

HZ540 4-port Long distance UHF RFID Module For fixed reader integration



General Description

The HZ540 module is a miniaturized UHF RFID reader. The core component adopts Impinj Indy R2000 chip as the core platform. It supports ISO 18000-6C/6B, EPC C1G2, users can communicate with their own devices through the UART-TTL serial on the interface, and its wide power supply range (DC4.5V~6V) and configured GPIO interface (IO1-IO4, IO1/IO2 as input, IO3/IO4 as output) can provide users with more choices.

Due to the excellent tag reading distance and multi-antenna design of the module, it can be used as a design solution for small readers.

Key Features

- ✓ Support protocol: ISO18000-6B/C EPC C1G2
- ✓ Working mode: fixed frequency/frequency hopping optional
- ✓ Adjustable RF output power, 1 dB step-by-step
- ✓ Support multi-antenna polling work or designated antenna work
- ✓ Support antenna detection function
- ✓ RSSI support: the strength of the signal can be sensed.
- ✓ Support tag data filtering
- ✓ support Anti-collision algorithm
- ✓ Support multiple tags inventory

Typical Applications

- ✓ Split-type Fixed RFID Reader integration
- ✓ Integrated RFID Reader
- ✓ The reader which is designed based on this module can be applied to

various wireless RFID application schemes such as article and logistics management, warehouse management, animal management, article anti-counterfeiting, electronic goods monitoring and manufacturing and processing, and production automation.

Technical Parameters

Operating Voltage	+4.5V ~ +6V
Standby Mode Current	< 20mA
Operating Current	5V power supply, output RF power 33dBm, working peak current around 2000mA
Size	78.55x53.5x7.95mm
Air Interface Protocol	EPC C1G2 / ISO 18000-6C, ISO 18000-6B
Frequency Range	840MHz~960MHz US, Canada and other regions following U.S. FCC Europe and other regions following ETSI EN 302 208 with & without LBT regulations
Output Power	0~33dBm
Output Power Precision	±1dB
Receive Sensitivity	≤-85dBm
Tag RSSI	supported
Antenna port detection	supported
Communication interface	TTL UART serial, Baud rate 115200bps
RF connector type	SMA
Interface cable type	15P 1.25mm pitch cable
Heat Dissipation	Air cooling with external heat sink
Operating Temperature	- 20°C~ + 70°C
Storage Temperature	- 40°C~ + 85°C
Operating humidity	< 95% (+ 25°C)

Note:

- ◆ Heat dissipation design should be considered when working continuously for a long time with high output power.
- ◆ The power supply voltage should not exceed 6V, otherwise the internal circuit may be damaged.

Interface Description

CE Rules

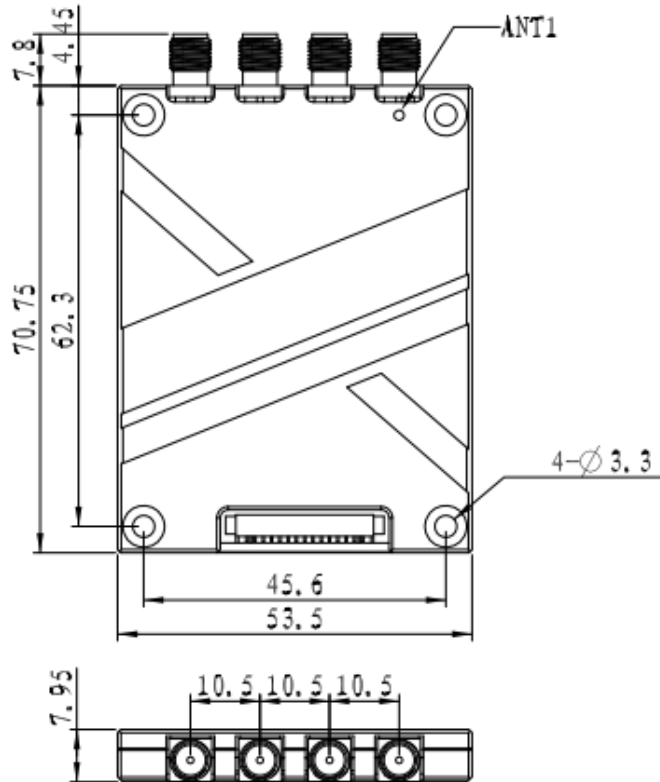
Hereby, SHENZHEN HOPELAND TECHNOLOGIES CO., LTD. declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU

Importers: XXXXXXXX

Address: XXXXXXXX

For the full RED DoC file, Please download it as follow web: <http://XXXX.XXXX>

The distance between user and products should be no less than 20cm



PIN	Definition	Description
1	GND	Both connected to ground
2	GND	
3	4.5V-6V DC	Both connected to power
4	4.5V-6V DC	
5	GPIO3	output (3.3V)
6	GPIO4	output (3.3V)
7	GPIO1	input (3.3V)
8	BUZ	Buzzer driver (3.3V)
9	UART_RXD	TTL Level
10	UART_TXD	
11	NC	NC
12	NC	
13	GPIO2	input (3.3V)
14	EN	High level enable (The EN pin can be left floating. The EN pin of the module is high by default, that is to say, it is enabled by default.)
15	NC	NC

Warning:

The module is limited to OEM installation ONLY

The antenna installation must be professional installation, and does not permit use of any antenna with the transmitter; the permitted types of antenna must be specified.

The module cannot be sold via retail to the general public or by mail order; it must be sold to authorized dealers or installers only.

The end product intended use is not for consumers and general public; rather device is generally for industrial/commercial use.

The installation shall be performed by trained licensed professionals, it uses specialized software and adjusts the best angles and orientations, which are difficult for ordinary people to do.

The module is limited to installation in mobile or fixed application.

The OEM integrator is responsible for ensuring the end-user has no manual instruction to remove or install module;

Modular approval allows installation in different end-use products by an original equipment manufacturer (OEM) with limited or no additional testing or equipment authorization for the transmitter function provided by the HZ540. Specifically:

- No additional transmitter compliance testing is required if the module is operated with the antenna listed in the document below.
- No additional transmitter-compliance testing is required if the module is operated with the same general type of antenna (i.e. near-field segmented loop, circularly polarized patches) as those listed in this User's Guide and in the FCC filing for the HZ540. Acceptable antennas must be of equal or less far field gain than the antenna previously authorized under the same FCC ID, and must have similar in band and out of band characteristics.

In addition, the end product must comply with all applicable FCC equipment authorizations, regulations, requirements and equipment functions not associated with the HZ540. For example, compliance must be demonstrated to regulations for other transmitter components within the host product, to requirements for unintentional radiators (Part 15B), and to additional authorization requirements for the non-transmitter functions.

The OEM applying the HZ540 is required to include all FCC and/or IC statements and warnings detailed in the following sections to the end product labeling (where specified) and in the finished product manual. The OEM must also strictly adhere to antenna and installation guidelines and MPE restrictions stated in this document.

The finished product manual must contain the following statement:

The host product shall use physical label stating "contains transmitter module FCC ID: 2ANBW-HZ540" or "contains FCC ID: 2ANBW-HZ540"

WARNING: The Federal Communications Commission warns that changes or modifications of the radio module within this device not expressly approved by Shenzhen Hopeland Technologies CO., Ltd. could void the user's authority to operate the equipment.

In the case where an OEM seeks class B (residential) limits for the host product, the finished product manual must contain the following statement:

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

In the case where an OEM seeks the lesser category of a Class B digital device for their finished product, the following statement must be included in the manual of the finished product:

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his expense.

A statement must be included on the exterior of the final OEM product which communicates that the device identified by the aforementioned FCC and Industry Canada ID numbers are contained within the product.

The OEM must include the following statements on the exterior of the finished product unless the product is too small (e.g. less than 4 x 4 inches):

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including any interference that may cause undesired operation.

The user manual for the end product must include the following information in a prominent location:

To comply with FCC's RF radiation exposure requirements, the antenna(s) used for this transmitter must be installed such that a minimum separation distance of 20cm is maintained between the radiator (antenna) & user's/nearby people's body at all times and must not be co-located or operating in conjunction with any other antenna or transmitter

The HZ540 is compatible with many varieties of antennas, but for purposes of modular certification with FCC, only one antenna was tested. HZ540 users can have their own antenna and HZ540 systems certified with FCC and IC.

In order to operate the HZ540 under either FCC ID: 2ANBW-HZ540, the OEM must strictly follow these antenna guidelines:

- The OEM may operate only with the following antenna or antennas of the same type with maximum gain as shown:

circularly-polarized patch antenna with 8 dBi linear far field gain

- RF I/O interface to the antenna connector on the PCB shall be accomplished via a microstrip or stripline transmission line with characteristic impedance of 50 ohms +/- 10%. A custom coaxial pigtail may also be utilized to connect to the antenna in lieu of a connector.
- The connector on the OEM's PCB which interfaces to the antenna must be of a unique type to disable connection to a non-permissible antenna in compliance with FCC section 15.203. The following connectors are allowed:
- The OEM must professionally install the HZ540 into its final environment to ensure that the conditions are met.

The minimum safe distance for people from the HZ540 has been determined by conservative calculation to be less than 20 cm for the allowable antenna types. The end product User's Guide must include the following statement in a prominent location:

To comply with FCC's RF radiation exposure requirements, the antenna(s) used for this transmitter must be installed such that a minimum separation distance of 20 cm is maintained between the radiator (antenna) & user's/nearby people's body at all times and must not be co-located or operating in conjunction with any other antenna or transmitter.

FCC warning:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with RF radiation exposure limits set forth for an uncontrolled environment.

This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body