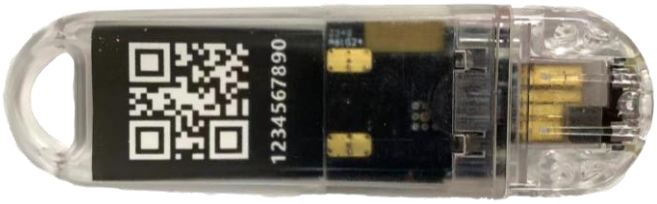
2.4G Active RFID Acousto-optic Tag With Light & Sound

1. About RFID

RFID(radio frequency identification)：Radio frequency identification. The automatic identification technology that utilizes radio frequency signals to achieve non-contact information transmission through spatial coupling (alternating magnetic field or electromagnetic field) and achieves identification purposes through the transmitted information. Conventional use in regional personnel positioning has significant advantages.

2. Product appearance



3. Product overview

PA61 USB sound and light tags can have multiple operating frequencies. 2.4GHz can recognize from a distance, making it more secure. The tag card spontaneously emits and provides feedback signals, which can be recognized by RFID remote readers without triggering.

4. Product Features

- ✓ Reading and writing speed: Compared with barcodes, it does not require straight line alignment for scanning, and has faster reading and writing speed. It can recognize multiple targets and motion.
- ✓ Security: Anti tampering, encryption algorithms and authentication ensure data security, prevent link eavesdropping and data cracking, more durable.
- ✓ Specialized chips, unique serial numbers, and difficult to replicate. Durable without mechanical failure, fully sealed structure resistant to harsh environments.
- ✓ Tag ID number: 10 bytes;
- ✓ Tag type: read-only;
- ✓ Usage duration: Large battery capacity, long service life;
- ✓ Waterproof grade: IP54；
- ✓ Reading distance: far reading distance;
- ✓ Anti duplication: Advanced anti-collision technology can simultaneously recognize more than 200 tags;
- ✓ High speed recognition: The maximum recognition speed can reach 60 kilometers per hour;
- ✓ High anti-interference ability: no special requirements for various interference sources on site;
- ✓ Anti electromagnetic interference: 10V/m0.1~1000MHz AM amplitude modulated

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electromagnetic waves;

✓ Installation method: Can be carried around or placed in a car;

5. Parameter specifications

Physical parameters	
Size	86mm×26mm×9.5mm
Material	ABS
Weight	18g
Environmental parameters	
Working humidity	<85%
Operation temperature	-15 ~ 55℃
Storage temperature	-20 ~60℃
Performance parameter	
Static current	<5uA
Working voltage	3.7V
Battery	2000mA
Working current	12mA (pulse mode)
Battery usage	5 months
Collision ability	>2000PCS
Reading method	Read-only nature
Transmission power	4dBm (factory setting)
Recognized distance	30 meters visible distance
Light search function	Yes (color adjustable)
Horn alarm function	have

Send data to tags (send text messages, send alarm instructions)

Data format: Character type

Length: indefinite

New field format (20 digits): Time, Light Color, Activation Style, Light Effect Style, Sound Effect Style The format is as follows T00003_000011_00_1_1 Time: 5 digits, range 00000 to 65535, unit: seconds	**Instruction Example** #SET_TAG_DATA 0002-2299999999 T 00030_100000_10_3_3 1 2 3 4 5 6 7 8 9 1# SET_TAG_daTA instruction name 2. 0002 Write Label Command 3. 2299999999 label number 4. T Function Identification 5. The reminder time for 00030 is 30 seconds, with a value range of 00003~65535 6. 100000 lights, 3 primary colors RGB, with a value range of 000000~FFFFFF, Black 000000 White FFFFFF Red FF0000 Green 0OFF00 Blue 0000FF 7. 10 switch sensing sensitivity, with a value range of 00~1F, 00 is most sensitive, 1F is least sensitive 8. 3 The range of lighting styles is 0~F, 0 is none, 1 is long on, 2 is single on, and 3~F is strobe 9. 3 sound styles with a range of 0~F, 0 without 1 long sound, 2 single sound, 3~F frequency response

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Light color: 6-digit, RGB range 000000~FFFFFF Activation style: 2 digits, sensing threshold 00~1F/dismantling alarm 00 off 01 on Lamp effect style: 1 digit, 0 without 1 length, 2 single flashes, 3 to F flicker Sound effect style: 1 digit, 0 without 1 length, 2 single flashes, 3 to F strobe	

Example: # SET_TAG_DATA 0002-1230000001 10003 T00020_001100_10_4_4

T00020_001100_10_4_4 Green light buzzing

T00020_110000_10_4_4 Red light buzzing

T00020_000011_10_4_4 Blue light buzzing

T00020_111111_10_4_4 White light buzzing

T00020_111100_10_4_4 Yellow light buzzing

T00020_110011_10_4_4 Purple light buzzing

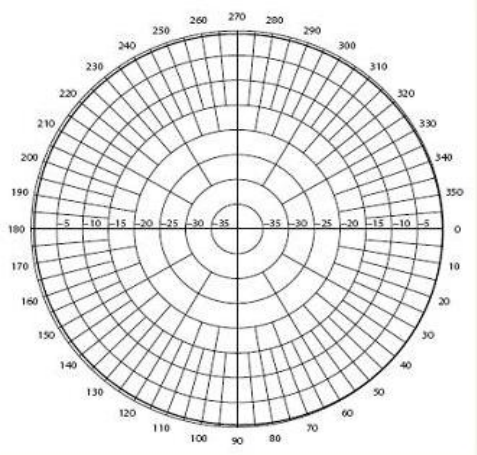
T00020_ 000000_10_4_4 Buzzing without flashing lights

000000_000000_10_4_4 Stop Alarm

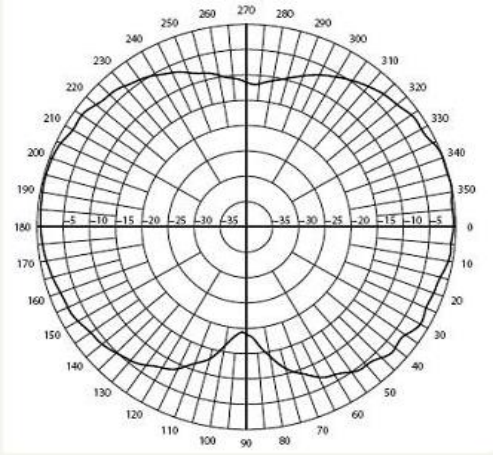
1230000001 represents card number, 20 represents time alarm for 20 seconds

6. Antenna far-field pattern

Horizontal plane directional diagram



Vertical pattern



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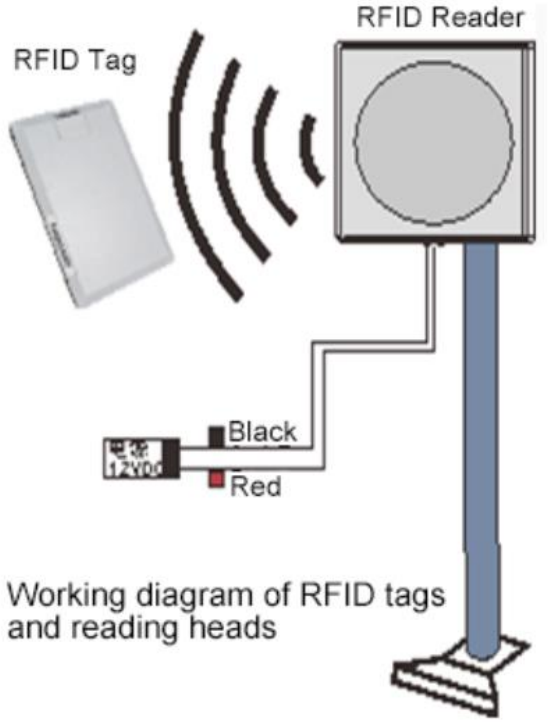
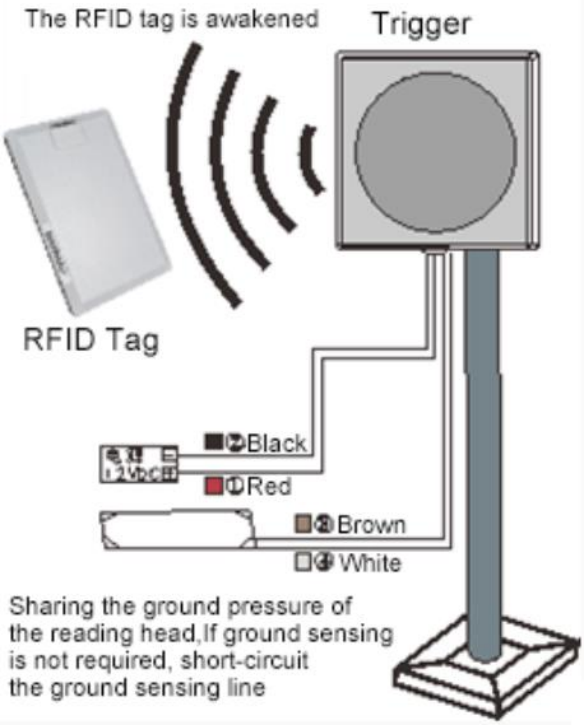
7. Work diagram

Schematic diagram of active tag operation:



Schematic diagram of semi-active electronic tag operation



8. Definition of data format sent back by the card reader

Definition of Data Packet:

(1) Packet format (40 characters in total)

name	Head logo	Equipment number	Equipment date and time	Tag number	Sign position	Flag data	checksum
describe	#	hexadecimal	decimalism	decimalism	arbitrary	hexadecimal	*
Number of characters	1	8	12	10	1	6	2

(2) Detailed Introduction to Data Packages

No.	Definition	Describe
1	Head logo	'#'
2	Equipment ID7(H)	The content format of the lower 4 bits (H) of the checksum is hexadecimal character format The device type, device number, or site number can be modified by oneself (by entering the device management page, modifications can be made) (This data refers to the device number of the card reader, not the wristband number)
3	Equipment ID6(H)	
4	Equipment ID5(H)	
5	Equipment ID4(H)	
6	Equipment ID3(H)	
7	Equipment ID2(H)	
8	Equipment ID1(H)	
9	Equipment ID0(H)	

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10	Annual high (D)	Content format: Decimal character format time Year Month Day Hour Minute Second
11	Annual low (D)	
12	Monthly high (D)	
13	Monthly low (D)	
14	Daily high (D)	
15	Daily low (D)	
16	Time high position (D)	
17	Time low position (D)	
18	Time low position (D)	
19	Split low (D)	
20	Second high position (D)	
21	Second low position (D)	
22	10th digit of card number (D)	Card number Content format: Decimal character format 2.4G card number for wristband
23	9th digit of card number (D)	
24	8th digit of card number (D)	
25	7th digit of card number (D)	
26	6th digit of card number (D)	
27	5th digit of card number (D)	
28	4th digit of card number (D)	
29	3th digit of card number (D)	
30	Second digit of card number (D)	
31	First digit of card number (D)	
32	Function indicator position(C)	Content format: Any character, uppercase symbol indicates normal battery level, lowercase symbol indicates low battery level A/a： Positioning function, tag data 1 represents the low-frequency positioning address code collected by the tag, B/b： Remove the alarm function S/s： Alarm function, label data 1 value of 01 indicates distress alarm, 02 indicates acceleration alarm H/s： Heart rate function, labeled data 1 represents the heart rate collected by the tag, and data 2 represents the blood oxygen value. (The highlighted part is not applicable to this product)
33	Label Data 1	
34		
35	Label Data 2	
36		
37	Label Data 3	RSSI signal strength value, with high half bytes 0-F indicating signal strength, ultra small values indicating strong signals, and low half bytes 1-4 indicating corresponding channel numbers
38		
39	The high 4 digits of the checksum (H)	Content format: Hexadecimal character format Check the sum byte, add up the hexadecimal values of the first 38 characters, and add the checksum value here. The merged sum byte value is zero
40	The lower 4 bits of the checksum (H)	

(3) Verification and Example:

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For example: # 0000000115041808080900220465 18E9900007D

Based on the above example, the verification method for the checksum is as follows:

Serial Number	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	32	32	33	34	35	36	37	38	39	40
character	#	0	0	0	0	0	0	0	1	1	5	0	4	1	8	0	8	0	8	0	9	0	0	2	2	0	4	6	5	1	8	E	9	9	0	0	0	0	7	D
16radix	23	30	30	30	30	30	30	30	31	31	35	30	34	31	38	30	38	30	38	30	39	30	30	32	32	30	34	36	35	31	38	45	39	39	30	30	30	30	7D	
Calculation method	Checksum calculation: The sum of all hexadecimal values, with zero value for non bytes 23+30+30+30+30+30+30+30+31+31+35+30+34+31+38+30+38+30+38+30+39+30+30+32+32+30+34+36+35+31+38+45+39+39+30+30+30+30+7 D=800(The final byte of the merged value is 0)																																							

9. Precautions

- ✓ Do not put it into fire or store it in a high temperature environment exceeding 85 degrees Celsius for use!
- ✓ Do not use sharp objects to damage.
- ✓ Do not place it near corrosive objects.
- ✓ Do not arbitrarily change the parameters, specifications, and models of components during maintenance.
- ✓ Do not place the label in a confined space.
- ✓ Do not forcefully and violently collide with the label.
- ✓ Do not use heavy objects or immense force to squeeze the label.

10. Application Fields

- ✓ Personnel positioning in the case handling area
- ✓ Positioning of nursing home staff
- ✓ Building and community one card system
- ✓ Prison card or regional personnel positioning
- ✓ Construction personnel positioning
- ✓ Personnel access management
- ✓ Attendance management for school students and teachers
- ✓ Automatic identification personnel management system

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