

# UHF RFID Reader Module

HYM740

(V2.0)



Winnix Technologies Co., Limited

## Brief Introduction

HYM740 UHF RFID reader module uses R2000 chip, which complies with EPC C1G2 protocol, its working frequency is 840~960MHz, with LBT function(customizable). It supports dense reader working mode (DRM)。 With standard 8dBi antenna, the reading distance can reach up to 10 meters, maximum identifying speed can reach up to 400/S; with simple power supply and interface circuit, a high-performance RFID system can be established. It is suitable for logistics, costume, medical industry, and complex assets management, etc.

## Technical Data

| No | Item                                 | Technical data                     | Unit | Remark                          |
|----|--------------------------------------|------------------------------------|------|---------------------------------|
| 1  | Fixed current                        | 1.5                                | A    | Max power output                |
| 2  | Standby current                      | ≤1                                 | mA   | EN pin low level                |
| 3  | Frequency range                      | 840~960                            | MHz  |                                 |
| 4  | Default working frequency            | Frequency hopping                  | MHz  | Frequency interval 250KHz       |
| 5  | Channel bandwidth                    | ≤250                               | KHz  |                                 |
| 6  | Frequency hopping speed              | ≤2                                 | s    |                                 |
| 7  | Fixed power                          | 30                                 | dBm  |                                 |
| 8  | Stepping interval                    | 1                                  | dB   | 5~30dBm, adjustable by software |
| 9  | Label protocol                       | EPC C1G2 /ISO18000-6C              |      |                                 |
| 10 | Communication protocol               | Asynchronous serial ports protocol |      |                                 |
| 11 | Starting time                        | ≤50                                | ms   |                                 |
| 12 | Radio-frequency power rising time    | ≤500                               | μs   |                                 |
| 13 | Radio-frequency power dropping time  | ≤500                               | μs   |                                 |
| 14 | Adjacent channel power leaking ratio | ≤40                                | dB   | ±1CH                            |
|    |                                      | ≤60                                | dB   | ±2CH                            |
| 15 | Frequency stabilizing ratio          | ±10                                | ppm  | -25℃ ~ +40℃                     |
|    |                                      | ±20                                | ppm  | -40℃ ~ +60℃                     |
| 16 | Max reading range                    | 10                                 | m    | 8dBi antenna                    |

## Characteristics of DC

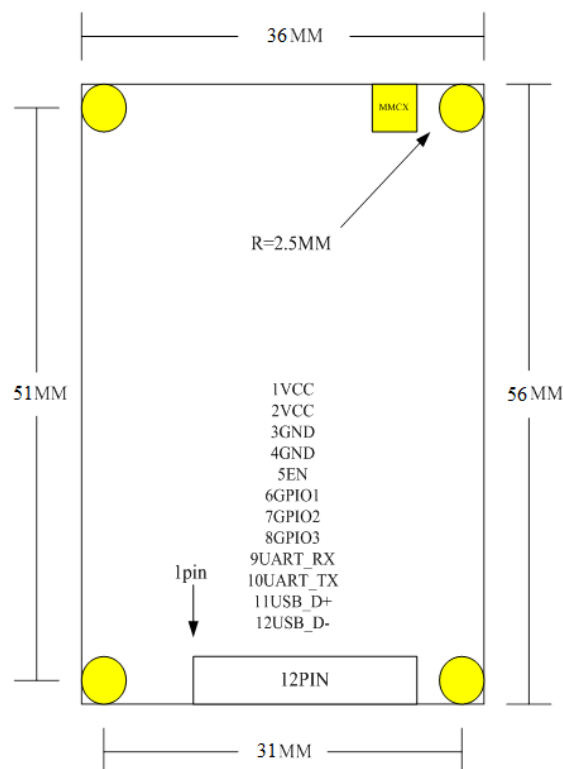
| Data              | Mini value | Typical value | Max value | Unit | Remark           |
|-------------------|------------|---------------|-----------|------|------------------|
| Voltage of power  | 3.6        | -             | 5         | V    | Direct current   |
| Input high level  | 2          | 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   | $V_{EN} \geq 2V$ |

## Requirement on Antenna

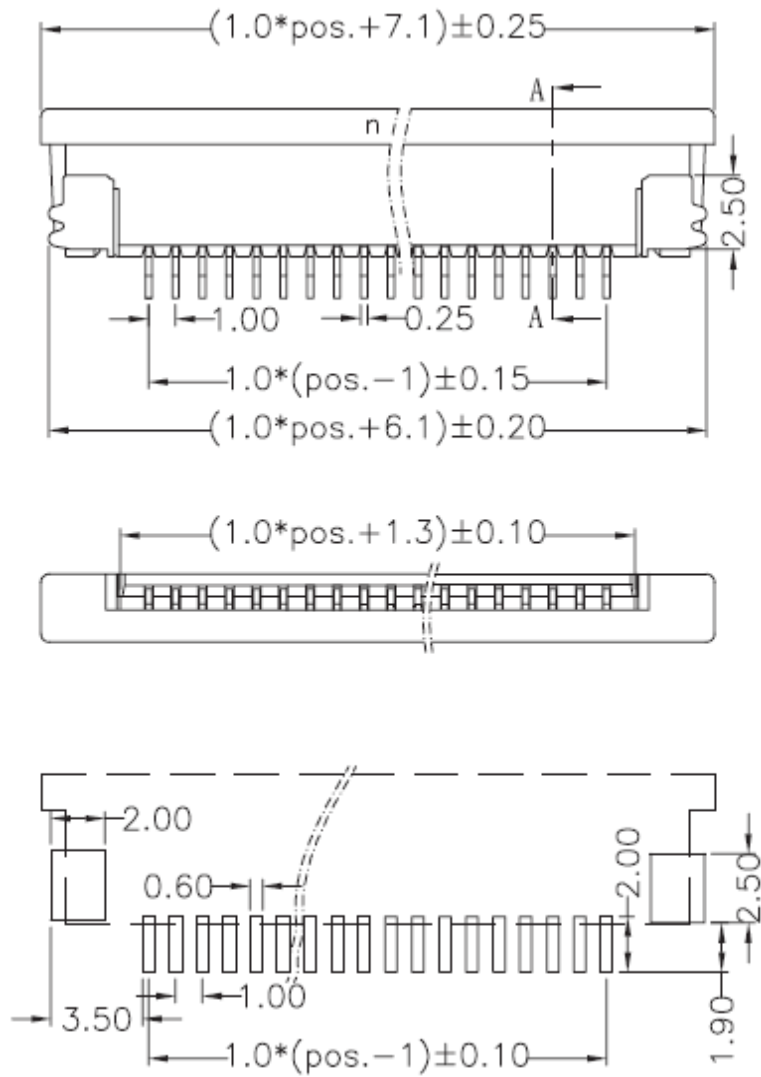
| No | Item | Technical data | Unit | Remark |
|----|------|----------------|------|--------|
| 1  | S11  | $\leq 10dB$    |      |        |

## Appearance and Structure

- Dimensions: 56×36×7.4mm
- Weight: 50g

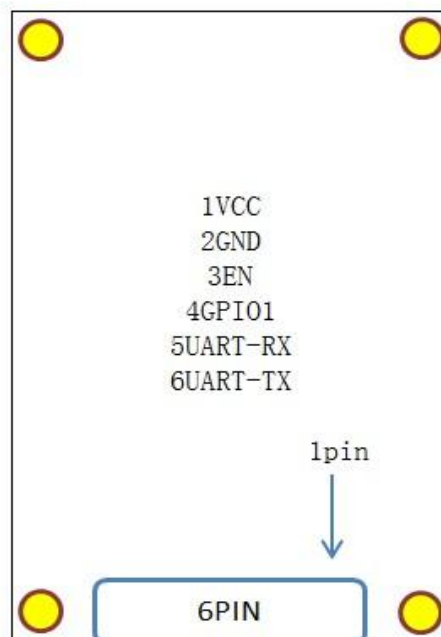


Drawing 1 Front view of the reader module



**P.C.B Layout**

Drawing2 12Pin Connector Drawing



Drawing3 Back view of the reader module

## Interface Definition

- **Front Interface:**

| Pin | Signal name | Signal direction | Function/compatibility description      |
|-----|-------------|------------------|---|
| 1   | VCC         | Input            | Module supplying power                  |
| 2   | VCC         | Input            | Module supplying power                  |
| 3   | GND         | -                | Module connecting ground                |
| 4   | GND         | -                | Module connecting ground                |
| 5   | EN          | Input            | Module enabling, highly effective       |
| 6   | GPIO        | Bidirection      | Generic port                            |
| 7   | GPIO        | Bidirection      | Generic port                            |
| 8   | GPIO        | Bidirection      | Generic port                            |
| 9   | UART_RX     | Input            | Asynchronous serial interface receiving |
| 10  | UART_TX     | Output           | Asynchronous serial interface sending   |
| 11  | DBG_RX      | -                | Test port                               |
| 12  | DBG_TX      | -                | Test port                               |

- **Back Interface:**

| Pin | Signal name | Signal direction | Function/compatibility description      |
|-----|-------------|------------------|---|
| 1   | VCC         | Input            | Module supplying power                  |
| 4   | GND         | -                | Module connecting ground                |
| 5   | EN          | Input            | Module enabling, highly effective       |
| 6   | GPIO        | Bidirection      | Generic port                            |
| 9   | UART_RX     | Input            | Asynchronous serial interface receiving |
| 10  | UART_TX     | Output           | Asynchronous serial interface sending   |

## Environment Requirement

| No | Item                | Technical data | Unit | Remark |
|----|---------------------|----------------|------|--------|
| 1  | Working temperature | -25~+75        | ℃    |        |
| 2  | Storage temperature | -40~+85        | ℃    |        |
| 3  | Relative humidity   | 10%~90%        | RH   |        |

# Certification

FCC ID: RVZHYM740

CE: ETSI EN 302 208

ETSI EN 301 489

ETSI EN50364