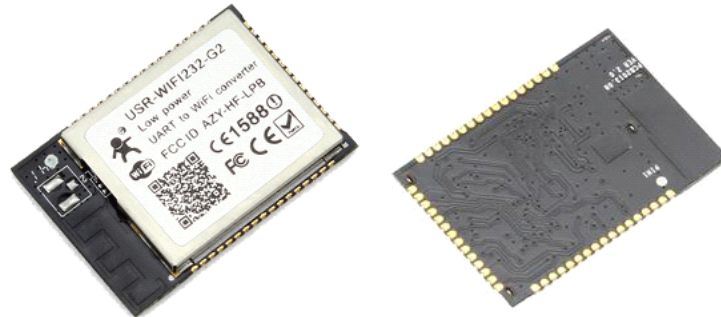


USR-WIFI232-G2

SPI Interface User Manual V1.0



Product Features:

Support UART/SPI two communication interface, user can freely choose according to demand.

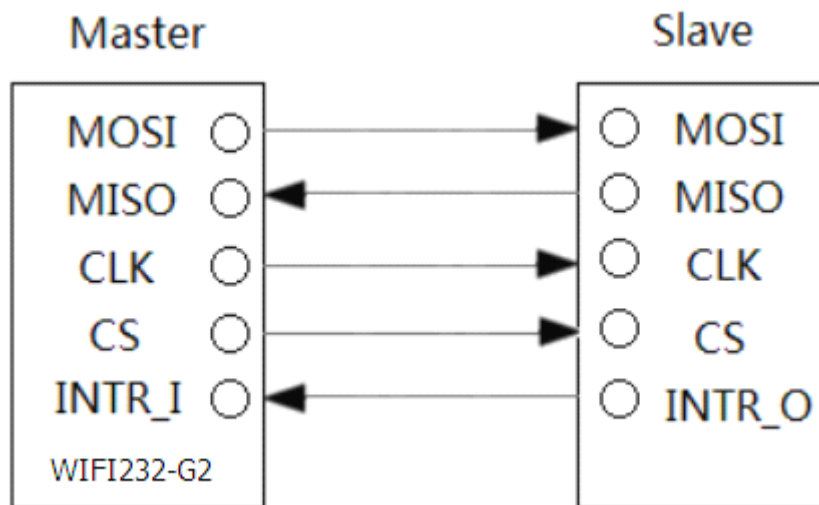
- UART communication mode, please refer to "USR-WIFI232 Low Power WiFi Module User Manual V2.1"
- SPI communication, please refer to this documentation

1、Function Description

The USR-WIFI232-G2 module supports SPI data communication mode, the module connect with SPI device via 5 pin, using interrupt trigger level to support different clock polarity and phase four transmission modes, up to 6MHz rate.

1.1 Hardware connect

In SPI communication mode, the module operates in master mode, the connection circuit as following.



Module SPI pins description:

SPI pins	WIFI232-G2 Module pin index	Function description
MOSI	Pin 30	SPI data out pin
MISO	Pin 27	SPI data in pin
CLK	Pin 28	SPI clock signal pin
CS	Pin 29	SPI select pins
INTR_I	Pin 23	SPI interrupt input pin, if the data needs to be sent from the slave device to the master device, the slave device need to sends an interrupt to the master device through the INTR pin. Low effective. Master device read data from slave device when INTR pin is low, and stop read data when INTR pin is high.

1.2 SPI Function Switch Method Description

Use AT command "AT+SPIEN=on" to open SPI mode, use "AT+SPIP" set parameters.

- AT+ SPIEN set SPI mode, restart to effect, UART will automatic close
- AT+SPIP set SPI parameters; master mode, transmission mode, clock frequency

AT+SPIP=<ms, mode, frequency><CR>

+ok<CR>< LF ><CR>< LF >

Parameters:

ms: m, means master

mode: transmission mode, support 0,1,2,3

frequency: clock frequency, support 6MHz,3MHz,1.5MHz,750KHz,350KHz

Transmission mode corresponding clock polarity (CPOL) and clock phase (CPHA) in the following table:

SPI Bus Protocol Mode	CPOL	CPHA
0	0	0
1	0	1
2	1	0
3	1	1

1.3 SPI Function Using Introduction

1. SPI data sending (module → slave device)

When module sends data to slave device, INTR_I pin need to be a high level; and the module will set CS pin low level. While transmitting, the MSB is first.

2. SPI data receiving (slave device→module)

When slave device sends data to the module, need to write data to the SPI buffer, then set INTR_I pin low level, until the data is read by module, and then set INTR_I pin high level.

Note: While reading data, module don't set CS pin low level.