SV series network module communication protocol

1, Explanation of the PC software:

After Open PC software, user need to select the corresponding COM port and click the 【open】 button to open it. The PC software will show all the parameters stored in the module (about 1 second), it is the default value for user to use the module for the first time. At the same time the below status bar will show “Device Found”! The PC will show "Device Not Found!" when user disconnect the RF module from the PC and all the parameters in the product information box shall be null and void (gray).

With the normal connection on module, the module is in status of "can set parameters". User can change the related parameters through the PC interface, such as: frequency, channel, RF data rate, transmission power level, serial baud rate, data bits, stop bits, parity, NET ID, the MODULE Node ID, mode working mode (Node or Router)…etc.

User can click the 【 SET 】 button to configure the parameter into the module. Each time the " Successful " information will be returned after the parameter is successfully changed. All the parameters will be stored into the RF module and keep unchanged even power off. When power on next time, the RF module will read the parameters from the data flash and work with the written parameters automatically.

User click the【 Read 】 button, all the parameters information of the module will be read out and showed on the screen.

User click the 【 DEFAULT 】 button to set the module parameters into factory default status.

If any error occurs during the configuration, the PC will pop up ERROR dialog box.

Remarks：

1, The USB driver is successfully installed on PC before start to use.（not including the modules with 614&654 DB9 232interface）

2, Module needs switching to the configuration state. (The jumper socket on the USB Bridge board should be inserted, which make [set] pin of the RF module pull low before start to configure)

2, if user hopes to configure the RF module with their own system by UART, they should follow below protocol:

2.1), the serial parameters are:

Serial baud rate = 9600 BPS, data Bits = 8 Bits, stop bit = 1, parity = disable

2.2), the [set] pin of the RF module should be pulled low before start to configuration.

2.3), Instruction format for configuration is: AA FA + [command] + [parameter]

[Command] is 1 byte,

[Parameter] is HEX data of 0 or 14 bytes.

The module will return the acknowledge message after received one instruction, and the return message is ended with "\ r \ n"

3, Configuration Description:

3.1) 【 Product name & version 】 instruction:

Purpose： Read the module's product name and version number.

Instruction format: AA FA AA

The return message is: "SVxxxx_VERx. X \ r \ n"

For example: for module SV610

Instruction format: AA FA AA

Return: SV610_Ver2.62 \r\n.

3.2) 【 Read 】 instruction :

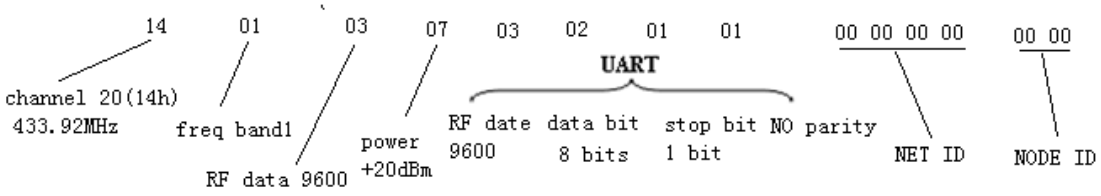
Description： Read all the parameters except product name and version.

Instruction format: AA FA 01

The return value in turn is:

RF channel—RF band—RF data rate—RF power— Serial data rate—Data bits —Stop bits —Parity —NET ID—NODE ID—\ r \ n

For example, when the module is set to factory default, the return value is as follows:



3.3)【 Default 】] instruction :

Purpose: Recovery to factory default parameters

Instruction format: AA FA 02

The return value in turn is: "OK \ r \ n" or "ERROR \ r \ n"

The default parameters are:

Rx/Tx Frequency = CH20 = 433.92 MHz

RF data rate for Tx and Rx = 9600 Bps

RF power = 7（Max level）

Serial port Baud rate = 9600 Bps Data Bits = 8 Bits Stop bit = 1 Bits Parity = NO

NET ID = 00 00 00 00 NODE ID = 00 00 Working mode = Node

3.4) [Write] instruction":

Purpose： Parameter setting commands, configure the parameters of 14 bytes into the module, as follows:

RF Channel—RF Band—RF Rate—RF Power— Serial transmission date—data bits—stop bits—parity —NET ID—NODE ID

Instruction format: AA FA 03 XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX

The return value in turn is: "OK \ r \ n" or "ERROR \ r \ n"

4, Description of the parameters:

4.1), Working frequency band

A total of 4 working frequencies, as shown in the list below:

Parameters	01	02	03	04
RF Band	433 MHz	470 MHz	868 MHz	915 MHz

	414.92 ~ 453.92 MHz	470.92 ~ 509.92 MHz	849.92 ~ 888.92 MHz	895.92 ~ 934.92 MHz

4.2), Channel

Each frequency band is divided into 40 channels; each channel separated by 1MHz, the corresponding frequency is shown in the table below:

frequency band1	channel	1	2	3	4	5	6	7	8	9	10
433MHz	frequency	414.92	415.92	416.92	417.92	418.92	419.92	420.92	421.92	422.92	423.92
	channel	11	12	13	14	15	16	17	18	19	20
	frequency	424.92	425.92	426.92	427.92	428.92	429.92	430.92	431.92	432.92	433.92
	channel	21	22	23	24	25	26	27	28	29	30
	frequency	434.92	435.92	436.92	437.92	438.92	439.92	440.92	441.92	442.92	443.92
	channel	31	32	33	34	35	36	37	38	39	40
	frequency	444.92	445.92	446.92	447.92	448.92	449.92	450.92	451.92	452.92	453.92
frequency band2	channel	1	2	3	4	5	6	7	8	9	10
470MHz	frequency	470.92	471.92	472.92	473.92	474.92	475.92	476.92	477.92	478.92	479.92
	channel	11	12	13	14	15	16	17	18	19	20
	frequency	480.92	481.92	482.92	483.92	484.92	485.92	486.92	487.92	488.92	489.92
	channel	21	22	23	24	25	26	27	28	29	30
	frequency	490.92	491.92	492.92	493.92	494.92	495.92	496.92	497.92	498.92	499.92
	channel	31	32	33	34	35	36	37	38	39	40
	frequency	500.92	501.92	502.92	503.92	504.92	505.92	506.92	507.92	508.92	509.92
frequency band3	channel	1	2	3	4	5	6	7	8	9	10
868MHz	frequency	849.92	850.92	851.92	852.92	853.92	854.92	855.92	856.92	857.92	858.92
	channel	11	12	13	14	15	16	17	18	19	20
	frequency	859.92	860.92	861.92	862.92	863.92	864.92	865.92	866.92	867.92	868.92
	channel	21	22	23	24	25	26	27	28	29	30
	frequency	869.92	870.92	871.92	872.92	873.92	874.92	875.92	876.92	877.92	878.92
	channel	31	32	33	34	35	36	37	38	39	40
	frequency	879.92	880.92	881.92	882.92	883.92	884.92	885.92	886.92	887.92	888.92
frequency band4	channel	1	2	3	4	5	6	7	8	9	10
915MHz	frequency	895.92	896.92	897.92	898.92	899.92	900.92	901.92	902.92	903.92	904.92
	channel	11	12	13	14	15	16	17	18	19	20
	frequency	905.92	906.92	907.92	908.92	909.92	910.92	911.92	912.92	913.92	914.92
	channel	21	22	23	24	25	26	27	28	29	30
	frequency	915.92	916.92	917.92	918.92	919.92	920.92	921.92	922.92	923.92	924.92
	channel	31	32	33	34	35	36	37	38	39	40

4.3), RF Data Rate

Set RF Data Rate, [parameters] takes 1 byte.

Setting range: 1200 2400 4800 9600 14400 19200 38400 57600 76800 115200BPS

Parameters	0	1	2	3	4	5	6	7	8	9
TX/RX Rate(bps)	1200	2400	4800	9600	14400	19200	38400	57600	76800	115200

4.4), RF Power

Set RF Power, [parameters] takes 1 byte.

Setting range: 0 - 7

For example:(-1 ~ + 20 dBm)

Set level	0	1	2	3	4	5	6	7
TX/RX Power	-1dBm	+2dBm	+5dBm	+8dBm	+11dBm	+14dBm	+17dBm	+20dBm

4.5) ,Serial Data Rate

Set a serial Data Rate, [parameters] takes 1 byte.

Setting range: 1200 2400 4800 9600 14400 19200 38400 57600 76800 115200 BPS

Parameters	0	1	2	3	4	5	6	7	8	9
Serial Rate(bps)	1200	2400	4800	9600	14400	19200	38400	57600	76800	115200

4.6), Serial data bits

Set the data bits of a serial port, [parameters] takes 1 byte.

Setting range: 7 8 9

Parameter	1	2	3
Data bits	7bit	8bit	9bit

4.7), Stop bit serial port

Set the stop bit of serial interface, [parameters] takes 1 byte.

Setting range: 1 2

Parameter	1	2
Stop bits	1bit	2bit

4.8), Serial parity efficacy

Set the serial port of odd-even efficacy, [parameters] is 1 byte.

Setting range: No Odd Even

Parameter	1	2	3

Parity	No	Odd	Even

4.9), NET ID

Set module's Network ID, [parameters] is 4 bytes.

Setting Range: 00 00 00 00 to FF FF FF FF

Note: if the modules' NET ID setting are different, then they can't communicate with each other except when the Net ID = 0000, it will receive all the message despite the Net ID is difference.

4.10) Node ID

Set module's address ID, [parameters] is 2 bytes.

Setting Range: 00 00 to FF FF

4.11) Working mode

The operation mode of the module, parameter is 1 byte.

"00" - node mode; "01" - routing mode.

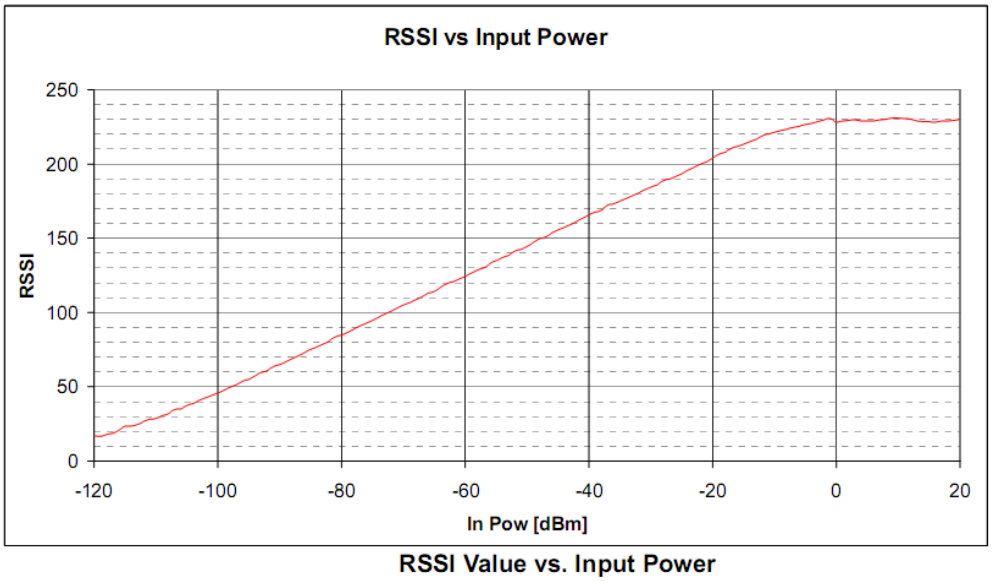
5. RSSI

The real time of RSSI value can be read out by RSSI command when in set mode,

RSSI Reading instructions is: AA FA 04

Return value is: the real-time signal strength - 00 - \ r \ n (range: 0 x00 to 0 XFF)

For example: "a5 \ 00 \ r \ n", suggests that the current signal strength value of 0xa5, correspondingly the input power is -40dBm.



RSSI Value vs. Input Power

Network Module with Routers Communication Tools
NiceRF
思为无线 NiceRF Wireless Technology CO.,LTD
TEL: 0755-61596687 Website: www.nicerf.com
Model Parameters
Model Name SN610
Version 2.62
Working Mode Node
COM COM4
CLOSE
Net Parameters
NET ID 00000000
NODE ID 0000
AUTO ADD 1
SET
Serial Parameters
Baud Rate 9600
Parity None
Data bit 8
Stop 1
READ
DEFAULT
RF Parameters
TX Band 433
RX Band 433
TX Channel 20
RX Channel 20
TX Frequency 433.92 MHz
RX Frequency 433.92 MHz
TX Data Rate 9600
RX Data Rate 9600
TX Power 7
HELP
Device Found!