

SRWF-1028(V1.5) Wireless
Transceiver Data Module
user manual



ShangHai Sunray Technology Co.,Ltd



Application field:

- 1、 AMR system about the water, gas, electric and central heating.
- 2、 Industry remote control system and so on.
- 3、 Data collecting system.
- 4、 Data transmission system in the railway station, oil field, dock, army field and so on.
- 5、 Medical treatment and electric meter remote control system.
- 6、 Home and building automation system, street lamp wireless control system.
- 7、 Orienting steel wheel system
- 8、 Wireless intellectual over-weight detecting system
- 9、 Queue management system in the bank, hospital, hall and so on.

Introduce:

- Wireless transceiver modules SRWF-1028 can be used in any standard or nonstandard user protocol.
- The modules has highly be avoided disturbance ability, long transmission range. In the open field the distance can reach 4500m (4800bps, use AT-6 antenna).
- Low power consumption, Transmitting current 300~550mA, Receiving current 32~38mA.
- The frequency is 403MHz/433MHz/470MHz/868MHz/915MHz.
- User can order the channel. We can supply 8 channels normally. As the user needs we can design 16/32 channels also.
- The module has TTL/RS232/RS485 interface, 7E1,8N1,7E2,8E1,801,9N1 verify..
- We can supply the 1200bps/2400bps/4800bps/9600bps/19200bps baud rate. Users can choose one of the baud rate as you want.
- The user can also choose any antenna to match the modules.

I. Working qualification:

Parameter	Minimum value	Max value	remark
Temperature	-40℃	80℃	I
Working voltage	4.5V	5.5V	
Power supply current	>1A	~	
Working humidity	10%	90%	

II. Technical specification of SRWF-1028

item	Parameter	Memo
Modulation mode	GFSK/FSK	
Work frequency	403MHz/433MHz/470MHz/868MHz/915MHz	
Transmission power	27dBm (0.5W)	
Receiving sensitivity	-119dBm(403MHz/2400bps) -119dBm(433MHz/2400bps) -119dBm(470MHz/2400bps) -116dBm(868MHz/2400bps) -115dBm(915MHz/2400bps)	
Channel amount	8channel	User can order
Channel isolation	60dB	
Bandwidth of the channel	12.5K 25K 50k	1200~4800bps 9600bps 19200bps
Carrier frequency error	±5K	-20~70℃
Transmitting current	300~400mA 350~450mA 400~500mA 450~550mA	470MHz 403MHz 433MHz/868MHz 915MHz
Receiving current	32~38mA	
Baud rate	1200/2400/4800/9600/19200bps	User can choose one of them before order



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Interface mode	UART TTL/RS-232/RS-485	19200bps is inapplicability
Dimension	53mm×38mm×10mm	
Transmit distance	2500m	AT-14antenna (3dbi) 4800bps

III. Interface definition:

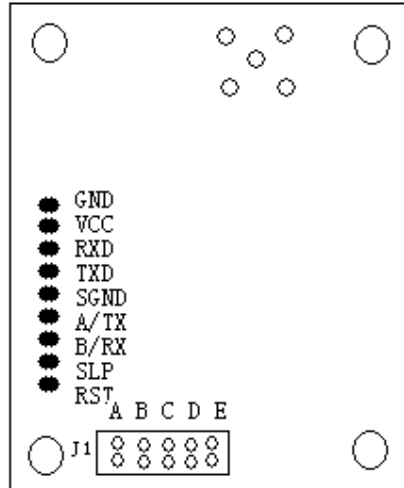
SRWF-1028 module can supply you an 9-pin connector (CON1), and its definitions as well as connection method for terminals are following show:

SRWF-1028pin	Description	Level	Connect To the terminal	Memo
GND	ground		ground	
VCC	Power supply DC	+4.5~5.5V		
RXD	Serial data receiving interface	TTL	TXD	
TXD	Serial data transmitting interface	TTL	RXD	
GND	Grounding of the signal			
A/TX	A of RS-485 Or TX of RS-232		A/RX	
B/RX	B of RS-485 or RX of RS-232		B/TX	
RST	Reset control (input)	TTL	Reset signal	Negative pulse reset 1ms

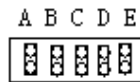
IV. Setting of the channel, interface, data rate and data format:

4.1. Before using SRWF-1028, you have to make simple configuration of your system parameter such as interface and data format.

There is one group of 5-bit short-circuiter wire (J1) on the bottom left corner of SRWF-1028, defined as A、B、C、D、E respectively. Assuming the open circuit of jumper wire (without short circuiter) is mode 1 and short circuit of jumper wire (with short circuiter) is mode 0.








Above figure is do not input the jumper. Input jumper means make the two points join together as the following show:



4.2. channel configuration:

ABC jumper wires of J1 provide 8 options and you can choose 0-7 channels(ABC jumper wire mode is the same), you can transmit data between each module, but keep in mind at the same time only one modules is in TX mode.

JUMPER ABC	Channel number	403MHz	433MHz	470MHz	868MHz	915MHz
	0	404.00MHz	433.85MHz	470.250 MHz	869.43MHz	915.00MHz
	1	404.20MHz	432.10MHz	470.360 MHz	869.49MHz	915.20MHz
	2	404.40MHz	433.20MHz	470.490 MHz	869.56MHz	915.40MHz
	3	404.60MHz	433.25MHz	470.100 MHz	869.62MHz	915.60MHz
	4	404.80MHz	434.00MHz	470.652 MHz	867.80MHz	915.80MHz



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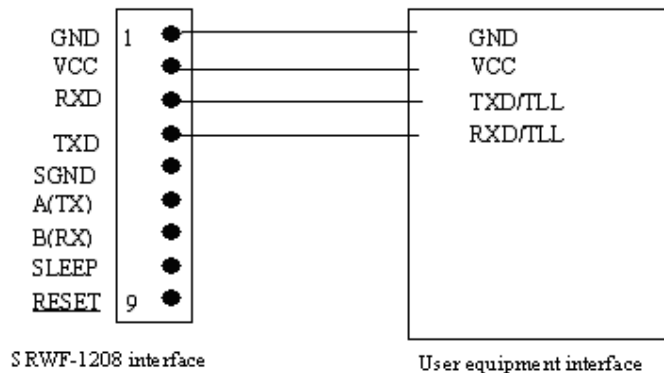
	5	405.00MHz	432.65MHz	470.842 MHz	868.00MHz	916.00MHz
	6	405.20MHz	433.40MHz	470.900 MHz	868.20MHz	916.20MHz
	7	405.4MHz	432.60MHz	470.72 MHz	868.40MHz	916.40MHz

Notice: when use the multi-channel at the same time in the near place, the transmit distance will reduce. So it needed to increase distance about the different channel modules. If the distance between the two different channel modules is more than 10m, it will not affect the distance. If it must put the modules in short distance, you can also add the channel spacing. For examples, if A module you choose Channel 1, then B module you can choose channel 3, do not choose channel 2. As this way it can also reduce this affect.

4.3. Selection of interface mode:

SRWF-1028 provides three types of interface mode. COM1 (Pin3 and Pin4 of CON1) is fixed as UART serial port of TTL level; COM2 (Pin6 and Pin7 of CON1) can choose interface mode (RS-232/RS-485) through D of J1

4.3.1 TTL interface connection application circuit:



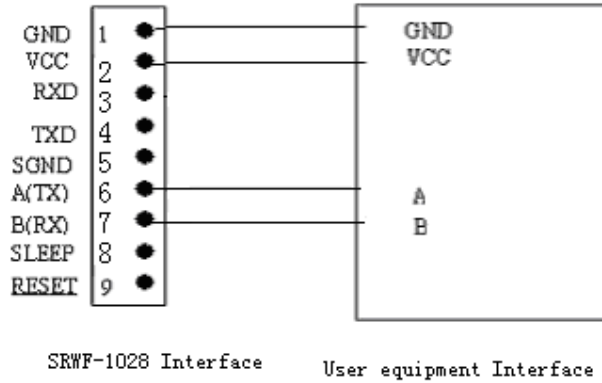
NOTE: Please do not connect any wire on PIN6 and PIN7 and also if the other wire you do not use, please cut them down. Or it will have interference.

If you use the TTL only please make sure the D jumper of JP2 without jumper

wire(D=0 $\frac{D}{\text{---}}$)

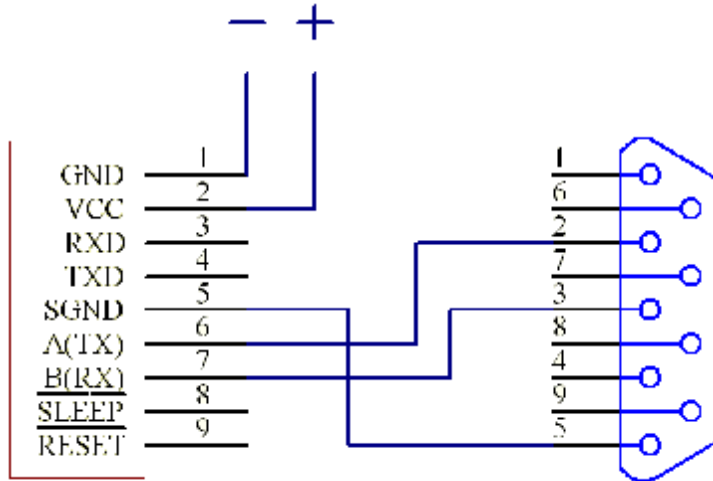
4. 3. 2 RS-232 interface connection application corcuit

D=1(with short jumper as $\frac{D}{\text{---}}$)



Note: Do not connect other wires or it will has interfere.

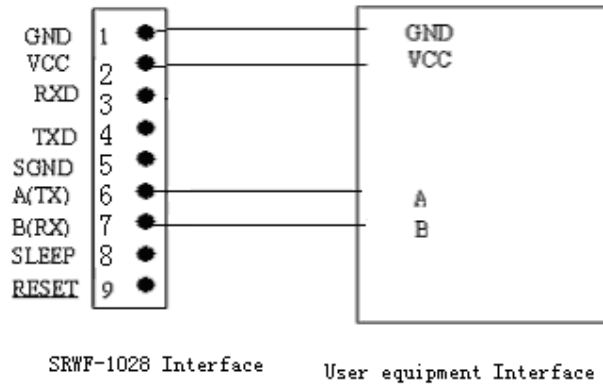
Module and computer DB9 connection figure:



***Note:** if the module and the equipment use different Power supply please make sure the two use the same GND (join the two' s GND together).

4. 3. 3 RS-485 Interface connection application circuit

D=0(without short jumper as $\frac{D}{\text{---}}$)



Note: Do not connect other wires or it will has interfere.

4.4: interface rate setting

The rate of SRWF-1028 is determined by hardware; to make sure the module rate is suit to your system, we are must be told your system' s rate.

4.5: SRWF-1028 can support no parity and even parity mode of the serial communication

UART it can chose parity mode through E of J1

E=0 (without short circuiter) parity 8E1 (even parity)/801/9N1/7E2

E=1 (with short circuiter) parity 8N1 (no parity)/7E1

NOTE: channel setting, Com2' s Interface mode and parity mode is fixed after the power is on if you want to change the setting, you must reset the module or Power on again

V: Indicator Led function:

1. When power on the module, Green Led will flash one time, it means the modules is now output an edition information. From the edition users can know the module's basic information. For example:

SRWF-1028 (V111)

C=00 (433) , RS485/RS232, 8N1/9N1

Note: SRWF-1028 means the module brand, 433means the module's working frequence (V111) means the module's edition number.

“00” means channel number, RS485/RS232 is the interface choose

8N1/9N1 is the verify mode.

2. When the data need to transmit to the air, Red Led will flash one time (when use RS232 or RS485 interface the light will not flash)
3. when the module receive the data from air, the Green Led will flash again.

VI: Time diagram:

6.1. transmit timing delay

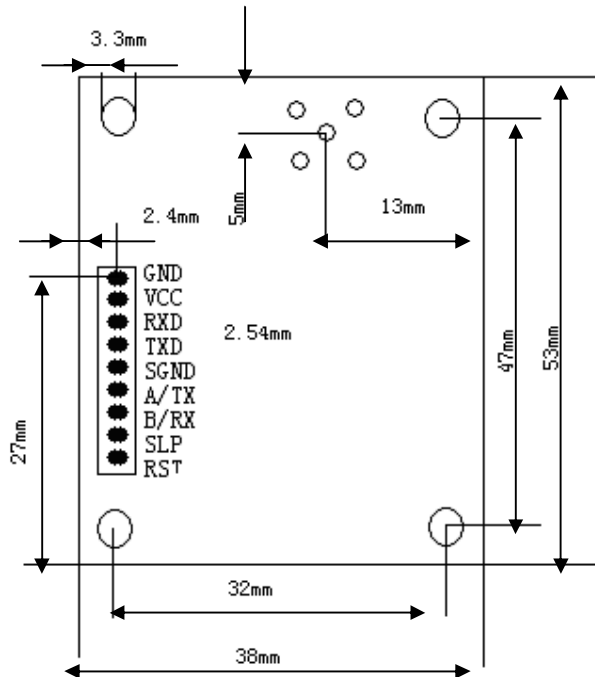
When the RXD of the SRWF-1028 (named A) receive data, then the modules send the data to modules B (SRWF-1028), then the TXD output the data. Between those transmit it has a timing delay (T_d). Different baud rate has different delay time. Example: when you choose 1200bps, you need add 122ms delay in your program.

Baud rate(bps)	Time delay(T_d /ms)
1200	122ms
2400	58ms
4800	31ms
9600	16ms
19200	8ms



Transmit timing delay map

VII: assembly drawing of structural size:



VIII、 technology support and after service :

We offer sufficient technology support for user use the module and second development for free; mending broken module one year for free, always offer after service.

To adapt different user structure, we can develop smaller module or various size modules

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