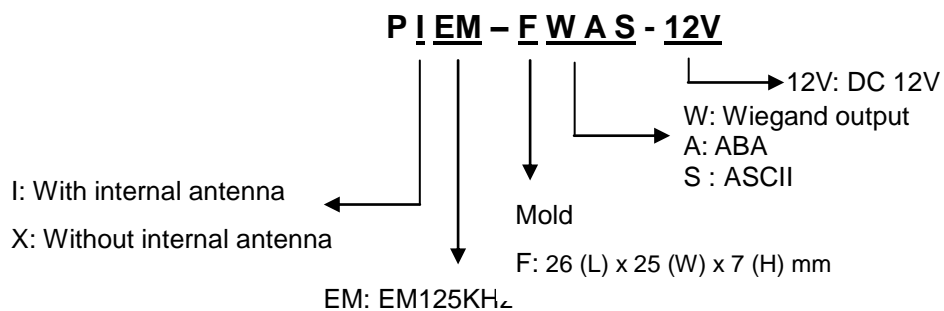


● Dimensions(unit: mm)



	Nom.	Min	Max.
a	12.0	11.6	12.4
b	8.0	7.6	8.4
c	2.0	1.8	2.2
d	15.0	14.6	15.4
e	20.3	19.8	20.9
f	16.3	15.8	16.9
g	26.4	26.1	27.1
h	25.3	24.9	25.9
i	6.0	5.8	6.6
j	9.9	9.40	10.5
k	0.66	0.62	0.67

● Ordering information



Specifications subject to change without notice for further modification.