
M11 Common AT Command Operation Instructions

1, The methods of entering and exiting the radio parameter configuration mode of M11 400M.

(1), method 1: CONFIG configuration pin (46 pin)

Setting the CONFIG pin to low level, the radio will enter the configuration mode; setting the Config pin to the high level, and the radio will exit the configuration mode (ie entering the normal working mode of the system);

(2) , method 2: sending the string +++ and ATA commands

Sending the string +++ the radio will enter the configuration mode; (Note: it must be sent as follows, 1 second before the string "+++" sent, no characters can be sent; after the string "+++" sent, No characters can be sent after 1 second, otherwise the system cannot enter the radio parameter configuration mode; there is no carriage return line feed (\r\n) after the string;

Sending the ATA command the radio will exit the configuration mode;

2, M11 commonly used AT command

(1), AT&W

It is the parameter saving command.

Note: If you want the parameter to be saved when powered off, you must first send this AT&W command to save the parameters.

After the command is successfully sent, it will return to the prompt OK.

(2),ATP0=CH TX RX

It is The 400M fixed frequency working frequency table configuration

E.g:

ATP0=00 450.125 450.125

It is Indicated that the transmitting frequency of channel 0 is 450.125MHZ and the receiving frequency is 450.125MHZ. If you want to configure multiple channels, just follow the steps

below:

ATP0=00	451.125	451.125
ATP0=01	452.125	452.125
ATP0=02	453.125	453.125
ATP0=03	454.125	454.125
ATP0=04	455.125	455.125
ATP0=05	456.125	456.125
ATP0=06	457.125	457.125
ATP0=07	458.125	451.125

... ..

Note: The frequency and the channel number are separated by a space character (only one space symbol);

(3)、ATP0?

Query the working frequency table that the current station has configured of 400M fixed frequency.

E.g:

```
ATP0?
```

Channel Number	Tx Frequency(MHZ)	Rx Frequency(MHZ)	DIR
00	440.12500	440.12500	Tx@Rx
01	452.12500	452.12500	Tx@Rx
02	453.12500	453.12500	Tx@Rx
03	454.12500	454.12500	Tx@Rx
04	455.12500	455.12500	Tx@Rx
05	456.12500	456.12500	Tx@Rx
06	457.12500	457.12500	Tx@Rx
07	458.12500	458.12500	Tx@Rx

OK

(4)、AT&V

Query current radio operating parameters

```
Soft ver:C035.01.00
S/N:D16000000
S102=3 Serial Baud Rate
S103=2 Wireless Link Rate
S108=M Output Power
S131=00-451.12500 Current Tx Frequency
S132=00-451.12500 Current Rx Frequency
S127=1 Modulation
S186=13 Protocol Selection
S226=0 Compatibility Type

OK
```

(5)、Modify the current serial port baudrate

ATS102=value

The value is as follows:

1-115200; 2-57600; 3-38400; 5-19200; 7-9600;

Special Note: After sending this command, the serial port baud rate will take effect immediately.

If you want to save the current configuration parameters, you need to switch the serial port baud rate of the current configuration tool, and then send the AT&W saved command.

For example: change the current serial port baud rate to 9600, as follows:

(1). ATS102=7

(2). Switch the serial port baud rate of the configuration tool to 9600;

(3). Send an AT&W saved command;

(6) , Modify the wireless baud rate

ATS103=value

The value is as follows:

0-4800; 1-8000; 2-9600; 3-16000; 4-19200;

Remarks: The protocols of TRANSEOT and TRIMTALK support both wireless baud rates of 4800 and 9600, and TRIMMM3 only supports 19200 wireless baud rate;

(7) , Modify the transmission power

ATS108=value

The value is as follows:

H: high power; L: low power;

(8) , Set the current radio work transmissionchannel

ATS131=value

Value range:

0-63

(9) , Set the current radio work receivingchannel

ATS132=value

Value range:

0-63

(10) , Select the communicationprotocol

ATS186=value

The value is as follows:

1- TRIMTALK;

2- TRIMMK3;

4-TT450S;

5-TRANSEOT;

9-SOUTH;

13-SATEL

(11) , Set FEC switch

FEC=value

The value is as follows:

On: FEC switch on; Off: FEC switch off;

(12) , Set working mode

ATS300=value

The value is as follows:

0- DUPLEX;

1- TXONLY;

2- RXONLY;

(13), AT&F53

It is the default configuration of the TRANSEOT protocol. The default configuration of the current radio operating parameters is as follows:

S102=1; The serial port baud rate is 115200

S103=2; The wireless baud rate is 9600;

S108=H; The transmitting power is high

S131=00-xxx.xxxxx; The current sending channel is 0. For the frequency, check the frequency table configured by the ATP0 command, and the corresponding 0 channel is the sending frequency.

S132=00-xxx.xxxxx; The current receiving channel is 0. For the frequency, check the frequency table configured by the ATP0 command, and the corresponding 0 channel is the receiving frequency point.

S186=05; TRANSOSOT protocol;

S127=0; 400M fixed frequency mode (band can only be queried in this command)

(14), AT&F54

It is the default configuration of the TRIMTALK protocol. The default configuration of the current radio parameters is as follows:

S102=1; The serial port baud rate is 115200

S103=2; The wireless baud rate is 9600;

S108=H; The transmitting power is high;

S131=00-xxx.xxxxx; the current sending channel is 0. For the frequency, check the frequency table configured by the ATP0 command, and the corresponding 0 channel is the sending frequency.

S132=00-xxx.xxxxx; the current receiving channel is 0. For the frequency, check the frequency table configured by the ATP0 command, and the corresponding 0 channel is the receiving frequency point.

S186=01; TRIMTALK protocol;

S127=0; 400M fixed frequency mode (band can only be queried in this command)

(15), AT&F55

It is the default configuration of the TRIMMK3 protocol, the default configuration of the current radio operating parameters is as follows:

S102=1; The serial port baud rate is 115200

S103=4; The wireless baud rate 19200;

S108=H; The transmitting power is high

S131=00-xxx.xxxxx; The current sending channel is 0. For the frequency, check the frequency table configured by the ATP0 command, and the corresponding 0 channel is the sending frequency.

S132=00-xxx.xxxxx; the current receiving channel is 0. For the frequency, check the frequency table configured by the ATP0 command, and the corresponding 0 channel is the receiving frequency.

S186=02; TRIMMK3 protocol;

S127=0; 400M fixed frequency mode (band can only be queried in this command)

Remarks: Unless otherwise specified, each AT command must be followed by "carriage return (\r\n)"

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 40cm between the radiator& your body.

Integration instructions for host product manufacturers according to KDB 996369 D03 OEM Manual v01

2.2 List of applicable FCC rules

CFR 47 FCC PART 90 has been investigated. It is applicable to the modular.

2.3 Specific operational use conditions

This module is stand-alone modular. If the end product will involve the Multiple simultaneously transmitting condition or different operational conditions for a stand-alone modular transmitter in a host, host manufacturer have to consult with module manufacturer for the installation method in end system.

2.4 Limited module procedures

Not applicable

2.5 Trace antenna designs

Not applicable

2.6 RF exposure considerations

To maintain compliance with FCC's RF Exposure guidelines, This equipment should be installed and operated with minimum distance of 40cm from your body.

2.7 Antennas

This radio transmitter FCC ID: 2BM2K-M11 has been approved by Federal Communications Commission to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

No.	Antenna Type	Antenna Gain	Impedance	Frequency Range
1	Dipole	4dBi	50Ω	410-470MHz

2.8 Label and compliance information

The final end product must be labeled in a visible area with the following " Contains

2.9 Information on test modes and additional testing requirements

Host manufacturer is strongly recommended to confirm compliance with FCC requirements for the transmitter when the module is installed in the host.

2.10 Additional testing, Part 15 Subpart B disclaimer

Host manufacturer is responsible for compliance of the host system with module installed with all other applicable requirements for the system such as Part 15 B

Product Specifications Section

Item	Content
Operating Frequency	410-470 MHz
Operating Mode	Half-duplex
Channel Bandwidth	12.5 kHz
Modulation Scheme	GMSK
Carrier Power Stability	±1.5 dB
Co-channel Rejection	>-12 dB

Module Size

Unit: mm

Pin No.	Pin Name	Direction	Pin Description
15	NC	NC	No connection
16	NC	NC	No connection
17	GND	Bi-directional	Radio ground
18	NC	NC	No connection
19	NC	NC	No connection
20	NC	NC	No connection
21	NC	NC	No connection
22	NC	NC	No connection
23	LED RX	Output	Receive signal indicator (active-high)
24	LED TX	Output	Transmit signal indicator (active-high)
25	GND	Bi-directional	Radio ground
26	GND	Bi-directional	Radio ground
27	NC	NC	No connection
28	Serial RXD	Input	TTL-level input, connect to external TXD output pin
29	Serial TXD	Output	TTL-level output, connect to external RXD input pin
30	NC	NC	No connection
31	NC	NC	No connection
32	NC	NC	No connection
33	NC	NC	No connection
34	NC	NC	No connection
35	NC	NC	No connection
36	NC	NC	No connection
37	NC	NC	No connection
38	NC	NC	No connection
39	GND	Bi-directional	Radio ground
40	GND	Bi-directional	Radio ground
41	GND	Bi-directional	Radio ground

Pin No.	Pin Name	Direction	Pin Description
42	NC	NC	No connection
43	NC	NC	No connection
44	NC	NC	No connection
45	NRST	Input	Radio reset (active-low)
46	CONFIG	Input	Enter configuration mode at low level; data-transmission mode at high level (3.3 V)
47	NC	NC	No connection
48	NC	NC	No connection
49	NC	NC	No connection
50	NC	NC	No connection
51	NC	NC	No connection
52	NC	NC	No connection
53	NC	NC	No connection
54	NC	NC	No connection
55	NC	NC	No connection
56	NC	NC	No connection
57	NC	NC	No connection
58	NC	NC	No connection
59	NC	NC	No connection
60	NC	NC	No connection
61	NC	NC	No connection
62	VCC	Input	Power supply positive input: 3.3-3.6 V, typical value 3.3 V Recommended operating voltage: 3.3 V
63	VCC	Input	Power supply positive input
64	VCC	Input	Power supply positive input
65	GND	Bi-directional	Power supply negative ground pin
66	GND	Bi-directional	Power supply negative ground pin
67	GND	Bi-directional	Power supply negative ground pin
68	ANT	Output	Stamp-hole pin No.68 is not available as antenna port by

Pin No.	Pin Name	Direction	Pin Description
			default. If the IPEX connector is removed, solder a 0402-package 100 pF capacitor or 0-ohm resistor for 50-ohm antenna port matching
69	NC	NC	No connection
70	NC	NC	No connection
71	NC	NC	No connection
72	NC	NC	No connection
73	NC	NC	No connection
74	NC	NC	No connection
75	NC	NC	No connection
76	NC	NC	No connection
77	NC	NC	No connection
78	GND	Bi-directional	Radio ground
79	GND	Bi-directional	Radio ground
80	GND	Bi-directional	Radio ground