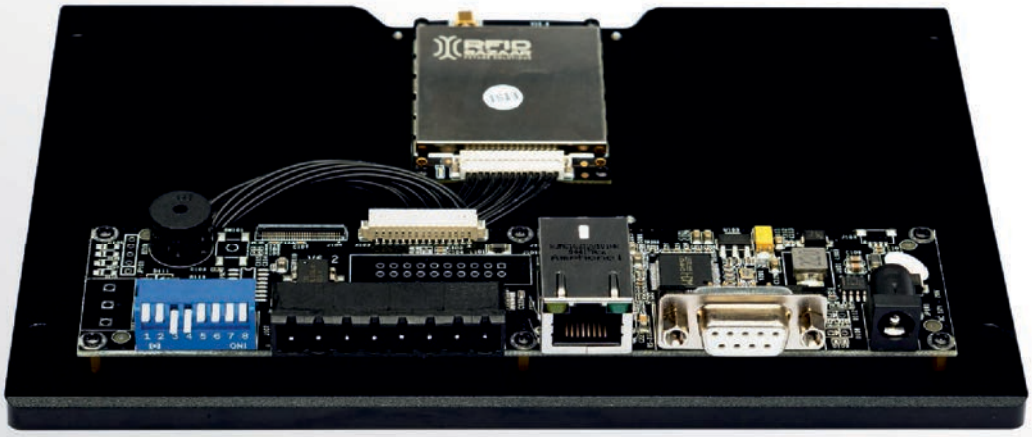
HD5

UHF Fixed RFID Reader



INDY R2000

1. Product View

Product View	
Module Type	HD5
Real Photo	
RF Channel	Single Channel
RF Connector	MMCX
Antenna Connection Mode	Single Antenna
Interface Connector	FH34SR -30S-0.5SH 50
RF Connectors Material	Gold-plated brass
PCB Material	Rogers FR4 gold-plated
Shield Material	Aluminum

2. PIN Connector PinAssignments

PIN Connector PinAssignments

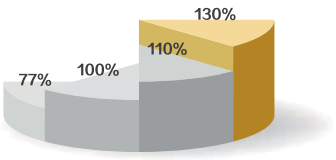
FPC connector (30Pin , Space between PINs 0.5mm)

PIN	Interface	Description
1	GND	GROUNDING
2	GND	
3	GND	
4	GND	
5	GND	
6	3.9V–5.5V DC	Meanwhile connect power, Recommended input voltage: 4.6V
7	3.9V–5.5V DC	
8	3.9V–5.5V DC	
9	3.9V–5.5V DC	
10	3.9V–5.5V DC	
11	3.9V–5.5V DC	
12	3.9V–5.5V DC	
13	3.9V–5.5V DC	
14	3.9V–5.5V DC	
15	3.9V–5.5V DC	
16	GND	GROUNDING
17	GND	
18	GND	
19	GND	
20	GND	
21	UART_RXD	TTL Level
22	UART_TXD	
23	EN	High Level Enable
24	GPIO1	INPUT
25	Beeper	DRIVEN WITH CURRENT> 50mA
26	GPIO3	OUTPUT
27	GPIO4	OUTPUT
28	GPIO5	RS-485 Directional Control
29	GND	GROUNDING
30	GND	

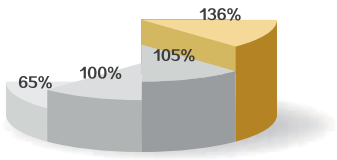
3. Key Features

	Feature	Descriptions
1	Impinj R2000 Built-in	• Impinj Indy R2000 chip as RF transceiver.
2	Anti-collision Algorithm	• Unique I - Search multi-tag identification algorithm providing the highest efficiency.
3	Optimized Algorithm for Tags with Small Volume	• Optimized applications for reading small volume tagswith better respond time.
4	Dual CPU Architecture	• Main CPU: tag inventory; Assistant CPU: data management. • Tag inventory and data transfer are parallel and simultaneous.
5	Fast Antenna Switch Inventory (For ROK300 and ROK500)	• Every antenna's inventory duration is configurable(Minimum duration: 30 ms). • Polling from ANT 1 to the last antenna.
6	Two Modes for Inventory	• Buffer mode and Real-time mode. • Tags will be stored as buffer under buffer mode. • Tags will send data under real-time mode. This mode allows user to get tag data instantly.
7	Hardware System Halt Detection	• Hardware CPU status surveillance. • Run for 24hours X 365 days without systemhalt.
8	PA Health Surveillance	• PA status surveillance. • Make sure PA never works under saturated state. Protect it for long term operation.
9	18000-6B/6C Full Compatible	• It can be switched rapidly between 18000-6B and 18000-6C tag.
10	18000-6B Large Data Read/Write	• Read 216 bytes in one time takes less than 500ms. • Write 216 bytes in one time takes less than 3.5 seconds. • It can read/write data with different lengths.
11	Antenna Connection Detection	• Detect antenna connection status. • Protective for RF receiver. • It can be canceledby command.
12	Temperature Sensor	• Multi-point surveillance for accurate operating systemtemperature.
13	Power Output Correction	• Dual modules making sure output power can be finely adjusted. • Dual modules working and keeping correction unless they are both damaged.
14	Excellent CoolingDesign	• Heat dissipation and large cooling surface design. • Thermal coupling interfaces using high-thermal conductivity solid materials which ensure stable performance under high temperature.

4. Anti-Collision Algorithm Comparison



100 Tags



200 Tags

Notes: 1.) The test is on same hardware platform in real applications (Taking Impinj dynamic Q algorithm as the reference which is marked with 100%).

2.) The chart shows the comparison for the first round inventory performance.

3.) It is tested on the same hardware platform.

Algorithm	Description
Standard fixed Q algorithm	• Standard 18000-6C algorithm. • The performance is reduced significantly when tag quantity gets larger. • The efficiency is not high when tag quantity is small.
Impinj dynamic Q algorithm	• The algorithm of Impinj. • It has a good efficiency for various tag quantities. • It sacrifices some performance for the sake of compatibility.
I–Search dynamic Q algorithm V1.0	• Based on Impinj dynamic Q algorithm. • The performance is optimized. • It's the algorithm for firmware version 6.6 or below.
I–Search dynamic Q algorithm V2.0	• Based on Impinj dynamic Q algorithm. • It's a brand new data structure, the performance of which is significantly improved for firmware version 6.7 or above. • The improvement of performance can be easily sensed after the first round of inventory especially when the tag volume increases.

5. Electrical Characteristics

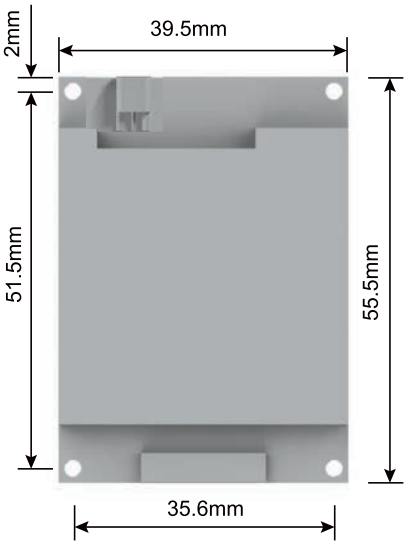
Electrical Characteristics	
Operating Voltage	3.9V – 5.5V
Standby Mode Current	50mA (EN high level)
Sleep Mode Current	<100uA (EN high level)
Max Operating Current	1.2A~2A (Group read labels , Number of labels > 300pcs)
Operating Temperature	-20°C ~ +65°C
Storage Temperature	-40°C ~ +85°C
Humidity	5%RH - 95%RH (non -condensing)
Air Interface Protocol	EPCglobal UHF Class 1 Gen 2 / ISO 18000-6C ISO 18000-6B
Spectrum Range	902~928MHz , 865~868MHz Optional
Supported Regions	US, Canada and other regions following U.S. FCC Europe and other regions following ETSI EN 302 208 China , Korea , Malaysia
Output Power	3 – 33dBm
Output Power Precision	+/- 1dB
Output Power Flatness	+/- 0.2dB
Receive Sensitivity	< -85 dBm
Peak Inventory Speed	> 700 tags/sec
Tag Buffer Capacity	1000 tags @ 96 bit EPC
Tag RSSI	Supported
Antenna Detector	Supported
Ambient Temp Monitor	Supported
Working Mode	Single/DRM
Host Communication	Uart 3.3V
GPIO	2 inputs & 2 outputs
Max Baud Rate	115200 bps(Default and recommended), 38400 bps
Heat Dissipation	External radiator

Note

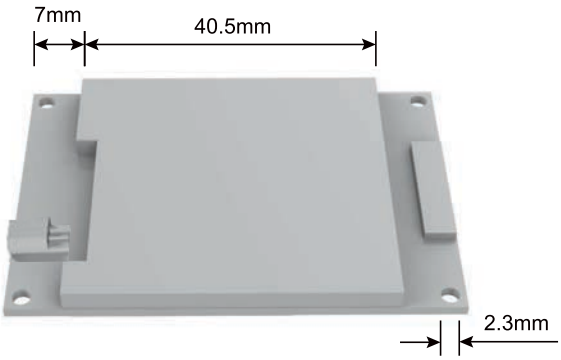
- When the temperature, measured by the ambient temperature measurement function, exceeds 60°C, please do not keep the device working at full capacity.
- Please connect the device to heat sink when it continuously work at full load.
- Supply voltage must not exceed 5V, otherwise it will damage the internal protection circuit.
- Be cautious if set RF output power over 30dBm, as the peak current and internal temperature will increase significantly.

6. Product Dimensions

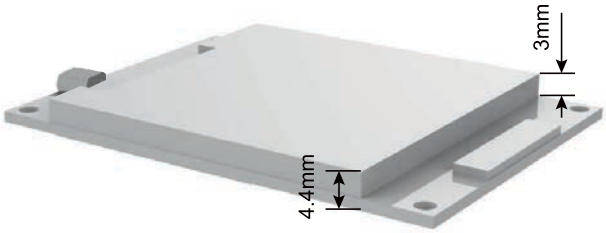
HD5 Structure Dimensions



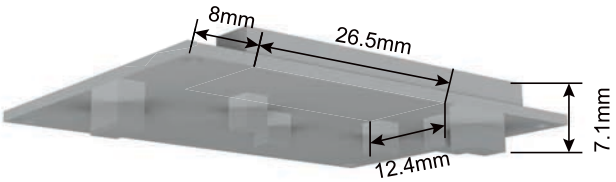
Contour and hole location



Mounting hole diameter and shield location



Highest point and lowest point



Radiator mounting location