

# S-8800

8-Port UHF RFID Reader



## 1. Key Features

|    | Feature  | Descriptions  |
|----|--|---|
| 1  | Impinj R2000 Built-in                          | <ul style="list-style-type: none"> <li>• Impinj Indy R2000 chip as RF transceiver.</li> </ul>   |
| 2  | Anti-collision Algorithm                       | <ul style="list-style-type: none"> <li>• Unique I - Search multi-tag identification algorithm providing the highest efficiency.</li> </ul>  |
| 3  | Optimized Algorithm for Tags with Small Volume | <ul style="list-style-type: none"> <li>• Optimized applications for small volume with better tags respond time.</li> </ul>  |
| 4  | Dual CPU Architecture                          | <ul style="list-style-type: none"> <li>• Main CPU: tag inventory; Assistant CPU: data management.</li> <li>• Tag inventory and data transfer are parallel and simultaneous.</li> </ul>  |
| 5  | Fast 8-Antenna Switch Inventory                | <ul style="list-style-type: none"> <li>• Every antenna' s inventory duration is configurable( Minimum Duration: 30 ms).</li> <li>• Polling from ANT 1 to ANT 4.</li> </ul>  |
| 6  | Two Modes for Inventory                        | <ul style="list-style-type: none"> <li>• Buffer mode and Real-time mode.</li> <li>• Tags will be stored as buffer under buffer mode.</li> <li>• Tags will send data under real-time mode. This mode allows user to get tag data instantly.</li> </ul> |
| 7  | Hardware System Halt Detection                 | <ul style="list-style-type: none"> <li>• Hardware CPU status surveillance.</li> <li>• Run for 24hours X 365 days without system halt.</li> </ul>  |
| 8  | PA Health Surveillance                         | <ul style="list-style-type: none"> <li>• PA status surveillance.</li> <li>• Make sure PA never works under saturated state. Protected it for long term operation.</li> </ul>  |
| 9  | 18000-6B/6C Full Compatible                    | <ul style="list-style-type: none"> <li>• It can be switched rapidly between 18000-6B and 18000-6C tag.</li> </ul>   |
| 10 | 18000-6B Large Data Read/Write                 | <ul style="list-style-type: none"> <li>• Read 216 bytes in one time taking less than 500ms.</li> <li>• Write 216 bytes in one time taking less than 3.5 seconds.</li> <li>• It can read/write data with different lengths.</li> </ul>                 |
| 11 | Antenna Connection Detection                   | <ul style="list-style-type: none"> <li>• Detect antenna connection.</li> <li>• Protective for RF receiver.</li> <li>• It can be canceled with command.</li> </ul>   |
| 12 | Temperature Sensor                             | <ul style="list-style-type: none"> <li>• Multi-point surveillance for accurate operating system temperature.</li> </ul>   |
| 13 | Power Output Correction                        | <ul style="list-style-type: none"> <li>• Dual modules making sure output power can be fine adjusted.</li> <li>• Dual modules working and keeping correction unless they are both damaged.</li> </ul>  |
| 14 | Excellent Cooling Design                       | <ul style="list-style-type: none"> <li>• Heat dissipation and large cooling surface design.</li> <li>• Thermal coupling interfaces using high-thermal conductivity solid materials which ensure stable performance under high temperature.</li> </ul> |

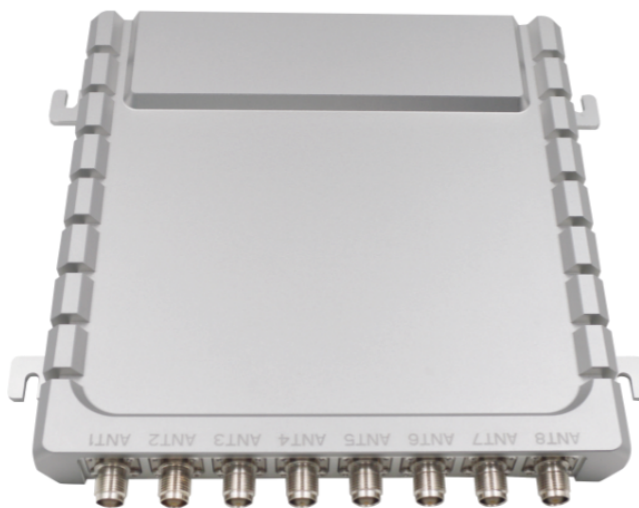
## 2. Product View



S-8800 rear view



S-8800 front view



S-8800 top view

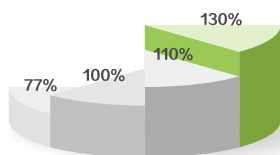
### 3. Electrical Parameters

| Electrical Parameters  |  |
|------------------------|--|
| Dimension              | S-8800 : 198(L)*198(W)*26(H)mm   |
| Weight                 | S-8800 : 1.3kg   |
| Body Material          | Die-cast aluminum  |
| Input Voltage          | DC 12V ~ 18V   |
| Standby Mode Current   | <80mA  |
| Sleep Mode Current     | <100uA   |
| Max Operating Current  | 700mA +/-5% @ DC 12V Input   |
| Operating Temperature  | - 20 °C ~ + 85 °C  |
| Storage Temperature    | - 20 °C ~ + 85 °C  |
| Humidity               | 5%RH - 95%RH (non -condensing)   |
| Interface Protocol     | EPC global UHF Class 1 Gen 2 / ISO 18000-6C / ISO 18000-6B   |
| Spectrum Range         | 902MHz – 928MHz , 865MHz – 868MHz <span>Optional✓</span>   |
| Supported Regions      | US, Canada and other regions following U.S. FCC<br>Europe and other regions following ETSI EN 302 208<br>Mainland China, Taiwan, Korea, Malaysia |
| Output Power           | 0 – 33dBm  |
| RF Connector           | TNC/RP-TNC   |
| 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     | RS-232 or TCP/IP   |
| GPIO                   | 2 input optical coupling & 2 output coupling   |
| Baud Rate              | 115200 bps/38400bps  |
| Heat Dissipation       | Air cooling  |

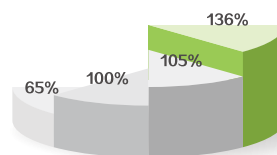
## 1. Advantages

- > Unique I-Search multi-tag identification algorithm
- > Based on high performance Impinj Indy R2000 chip
- > 18000-6B/C compatible, flexibly switch between protocols
- > Cast aluminum body, ensuring better heat dissipation
- > CPU status monitored by hardware.  
Running for 24hours \* 365 days without system halt

## 2. Anti-Collision Algorithm Comparison



100 Tags

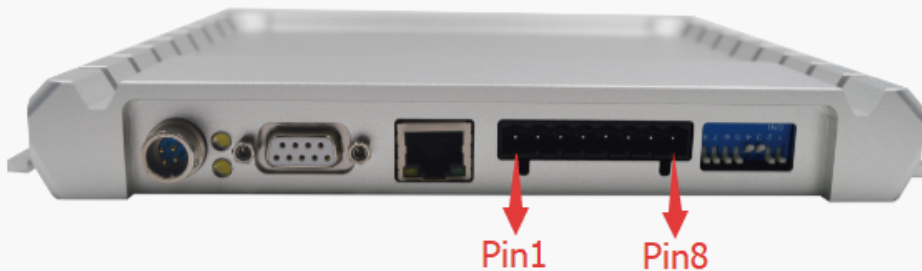


200 Tags

| 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. PIN Assignments

**PIN Assignments**



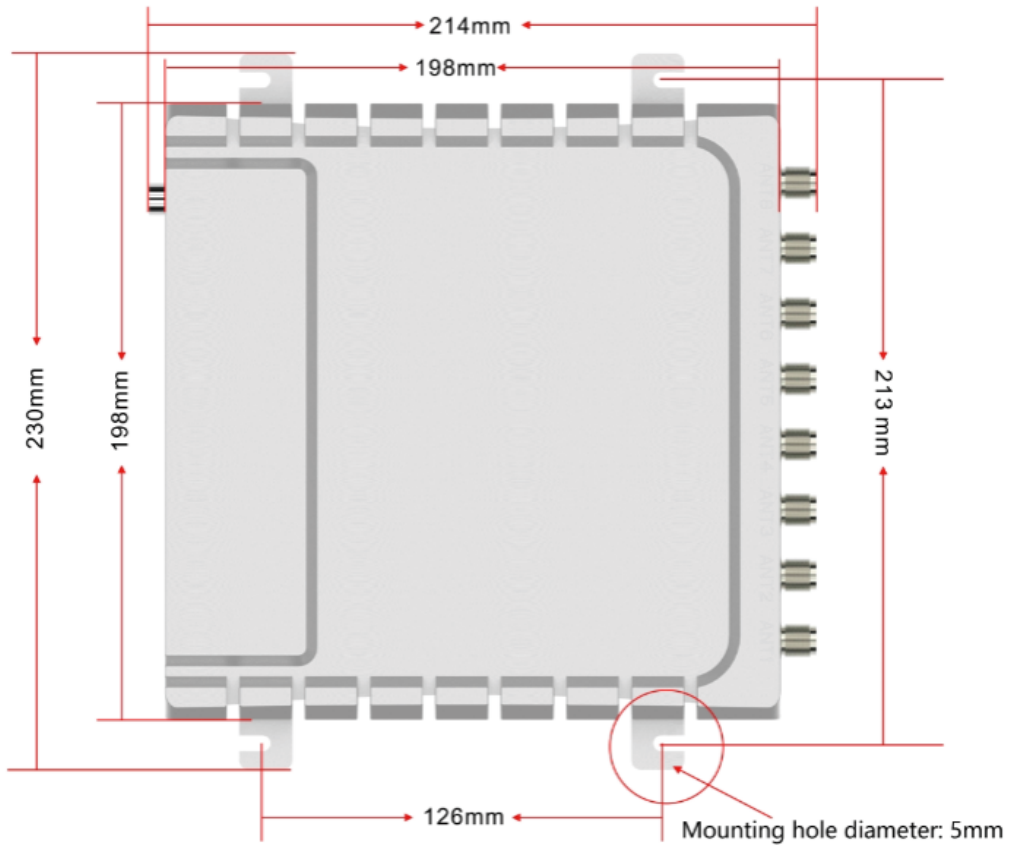
| PIN ID | Function       | Equivalent Circuit | Instructions   |
|--------|----------------|--------------------|--|
| PIN 1  | GPIO 1 Input + |                    | <ul style="list-style-type: none"> <li>Voltage between PIN 1,2 (PIN 3,4) <math>\leq 12V</math></li> <li>Hetero polarity</li> <li>LED equivalent resistance <math>470\Omega</math></li> <li>Response time <math>\leq 150\mu s</math></li> </ul> |
| PIN 2  | GPIO 1 Input - |                    |  |
| PIN 3  | GPIO 2 Input + |                    |  |
| PIN 4  | GPIO 2 Input - |                    |  |
| PIN 5  | GPIO 4 Output  |                    | <ul style="list-style-type: none"> <li>Voltage between PIN 5,6 (PIN 7,8) <math>\leq 12V</math></li> <li>Non-polarity</li> <li>On resistance <math>110\Omega</math></li> <li>Response time <math>\leq 6mS</math></li> </ul>                     |
| PIN 6  | GPIO 4 Output  |                    |  |
| PIN 7  | GPIO 3 Output  |                    |  |
| PIN 8  | GPIO 3 Output  |                    |  |

## 6. Product Dimensions ( unit : MM )

Any discrepancy, please defer to the real product instead.



S-8800 Side view



S-8800 Contour and hole location