WENSHING®©

Wireless Data Radio Modem Version2

(USB Output/RS232 Output/485 Output/TTL Output)

902~928MHz 500mW Multi-point Transceiver

Model：RD232-H-USB-925M-Version2
(USB Interface)

Model：RD232-H-RS232-925M-Version2
(RS232 Interface)

Model：RD232-H-RS485-925M-Version2
(USB Interface)

Model：RD232-H-TTL-925M-Version2
(TTL Interface)

Version History

Version	Date	Changes
V1.01	May.16, 2018	1st. Edition

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Important Event

- This product is in general use for the equipment on the premise of the development, design, manufacture. Do not use that require high security purposes, such as machinery or medical, aviation equipment, machinery and transport-related deaths are directly or indirectly related to the system.
- This product should be in this brochure by the instructions of the types and rated voltage power under the current proper use. If violation of this statement by the safety records of the supply operation, I am afraid our company cannot afford any of the responsibility.
- Do not self-decomposition, alteration, repair of the products also will cause fire, electric shock, fault, and dangerous. In addition, their decomposition, alteration, repair the product, failure is not within the scope of warranty.
- The products are not waterproof, so please do not use and touch water. Take off and on also please note. Rain, spray, drinks, steam, sweat may be a failure.
- Use of this product, please be sure to use according to the statement recorded by the use of methods to operate. Please do not violate particular attention to the matter reminded to use.
- Please respect this statement recorded by the note. When consumers in contravention of this statement recorded note of the operation, I am afraid our company could not shoulder any responsibility.
- Products are defective, the Company will be responsible for free to amend the flaws, or to the same flawless product or its equivalent products in exchange. However, the Company does not assume based on the requirements of the flaw and loss responsibility.
- The Company reserves the right to retain without notice to users of the cases, the product of hardware / software (version upgrade) is with the right to edit.

Declaration

This product provides different frequency for user selection to meet different telecommunication regulation and FCC/CE on different countries.

Warranty

The warranty time is within one year from purchased date. The warranty scope are used in normal situation and none vandalism. (Some function harmful out of warranty scope and Vandalism are Un-warranty).

Un-warranty Scope Description

- Because the natural disaster, accident or human factor to cause the bad damage.
- Violate the product instruction manual to cause the damage of the products.
- The improper assemble causes damage.
- The products used the unsanctioned accessory to cause damaged.
- Overstep the allowed used environment to cause the products damaged.

Contact Us

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Key Feature

- 925MHz
- UHF Band Wireless Data Transceiver
- RF Output Power up to 500mW
- Sensitivity up to -126dBm (2Kbps)
- USB, RS232,RS485,TTL Interface
- Transceiver Data Rate 1.6Kbps~128Kbps

Application

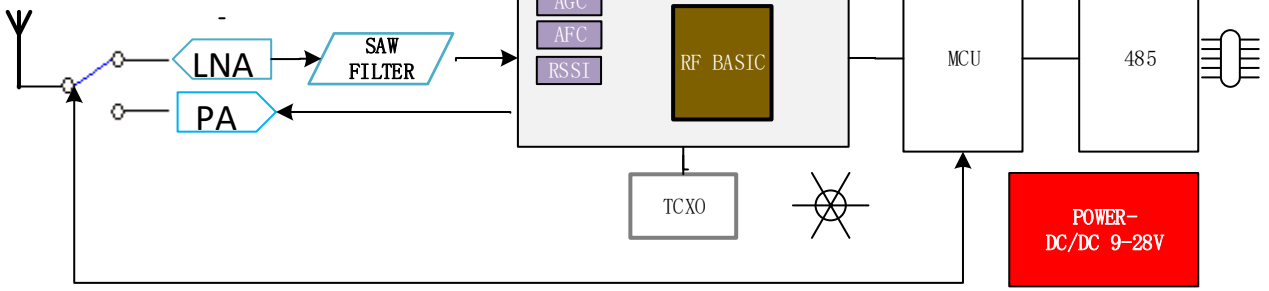
- Wireless Network
- Multi-Channel Home Automation Standard
- Wireless RS232
- Active RFID Base Station Transceiver

Characteristic

***Note: The series of RD232-H-Version2 require 7~12V power supply.**

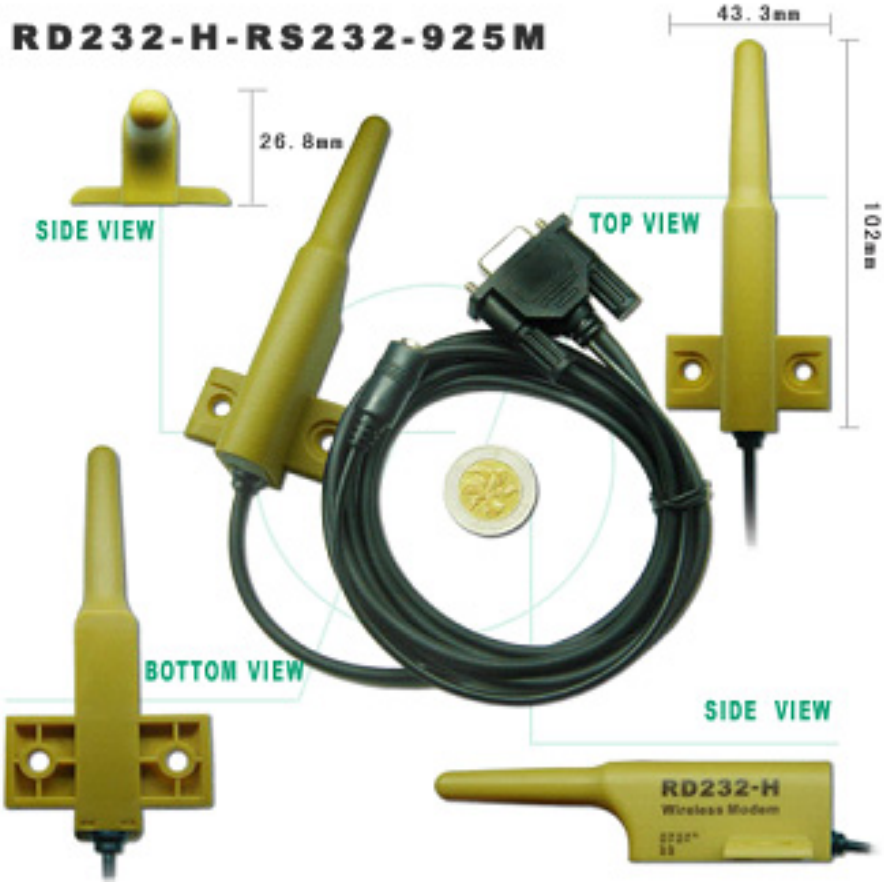
Parameter	Min	Type	Max	Unit	Condition
Operating Condition					
Operating Temperature Range	-10		+70	℃	
Operating Supply Voltage	7		12	V	
Current Consumption					
RX Mode (TTL 3V)		34	40	mA	
TX Mode (TTL 3V)			600	mA	Peak
RX Mode (RS485)		34	40	mA	
TX Mode (RS485)			600	mA	Peak
RX Mode (RS232)		34	40	mA	
TX Mode (RS232)			600	mA	Peak
RX Mode (USB)		34	40	mA	
TX Mode (USB)			600	mA	Peak
RF Characteristic					
Frequency Range	922	925	928	MHz	
Data Rate	1.6		128	Kbps	GFSK
TX Output Power		27	27.5	dBm	
RX Sensitivity		-126	-125	dBm	
Modulation		GFSK			
Other					
ESD			2000	V	
Interface Data Rate	1.2		115.2	Kbps	

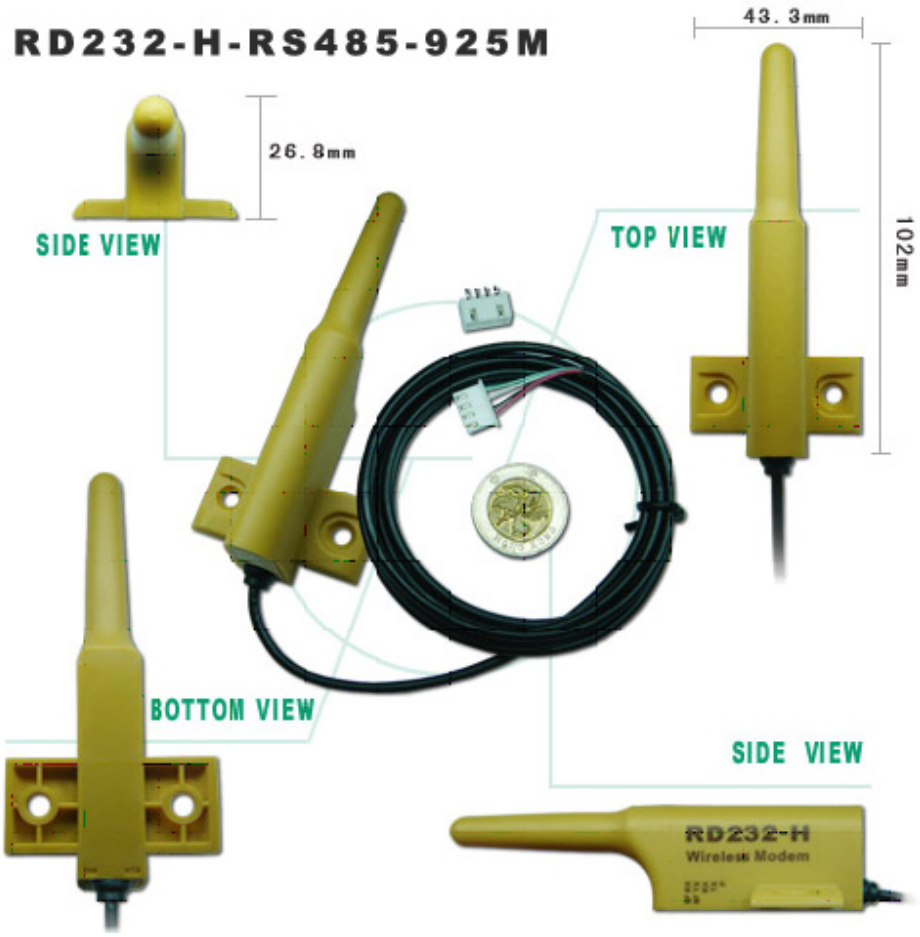
RD-232

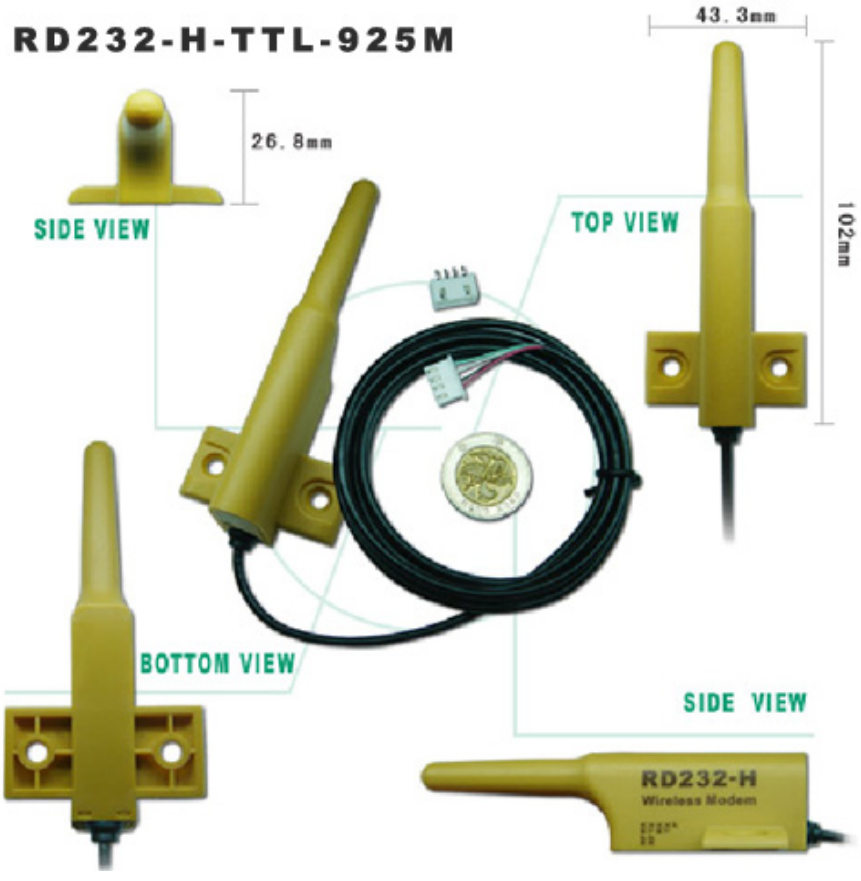

LNA
PA
SAW
FILTER
AGC
AFC
RSSI
RF BASIC
MCU
485
TCXO
POWER-
DC/DC 9-28V

View

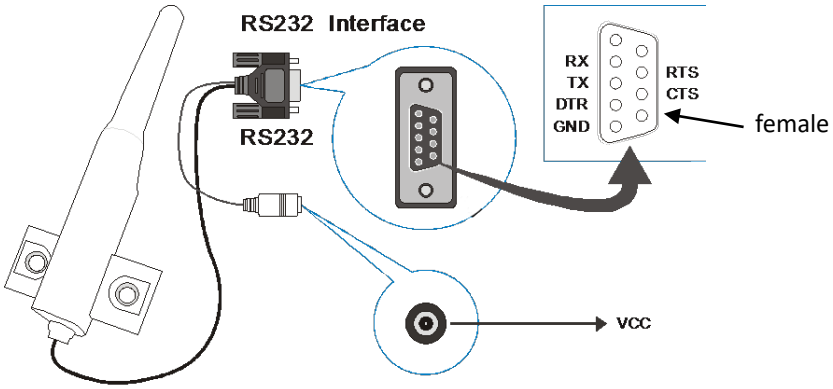
***Note: The series of RD232-H-Version2 require 7~12V power supply.**

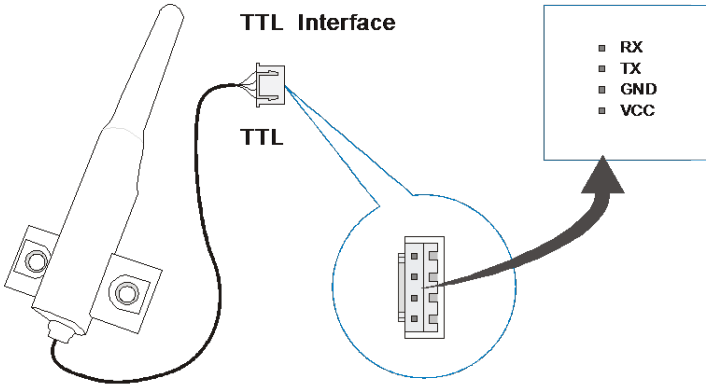


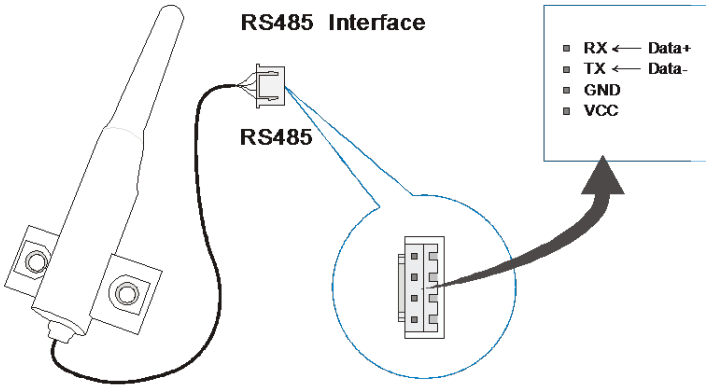

RD232-H-RS485-925M
43.3mm
26.8mm
SIDE VIEW
TOP VIEW
102mm
BOTTOM VIEW
SIDE VIEW
RD232-H
Wireless Modem

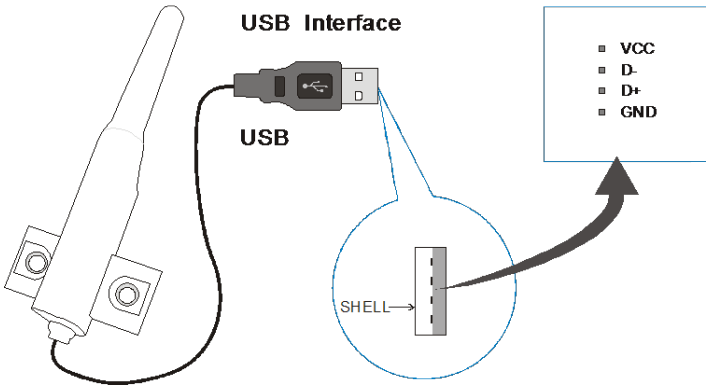

RD232-H-TTL-925M
43.3mm
26.8mm
SIDE VIEW
TOP VIEW
102mm
BOTTOM VIEW
SIDE VIEW
RD232-H
Wireless Modem

Pin Assignment



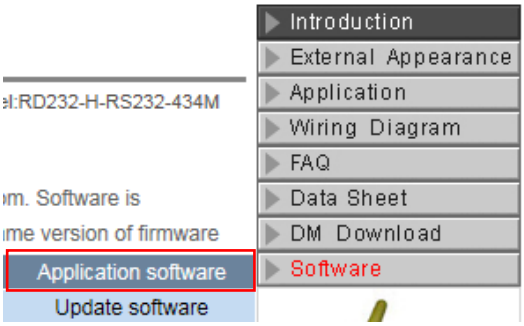




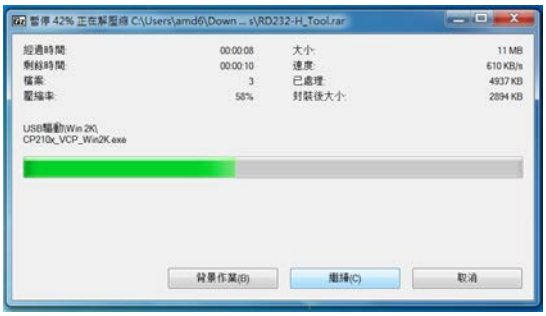


Installation instructions

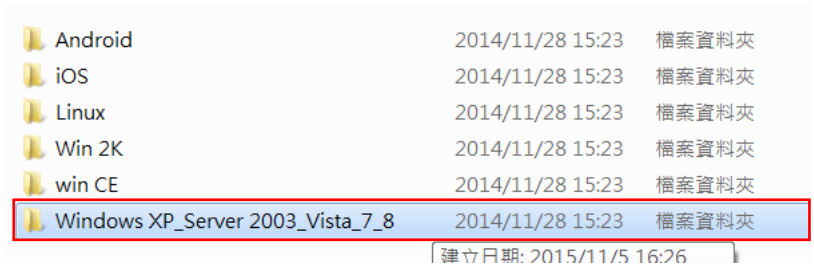
- Click on the “Software” / “Application software” button on the product information page to begin downloading product drivers.

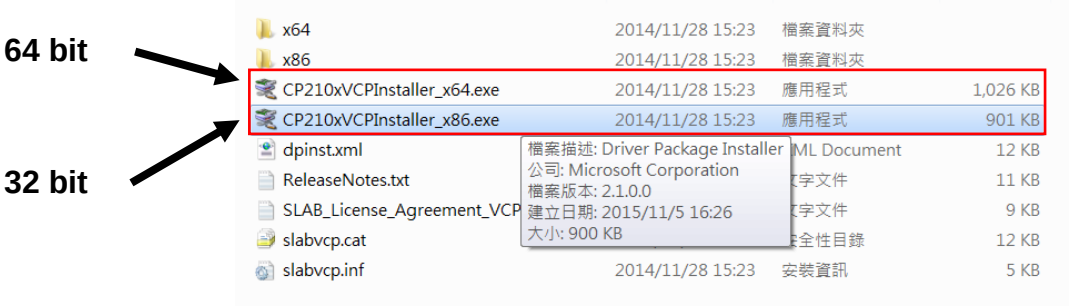


- Decompress the “Product driver” archive.



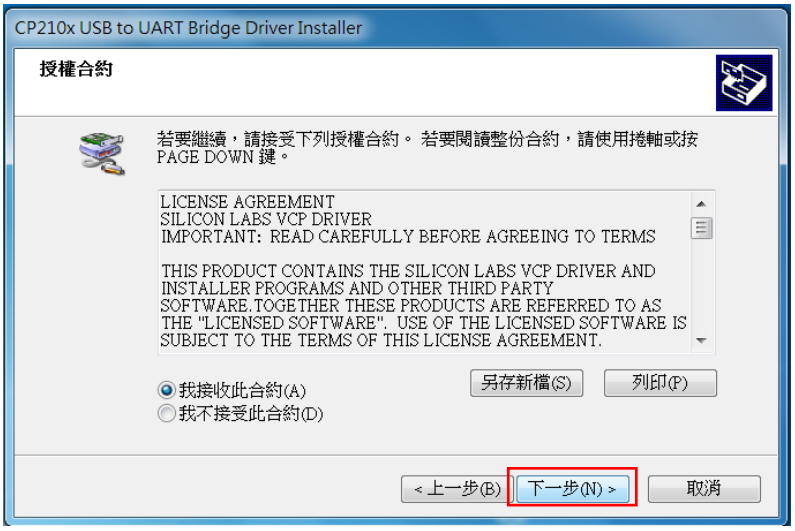
- After decompression, find the “Windows Server” archive, double click to find the 32 or 64 bit system installation .exe file.



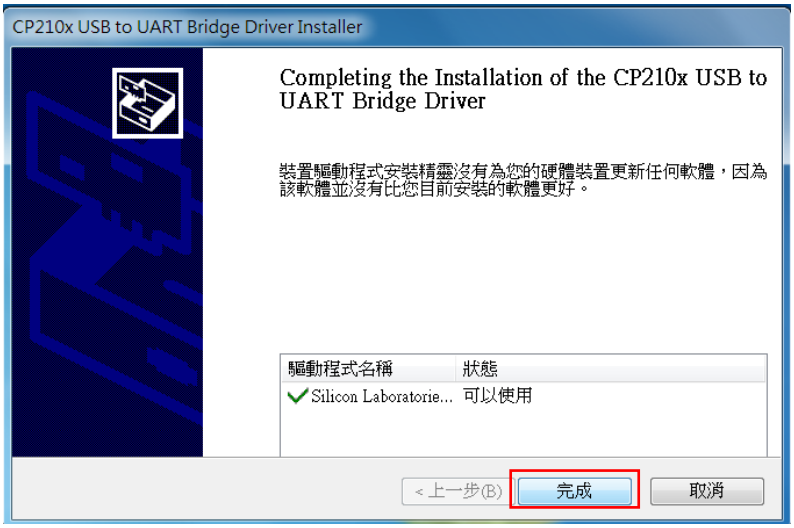


- Left click on “Next”.

- Check on “I agree this contract”, and left click on “Next” to continue.

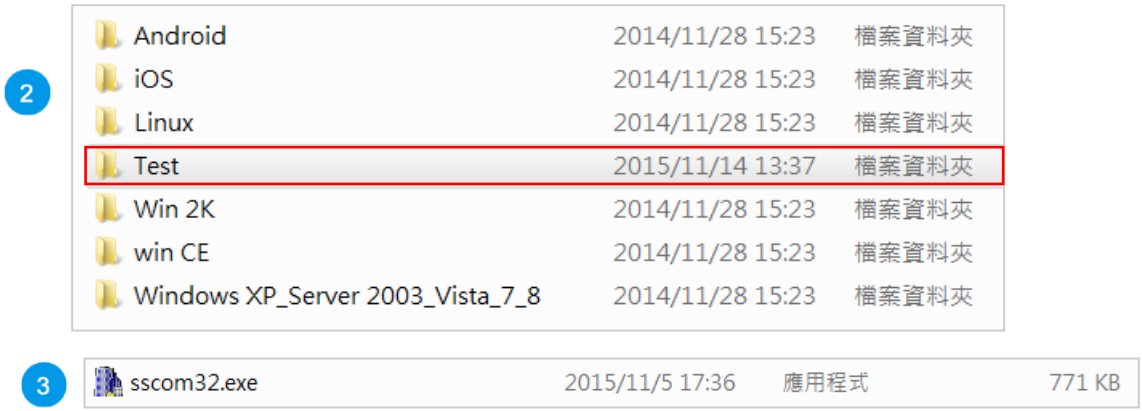


- Right click on “Finish” to complete and quit.

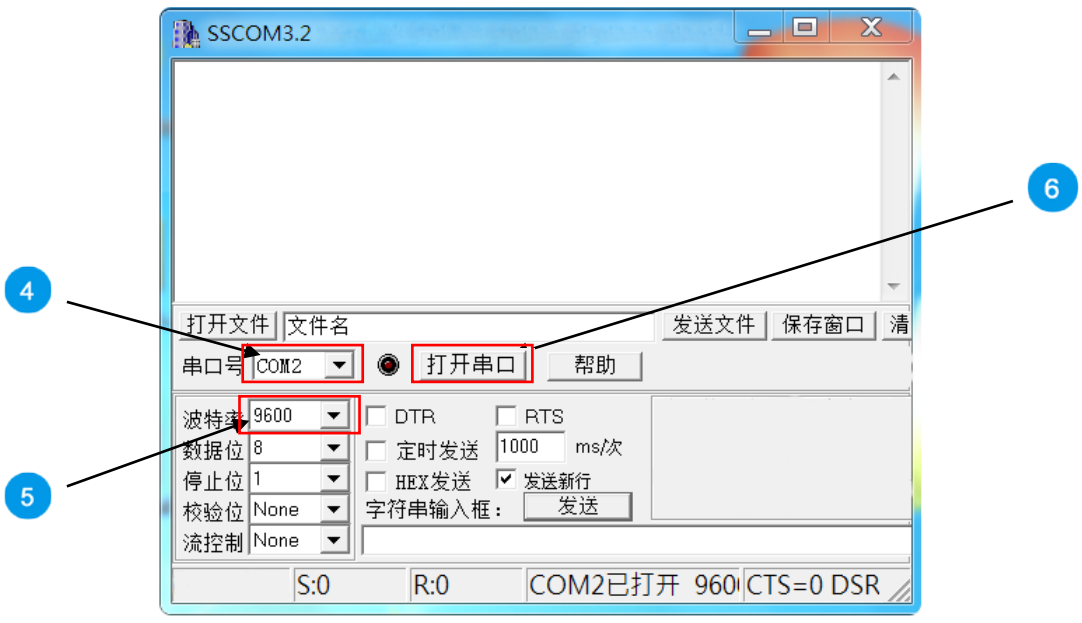


- Open Computer A, insert RD232-H-USB into the USB hub 1, then open the software's archive, find and double click on the "Test" file 2, then find and click on the "sscom32.exe." file 3.

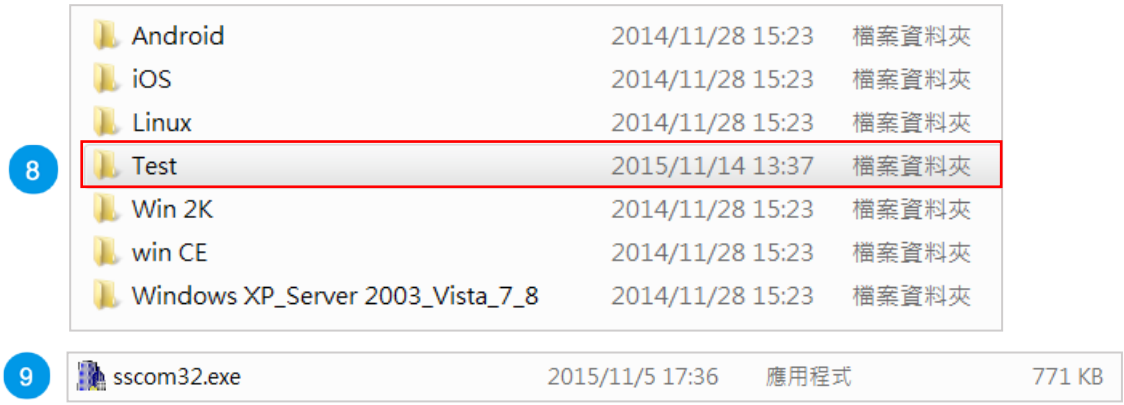
A.PC RD232-H-USB



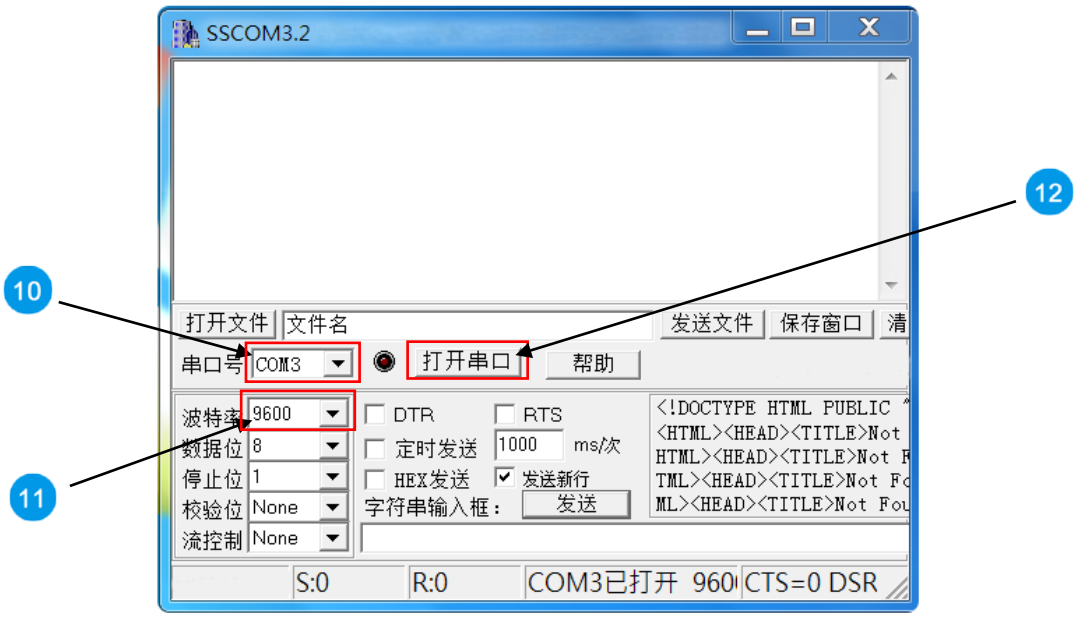
- Open the software, choose your "ComNum" (serial number, "COM2" for example) 4, then choose "9600" 5 for your baud rate, and then click on "Open Com" 6 to complete Computer A's setup.



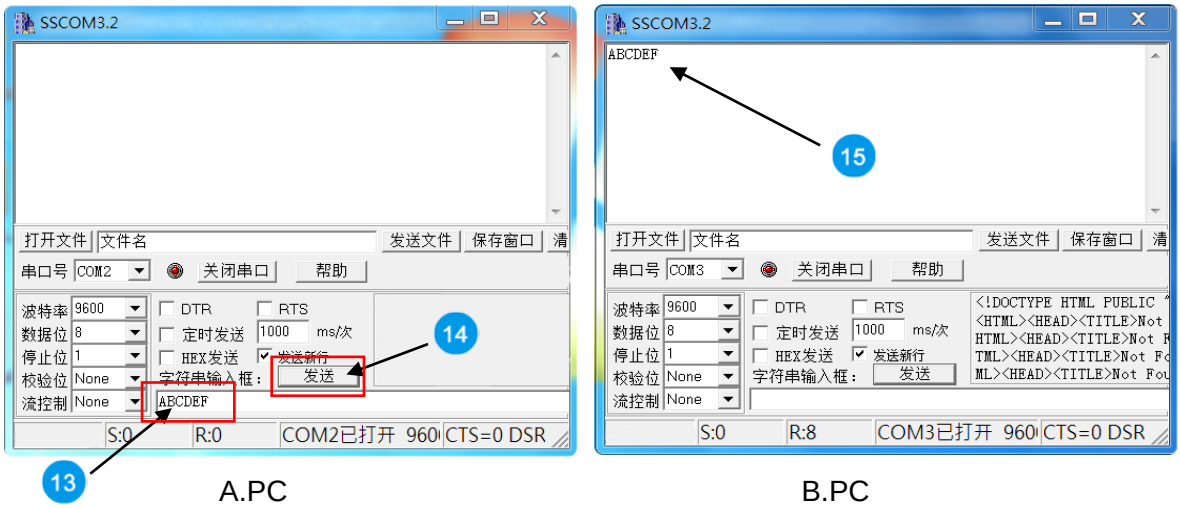
- Insert RD232-H-USB into Computer B’ s USB hub 7. Open the software’ s file and find the “Test” file 8. In the “Test” file, find and double click on “sscom32.exe” 9.



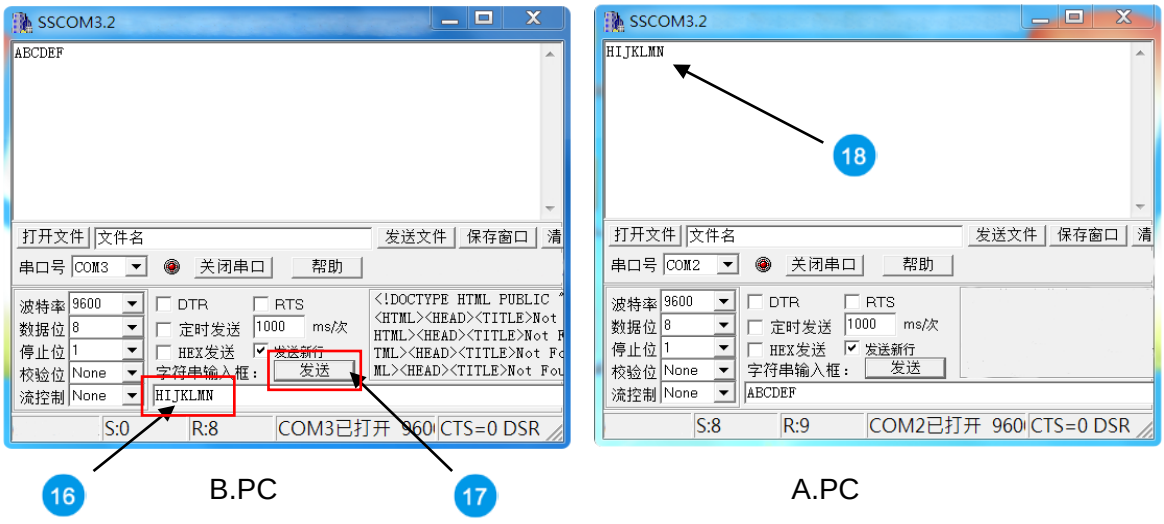
- Open the software, choose your “ComNum” (serial number, “COM3” for example), 10 then choose “9600” for your baud rate 11, and then click on “Open Com” 12 to complete Computer B’s setup.



- On Computer A’ s screen, type “ABCDEF” 13 under the “data input” 14 column. If pairing successful, you can find the same text on Computer B’ s screen 15 .



- On Computer B’ s screen, type “HIJKLMN” 16 under the “data input” 17 column. If pairing successful, you can find the same text on Computer A’ s screen 18 .



Instruction Mode

- **Into set up mode：**

Transmit value=0x01+0x02+～+7E+0x7F,total=127Bytes.

Receive value =0x01+0x02+～+7E+0x7F, total=127Bytes，and it transit 0x53 hint notes every second to tell user that it is on instruction mode.

✧ It needs to be in the set up mode to read or amend any parameter.

- **Exit code mode：**

Transmit value = 0xFF FF FF 55 CC

Receive value = nothing, it stop transit back 0x53 hint notes every second.

✧ It needs to be in the set up mode.

- **Read in product name and model：**

Transmit value =0xFF FF FF 55 AA BB FD

Receive value (no character) =TRW-V8_V001

✧ It has information total in 11Bytes, the first six characters is product name and last four characters are firmware.

- **Recover parameter：**

Transmit value =0xFF FF FF 55 AA BB FF

Receive value = nothing

✧ Delete the original parameter, and recover back to the new set code that is written in when it is out from factory.

- **Read in inside parameter：**

Transmit value =0xFF FF FF 55 AA BB FE

Receive value =0xFE03 00 00 00 00 05 0E 1D 48 07 00 00 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF (this is the out from factory mode)

✧ It has information that totals in 31Bytes, it is set inside parameter at present.

- **Set inside parameter：**

Transmit value =0xFE 03 00 00 00 00 05 0E 1D 48 07 00 00 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF，It transit 32 Bytes in total.

Receive value =0xFD 03 00 00 00 00 05 0E 1D 48 07 00 00 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF，it is 32 Bytes in total transit back. It means it is same as the inside parameter if the first Byte shows FE, after it finish the update.

✧ It is 31Bytes in total, change every parameter.

✧ The first Byte: the starting parameter, fixed to 0xFE

✧ The second Byte: checksum, stop bits, interface speed rate, set up range 00～07, the beginning rate is 9600bps.

Bit7：0~ 8-bit format (8,1,N/7,1,O/7,1,E/7,2,N)

1~ 9-bit format (8,1,O/8,1,E/8,1,S/8,2,N(8,1,M)

Note：N/O/E/M/S means None check(None)，Odd parity check(Odd)，Even parity check(Even)，1 check(Mark)，0 check(Space)

Bit6~5：00 None check/Mark check

01 Odd parity check

10 Even parity check

11 Space check

Bit4~3：fixed to 0

Bit2~0：interface rate

Value	0	1	2	3	4	5	6	7
Rate(bps)	1200	2400	4800	9600	19.2K	38.4K	57.6K	115.2K

✧ The third~ forth Byte：group (GID)，set up range 0000～FFFF

✧ The fifth Byte：instrument ID(SID)，set up range 00～FF

✧ The sixth Byte：wrong parameter, fixed as 0x00

✧ The seventh Byte：transmit rate, set up range 00～07; Normally, the RF transmit rate must greater than interface speed rate when setting up, it prevent having the wrong information.

Value	0	1	2	3	4	5	6	7
Rate(bps)	1600	3200	6400	12.8K	25.6K	51.2K	76.8K	128K

✧ The eighth ~ tenth Byte：working frequency, calculation:

MHz*1000=KHz, and transfer to 16 Bytes.

For example: when it is at 925MHz working frequency，

925*1000=925000=0x0E 1D 48 fill in 0E in the eighth Byte, fill in 1D in the ninth Byte, fill in 48 in the tenth Byte.

When it is at 924.5MHz working frequency, 924.5*1000=924500=0x0E 1B 54; fill in 0E in the eighth Byte, fill in 1B in the ninth Byte, fill in 54 in the tenth Byte.

✧ The eleventh Byte：

Bit0～Bit2：shooting rate，set up range 0~7

Output Power		
dBm	Set Value	Hex (Bit0～Bit2)
5	0	000
12	1	001

17	2	010
21	3	011
24	4	100
25	5	101
26	6	110
27	7	111

Bit3～Bit5：wrong parameter，fixed as 000

Bit6～Bit7：instrument working mode，there are four mode:

- **Mode 1 (long data mode: set up as 00)：**

  GID of every instrument can receive info at this mode, and it can specifically use on data info that is larger than 127Bytes.

- **Mode 2 (ID: info mode 1：set up as 01)：**

  Once GID can transmit to particular SID instrument under this mode, it is one to many; the single info must ≦127Bytes.

- Transmission: The first Byte is the SID of the receiver, and from the second byte, it becomes data.

Example: The SID of device A is 55, the SID of device B is 88, and they have the same GID. Under mode 2, device A is going to transmit data 0x1234567890, 5 Bytes in total, to B device, A then sends data 0x881234567890, 6Bytes in total to B, B will receive 0x551234567890, 6Byte in total. The first Byte is the SID of the transmitter.

- **Mode 3 (ID: info mode 2：set up as 10)：**

  Once GID can transmit to particular SID instrument under this mode, it is one to many; the single info must≦127Bytes.

Transmission: Data shall be transmitted under the same rule of the thirteen to thirty-two Byte.

Example: The GID of device A = AAAA, SID = 55; the GID of device B = BBBB, SID = 88; the GID of device C = CCCC, SID = 99.

A is going to transmit 0x1234567890 to B, 5 Bytes in total. A then sends 0x04FFBBBB881234567890, 10 Bytes in total, to B, B will receive 0x1234567890, 5 Bytes in total.

A is going to transmit 0x1234567890, 5 Bytes in total, to B via C. A then sends 0x08FFBBBB88FFCCCC991234567890, 14 Bytes in total, C will receive 0x1234567890, 5 Bytes in total, but B will not receive any data.

Mode 4 (saved ID data mode: set up as 11)：

It can set in advance to save particular GID and SID way, it will transmit it back referring to the track it is saved. It can forward the track up to fourteen times, the single info must≦127Bytes.

- ✧ The twelfth Byte：wrong parameter, it fixed as 0x00.
- ✧ The thirteenth ~ the thirty-two Byte：the pre saved track, it only works under mode 4 (saved ID data mode).
- ✧ The thirteenth Byte：It shows how much information in the fourteenth Byte ~thirty-two Byte.
- ✧ The fourteenth Byte ~ thirty-two Byte road formation:
  - ◆ **Example 1: 04 FF 12 34 55 11 22 33 44～00**

    From Byte 13, it can be seen that the effective 4 Byte data are FF 12 34 55.

    FF 12 34 55 represents GID=1234, SID=55. When this equipment receives data via UR, it will automatically transmit the data to GID=1234, SID=55.
  - ◆ **Example 2: 05 FF 12 34 55 11 22 33 44～00**

    From Byte 13, it can be seen that the effective 5 Byte data are FF 12 34 55 11.

    FF 12 34 55 11 represents GID=1234, SID=55 and 11. When this equipment receives data via UR, it can automatically transmit the data to GID=1234, SID=55 and then forward the data to GID=1234, SID=11.
  - ◆ **Example 3: 06 FF 12 34 55 11 22 33 44～00**

    From Byte 13, it can be seen that the effective 6 Bytes data are FF 12 34 55 11 22.

    FF 12 34 55 11 22 represents GID=1234, SID=55, 11 and 22. When this equipment receives data via UR, it will automatically transmit the data to GID=1234, SID=55, and forward the data to GID=1234, SID=11, and again forward the data to GID=1234, SID=22.
  - ◆ **Example 4: 08 FF 12 34 55 FF 45 67 88 44～00**

    From Byte 13, it can be seen that the 8 Byte effective data are FF 12 34 55 FF 45 67 88.

    FF 12 34 55 FF 45 67 88 represents GID=1234, SID=55 and GID=4567, SID=88. When this equipment receives the data via UR, it will automatically transmit the data to GID=1234, SID=55, and then forward the data to GID=4567, SID=88.

CE Caution Note (European Union)

Symbol of CE it accords with EMC regulation (89/336 / EEC) to represent this device, and the low-voltage regulation of European Union (73/23/EEC). It represents to follow the following standard regulations of European Union (The bracket is a reciprocal international standard reciprocal international standard and regulation).

- EN 60950/A11: 1997/(IEC 60950/A4: 1996),The ones that includes information science and technology of apparatus of e-commerce safe.
- EN 55024: 1998 (IEC 1000-4-2, 1000-4-3, 1000-4-4, 1000-4-5, 1000-4-6, 1000-4-8, 1000-4-11) -' scientific and technological apparatus of information - The characteristic of interfere avoided - Restrain and test method '
- Chapter 2 -Static release (ESD) Demand
- Chapter 3 -Radiate the static field demand
- Chapter 4 -The electron is transmitted / produced and washed (EFT) fast Demand.
- Chapter 5 -surge demand
- Chapter 6 -Resistance demand caused in field of wireless frequency.
- Chapter 8 -Magnetic field demand of electric frequency.
- Chapter 11 –Shortly cut off the demand of making a variation with the voltage transiently under the voltage.

EN 55022:1998/(CISPR 22:1997) ,Class B, ' “To assess information scientific and technological apparatus wireless restriction and way of interfering with the characteristic.”

FCC Consistent Declaration (U.S.A. Only)

Attention: FCC rule regulation, modified and changed must allowed by WENSHING Electronics company, otherwise that would make you operate this apparatus invalid. This apparatus adopted test, according to chapter 15 that FCC regulation, accord with Class B digital restrictions of device. These limits are designed to provide reasonable protection, avoid to having harmful interference at home’s environment.

This device may have radiated wireless frequency energy. If don’t allow the instruction manual, then may will interfere wireless communication. However, there is no any way to guarantee, it will not be interfered in particular installed. If this device really causes harmful interference, (It could be confirmed by turning on or off this device.) Advise you to try to use the following ways modifying the interference situation.

- Relocation receiving antenna or altering its direction.
- Increase the distance between device and receiver.
- Please connect this device to the outlet in the circuit different from the receiver.
- The following manuals is published by Federal Communications Commission, they must be helpful to all users.
- How to Identify and Resolve Radio-TV Interference Problems. (This manual can be obtained by relevant departments of publication of the U.S. government.)
- Government Printing Office, Washington D.C., 20402. Stock No. 004-00398-5