



Instructions for use of Taixin **AH** module development board



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Revision history

| date | Version | describe | Revised by |
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| 2023-2-7 | V1.3 | Added instructions for firmware and printing port; | WE |
| 2022-2-18 | V1.2.1 | Modify logo; | XYJ |
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1. Overview

As an optimized Wi-Fi solution for IoT devices, the TX-AH-R900P module designed by Tyxin Semiconductor is an industry-leading Wi-Fi module that complies with IEEE 802.11ah standard.

The TX-AH-R900P module integrates the 802.11ah SOC TXW83xx, which can work in the 730M~950M frequency band, providing longer transmission distance than 2.4GHz and 5GHz Wi-Fi under the same transmission power. The module can work with a channel width of 1/2/4/8MHz and can provide physical throughput from 150 Kbps to 32.5Mbps, thus supporting applications from low-rate sensors to multiple high-rate surveillance cameras.

The TX-AH-R900P module can be connected to the application processor through USB, SDIO, SPI, UART and other interfaces, and can be used in many fields such as wireless security, drone image transmission, smart home and smart grid. In addition, the TX-AH-R900P module also provides an RMII interface to implement a low-cost solution for a single-module wireless bridge. The module can work in AP/STA mode and supports 1-to-many networking.

The internal structure and external connection diagram of the chip/module are shown in Figure 1-1.

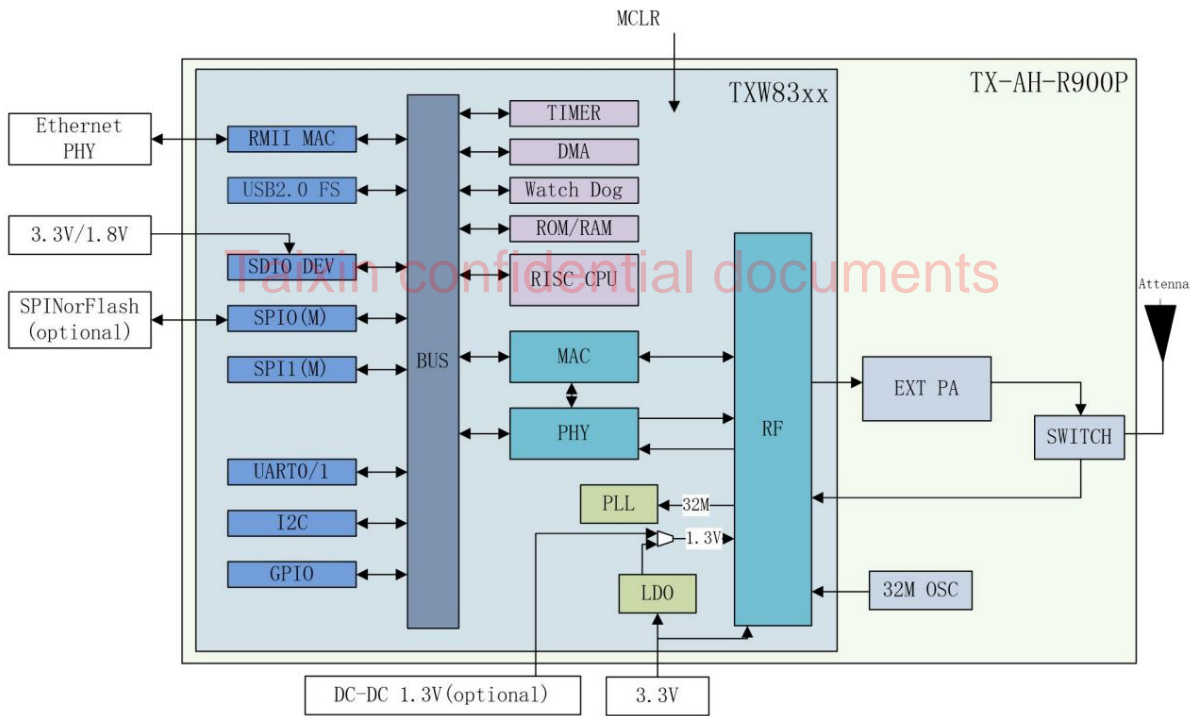


Figure 1-1. Chip/module internal structure and external connection diagram

2. Introduction to development board

TX-AH-MODULE development board, the development board supports SDIO interface development function by default. The main control end has a TF card interface, which can be directly inserted into the main control end card holder using the onboard PCB-TF-CARD. The development board can be accessed through MICRO- With USB (5V@500ma) power supply, you can easily build a

development environment. If you need to develop other interfaces, you can switch to the hardware development interface required by the customer by soldering different jumper resistors, such as USB/UART/SPI, etc.

The picture below is the main view of the development board of Taixin AH module.

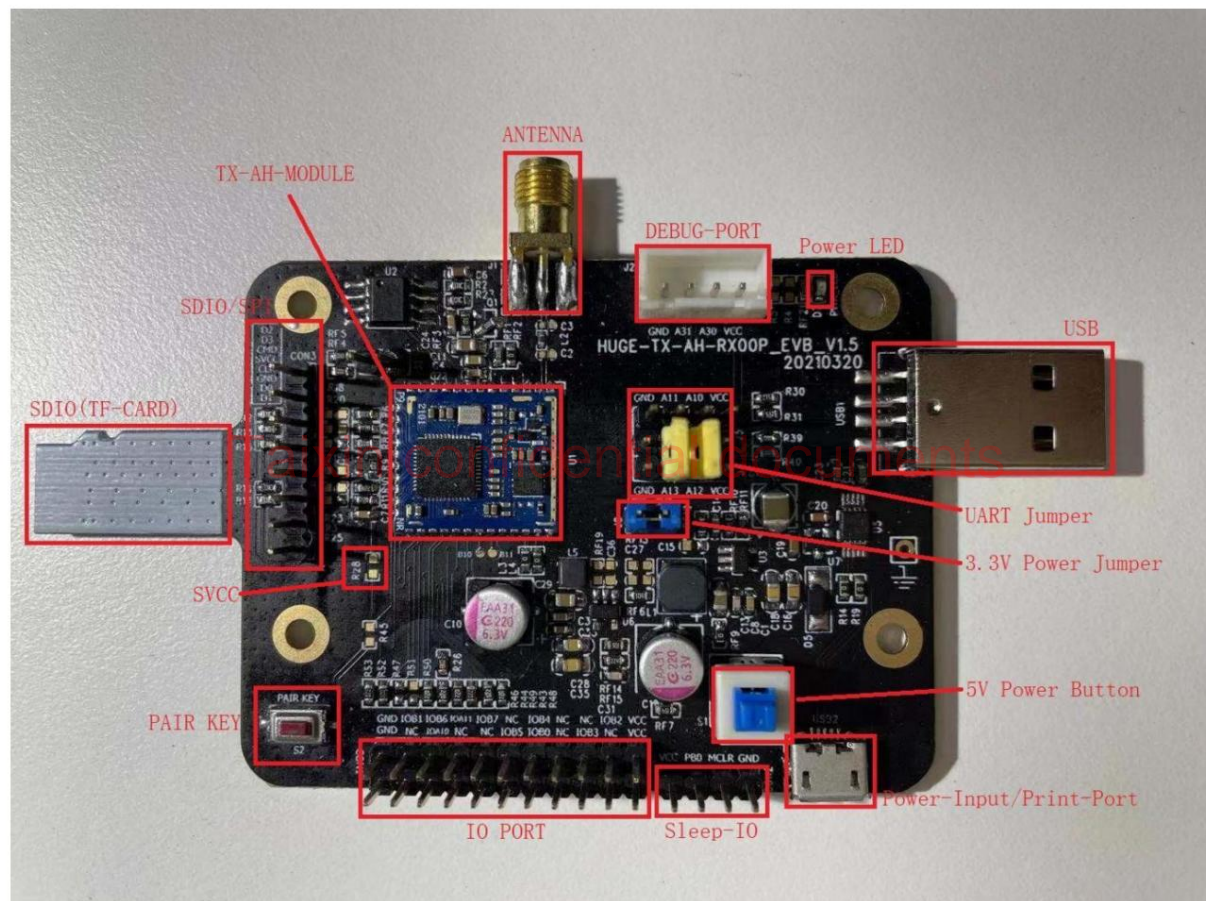


Figure 1 Main view of Taixin AH module development board

• **TX-AH-MODULE:** Taixin AH module; • **ANTENNA:** AH module SMA

antenna interface; • **DEBUG-PORT:** CDK debugging port of AH module,

please refer to "Taixin AH Module Development Quick Start Guide"; • **Power-Input/Print-Port:** USB Micro's power supply port and printing port; it is necessary to ensure that the USB port has a power supply capacity of 500ma;

There is a USB-UART chip on the board. Connect the USB port to the computer and set the appropriate UART jumper to output the printed debugging information of the AH module (baud rate 115200);

• 5V Power Button: 5V power switch of the development board ; • Power LED:

3.3V power indicator light; • 3.3V Power Jumper: used to

evaluate the power consumption of the AH system. Generally, a jumper cap is used to short-circuit the power consumption to test the power consumption. Remove the jumper cap and connect the ammeter in series;

• UART Jumper: When using different interface communication methods, select different jumper methods to switch the USB Micro print port to different UART ports; when selecting the USB port, short-circuit A10/A11 with the middle row; select SDIO /SPI and other interfaces, short-circuit A12/A13 with the middle row; if the UART port is used to communicate with the MCU and there is also a UART for printing debugging, the default is A11/A10 communication, A13/A12 printing, this At this time, USB Micro can only select one serial port, and the other serial port is directly connected from the jumper;

• USB: Communicate with the main control through the USB interface, pay attention to the instructions of the UART Jumper to trigger

printing; • AH-TF_CARD: Onboard TF-CARD interface, used to communicate with the main control through the SDIO interface, pay attention to the UART Jumper instructions to trigger printing;

• SDIO: Mainly used for the SDIO flying line of the main control without TF card holder or for connecting to the logic analyzer DEBUG (R3, R18, R20, R21, R23, R25 need to be welded with 22R resistor); •

SVCC: R28 is the power supply selection resistor of SVCC. When selecting the USB/UART/SPI interface, R28 should be shorted with 0R, otherwise IOA6~11 will have no power; when When selecting the SDIO interface, R28 NC and SVCC are powered by the SDIO host (via AH-TF CARD called);

• SPI: Multiplexed with SDIO pin, the corresponding relationship is: SD_CLK/SPI_CLK1, SD_CMD/SPI_MOSI1, SD_D0/SPI_MISO1, SD_D1/SPI_INTIO1, SD_D2/NC, SD_D3/CS1; if you need to use COM3 flying line, you need to change R18/R20/ Solder the 0R resistor to R21/R23/R3/R25; pay attention to the instructions of the UART Jumper to lead to printing; • PAIR KEY: supports the hardware pairing function by default and is connected to IOB1 through the resistor R45; • IO PORT: some IO pins of the

AH module Lead to 2.54MM double row of pins; • Sleep-IO: The low-power solution requires

the AH to wake up the MCU's IO (IOB0), or the MCU to wake up the AH module's IO
MCLR

Note that the SDIO interface and the SPI interface are the same firmware. The SDIO interface/USB interface/serial port is used as the communication port. The development board needs to use different firmware; the printing serial port corresponding to the USB firmware is A10/A11, and the printing serial port for other interfaces is A12/A13. , the jumper cap connection methods are different, please refer to the UART Jumper instructions.