

**OEM-HF-M890-TTL, OEM-HF-M890-232,
OEM-HF-M890-USB, OEM-HF-M890-485
13.56 MHz OEM RFID Module
Installation Manual**

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1 Introduction

1.1 Overview

OEM-HF-M880-TTL series module is R/W module based on 13.56 MHz, which adopt with NXP original special chips, compliant with ISO/IEC 14443A, B, ISO/IEC 15693 international standard at the same time or separately, and able to write data into blocks or customize sector data of cards by sending command.

This module is small in size, and, can be configured with different size external antenna for different applications, to realize the best reading range with stable function. It has complete communication port of TTL, enable it easy to connect with different device conveniently.

Along with the goods, all relative SDK files, including API documents, demo code, test demo, etc will be available to operate different IC cards and develop new application solutions.

1.2 Key Features

- Compact size, easy integration
- External antenna, multi-sizes for options
- 5 Vdc, or low consumption version optional
- Read and write with ISO14443A, B, ISO15693 or their compatible cards
- Available with CPU operating
- Complete SDK files and DEMO providable

1.3 Typical Application

- Handheld data collection device
- Access control device
- Time attendance
- One-card system
- POS terminal
- Android device

1.4 Available Standard Antennas

Antenna Size (PCB Size)	Reading Distance (depending on tag type)	Order Code
20 × 30 mm	Up to 4 cm	OEM-HF-A910
20 × 40 mm	Up to 5 cm	OEM-HF-A911
35 × 50 mm	Up to 6 cm	OEM-HF-A912
49 × 55 mm	Up to 7 cm	OEM-HF-A916
54 × 86 mm	Up to 10 cm	OEM-HF-A915
60 × 80 mm	Up to 11 cm	OEM-HF-A914
80 × 80 mm	Up to 11 cm	OEM-HF-A913

2 Mechanics of the Module

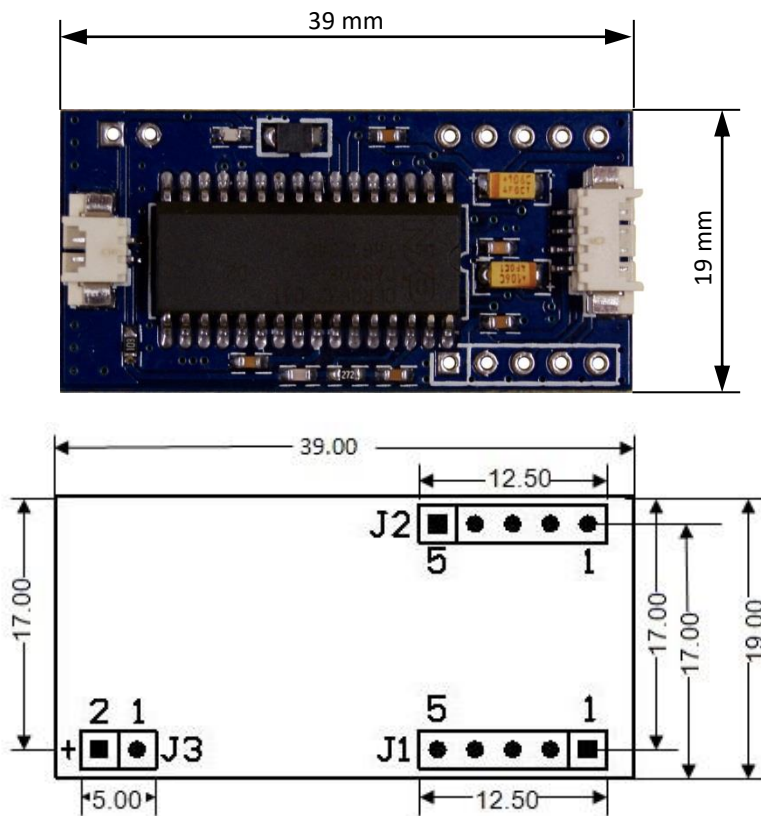


Figure 1 Dimensional Drawing of OEM Module

The Thickness is < 6 mm.

3 Electrical Installation

3.1 Through-Hole Pinout

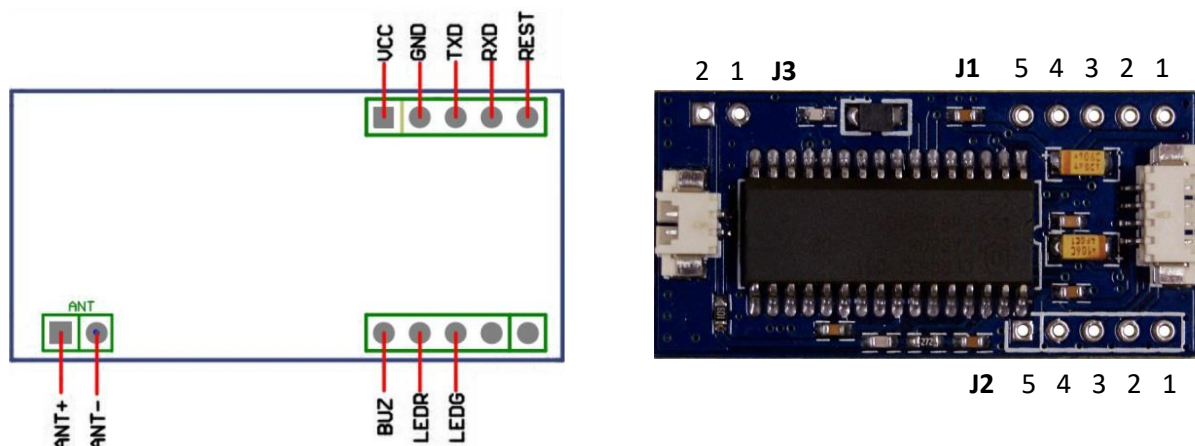


Figure 2 Through-Hole Pinout TTL + RS232

Connector J1 · External Hardware

PIN	Name	Description
1	40 P1.0 (T2)	—do not connect—
2	44 P1.4 (SS#/CEX1)	—do not connect—
3	LED Green/LED 2	μC output; do not draw more than 15 mA from this pin, series resistors for LED needed
4	LED Red/LED 1	μC output; do not draw more than 15 mA from this pin, series resistors for LED needed
5	Buzzer	μC output; do not draw more than 15 mA from this pin, series resistors for LED needed

Connector J2 · Power Supply + Interface

PIN	Name	Description
1	RESET	μC reset; open or low = running; high = stop, current consumption reduced to app 17 mA
2	RXD	Receive Data, to pin 2 of RS232 / USB D–
3	TXD	Transmit Data, to pin 3 of RS232 / USB D+
4	GND	Power Supply GND, also to pin 5 of RS232
5	+5 Vdc	Power Supply Vcc

Connector J3 · Antenna

PIN	Name	Description
1	Antenna–	
2	Antenna+	

3.2 Connector Pinout TTL + RS232

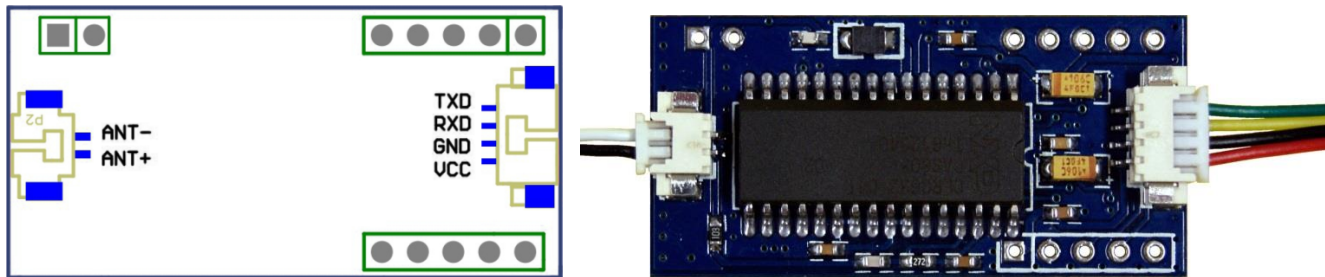


Figure 3 Connector Pinout TTL + RS232

Connector on left side (antenna, 2 pins)

PIN	Name	Description
1	Antenna–	
2	Antenna+	

Connector on right side (interface, 4 pins)

PIN	Name	Description
1	+5 Vdc	Power Supply Vcc (Red)
2	GND	Power Supply GND (Black), also to pin 5 of RS232
3	RXD	Receive Data (Yellow), to pin 2 of RS232
4	TXD	Transmit Data (Green), to pin 3 of RS232

3.3 Connector Pinout USB

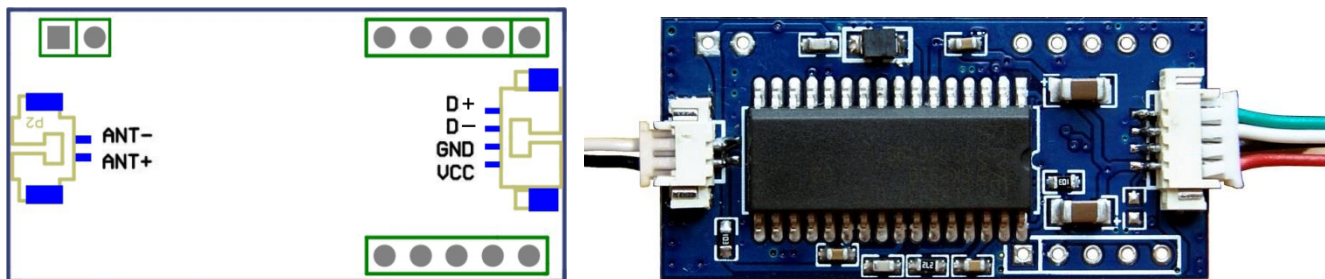


Figure 4 Connector Pinout USB

Connector on left side (antenna, 2 pins)

PIN	Name	Description
1	Antenna–	
2	Antenna+	

Connector on right side (interface, 4 pins)

PIN	Name	Description
1	+5 Vdc	Power Supply Vcc (Red)
2	GND	Power Supply GND (Black)
3	D–	USB Data – (White)
4	D+	USB Data + (Green)

3.4 Through-Hole Pinout OEM-HF-M890-485

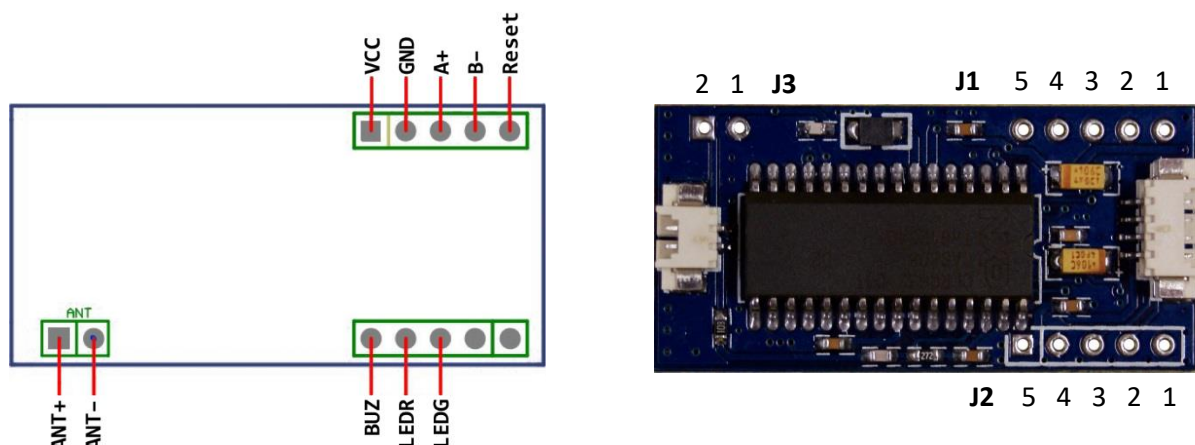


Figure 5 Through-Hole Pinout RS485

Connector J2

PIN	Name	Description
1	RESET	μ C reset; open or low = running; high = stop, current consumption reduced to app 17 mA
2	B-	RS485 B-
3	A+	RS485 A+
4	GND	Power Supply GND
5	+5 Vdc	Power Supply Vcc

3.5 Connector Pinout OEM-HF-M890-485

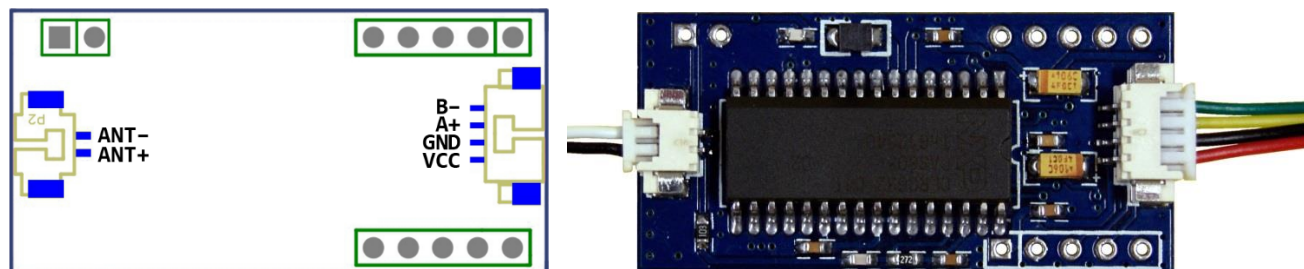


Figure 6 Connector Pinout RS485

Connector on left side (antenna, 2 pins)

PIN	Name	Description
1	Antenna-	
2	Antenna+	

Connector on right side (interface, 4 pins)

PIN	Name	Description
1	+5 Vdc	Power Supply Vcc (Red)
2	GND	Power Supply GND (Black)
3	A+	RS485 A+
4	B-	RS485 B-

3.6 Run LED

During standard operation (no reset) the red LED should blink slowly.

4 Technical Specifications

Mechanical Specifications

Dimensions: 39 × 19 × 6 mm

Electrical Specifications

Power Supply: 5 Vdc (±5 % regulated)

Power Consumption: standard: app. 70 mA; card present: 80 mA; reset: 17 mA

Antenna: external

Reading Distance: up to 8 cm (depending on tag and antenna type)

Operating System: MS Windows, Linux, Android

Interface:

OEM-HF-M890-TTL:	UART (TTL)
OEM-HF-M890-232:	UART (RS232)
OEM-HF-M890-USB:	USB VCP
OEM-HF-M890-485:	UART (RS485)

Baudrate: 9600 - 115200 Baud

Signals: 1 LED

Supported Standards / Tags

ISO 14443 A: Mifare One S50, Mifare One Ultralight, Mifare OneS70, Contactless CPU cards

ISO 14443 B: AT88RF020, 66CL160S, SR176, SR1X4K

ISO 15693: I-code 1, I code 2, TI RFID Tag-it HF-I, EM4135, EM4034

Environmental Conditions

Operating Temperature: -10 °C ... +70 °C

Storage Temperature: -20 °C ... + 80 °C

Humidity: 5 % to 95 %

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