



RFID 125KHz Dual Decoding Read Module RFID 125KHz ASK/FSK Read Module

PIEH-FWAS-14H22

Ver.23.1

● Introduction

The 125KHz proximity reading module equipped with the **ASK / FSK** dual decoding circuits to read the both EM & H.I.D. contactless cards or tags into ABA, Wiegand & UART formats. In this version, we output the Wiegand 26 bits or UART or ABA signal by external jumper selection. Additionally, we supported various module versions to answer different requirements, please refer to our products catalog.



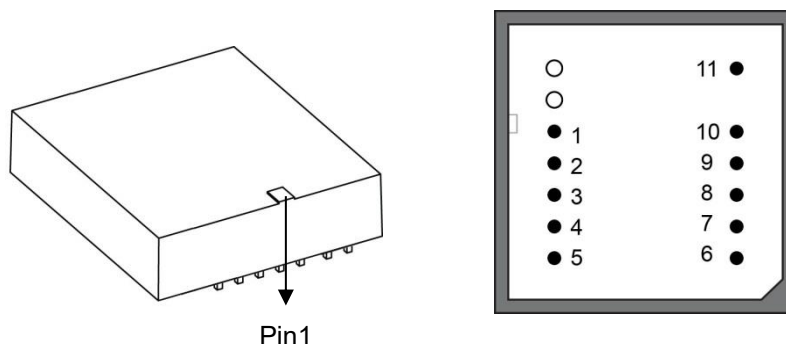
● Features

- 125KHz proximity dual decoding technologies reading for EM, TEMIC, H.I.D. cards at the same mode.
- Embedded with internal antenna or external bigger antenna at the same model.
- Epoxy potted for weather resistant with reliable quality.
- Compact size with high performance.
- Ease system design for access control, fingerprint, mobile handheld device etc.

● Specification

Type	EM	H.I.D.
Dimensions	26 (L) x 25 (W) x 7 (H) mm	
Net weight	7g ± 5%	
Enclosure material	ABS	
Card	EM 4001,EM 4102 or compatible / TEMIC 5557	H.I.D., TEMIC 5557
Operation frequency	125KHz, ASK	125KHz, FSK
Reading range	Proximity card (T)0.8mm: Max.6cm	Proximity card (T)1.8mm: Max.3cm
	Proximity card (T)1.8mm: Max.6cm	
	Specific card: Max.7cm	
Output format	Wiegand 26 bits or UART(9,600 bps , 8, N, 1) or ABA(14D)	
Power requirements	5VDC @ 30mA nominal	
Operating temperature	-10℃ ~ 75℃	
Storage temperature	-20℃ ~ 85℃	

● Bottom view



● Pin assignments

Pin No.	Description	Wiegand26	ABA	ASCII
Pin 1	Zero Volts and Tuning Capacitor Ground	GND 0V	GND 0V	GND 0V
Pin 2	Reset	No function	No function	No function
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 +5V	Strap to Pin 10	Strap to GND
Pin 8	Data 1	One Output*	Magstripe clock	Complementary output
Pin 9	Data 0	Zero Output*	Data*	UART
Pin 10	3.1 kHz Logic	Beeper/LED	Beeper/LED	Beeper/LED
Pin 11	DC Voltage Supply	+5V	+5V	+5V

※Complementary & TTL in ASCII output could support differential RS-485 interface.

● Data formats

UART output format

STX(02Hex)	CARD ID(10 ASCII)	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.

Wiegand 26 bits output format

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 parity(E)												Summed for Odd parity(O)													

P=Starts Even parity bit and stop Odd parity bit.

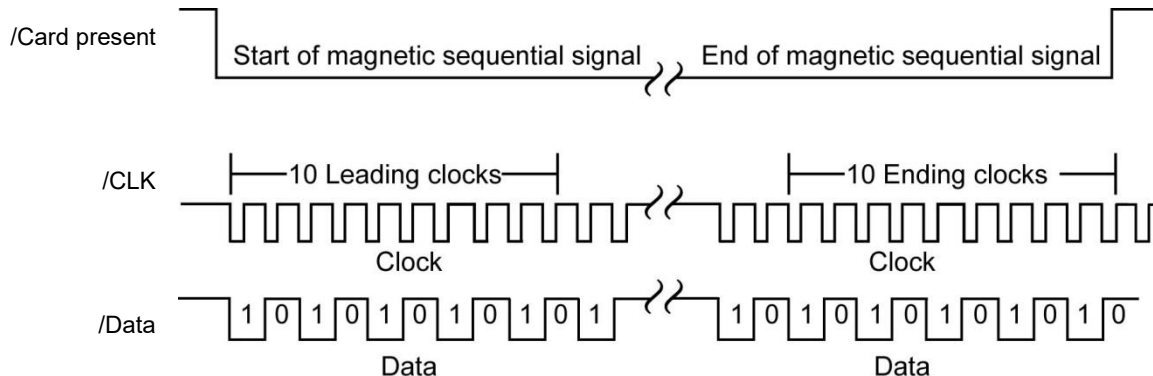
Even parity "E" is generated by summing bit b1 until b12; Odd parity "O" is generated by summing bit b13 until b24.

Magnetic stripe ABA Track2 output format

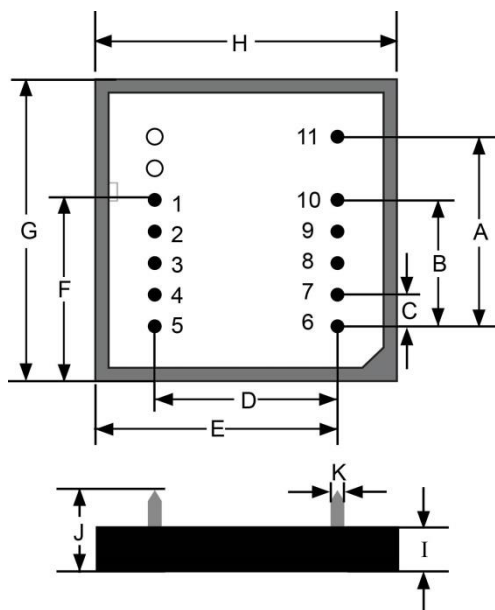
10 Leading Zeros	SS	CARD ID	ES	LRC	10 Ending Zeros
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SS is the start sentinel character of 11010, ES is the end character of 11111, LRC is the longitudinal redundancy check.

ABA Track2 timing graph:

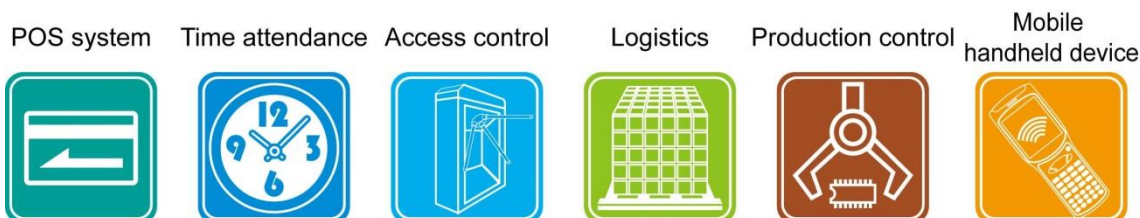


● Dimensions(Unit: mm)



	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

● Application fields



● **Ordering information**

PIEH-FWAS-14H22	: 125KHz EM(ASK) & H.I.D. (FSK) dual decoding reading module with format of Wiegand 26 bits, ABA(14D), UART(Hexadecimal, 10 digits, 9,600 bps), with internal antenna.
PXEH-FWAS-14H22	: 125KHz EM(ASK) & H.I.D. (FSK) dual decoding reading module with format of Wiegand 26 bits, ABA(14D), UART(Hexadecimal, 10 digits, 9,600 bps), without internal antenna.
PIEH-FWAS-24H22	: 125KHz EM(ASK) & H.I.D. (FSK) dual decoding reading module with format of Wiegand 34 bits, ABA(14D), UART(Hexadecimal, 10 digits, 9,600 bps), with internal antenna.
PXEH-FWAS-24H22	: 125KHz EM(ASK) & H.I.D. (FSK) dual decoding reading module with format of Wiegand 34 bits, ABA(14D), UART(Hexadecimal, 10 digits, 9,600 bps), without internal antenna.
PIEH-FWAS-14D22	: 125KHz EM(ASK) & H.I.D. (FSK) dual decoding reading module with format of Wiegand 26 bits, ABA(14D), UART(Decimalism, 10 digits, 9,600 bps), with internal antenna.
PXEH-FWAS-14D22	: 125KHz EM(ASK) & H.I.D. (FSK) dual decoding reading module with format of Wiegand 26 bits, ABA(14D), UART(Decimalism, 10 digits, 9,600 bps), without internal antenna.
PIEH-FWAS-24D22	: 125KHz EM(ASK) & H.I.D. (FSK) dual decoding reading module with format of Wiegand 34 bits, ABA(14D), UART(Decimalism, 10 digits, 9,600 bps), with internal antenna.
PXEH-FWAS-24D22	: 125KHz EM(ASK) & H.I.D. (FSK) dual decoding reading module with format of Wiegand 34 bits, ABA(14D), UART(Decimalism, 10 digits, 9,600 bps), without internal antenna.

Specifications subject to change without notice for further modification.