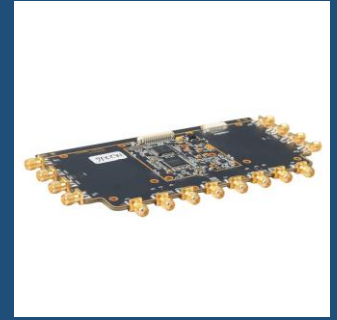# UHF RFID MODULE
M2216

M2216 is a high-performance ultra-high frequency read-write module with 16 antennas for high-speed polling. It can be individually configured for power and time to meet different coverage requirements. The maximum output power of the module can reach+30dBm, coupled with an 8dBi gain antenna, the reading distance can reach 20m, and a tag recognition rate greater than 800tags/s can be achieved.

The M2216 module is a sixteen channel ultra-high frequency read-write module designed based on the IMPINJ second-generation RF chip R2000, specifically designed for high-performance RFID application environments.

After extensive testing and continuous operation for 180 days, the stability and reliability of M2216 fully meet its usage requirements. Equipped with sixteen SMA female antenna interfaces, it provides a standardized SDK development kit with rich functions, allowing users to develop according to project requirements in a short period of time.

The M2216 module is suitable for applications such as warehousing, logistics, clothing, and production line management that require high and more challenging RFID intensive reading performance.

Product advantages

- Using IMPINJ R2000 RF chip, the receiving sensitivity can reach -82dBm, which is more suitable for harsh application environments than traditional readers and writers;
- Excellent performance, coupled with an 8dBi gain antenna, can read a single tag distance of over 20m;
- Excellent multi tag dense reading performance, capable of achieving tag recognition rates greater than 800 tags/s;
- Provide comprehensive software development kits (SDKs) and interfaces (APIs) that are easy to integrate with software;
- Adopting integrated RF chips, the module has stable performance and is also suitable for harsh high demand application environments;
- Using carrier cancellation technology, the accuracy and range of tag reading are good;
- Providing sixteen antenna interfaces, users can achieve excellent reading performance with fewer device deployments, saving costs;
- Enhanced noise suppression function for reliable data capture;
- High precision return signal strength (RSSI);
- Adopting ultra-high isolation technology to perfectly solve the problem of serial reading between ports.
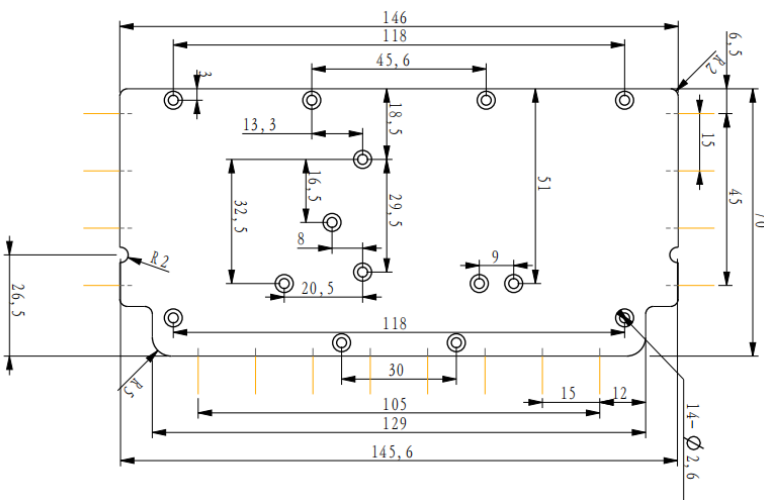
Product Technical Parameters

Name	Parameters	Note
Sensor	Impinj R2000	
Air Interface Protocol	EPC global UHF Class 1 Gen 2/ISO 18000-6C	
Working frequency	840 ~ 960MHz （Default frequency band 920 ~ 925MHz)	
support area	China, Europe, United States, South Korea, Japan, Taiwan……	
working voltage	DC3.0-6.0V	dc power
Peak operating current	1.5A	5V power supply, tested at 30dBm transmission power
Standby current	≤50mA	Test under 5V power supply
Sleep current	≤1mA	Test under 5V power supply
Maximum output power of RF port	1W(30dBm)	
Work Temperature	-25℃ ~ +65℃	
Working humidity	≤95%（+25℃)	
storage temperature	-30℃ ~ +70℃	
Maximum receiving sensitivity	-82dBm	
Antenna interface impedance	50Ω	
Serial communication parameters	Baud rate adjustable (default 115200bps), parity bit: none, data bit: 8, stop bit: 1	
Power output setting	5-30dBm adjustable/adjustable minimum interval is 1dBm (default 30dBm)	
DRM mode	Support	
RSSI	Support	
High temperature automatic protection function	Support	
Power Enable	Support	
GPIO Interface	Support	
antenna interface	16 SMA female heads	The default working antenna for M2216 is antenna 1, and the antenna parameters can be configured: working antenna, working time, interval time, etc.
FPC interface	10PIN/1.0mm/top connection	
SIZE	165.4*79.6*6.5MM	Aluminum alloy heat dissipation shell

Product interface definition

PIN	NAME	PIN
1	+5V	DC power supply, input voltage of 5.0V, maximum operating current of M2216 is 1.5A, so sufficient power supply current should be considered when designing the circuit
2	+5V	DC power supply, input voltage of 5.0V, maximum operating current of M2216 is 1.5A, so sufficient power supply current should be considered when designing the circuit
3	GND	GND
4	GND	GND
5	PEN	Module power enable, this pin defaults to high level. When an external low level (0V) is connected, the M2216 module enters sleep mode
6	GIO1	reserved
7	GIO2	reserved
8	GIO3	reserved
9	RXD	Serial interface reception, TTL level, low level is 0V, high level is 3.3V~5.0V
10	TXD	Serial interface transmission, TTL level, low level is 0V, high level is 3.3V

Note: 10PIN connector, with a spacing of 1.0mm, top up type.

Product size

Product interface definition

PIN	NAME	PIN1
1	GND	GND
2	GND	GND
3	+5V	DC power supply, input voltage of 5.0V, maximum operating current of M2216 is 1.5A, so sufficient power supply current should be considered when designing the circuit
4	+5V	DC power supply, input voltage of 5.0V, maximum operating current of M2216 is 1.5A, so sufficient power supply current should be considered when designing the circuit
5	GIO3	reserved
6	GIO4	reserved
7	GIO1	reserved
8	BZ	reserved
9	RXD	Serial interface reception, TTL level, low level is 0V, high level is 3.3V~5.0V
10	TXD	Serial interface transmission, TTL level, low level is 0V, high level is 3.3V
11	USB-DM	reserved
12	USB-DP	reserved
13	GIO2	reserved
14	PEN	Module power enable, this pin defaults to high level. When an external low level (0V) is connected, the M2216 module enters sleep mode
15	GIO5	reserved