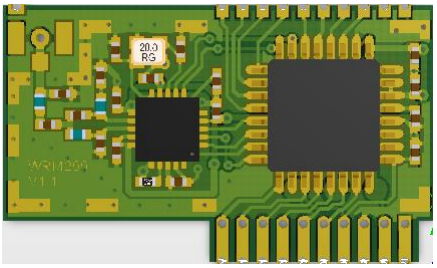
Wireless Receiving Module WRM2XX

User Manual V1.1

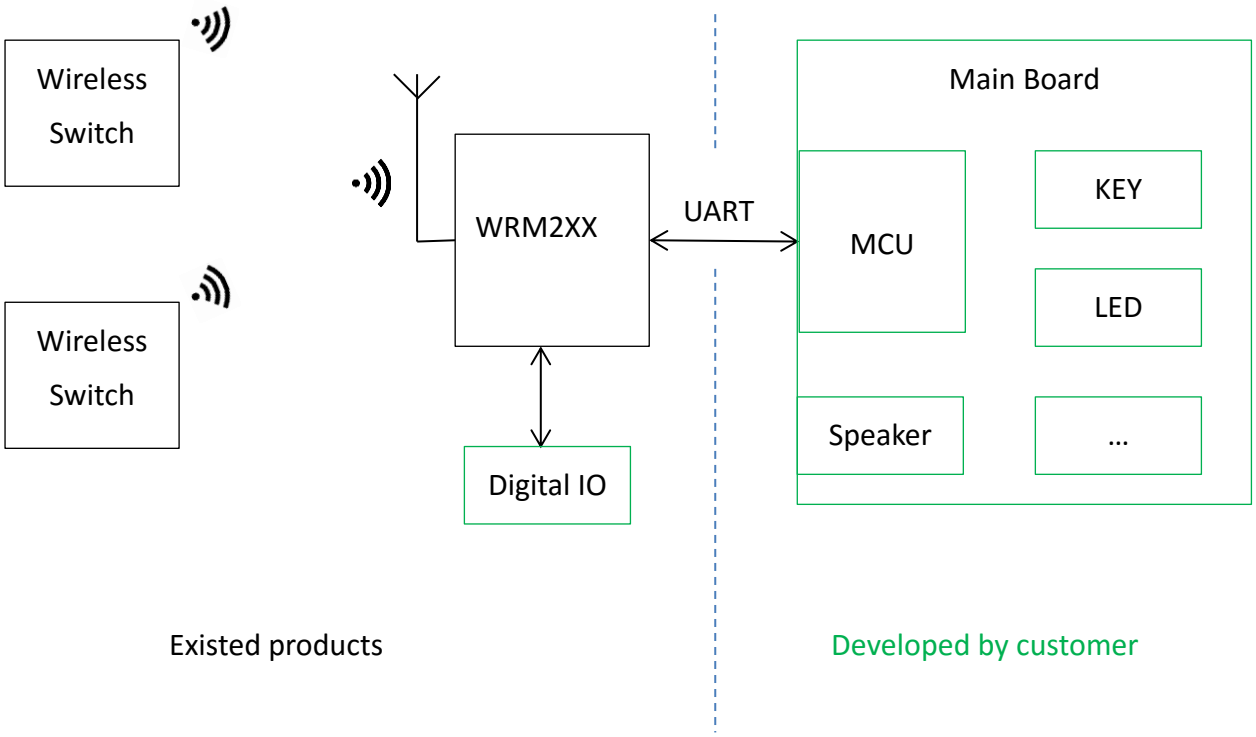
1. Overview



WRM2XX is a receiver that can receive the WSM400 signal and output UART data packet and digital IO.

it receives the RF packets from the self-powered wireless switch and transfer the data to UART interface and digital IO. So that the other MCU or device can get the RF data and to do some procesing.

The typical application is as follow. (a wireless chime for example)



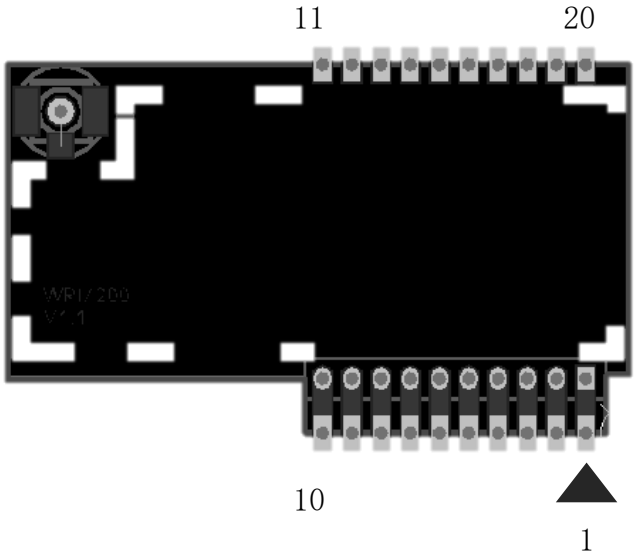
2. Data sheet

Voltage	MIN：3.0V, TYPE: 3.3V MAX：3.6V
Current	20 mA
PIN	*Depends on detail model*
Antenna	*Depends on detail model*
Dimension	16.0 * 27 * 3（mm）
Data interface	UART, 57600bps,8,1
Operating Temperature	-25℃ -- 65℃

Detail Model is as follow depends on the difference to the PIN and antenna:

Model	Description	Remark
WRM200-U	NO PIN, No antenna	SMD mounting, additional antenna is needed.
WRM202-U	NO PIN， 80mm wire antenna	SMD mounting.
WRM222-U	10 90-degree PIN, 80mm wire antenna	DIP mounting.

3. PIN



The PIN assigning for WRM2XX is as follow:

PIN.No	Name	Remark
1	VCC	POWER
2	NA	--
3	GND	POWER
4	NA	--
5	UART_RX	RX for the module
6	UART_TX	TX for the module
7	LED	OUTPUT, active high
8	KEY	INPUT, active low
9	NA	--
10	RELAY	OUTPUT, active high
11-20	NA	--

4. Digital IO

IO	Function
KEY	Input, active low, it can put the receiver into learn mode or clean up mode. Active 3 seconds, the receiver enter learn mode, the “LED” and “RELAY” IO cycle output high 1s and low 1s, press the transmitter， the transmitter ID will be wrighted into Receiver EEPROM， the Receiver can recognize the transmitter. Active 10 seconds, the receiver EEPROM will be cleaned up.
LED	OUTPUT, active high, when the receiver receive the learned transmitter ID, the LED output high, and when the receiver receive the ID again, the LED output low.
RELAY	OUTPUT, active high, when the receiver receive the learned transmitter ID, the RELAY output high, and when the receiver receive the ID again, the RELAY output low.

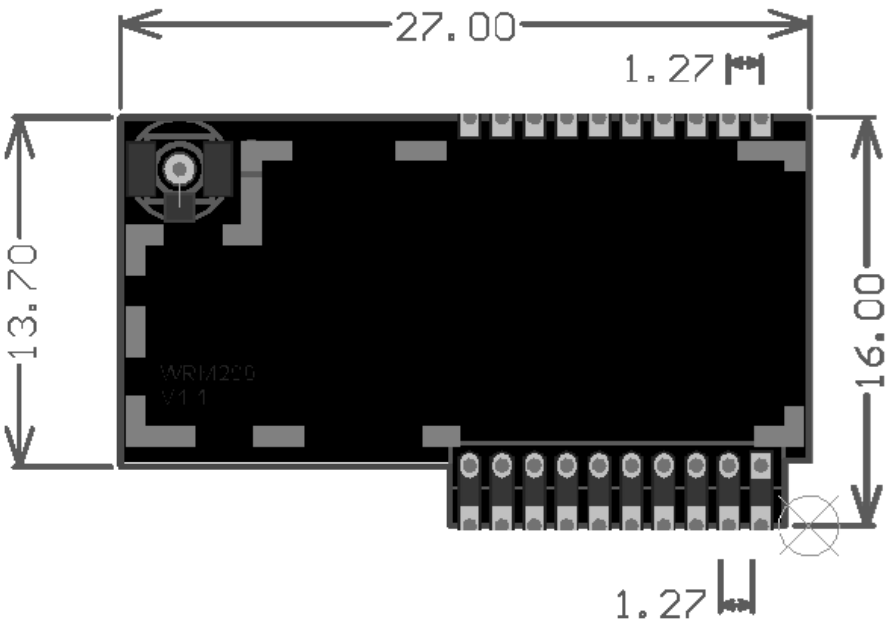
5.UART Packet

The general format of the data packet via the UART is as follow:

Group	Add	Size	Name	Value	Remark
-	0	1	Sync	0x55	Packet sync
Header	1	2	Length of the data	0xnnnn	
	3	1	Length of the optional data	0xnn	
	4	1	Packet type	0xnn	
-	5	1	CRC	0xnn	CRC for the header
Data	6	X	…	…	RF data packet for example
Optional Data	6+x	Y	…	…	Additional information, the RSSI, for example
-	6+x+y	1	CRC	0xnn	CRC for the data and optional data

To the RF data packet of the wireless switch, for example, the content of the UART packet is as follow:

Group	Add	Size	Name	Value	Remark
-	0	1	Sync	0x55	
Header	1	2	Length of the data	0x07	
	3	1	Length of the optional data	0x07	
	4	1	Packet type	0x01	
-	5	1	CRC	0xnn	CRC for the header
Data	6	1	Frame Ctrl	0x00	First byte of the RF packet: frame ctrl
Optional	7	4	ID	0xnnnnnnnn	ID of the switch.
Data	11	1	Type	0x01/0x02	Depends on the switch type.
-	12	1	Data	0xnn	Key value of the switch
Header	13	7	…	…	The first byte: RSSI. The others is zero.
-	20	1	CRC	0xnn	CRC for the data and optional data

For more information, please refer to the < Expansion Interface Protocol >.

5. Dimension