

UHF RFID Reader Module

HYM360



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Brief Introduction

HYM360 UHF Reader Module complied with EPC C1G2 Protocol, its working frequency is 902.75-927.25MHz, with standard 2dBi antenna, the reading distance can reach 2 meters. With low power consumption, simple power supply and interface circuit, a high-performance and cost-effective RFID system can be established. It is suitable for retail, access control, medical industry, food tracking, anti-counterfeit and so on, especially for small size hand-held UHF RFID reader.

Technical Data

No.	Item	Technical Date	Unit	Remark
1	Fixed Current	≤380	mA	25dBm
2	Standby Current	≤1	mA	EN Pin Low Level
3	Frequency Range	902.75-927.25	MHz	
4	Default Working Frequency	Hopping Frequency	MHz	Frequency Interval 250KHz
5	Fixed Power	25	dBm	Max 27dBm
6	Stepping Interval	1	dBm	10~25dBm adjustable by soft
7	Label Protocol	EPC C1G2 /ISO18000-6C		
8	Starting Time	≤50	ms	
9	VSWR	≤1.5		
10	Max Reading Range	2	m	2dBi Antenna

Characteristics of DC

Data	Min Value	Typical Value	Max Value	Unit	Remark
Voltage of Power	3.3	4.2	5	V	DC
Input High Level	2	3.3	3.5	V	GPIO
	2	-	5	V	EN
Input Low Level	-0.5	0	0.5	V	GPIO
	-	-	0.18	V	EN
Output High Level	2.3	-	3.3	V	GPIO
Output Low Level	0	-	1	V	GPIO
Enable Current	2	5	25	uA	V _{EN} ≥2V

Requirement on Antenna

Product Features

Electrical Properties: It is a general antenna for UHF RFID applications with high gain and low VSWR.

Mechanical Properties: The compact and artistic antenna is suitable for all kinds of severe environment for its dual waterproof design with Gasket and silicone and strengthening rib of shell.

Performance Specifications

- Frequency Range: 860MHz~960MHz
- Maximum VSWR: $\leq 1.3:1$
- Gain: > 9 dBi
- H side HPBW: 70°
- E side HPBW: 70°
- Polarization: Circular Polarization
- Relative humidity: 5%~95%
- Input Impedance: 50Ω
- Antenna Connection: N-50KFD (Type N Female)

Physical specifications

- Size: 258mm×258mm×56mm
- Weight: 0.91kg(without bracket)
- Material: Engineering Plastic ASA、Aluminums
- Color: Ivory-white
- Enclosure Rating: IP67
- Operational Temperature: $-40^\circ\text{C} \sim +85^\circ\text{C}$
- Storage Temperature: $-40^\circ\text{C} \sim +85^\circ\text{C}$



Figure 1. The photograph of the antenna

Installation guide

HYN503 antenna can be installed on steal framed structure or bracket by own antenna bracket, and connect with reader with coaxial line. The antenna can be installed horizontally or vertically, it is decided by installation location, the angle can be adjusted after installation according to the real environment.

Antenna bracket is an optional accessory, you can choose according to your special requirement.

1. Installation Dimension

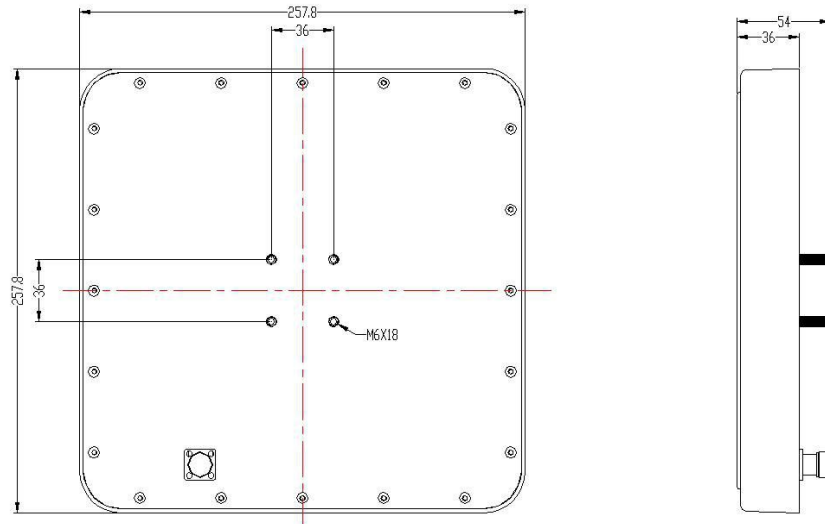


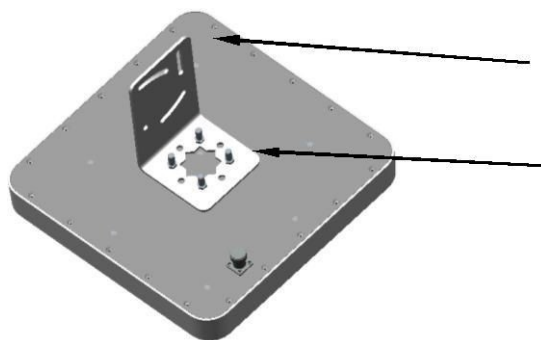
Figure 2 Dimension of the antenna

2. Installation Steps

2.1 Horizontal Installation

Step 1: Use M6 screw, elastic washer and plain washer, to fix the L board on the antenna, please see

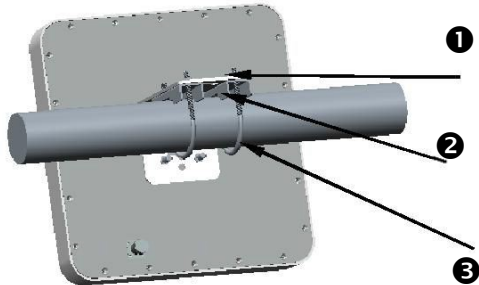
Figure 3:.



1	L board (Bracket)
2.	M6 screw, elastic washer and plain washer

Figure 3 The structure for the Step 1 in the first case

Step 2: Please use M6 screw, elastic washer and plain washer and “Dog tooth” to fix it on the horizontal and vertical bracket, please see Figure 4.

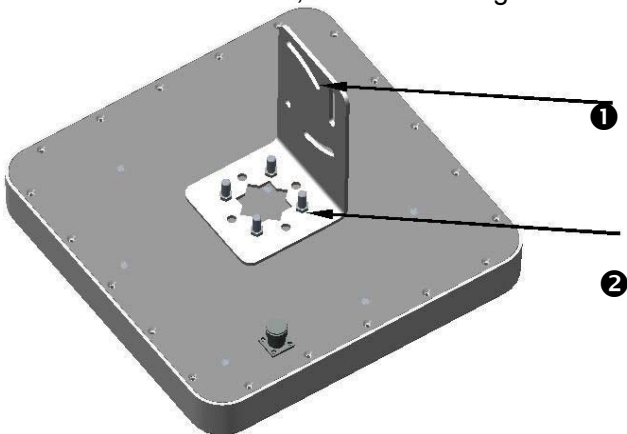


1	M6 screw, elastic washer and plain
2	Dog tooth
3	M6 U style screw bolt

Figure 4. The structure for the Step 2 in the first case

2.2 Vertical Installation

Step 1: Use M6 screw, elastic washer and plain washer, to fix the L board on the antenna, as shown in Figure 5.



1	L board (Bracket)
2.	M6 screw, elastic washer and plain washer

Figure 5 The structure for the Step 1 in the second case

Step 2: Please use M6 screw, elastic washer and plain washer and “Dog tooth” to fix it on the horizontal

and vertical bracket, as shown in Figure 6.

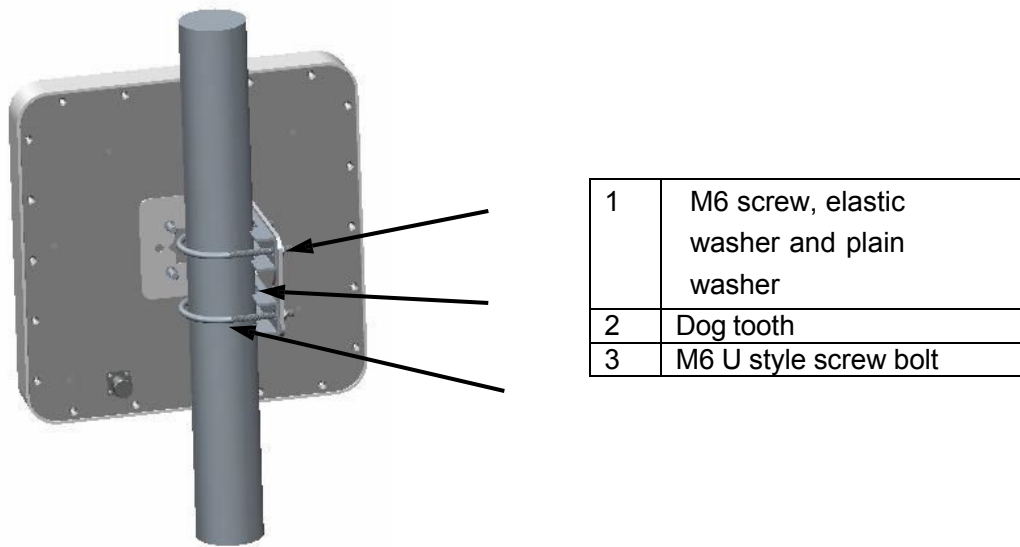
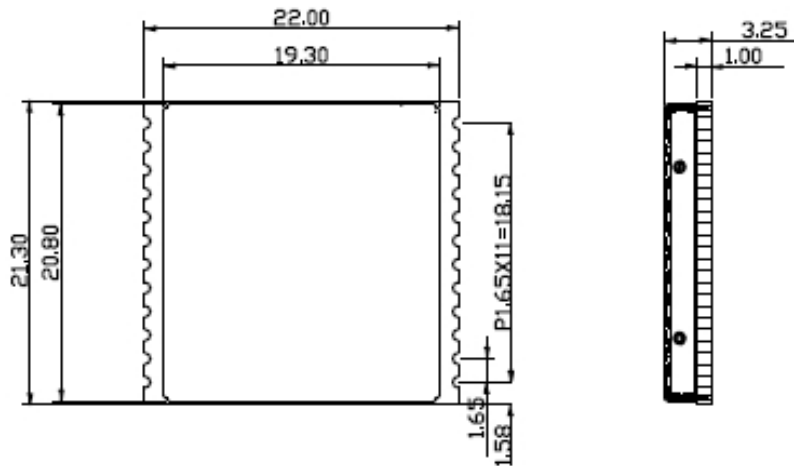


Figure 6 The structure for the Step 2 in the second case

Appearance and Structure



Drawing 1 Size of Reader Module

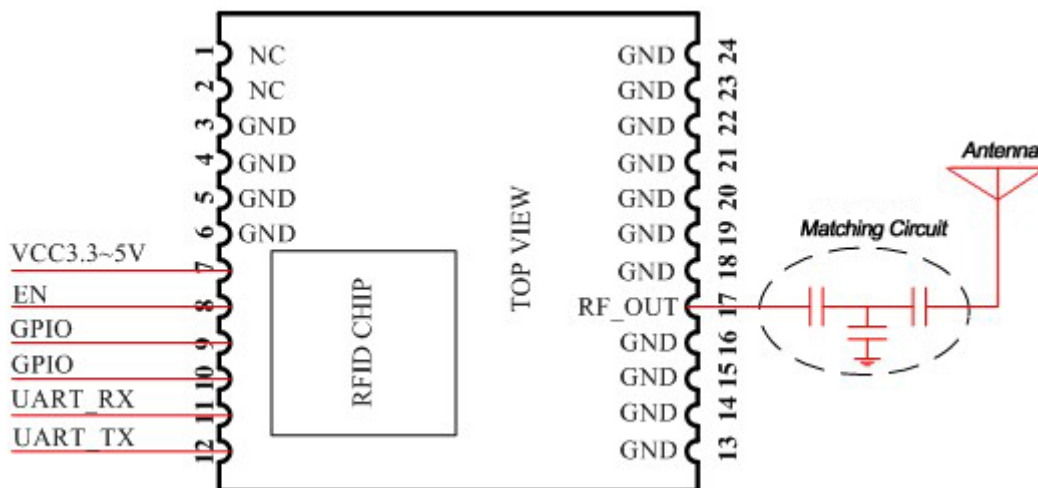
Interface Definition

PIN	Signal Name	Signal Direction	Function/Compatibility Description
1~2	NC		NC
3~6	GND	-	Module Connecting Ground
7	VDD	Input	Module Supplying power
8	EN	Input	Module Enabling, Highly Effective
9	GPIO	Output	
10	GPIO	Output	
11	UART_RX	Input	
12	UART_TX	Output	
13~16	GND	-	Module connecting ground
17	RFOUT	Bidirection	Module Radio frequency Input and output interface
18~24	GND	-	Module connecting ground

Environment Requirement

No.	Item	Technical Data	Unit	Remark
1	Working temperature	-20~+70	°C	
2	Storage temperature	-40~+85	°C	
3	Relative humidity	10%~90%	RH	

Circuit for Reference



Drawing 2 Circuit for reference

Warning

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.

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.

RF Exposure Statement

To maintain compliance with FCC's RF Exposure guidelines, This equipment should be installed and operated with minimum distance between 20cm the radiator your body: Use only the supplied antenna.

If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains Transmitter Module FCC ID: RVZHYM360" or "Contains FCC ID: RVZHYM360"

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.

Please describe the following warning to the manual.

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

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

This LMA is tested and approved as standalone configuration, additional evaluation may be required for any system integrated this radio module.