



WIZ-IP55 User Manual

V1.1

Update History

Version	Date	Remarks
V1.0	2025/08/07	First release
V1.1	2026/8/10	1. Correct pin quantity description 2. Unify formatting standards for the entire document

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1 Introduction

1.1 Overview

WIZ-IP55 is a network offloading module that integrates the W5500 chip (with built-in PHY physical layer and TCP/IP hardware protocol stack) and an RJ45 connector with integrated network transformer. As a plug-and-play component, it enables seamless interface connection between the W5500 and the transformer without the need for additional circuit design.

For users who wish to quickly develop networked systems, WIZ-IP55 is an ideal choice.

Note:For detailed information on the hardware TCP/IP protocol stack, please refer to [W5500 Data Sheet](#).

The WIZ-IP55 module is composed as follows:

- ◆ Network port connector section: Integrated network transformer network port (including W5500 chip, network transformer and RJ45).
- ◆ TCP/IP protocol stack and Ethernet MAC: Implemented by W5500 chip.
- ◆ Ethernet PHY: Integrated by W5500 chip.

1.1.1 Functional Features

- ◆ Supports full hardware TCP/IP protocol: TCP, UDP, WOL, ICMP, IGMPv1/v2, IPv4, ARP, PPPoE
- ◆ Supports 8 independent SOCKET concurrent communication
- ◆ Supports half-duplex/full-duplex operation mode
- ◆ Supports Ethernet power-off mode
- ◆ Supports UDP-based network wake-up (WOL) function
- ◆ High-speed SPI interface (MODE 0/3)
- ◆ Built-in total 32Kbytes of send/receive cache
- ◆ Integrated 10BaseT/100BaseTX Ethernet PHY
- ◆ Supports Ethernet auto negotiation (full/half-duplex, 10Base-T/100Base-TX)
- ◆ Operating voltage: 3.3V (I/O compatible with 5V signal voltage)
- ◆ 18-pin pin header interface
- ◆ Package size (length×width×height): 32.5 × 16.5 × 17.3 mm
- ◆ Compatible with WIZnet's IO module carrier board development board

1.1.2 Product features

- ◆ All-hardware TCP/IP protocol stack network chip W5500
- ◆ Ethernet
 - 10/100Mbps Adaptive Ethernet
- ◆ Connect to the host interface
 - Standard SPI:MISO, MOSI, CLK, CSn
- ◆ Power supply
 - Input power supply:3.3V DC
- ◆ Mechanical parameters
 - Dimensions(length×width×height):32.5 × 16.5 × 17.3 mm
- ◆ Working temperature
 - Industrial grade:-40 ~ +85 °C
- ◆ Save Environment
 - -50 ~ +85 °C,5% ~ 95% RH

1.2 Product Specifications

1.2.1 Electrical Parameters

1.2.1.1 Power Supply Parameters

Unless otherwise specified,the parameters listed in Table 1-1 and Table 1-2 refer to the values at a temperature of 25 °C.

Table 1-1 Power Parameters

Numbering	Category	Min	Typical	Max	Organization
VCC	Module voltage	2.97	3.3	3.63	V
I	Module current	152	162	173	mA

1.2.1.2 Power Consumption Parameters

Table 1-2 Power consumption parameters

Working condition	Test value (mA)
Standby	65
10 Mbps without connection	75
10 Mbps for data communication	79
100 Mbps without connection	128
100Mbps for data communication	162

2 Hardware Section Description

2.1 Hardware Circuit Description

Now, let's introduce the pins of WIZ-IP55 and the usage of the accompanying IO module carrier board for the evaluation board.

The appearance of WIZ-IP55 is shown in Figure 2-1.

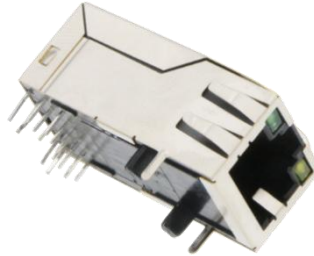


Figure 2-1 The external view of the WIZ-IP55 module

Figure 2-2 shows the pin layout of WIZ-IP55.

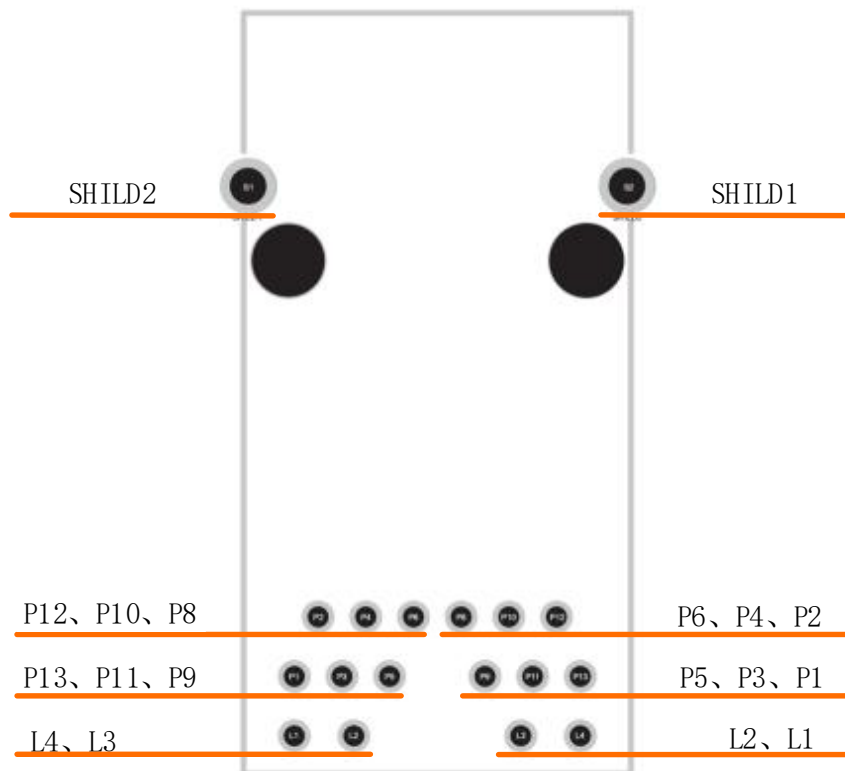


Figure 2-2 Pin Assignment of WIZ-IP55 (bottom view)

Table 2-1 provides the pin description for WIZ-IP55.

Table 2-1 Pin Description

Pin number	Pin name	Function
P1	ACT_LED	Data reception/transmission activity indicator light
P2	VCC	3.3V power supply pin
P3	GND	Power ground
P4	CSn	SPI interface chip selects signal pin, with low level as the effective state
P5	CLK	SPI clock input pin
P6	MISO	SPI master input, slave output
P8	MOSI	SPI master output from slave input
P9	INTn	Interrupt output pin, low level is effective
P10	RESETn	Reset pin, low level effective (must be maintained for at least 500us)
P11	SCL	IIC clock line
P12	SDA	IIC data cable
P13	LINK_LED	Network connection indicator light
L1	LED1-	Connect to P1
L2	LED1+	Connected in series with the resistor to VCC
L3	LED2+	Connected in series with the resistor to VCC
L4	LED2-	Connect to P13
S1	SHILD1	Shell
S2	SHILD2	Shell

2.2 Introduction to the Development Board

The IO module carrier board is a development board that facilitates users to test and apply the modules. This development board integrates the mainstream single-chip microcontroller STM32F103RCT6 and the USB to TTL converter chip CP2102. The schematic diagram of the IO module carrier board is shown in Figure 2-3.

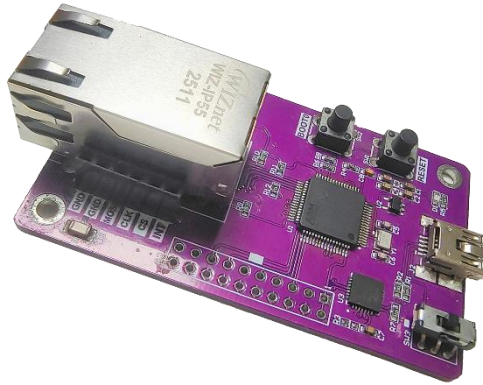


Figure 2-3 Outline drawing of the IO module carrier board

- ◆ The USB Mini interface provides 5V DC power supply for the development board and one serial port for the MCU, which can be used for ISP-style program download and data communication testing.
- ◆ Key instructions for the IO module carrier board

Table 2-2 IO module carrier board Key Instructions

Numbering	Explanation
RESET (SW1)	Hardware reset button
BOOT (SW2)	Enter the BOOT button of the microcontroller

- ◆ Download method for the IO module carrier board program

The IO module carrier board supports the ISP download method. The operation steps are as follows: first, press and hold the BOOT button, then press the RESET button once, and finally release the BOOT button. This will enable you to enter the program download mode. Open the ISP tool of STM32 and select the corresponding firmware to complete the download.

- The reference design schematic diagram of the peripheral circuit for WIZ-IP55 is shown in Figure 2-4.

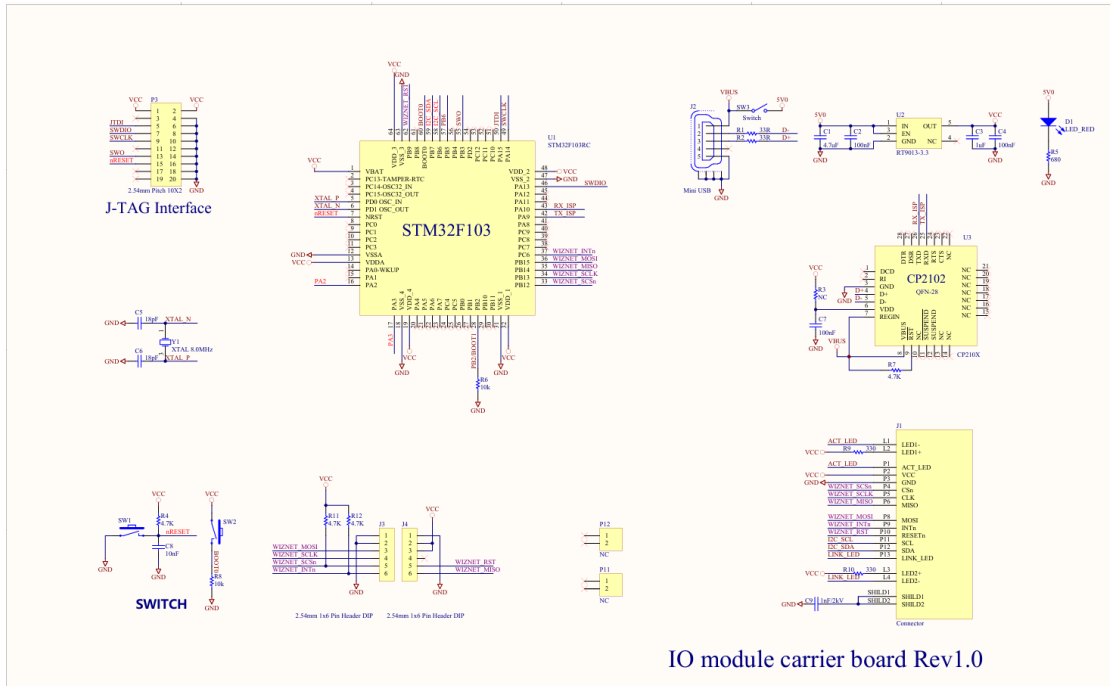


Figure 2-4 Reference design schematic diagram of the peripheral circuit of WIZ-IP55

2.3 Quick Evaluation Wiring Instructions

Users can download the corresponding reference code for W5500 from www.w5500.com and burn it onto the IO module carrier board for performance testing and evaluation, as shown in Figure 2-5.

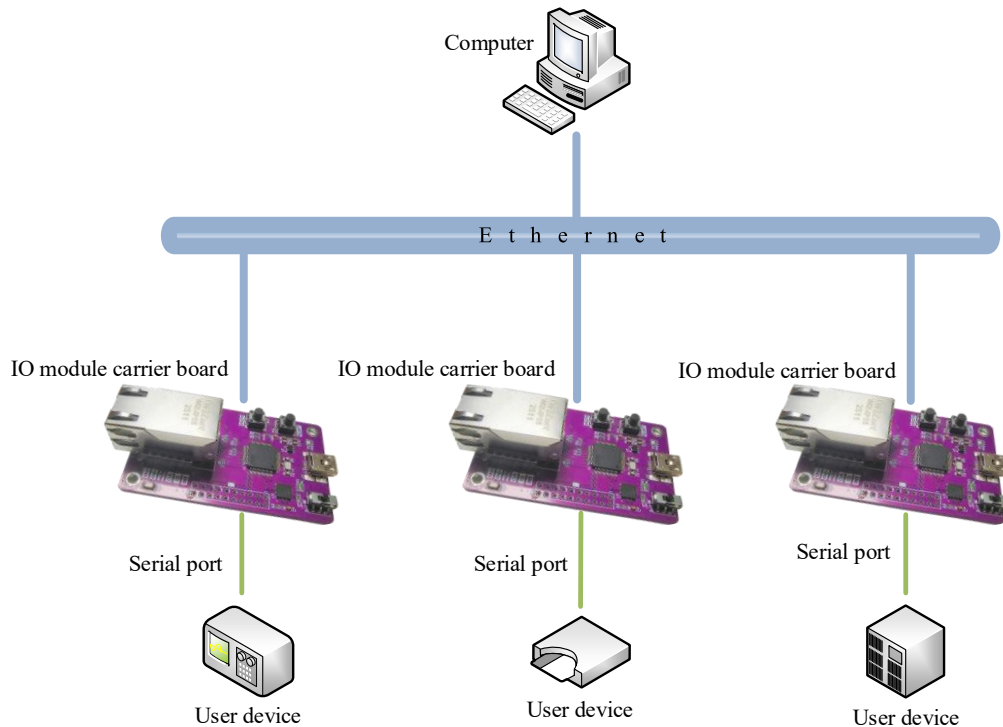


Figure 2-5 Schematic Diagram for Test and Evaluation of IO Module Carrier Board

3 SPI operations

The SPI configuration method of WIZ-IP55 can be found in the [W5500 Data Sheet](#).

4 Sequence Diagram

4.1 Reset Timing Sequence

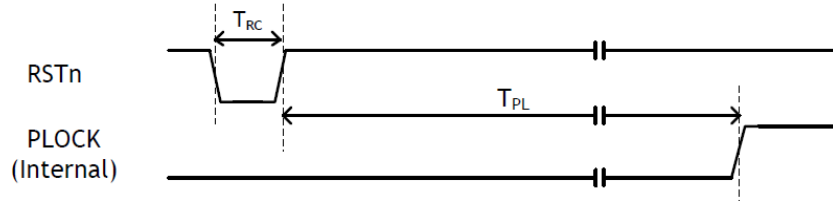


Figure 4-1 Reset Timing

Table 4-1 Reset Timing

Symbol	Description	Min	Max
TRC	Reset Cycle Time	500us	-
TPL	RSTn to internal PLOCK (PLL Lock)	-	50ms

4.2 SPI Timing Sequence

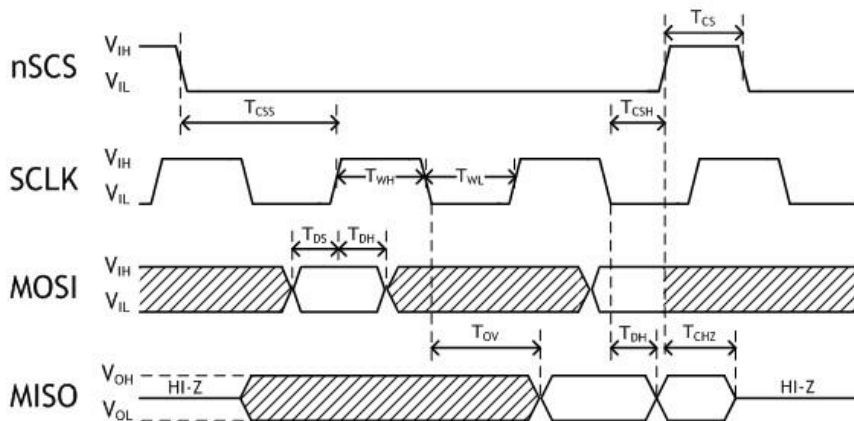


Figure 4-2 SPI Timing

Table 4-2 SPI Timing

Symbol	Description	Min	Max	Units
FCK	SCK Clock Frequency	-	80	MHz
TWH	SCK High Time	6	-	ns
TWL	SCK Low Time	6	-	ns
TCS	SCSn High Time	5	-	ns

Product Repair Procedure

WIZnet HK promises to provide a one-year free warranty service for WIZ-IP55 equipment. Within one year from the date of purchase of WIZ-IP55 equipment, if there are any product quality problems during normal use, users can repair them through the following procedures:

- ♦ Provide proof of purchase.
- ♦ Obtain repair permit from WIZnet HK or distributor.
- ♦ Fill out the product problem report form and provide as much detailed information as possible about the reason for repair and the symptoms of the malfunction, in order to reduce repair time.
- ♦ Pack the equipment, send it to the designated repair address, and attach the product problem report form.

The following are not covered by the warranty. For damages caused to the product that are not covered by the warranty, we will only charge the cost of the components appropriately:

- ♦ Damage to the product caused by human or force majeure factors.
- ♦ Unable to provide proof of product purchase.
- ♦ products with a warranty period exceeding one year.

Product Problem Report Form

Corporate name			
Contacts		Contact Number	
Email		purchasing date	
PRODUCT MODEL		serial number	
notes			

Problem description:(Please provide a detailed description of the problem that occurred and list all the error messages you have seen in detail)

[illegible]

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Before ordering products, please purchase from WIZnet HK or designated distributor through the contact information provided on the "Sales and Service" page of this document and obtain the latest specifications.

For further information, please visit WIZnet HK Chinese official website: www.wizse.com

Declaration

Application Information

The cases or intentions in this application information are hypothetical and only intended to help users familiarize themselves with the product's features and usage methods. Customers must make modifications and validate based on the characteristics of their product before developing it.

The right to modify documents

WIZnet HK reserves the right to modify this document at any time without prior notice.

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