# Transmit commands

Packet Header FD FC FB FA

Data length in the frame (two bytes )

In-frame data ( command value two bytes + parameter value \* N Bytes)   
Packet tail 04 03 02 01

# Receive commands

Packet Header FD FC FB FA

Data length in the frame (two bytes )

Return value (two bytes) : 00 indicates success, others indicate failure.   
In-frame data ( return command value two bytes + return value \* N Bytes)   
Packet tail 04 03 02 01

Command Value:

|  |  |  |
| --- | --- | --- |
| Command Type | Command value (two bytes ) | Command data \*N |
| Enable Command Mode | 0xFF | 2 Byte host computer version, default 01 |
| Disable Command Mode | 0xFE | none |
| Read the version number | 0x00 | none |
| Restart module | 0x68 | none |
| Read module config parameters | 0x08 | (2 Byte parameter name ) \* N Parameter names are shown in Table **2** |
| Set module config parameters | 0x07 | (2 Byte parameter name + **4** Byte parameter value ) \* N Parameter name and value are shown in Table **2** |
| Configure system parameters | 0x12 | (2 Byte parameter name + **4** Byte parameter value ) Parameter name parameter value see Table **3** |

Table 1

Parameter name:

|  |  |  |
| --- | --- | --- |
| Command Type | Parameter name (two bytes ) | Parameter value ( 4 byte ) |
| Minimum detection distance | 0x00 | Range 0x00-0x0F​ |
| Maximum detection distance | 0x01 | Range 0x00-0x0F​ |
| Delay time | 0x04 | Range 0x00-0xFF​ |
| Trigger threshold | 0x10-0x1F​ | Range 0-65536 |
| Hold Threshold | 0x20-0x2F​ | Range 0-65536 |

Table 2

System parameter name:

|  |  |  |
| --- | --- | --- |
| Command Type | Parameter name (two bytes ) | Parameter value ( 4 byte ) |
| SystemMode | 0x00 | 0x00 - debug mode, the serial port reports RDMap (to be parsed by the host computer) parsing format see Appendix Table 4  0x04 - Reporting mode, the serial port reports the energy value and detection results of each distance gate (to be parsed by the host computer). The parsing format is shown in Appendix Table 5  0x64 - Operation mode, the serial port prints out the status |

Table 3

Command instructions and parameter values are all small fields first

For example: Restart module instruction **68** , command value **0x68 0x00**

example:

Query trigger threshold 00 The value of , send: FD FC FB FA **04 00** 08 00 10 00 04 03 02 01

Returns: FD FC FB FA **08 00** 08 01 00 00 40 9C 00 00 04 03 02 01

Analysis:

Baotou FD FC FB FA parameter data length **08 00** Return command value 08 01 Parameter value 40 9C 00 00 wrap tail 04

03 02 01

The trigger threshold value read is 16 Base , small field first, 9C 40 , so the value is 60000 .

# **Sample instructions**

Open command mode FD FC FB FA **04 00** FF 00 01 00 04 03 02 01

Reply: FD FC FB FA **08 00** FF 01 00 00 02 00 20 00 04 03 02 01

Close command mode FD FC FB FA **02 00** FE 00 04 03 02 01

Reply: FD FC FB FA **04 00** FE 01 00 00 04 03 02 01

Read the version number FD FC FB FA **02 00** 00 00 04 03 02 01

reply: FD FC FB FA **0C 00** 00 01 00 00 06 00 76 31 2E 35 2E 34 04 03 02 01

Restart module FD FC FB FA **02 00** 68 00 04 03 02 01

Configure system mode (serial port status output mode) FD FC FB FA **08 00** 12 00 00 00 64 00 00 00 04 03 02 01

reply: FD FC FB FA **04 00** 12 01 00 00 04 03 02 01

Configure system mode (energy value output mode) FD FC FB FA **08 00** 12 00 00 00 04 00 00 00 04 03 02 01

reply: FD FC FB FA **04 00** 12 01 00 00 04 03 02 01

Configure system mode (debug output mode) FD FC FB FA **08 00** 12 00 00 00 00 00 00 00 04 03 02 01

reply: FD FC FB FA **04 00** 12 01 00 00 04 03 02 01

Read module parameters (minimum distance) FD FC FB FA **04 00** 08 00 00 00 04 03 02 01

Reply: FD FC FB FA **08 00** 08 01 00 00 00 00 00 00 04 03 02 01

Set module parameters ( minimum distance 00 ) FD FC FB FA **08 00** 07 00 00 00 **00 00 00 00** 04 03 02 01

Successful reply: FD FC FB FA **04 00** 07 01 00 00 04 03 02 01

Read module parameters (maximum distance) FD FC FB FA **04 00** 08 00 01 00 04 03 02 01

Reply: FD FC FB FA **08 00** 08 01 00 00 0C 00 00 00 04 03 02 01

Set module parameters ( maximum distance 12 ) FD FC FB FA **08 00** 07 00 01 00 **0C 00 00 00** 04 03 02 01

Successful reply: FD FC FB FA **04 00** 07 01 00 00 04 03 02 01

Read module parameters (delay time) FD FC FB FA **04 00** 08 00 04 00 04 03 02 01

Reply: FD FC FB FA **08 00** 08 01 00 00 1E 00 00 00 04 03 02 01

Set module parameters (delay time) FD FC FB FA **08 00** 07 00 04 00 **1A 00 00 00** 04 03 02 01

Successful reply: FD FC FB FA **04 00** 07 01 00 00 04 03 02 01

Read module parameters ( hold threshold 00 ) FD FC FB FA **04 00** 08 00 20 00 04 03 02 01

Reply: FD FC FB FA **08 00** 08 01 00 00 40 9C 00 00 04 03 02 01

Set module parameters ( keep threshold 00 ) FD FC FB FA **08 00** 07 00 20 00 **50 C3 00 00** 04 03 02 01

Successful reply: FD FC FB FA **04 00** 07 01 00 00 04 03 02 01

Read module parameters ( trigger threshold 00 ) FD FC FB FA **04 00** 08 00 10 00 04 03 02 01

Reply: FD FC FB FA **08 00** 08 01 00 00 40 9C 00 00 04 03 02 01

Set module parameters ( trigger threshold 00 ) FD FC FB FA **08 00** 07 00 10 00 **50 9C 00 00** 04 03 02 01

Successful reply: FD FC FB FA **04 00** 07 01 00 00 04 03 02 01

Read module parameters ( trigger threshold 00-05 )

FD FC FB FA **0E 00** 08 00 10 00 11 00 12 00 13 00 14 00 15 00 04 03 02 01

Successful reply: FD FC FB FA **1C 00** 08 01 00 00 60 EA 00 00 30 75 00 00 B8 0B 00 00 D0 07 00 00 F4 01

00 00 90 01 00 00 04 03 02 01

Set module parameters ( trigger threshold 00-05 )

FD FC FB FA **24 00** 07 00 10 00 60 EA 00 00 11 00 30 75 00 00 12 00 B8 0B 00 00 13 00 D0 07 00

00 14 00 F4 01 00 00 15 00 90 01 04 03 02 01

Successful reply: FD FC FB FA **04 00** 07 01 00 00 04 03 02 01

Debug output mode

|  |  |  |
| --- | --- | --- |
| Baotou | data | wrap tail |
| 0xAA, 0xBF, 0x10, 0x14 | 20 \* 16 \* 4 bytes (20 Dopplers , 16 ranges , 4 bytes per point , 4 bytes per point ) | 0xFD, 0xFC, 0xFB, 0xFA |

Table 4

Energy value output mode

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Baotou | data | | | | wrap tail |
|  | Data length | result | Target distance | Each distance gate  energy |  |
| 0xF4, 0xF3, 0xF2, 0xF1 | 0x0023 | No one  ( 1 byte ) | 2 byte | 16 \*2 byte | 0xF8, 0xF7, 0xF6, 0xF5 |

Table 5