SRWF-1028(V1.5) Wireless Transceiver Data Module User Manual

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I. Application Field

+ Automatic Meter Reading (AMR) system for water, electric gas and heat meter system

+ Remote Control for Industry vehicle and lifting machine

+ Production line data collecting

+ Data communication for railway, oil well, dock and army

+ Medical treatments and electric instruments automation control

+ Wireless intelligent control for lighting system

+ Security alarm, attendance checking and locating for coal mine workers under well

+ Car alarm, tire pressure monitoring and four-wheel orientation

+ Wireless POS, PDA wireless smart terminals

+ Wireless dishes ordering system

+ Queuing management system in the bank, hospital, hall and etc

II. Introduction

● Wireless transceiver modules SRWF-1028 can be used in any standard or nonstandard user protocol.

● The module 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, 8O1, 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.

III. Working qualification

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

IV. Technical specification of SRWF-1028

Item	Parameter	Note
Modulation mode	GFSK/FSK	
Working frequency	403MHz/433MHz/470MHz/868MHz/915MHz	
Transmitting 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

V. Interface Definition

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

Pins	Description	level	Connected to terminal	Note
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

VI. Channels, Interface Mode and Baud Rate Configuration

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 left corner of SRWF-1028, defined as A、B 、C、D、E respectively .
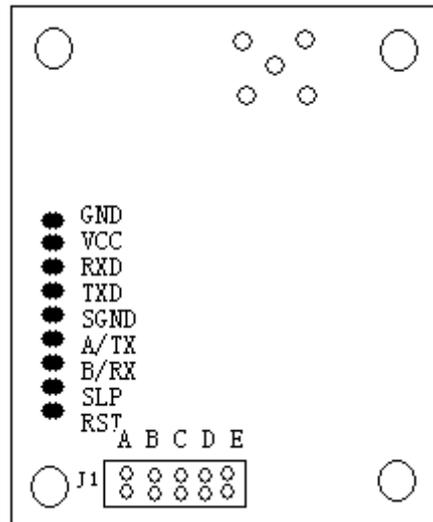
Above figure is do not input the jumper. Input jumper means make the two points join together as the following show:
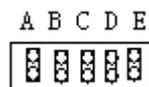
1. Channel configuration:

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

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A B C						
(switch 5)	5	405.00	432.65	470.842	868.00	916.00
(switch 6)	6	405.20	433.40	470.900	868.20	916.20
(switch 7)	7	405.40	432.60	470.720	868.40	916.40

Note: 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. Foe 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.

2. Selection of interface mode

SRWF-1028 provides there 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

1) TTL interface connection application circuit：


```
GND   1  ●                     GND
VCC      ●                     VCC
RXD      ●                     TXD/TLL
TXD      ●                     RXD/TLL
SGND     ●
A(TX)    ●
B(RX)    ●
SLEEP    ●
RESET 9  ●
```

S RWF-1208 interface   User equipment interface
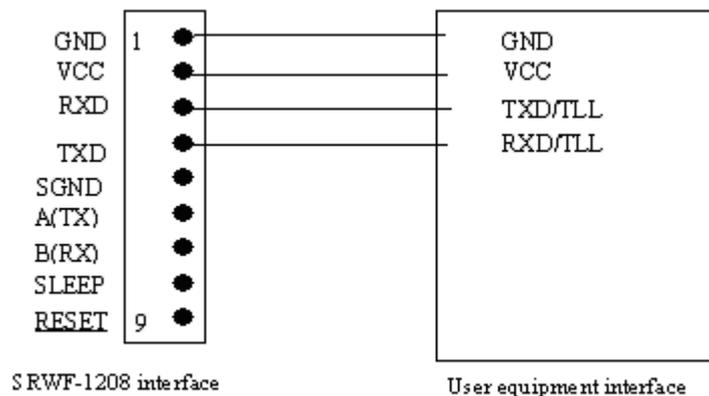
NOTE: Please do not connect any wire on PIN6 and PIN7. And for the other wire you do not use, please cut them down, otherwise will result in interference.
If you only use TTL, please make sure the D jumper of JP2 is without jumper wire

(D=0 ⊟)

2) RS-232 interface connection application circuit

D=1(with   short   jumper   as   ⊟   )

SRWF-1028 Interface   User equipment Interface
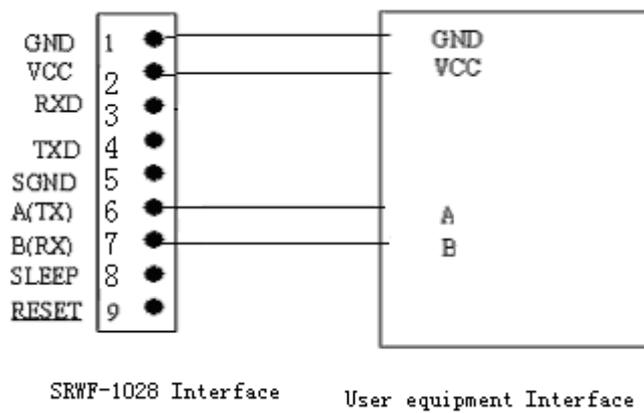
Note: Please do not connect any other wire, otherwise will result in interference.
Module and computer DB9 connection figure:
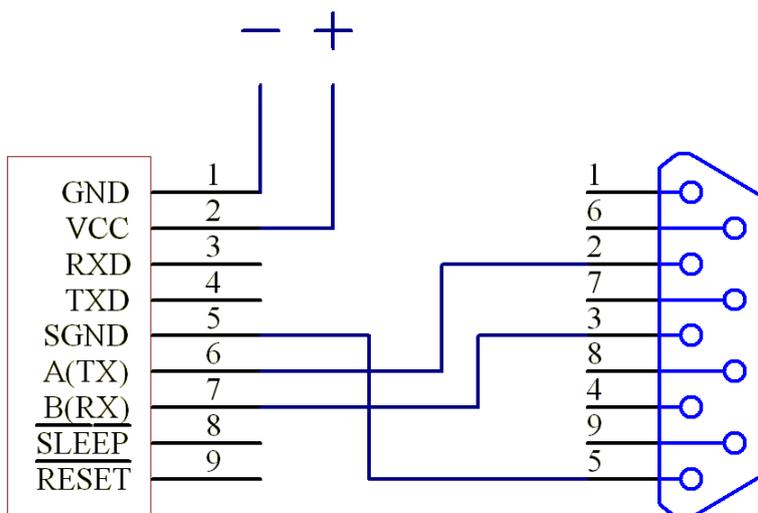
Note: If the module and the equipment use different Power supply please make sure the two use the same GND (join the two's GND together).

3) RS-485 Interface connection application circuit

D=0(without short jumper as $\frac{D}{\underset{\circ}{\circ}}$)

SRWF-1028 Interface   User equipment Interface
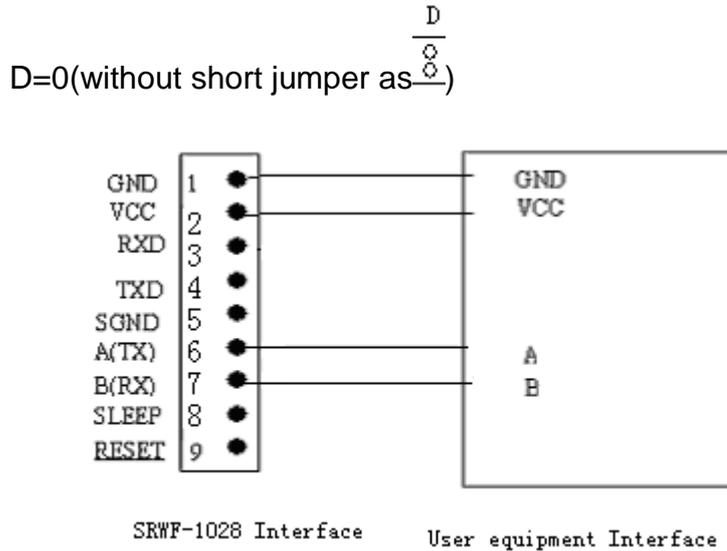
Note: Please do not connect any other wire, otherwise will result in interference.

3. Interface Rate Setting
The rate of SRWF-1028 is determined by hardware, in order to make sure the module rate is suitable to your system, we must be told your system's rate.

4. 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

VII. Indicator Led function

1. When power on the module，Green Led   will flash one time, it means the module 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

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Note: SRWF-1028 means the module brand,433means the module's working frequency（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 receives the data from air, the Green Led will flash again.

VIII. Time Delay diagram

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 (Td). 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(Td/ms)
1200	122ms
2400	58ms
4800	31ms
9600	16ms
19200	8ms
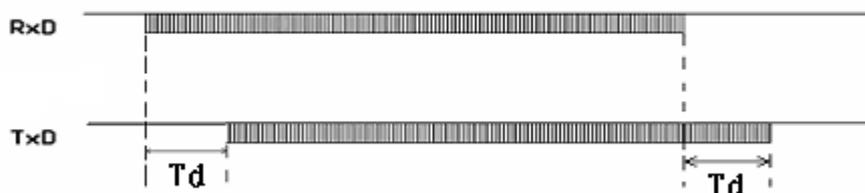
Transmit Time Delay Diagram

IX. Layout dimension
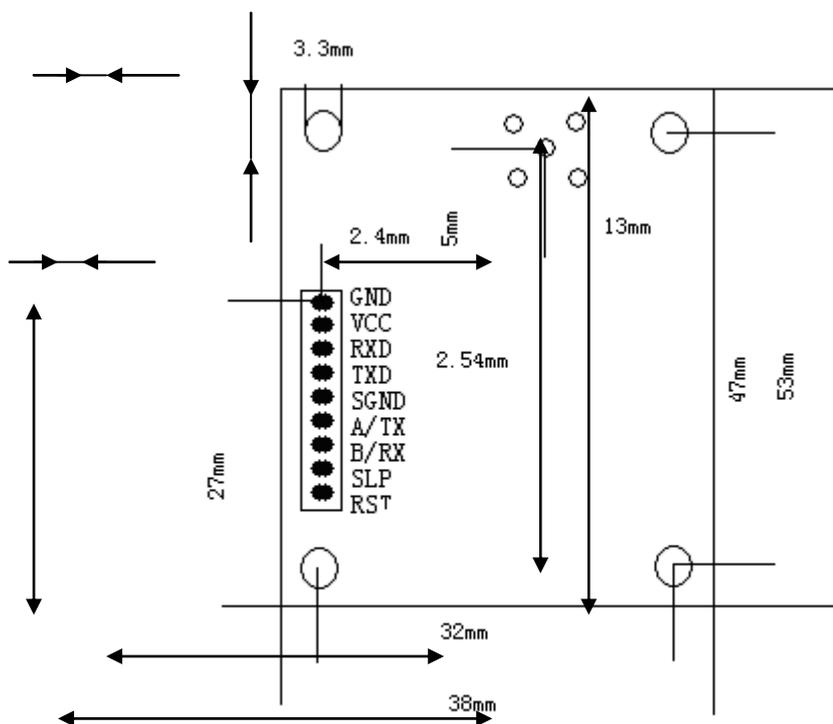
X. Technical Support and After Service

We provide technical support of applications and secondary development for our clients. Our products have one-year warranty and perpetual maintenance services.

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