WiFi胸带主机USB

接口通信协议

**目录**

# Documentary History

|  |  |  |
| --- | --- | --- |
| Version | Date | Description |
| 1.0 | 2016-07-01 | First version |
|  | 2016-07-12 | 蓝牙体温和蓝牙血压MAC地址改成两组 |
| 2016-08-11 | 联网信息：1.本地端口和远程端口改成2字节 。  2. 增加“密码长度”字段和“ESSID长度”字段，使“密码”字段和“ESSID”字段都成为不定长度。 |
|  | 2017-03-02 | 增加设备蓝牙配对模式、心电呼吸模式查询、心电呼吸模式设置，设备序列号变更为设备ID |
|  | 2017-05-10 | 增加wifi模块版本号查询、蓝牙模块版本号查询 |
|  | 2018-08-20 |  |

# Document Notes

文档中所有数字如没有特殊标明则为十进制，以0x开头为十六进制数。举例：5388为十进制数，0x5368为十六进制数。

# 硬件接口信息

USB虚拟串口，波特率115200，串口配置：1个起始位，1个停止位1个，无校验位

# 基本信息

1. 本协议适用于Wi-Fi胸带主机的USB接口对外信息交互过程。
2. 协议中“上位机”指”中央台软件程序”。
3. 协议中“下位机”指”Wifi胸带主机”。
4. 所有的交互过程都是由上位机给下位机发指令启动。

1. **通信协议概述**

1.1数据包基本格式

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Byte/Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 说明 |
| 包头 | 0 | 0x55 | | | | | | | | 固定值 |
| 1 | 0xAA | | | | | | | |
| 载荷数据段长度 | 2 | LEN | | | | | | | | 单位：  字节 |
| 载荷数据段 | 3  ~  N | 数据包的载荷部分，长度根据包类型确  定，不同的包类型对应不同的数据长  度。 | | | | | | | | 第一个字节为包类型 |
| 校验和 | N+1 | SUM | | | | | | | | 前面所有字节顺序累加的结果 |

1. **协议详细定义**

**2.1握手指令**

上位机检测到下位机插入后，应主动发送握手指令，收到反馈之后下位机才会响应其它指令。

**上位机下发：**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x01 | 0xC1 | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 |

**下位机上发：**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x03 | 0xC1 | ERR\_CODE | ERR\_TYPE | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

ERR\_CODE: 错误代码，0表示正常

ERR\_TYPE：错误类型，0表示正常

**2.2设备信息查询指令**

**上位机下发：**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x01 | 0xC2 | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 |

**下位机上发：**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Byte/Bit | 7 | 6 | | 5 | | 4 | | 3 | | 2 | | 1 | | | 0 | 说明 |
| 包头 | 0 | 0x55 | | | | | | | | | | | | | | | 固定值 |
| 1 | 0xAA | | | | | | | | | | | | | | |
| 载荷数据段长度 | 2 | 15 | | | | | | | | | | | | | | | 单位：  字节 |
| 包类型 | 3 | 0xC2 | | | | | | | | | | | | | | |  |
| 无效 | 4 | 0x00 | | | | | | | | | | | | | | | MSB |
| 5 | 0x00 | | | | | | | | | | | | | | | LSB |
| 设备型号 | 6 | DEVICE\_MODEL\_H | | | | | | | | | | | | | | | MSB |
| 7 | DEVICE\_MODEL\_L | | | | | | | | | | | | | | |  |
|  | 8 | 7 | 6 | | 5 | | 4 | | 3 | | 2 | | | 1 | | 0 |  |
|  |  | | 蓝牙血氧计开关位（0关，1开） | | 蓝牙体温计开关位（0关，1开） | | 体温计电量低绿灯闪烁（0关，1开） | | 锂电池电量低震动关闭（0关，1开） | | | 锂电池电量低绿灯闪烁开关（0关，1开） | | 体温计断开蓝灯闪烁开关（0关，1开） |  |
| 9 | 7 | | 6 | | 5 | | 4 | | 3 | | 2 | | | 1 | 0 |  |
|  | |  | |  | |  | |  | |  | | | 域名开关（0关，1开） | 心电导联脱落振动开关（0关，1开） |  |
| 10 | 0x00 | | | | | | | | | | | | | | |  |
| 11 | 0x00 | | | | | | | | | | | | | | |  |
| 设备ID | 12 | SerialNumber1 | | | | | | | | | | | | | | | MSB |
| 13 | SerialNumber2 | | | | | | | | | | | | | | |  |
| 14 | SerialNumber3 | | | | | | | | | | | | | | |  |
| 15 | SerialNumber4 | | | | | | | | | | | | | | | LSB |
| 硬件版本 | 16 | 7 | 6 | | 5 | | 4 | | 3 | | 2 | | 1 | | | 0 |  |
| HardVerH | | | | | HardVerM | | | | | | HardVerL | | | |
| 软件版本 | 17 | 7 | 6 | | 5 | | 4 | | 3 | | 2 | | 1 | | | 0 |  |
| FirmVerH | | | | | FirmVerM | | | | | | FirmVerL | | | |
| 校验和 | 18 | SUM | | | | | | | | | | | | | | | 所有字节顺序累加的结果 |

**2.3设备信息设置指令**

**上位机下发：**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Byte/Bit | 7 | 6 | | 5 | | 4 | | 3 | | 2 | | 1 | | | 0 | | 说明 |
| 包头 | 0 | 0x55 | | | | | | | | | | | | | | | | 固定值 |
| 1 | 0xAA | | | | | | | | | | | | | | | |
| 载荷数据段长度 | 2 | 15 | | | | | | | | | | | | | | | | 单位：  字节 |
| 包类型 | 3 | 0xC3 | | | | | | | | | | | | | | | |  |
| 无效 | 4 | 0x00 | | | | | | | | | | | | | | | | MSB |
| 5 | 0x00 | | | | | | | | | | | | | | | | LSB |
| 设备型号 | 6 | DEVICE\_MODEL\_H | | | | | | | | | | | | | | | | MSB |
| 7 | DEVICE\_MODEL\_L | | | | | | | | | | | | | | | | LSB |
| 设备ID | 8 | 7 | 6 | | 5 | | 4 | | 3 | | 2 | | | 1 | | 0 | |  |
| 蓝牙流速仪开关位 | 蓝牙血压计开关位 | | 蓝牙血氧计开关位 | | 蓝牙体温计开关位 | | 体温计电量低绿灯闪烁 | | 锂电池电量低震动关闭 | | | 锂电池电量低绿灯闪烁开关 | | 体温计断开蓝灯闪烁开关 | | （0关，1开） |
| 9 |  | |  | |  | |  | |  | |  | | | 域名访问开关 | | 导联脱落振动开关 | （0关，1开） |
| 10 | 0x00 | | | | | | | | | | | | | | | |  |
| 11 | 0x00 | | | | | | | | | | | | | | | |  |
| 12 | SerialNumber1 | | | | | | | | | | | | | | | | MSB |
| 13 | SerialNumber2 | | | | | | | | | | | | | | | |  |
| 14 | SerialNumber3 | | | | | | | | | | | | | | | |  |
| 15 | SerialNumber4 | | | | | | | | | | | | | | | | LSB |
| 硬件版本 | 16 | 7 | 6 | | 5 | | 4 | | 3 | | 2 | | 1 | | | 0 | |  |
| HardVerH | | | | | HardVerM | | | | | | HardVerL | | | | |
| 软件版本 | 17 | 7 | 6 | | 5 | | 4 | | 3 | | 2 | | 1 | | | 0 | |  |
| FirmVerH | | | | | FirmVerM | | | | | | FirmVerL | | | | |
| 校验和 | 18 | SUM | | | | | | | | | | | | | | | | 所有字节顺序累加的结果 |

**下位机上发：**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x03 | 0xC3 | ERR\_CODE | ERR\_TYPE | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

**2.4设备时间设置指令**

**上位机下发：**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Byte/Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 说明 |
| 包头 | 0 | 0x55 | | | | | | | | 固定值 |
| 1 | 0xAA | | | | | | | |
| 载荷数据段长度 | 2 | 7 | | | | | | | | 单位：  字节 |
| 包类型 | 3 | 0xC4 | | | | | | | |  |
|  | 4 |  | | | | | | | |  |
| 5 |  | | | | | | | |  |
| 时间 | 6 | TimeByte1 | | | | | | | | MSB |
| 7 | TimeByte2 | | | | | | | |  |
| 8 | TimeByte3 | | | | | | | |  |
| 9 | TimeByte4 | | | | | | | | LSB |
| 校验和 | 10 | SUM | | | | | | | | 所有字节顺序累加的结果 |

注：设备时间格式采用Unix时间戳(Unix timestamp)，或称Unix时间(Unix time)、POSIX时间(POSIX time)，是一种时间表示方式，定义为从格林威治时间1970年01月01日00时00分00秒起至现在的总秒数，即为一个32位的数据类型，分成4个字节发送。

**下位机上发：**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x03 | 0xC4 | ERR\_CODE | ERR\_TYPE | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

**2.5联网信息查询指令**

**上位机下发：**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x01 | 0xC5 | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 |

**下位机上发：**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Byte/Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 说明 |
| 包头 | 0 | 0x55 | | | | | | | | 固定值 |
| 1 | 0xAA | | | | | | | |
| 载荷数据段长度 | 2 | 32+ LEN1+ LEN2 | | | | | | | | 单位：  字节 |
| 包类型 | 3 | 0xC5 | | | | | | | |  |
| 本机  MAC地址 | 4 | MAC\_ADDR1 | | | | | | | | MSB |
| 5 | MAC\_ADDR2 | | | | | | | |  |
| 6 | MAC\_ADDR3 | | | | | | | |  |
| 7 | MAC\_ADDR4 | | | | | | | |  |
| 8 | MAC\_ADDR5 | | | | | | | |  |
| 9 | MAC\_ADDR6 | | | | | | | |  |
| 10 | MAC\_ADDR7 | | | | | | | |  |
| 11 | MAC\_ADDR8 | | | | | | | | LSB |
| 本机IP | 12 | IP\_ADDR1 | | | | | | | | MSB |
| 13 | IP\_ADDR2 | | | | | | | |  |
| 14 | IP\_ADDR3 | | | | | | | |  |
| 15 | IP\_ADDR4 | | | | | | | | LSB |
| 本机端口 | 16 | LocalPortH | | | | | | | | MSB |
| 17 | LocalPortL | | | | | | | | LSB |
| 远程主机IP | 18 | Host IP ADDR1 | | | | | | | | MSB |
| 19 | Host IP ADDR2 | | | | | | | |  |
| 20 | Host IP ADDR3 | | | | | | | |
| 21 | Host IP ADDR4 | | | | | | | |
| 远程主机端口 | 22 | HostPortH | | | | | | | | MSB |
| 23 | HostPortL | | | | | | | | LSB |
| GateWay | 24 | GateWay IP ADDR 1 | | | | | | | | MSB |
| 25 | GateWay IP ADDR 2 | | | | | | | |  |
| 26 | GateWay IP ADDR 3 | | | | | | | |  |
| 27 | GateWay IP ADDR 4 | | | | | | | | LSB |
| 网络掩码 | 28 | Netmask 1 | | | | | | | | MSB |
| 29 | Netmask 2 | | | | | | | |  |
| 30 | Netmask 3 | | | | | | | |  |
| 31 | Netmask 4 | | | | | | | | LSB |
| DHCP | 32 | DHCP | | | | | | | |  |
| 密码长度 | 33 | LEN1 | | | | | | | | 单位：  字节 |
| 密码 | 34 | Password\_1 | | | | | | | |  |
| … | … | | | | | | | |  |
| 33+LEN1 | Password\_ n | | | | | | | |  |
| ESSID长度 | 33+ LEN1+1 | LEN2 | | | | | | | | 单位：  字节 |
| ESSID | 33+ LEN1+2 | ESSID\_1 | | | | | | | | 度为X字节 |
| … | … | | | | | | | |
| 33+ LEN1+1+ LEN2 | ESSID\_n | | | | | | | |
| 校验和 | 33+ LEN1+1+ LEN2+1 | SUM | | | | | | | | 所有字节累加的结果 |

**2.6联网信息设置指令**

**上位机下发：**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Byte/Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 说明 |
| 包头 | 0 | 0x55 | | | | | | | | 固定值 |
| 1 | 0xAA | | | | | | | |
| 载荷数据段长度 | 2 | 32+ LEN1+ LEN2 | | | | | | | | 单位：  字节 |
| 包类型 | 3 | 0xC6 | | | | | | | |  |
| 本机  MAC地址 | 4 | MAC\_ADDR1 | | | | | | | | MSB |
| 5 | MAC\_ADDR2 | | | | | | | |  |
| 6 | MAC\_ADDR3 | | | | | | | |  |
| 7 | MAC\_ADDR4 | | | | | | | |  |
| 8 | MAC\_ADDR5 | | | | | | | |  |
| 9 | MAC\_ADDR6 | | | | | | | |  |
| 10 | MAC\_ADDR7 | | | | | | | |  |
| 11 | MAC\_ADDR8 | | | | | | | | LSB |
| 本机IP | 12 | IP\_ADDR1 | | | | | | | | MSB |
| 13 | IP\_ADDR2 | | | | | | | |  |
| 14 | IP\_ADDR3 | | | | | | | |  |
| 15 | IP\_ADDR4 | | | | | | | | LSB |
| 本机端口 | 16 | LocalPortH | | | | | | | | MSB |
| 17 | LocalPortL | | | | | | | | LSB |
| 远程主机IP | 18 | Host IP ADDR1 | | | | | | | | MSB |
| 19 | Host IP ADDR2 | | | | | | | |  |
| 20 | Host IP ADDR3 | | | | | | | |
| 21 | Host IP ADDR4 | | | | | | | |
| 远程主机端口 | 22 | HostPortH | | | | | | | | MSB |
| 23 | HostPortL | | | | | | | | LSB |
| GateWay | 24 | GateWay IP ADDR 1 | | | | | | | | MSB |
| 25 | GateWay IP ADDR 2 | | | | | | | |  |
| 26 | GateWay IP ADDR 3 | | | | | | | |  |
| 27 | GateWay IP ADDR 4 | | | | | | | | LSB |
| 网络掩码 | 28 | Netmask 1 | | | | | | | | MSB |
| 29 | Netmask 2 | | | | | | | |  |
| 30 | Netmask 3 | | | | | | | |  |
| 31 | Netmask 4 | | | | | | | | LSB |
| DHCP | 32 | DHCP | | | | | | | |  |
| 密码长度 | 33 | LEN1 | | | | | | | | 单位：  字节 |
| 密码 | 34 | Password\_1 | | | | | | | | Ascii码 |
| … | … | | | | | | | |
| 33+LEN1 | Password\_ n | | | | | | | |
| ESSID长度 | 33+ LEN1+1 | LEN2 | | | | | | | | 单位：  字节 |
| ESSID | 33+ LEN1+2 | ESSID\_1 | | | | | | | | Ascii码 |
| … | … | | | | | | | |
| 33+ LEN1+1+ LEN2 | ESSID\_n | | | | | | | |
| 校验和 | 33+ LEN1+1+ LEN2+1 | SUM | | | | | | | | 所有字节累加的结果 |

**下位机上发：**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x03 | 0xC6 | ERR\_CODE | ERR\_TYPE | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

**2.7配对蓝牙设备信息查询指令**

**上位机下发：**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x01 | 0xC7 | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 |

**下位机上发：**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Byte/Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 说明 |
| 包头 | 0 | 0x55 | | | | | | | | 固定值 |
| 1 | 0xAA | | | | | | | |
| 载荷数据段长度 | 2 | 37 | | | | | | | | 单位：  字节 |
| 包类型 | 3 | 0xC7 | | | | | | | |  |
| 本机蓝牙  MAC | 4 | L\_MAC\_ADDR1 | | | | | | | | MSB |
| 5 | L\_MAC\_ADDR2 | | | | | | | |  |
| 6 | L\_MAC\_ADDR3 | | | | | | | |  |
| 7 | L\_MAC\_ADDR4 | | | | | | | |  |
| 8 | L\_MAC\_ADDR5 | | | | | | | |  |
| 9 | L\_MAC\_ADDR6 | | | | | | | | LSB |
| 体温1  蓝牙  MAC | 10 | T1\_MAC\_ADDR1 | | | | | | | | MSB |
| 11 | T1\_MAC\_ADDR2 | | | | | | | |  |
| 12 | T1\_MAC\_ADDR3 | | | | | | | |  |
| 13 | T1\_MAC\_ADDR4 | | | | | | | |  |
| 14 | T1\_MAC\_ADDR5 | | | | | | | |  |
| 15 | T1\_MAC\_ADDR6 | | | | | | | | LSB |
| 体温2  蓝牙  MAC | 16 | T2\_MAC\_ADDR1 | | | | | | | | MSB |
| 17 | T2\_MAC\_ADDR2 | | | | | | | |  |
| 18 | T2\_MAC\_ADDR3 | | | | | | | |  |
| 19 | T2\_MAC\_ADDR4 | | | | | | | |  |
| 20 | T2\_MAC\_ADDR5 | | | | | | | |  |
| 21 | T2\_MAC\_ADDR6 | | | | | | | | LSB |
| 血压1  蓝牙MAC | 22 | B1\_MAC\_ADDR1 | | | | | | | | MSB |
| 23 | B1\_MAC\_ADDR2 | | | | | | | |  |
| 24 | B1\_MAC\_ADDR3 | | | | | | | |  |
| 25 | B1\_MAC\_ADDR4 | | | | | | | |  |
| 26 | B1\_MAC\_ADDR5 | | | | | | | |  |
| 27 | B1\_MAC\_ADDR6 | | | | | | | | LSB |
| 血压2  蓝牙MAC | 28 | B2\_MAC\_ADDR1 | | | | | | | | MSB |
| 29 | B2\_MAC\_ADDR2 | | | | | | | |  |
| 30 | B2\_MAC\_ADDR3 | | | | | | | |  |
| 31 | B2\_MAC\_ADDR4 | | | | | | | |  |
| 32 | B2\_MAC\_ADDR5 | | | | | | | |  |
| 33 | B2\_MAC\_ADDR6 | | | | | | | | LSB |
| 血氧蓝牙MAC | 34 | S\_MAC\_ADDR1 | | | | | | | | MSB |
| 35 | S\_MAC\_ADDR2 | | | | | | | |  |
| 36 | S\_MAC\_ADDR3 | | | | | | | |  |
| 37 | S\_MAC\_ADDR4 | | | | | | | |  |
| 38 | S\_MAC\_ADDR5 | | | | | | | |  |
| 39 | S\_MAC\_ADDR6 | | | | | | | | LSB |
| 校验和 | 40 | SUM | | | | | | | | 所有字节累加的结果 |

**2.8配对蓝牙设备信息设置指令**

**上位机下发：**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Byte/Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 说明 |
| 包头 | 0 | 0x55 | | | | | | | | 固定值 |
| 1 | 0xAA | | | | | | | |
| 载荷数据段长度 | 2 | 37 | | | | | | | | 单位：  字节 |
| 包类型 | 3 | 0xC8 | | | | | | | |  |
| 本机蓝牙  MAC | 4 | L\_MAC\_ADDR1 | | | | | | | | MSB |
| 5 | L\_MAC\_ADDR2 | | | | | | | |  |
| 6 | L\_MAC\_ADDR3 | | | | | | | |  |
| 7 | L\_MAC\_ADDR4 | | | | | | | |  |
| 8 | L\_MAC\_ADDR5 | | | | | | | |  |
| 9 | L\_MAC\_ADDR6 | | | | | | | | LSB |
| 体温1  蓝牙  MAC | 10 | T1\_MAC\_ADDR1 | | | | | | | | MSB |
| 11 | T1\_MAC\_ADDR2 | | | | | | | |  |
| 12 | T1\_MAC\_ADDR3 | | | | | | | |  |
| 13 | T1\_MAC\_ADDR4 | | | | | | | |  |
| 14 | T1\_MAC\_ADDR5 | | | | | | | |  |
| 15 | T1\_MAC\_ADDR6 | | | | | | | | LSB |
| 体温2  蓝牙  MAC | 16 | T2\_MAC\_ADDR1 | | | | | | | | MSB |
| 17 | T2\_MAC\_ADDR2 | | | | | | | |  |
| 18 | T2\_MAC\_ADDR3 | | | | | | | |  |
| 19 | T2\_MAC\_ADDR4 | | | | | | | |  |
| 20 | T2\_MAC\_ADDR5 | | | | | | | |  |
| 21 | T2\_MAC\_ADDR6 | | | | | | | | LSB |
| 血压1  蓝牙MAC | 22 | B1\_MAC\_ADDR1 | | | | | | | | MSB |
| 23 | B1\_MAC\_ADDR2 | | | | | | | |  |
| 24 | B1\_MAC\_ADDR3 | | | | | | | |  |
| 25 | B1\_MAC\_ADDR4 | | | | | | | |  |
| 26 | B1\_MAC\_ADDR5 | | | | | | | |  |
| 27 | B1\_MAC\_ADDR6 | | | | | | | | LSB |
| 血压2  蓝牙MAC | 28 | B2\_MAC\_ADDR1 | | | | | | | | MSB |
| 29 | B2\_MAC\_ADDR2 | | | | | | | |  |
| 30 | B2\_MAC\_ADDR3 | | | | | | | |  |
| 31 | B2\_MAC\_ADDR4 | | | | | | | |  |
| 32 | B2\_MAC\_ADDR5 | | | | | | | |  |
| 33 | B2\_MAC\_ADDR6 | | | | | | | | LSB |
| 血氧蓝牙MAC | 34 | S\_MAC\_ADDR1 | | | | | | | | MSB |
| 35 | S\_MAC\_ADDR2 | | | | | | | |  |
| 36 | S\_MAC\_ADDR3 | | | | | | | |  |
| 37 | S\_MAC\_ADDR4 | | | | | | | |  |
| 38 | S\_MAC\_ADDR5 | | | | | | | |  |
| 39 | S\_MAC\_ADDR6 | | | | | | | | LSB |
| 校验和 | 40 | SUM | | | | | | | | 所有字节累加的结果 |

**下位机上发：**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x03 | 0xC8 | ERR\_CODE | ERR\_TYPE | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

**2.9病人信息查询指令**

**上位机下发：**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x01 | 0xC9 | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 |

**下位机上发：**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Byte/Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 说明 |
| 包头 | 0 | 0x55 | | | | | | | | 固定值 |
| 1 | 0xAA | | | | | | | |
| 载荷数据段长度 | 2 | 23 | | | | | | | | 单位：  字节 |
| 包类型 | 3 | 0xC9 | | | | | | | |  |
| 病人ID号 | 4 | PATIENT\_ID1 | | | | | | | | MSB |
| 5 | PATIENT\_ID2 | | | | | | | |  |
| 6 | PATIENT\_ID3 | | | | | | | |  |
| 7 | PATIENT\_ID4 | | | | | | | |  |
| 8 | PATIENT\_ID5 | | | | | | | |  |
| 9 | PATIENT\_ID6 | | | | | | | |  |
| 10 | PATIENT\_ID7 | | | | | | | |  |
| 11 | PATIENT\_ID8 | | | | | | | |  |
| 12 | PATIENT\_ID9 | | | | | | | |  |
| 13 | PATIENT\_ID10 | | | | | | | | LSB |
| 性别 | 14 | SEX | | | | | | | |  |
| 年龄 | 15 | AGE | | | | | | | |  |
| 病房号 | 16 | WARD1 | | | | | | | | MSB |
| 17 | WARD2 | | | | | | | |  |
| 18 | WARD3 | | | | | | | |  |
| 19 | WARD4 | | | | | | | |  |
| 20 | WARD5 | | | | | | | | LSB |
| 病床号 | 21 | Bed1 | | | | | | | | MSB |
| 22 | Bed2 | | | | | | | |  |
| 23 | Bed3 | | | | | | | |  |
| 24 | Bed4 | | | | | | | |  |
| 25 | Bed5 | | | | | | | | LSB |
| 校验和 | 26 | SUM | | | | | | | | 所有字节累加的结果 |

**2.10病人信息设置指令**

**上位机下发：**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Byte/Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 说明 |
| 包头 | 0 | 0x55 | | | | | | | | 固定值 |
| 1 | 0xAA | | | | | | | |
| 载荷数据段长度 | 2 | 23 | | | | | | | | 单位：  字节 |
| 包类型 | 3 | 0xCA | | | | | | | |  |
| 病人ID号 | 4 | PATIENT\_ID1 | | | | | | | | MSB |
| 5 | PATIENT\_ID2 | | | | | | | |  |
| 6 | PATIENT\_ID3 | | | | | | | |  |
| 7 | PATIENT\_ID4 | | | | | | | |  |
| 8 | PATIENT\_ID5 | | | | | | | |  |
| 9 | PATIENT\_ID6 | | | | | | | |  |
| 10 | PATIENT\_ID7 | | | | | | | |  |
| 11 | PATIENT\_ID8 | | | | | | | |  |
| 12 | PATIENT\_ID9 | | | | | | | |  |
| 13 | PATIENT\_ID10 | | | | | | | | LSB |
| 性别 | 14 | SEX | | | | | | | |  |
| 年龄 | 15 | AGE | | | | | | | |  |
| 病房号 | 16 | WARD1 | | | | | | | | MSB |
| 17 | WARD2 | | | | | | | |  |
| 18 | WARD3 | | | | | | | |  |
| 19 | WARD4 | | | | | | | |  |
| 20 | WARD5 | | | | | | | | LSB |
| 病床号 | 21 | Bed1 | | | | | | | | MSB |
| 22 | Bed2 | | | | | | | |  |
| 23 | Bed3 | | | | | | | |  |
| 24 | Bed4 | | | | | | | |  |
| 25 | Bed5 | | | | | | | | LSB |
| 校验和 | 26 | SUM | | | | | | | | 所有字节累加的结果 |

**下位机上发：**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x03 | 0xCA | ERR\_CODE | ERR\_TYPE | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

**2.11设备时间读取指令**

**上位机下发：**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x01 | 0xCB | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 |

**下位机上发：**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Byte/Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 说明 |
| 包头 | 0 | 0x55 | | | | | | | | 固定值 |
| 1 | 0xAA | | | | | | | |
| 载荷数据段长度 | 2 | 7 | | | | | | | | 单位：  字节 |
| 包类型 | 3 | 0xCB | | | | | | | |  |
|  | 4 |  | | | | | | | |  |
| 5 |  | | | | | | | |  |
| 时间 | 6 | TimeByte1 | | | | | | | | MSB |
| 7 | TimeByte2 | | | | | | | |  |
| 8 | TimeByte3 | | | | | | | |  |
| 9 | TimeByte4 | | | | | | | | LSB |
| 校验和 | 10 | SUM | | | | | | | | 所有字节顺序累加的结果 |

注：设备时间格式采用Unix时间戳(Unix timestamp)，或称Unix时间(Unix time)、POSIX时间(POSIX time)，是一种时间表示方式，定义为从格林威治时间1970年01月01日00时00分00秒起至现在的总秒数，即为一个32位的数据类型，分成4个字节发送。

**2.12设备蓝牙配对模式**

**上位机下发：**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x01 | 0xCC | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 |

**下位机上发：（收到进入蓝牙配对模式）**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x03 | 0xCC | ERR\_CODE | ERR\_TYPE | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

**下位机上发：**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Byte/Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 说明 |
| 包头 | 0 | 0x55 | | | | | | | | 固定值 |
| 1 | 0xAA | | | | | | | |
| 载荷数据段长度 | 2 | 7 | | | | | | | | 单位：  字节 |
| 包类型 | 3 | 0xCD | | | | | | | |  |
| 体温1  蓝牙  MAC | 4 | T1\_MAC\_ADDR1 | | | | | | | | MSB |
| 5 | T1\_MAC\_ADDR2 | | | | | | | | LSB |
| 6 | T1\_MAC\_ADDR3 | | | | | | | | MSB |
| 7 | T1\_MAC\_ADDR4 | | | | | | | |  |
| 8 | T1\_MAC\_ADDR5 | | | | | | | |  |
| 9 | T1\_MAC\_ADDR6 | | | | | | | | LSB |
| 电量 | 10 | 0-100 | | | | | | | |  |
| 体温 | 11 | Bit8 | | | | | | | |  |
| 12 | bit7 ~ bit0 | | | | | | | |  |
| 校验和 | 13 | SUM | | | | | | | | 所有字节顺序累加的结果 |

**2.13设备心电呼吸模式查询**

**上位机下发：**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x01 | 0xCE | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 |

**下位机上发：( CODE 0:真实采集, 1:模拟心电呼吸波形, 2:三角波)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x02 | 0xCE | CODE | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 | 1 |

**2.14设备心电呼吸模式设置**

**上位机下发：( CODE 0:真实采集, 1:模拟心电呼吸波形, 2:三角波)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x02 | 0xCF | CODE | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 | 1 |

**下位机上发：**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x03 | 0xCF | ERR\_CODE | ERR\_TYPE | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

**2.15 修改数据存储指针**

**上位机下发：**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x04 | 0xD0 | 序列号 | 序列号 | 序列号 | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

**下位机上发：**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x03 | 0xD0 | ERR\_CODE | ERR\_TYPE | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

**2.16 查询WIFI模块版本号**

**上位机下发：**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x01 | 0xD1 | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 |

**下位机上发：**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Byte/Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 说明 |
| 包头 | 0 | 0x55 | | | | | | | | 固定值 |
| 1 | 0xAA | | | | | | | |
| 载荷数据段长度 | 2 | 17 | | | | | | | | 单位：  字节 |
| 包类型 | 3 | 0xD1 | | | | | | | |  |
| 蓝牙  模块版本号 | 4 | Version1 | | | | | | | | MSB |
| 5 | Version2 | | | | | | | | LSB |
| 6 | Version3 | | | | | | | | MSB |
| 7 | Version4 | | | | | | | |  |
| 8 | Version5 | | | | | | | |  |
| 9 | Version6 | | | | | | | | LSB |
| 10 | Version7 | | | | | | | |  |
| 11 | Version8 | | | | | | | |  |
| 12 | Version9 | | | | | | | |  |
| 13 | Version10 | | | | | | | |  |
| 14 | Version11 | | | | | | | |  |
| 15 | Version12 | | | | | | | |  |
| 16 | Version13 | | | | | | | |  |
| 17 | Version14 | | | | | | | |  |
| 18 | Version15 | | | | | | | |  |
| 19 | Version16 | | | | | | | |  |
| 校验和 | 20 | SUM | | | | | | | | 所有字节顺序累加的结果 |

**2.17 查询BLE模块版本号**

**上位机下发：**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x01 | 0xD2 | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 |

**下位机上发：**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Byte/Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 说明 |
| 包头 | 0 | 0x55 | | | | | | | | 固定值 |
| 1 | 0xAA | | | | | | | |
| 载荷数据段长度 | 2 | 18 | | | | | | | | 单位：  字节 |
| 包类型 | 3 | 0xD2 | | | | | | | |  |
| 蓝牙  模块版本号 | 4 | Version1 | | | | | | | | MSB |
| 5 | Version2 | | | | | | | | LSB |
| 6 | Version3 | | | | | | | | MSB |
| 7 | Version4 | | | | | | | |  |
| 8 | Version5 | | | | | | | |  |
| 9 | Version6 | | | | | | | | LSB |
| 10 | Version7 | | | | | | | |  |
| 11 | Version8 | | | | | | | |  |
| 12 | Version9 | | | | | | | |  |
| 13 | Version10 | | | | | | | |  |
| 14 | Version11 | | | | | | | |  |
| 15 | Version12 | | | | | | | |  |
| 16 | Version13 | | | | | | | |  |
| 17 | Version14 | | | | | | | |  |
| 18 | Version15 | | | | | | | |  |
| 19 | Version16 | | | | | | | |  |
|  | 20 | Version17 | | | | | | | |  |
| 校验和 | 21 | SUM | | | | | | | | 所有字节顺序累加的结果 |

**2.18设备关机方式查询**

**上位机下发：**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x01 | 0xD3 | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 |

**下位机上发：( CODE 1:手动关机, 2:电量低关机,3:注销关机,4:Flash异常关机,5:读U盘关机)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x02 | 0xD3 | CODE | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 | 1 |

**2.19设备模式查询**

**上位机下发：**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x01 | 0xD4 | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 |

**下位机上发：( CODE 00:5B项目, 10:5B-L1项目 ,11:5B-L1门诊模式,20:5B-L2项目)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x02 | 0xD4 | CODE | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 | 1 |

**2.20设备模式设置**

**上位机下发：( CODE 00:5B项目, 10:5B-L1项目 ,11:5B-L1门诊模式,20:5B-L2项目)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x02 | 0xD5 | CODE | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 | 1 |

**下位机上发：**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x03 | 0xD5 | ERR\_CODE | ERR\_TYPE | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

**2.21 wifi加密类型查询指令**

**上位机下发：**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x01 | 0xD6 | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 |

**下位机上发：**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Byte/Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 说明 |
| 包头 | 0 | 0x55 | | | | | | | | 固定值 |
| 1 | 0xAA | | | | | | | |
| 载荷数据段长度 | 2 | 2 | | | | | | | | 单位：  字节 |
| 包类型 | 3 | 0xD6 | | | | | | | |  |
| 加密类型 | 4 | |  |  | | --- | --- | | Security\_Open | 0x00 | | Security\_WEP\_PSK | 0x01 | | Security\_WEP\_SHARED | 0x02 | | Security\_WPA\_TKIP\_PSK | 0x03 | | Security\_WPA\_AES\_PSK | 0x04 | | Security\_WPA2\_AES\_PSK | 0x05 | | Security\_WPA2\_TKIP\_PSK | 0x06 | | Security\_WPA2\_MIXED\_PSK | 0x07 | | Security\_WPS\_OPEN | 0x08 | | Security\_WPS\_SECURE | 0x09 | | Security\_WPA2\_8021X\_EAP\_SECURE | 0x0A | | | | | | | | | 单位：  字节 |
| 校验和 | 5 | SUM | | | | | | | | 所有字节累加的结果 |

**2.22 wifi加密类型设置指令**

**上位机下发：**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Byte/Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 说明 |
| 包头 | 0 | 0x55 | | | | | | | | 固定值 |
| 1 | 0xAA | | | | | | | |
| 载荷数据段长度 | 2 | 2 | | | | | | | | 单位：  字节 |
| 包类型 | 3 | 0xD7 | | | | | | | |  |
| 加密类型 | 4 | |  |  | | --- | --- | | Security\_Open | 0x00 | | Security\_WEP\_PSK | 0x01 | | Security\_WEP\_SHARED | 0x02 | | Security\_WPA\_TKIP\_PSK | 0x03 | | Security\_WPA\_AES\_PSK | 0x04 | | Security\_WPA2\_AES\_PSK | 0x05 | | Security\_WPA2\_TKIP\_PSK | 0x06 | | Security\_WPA2\_MIXED\_PSK | 0x07 | | Security\_WPS\_OPEN | 0x08 | | Security\_WPS\_SECURE | 0x09 | | Security\_WPA2\_8021X\_EAP\_SECURE | 0x0A | | | | | | | | | 单位：  字节 |
| 校验和 | 5 | SUM | | | | | | | | 所有字节累加的结果 |

**下位机上发：**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x03 | 0xD7 | ERR\_CODE | ERR\_TYPE | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

**2.23设备清空文件指令**

**上位机下发：**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x01 | 0xD8 | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 |

**下位机上发：( CODE 00:成功, 01:失败)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x02 | 0xD8 | CODE | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 | 1 |

**2.24远程域名设置指令**

**上位机下发：**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Byte/Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 说明 |
| 包头 | 0 | 0x55 | | | | | | | | 固定值 |
| 1 | 0xAA | | | | | | | |
| 载荷数据段长度 | 2 | 2+len | | | | | | | | 单位：  字节 |
| 包类型 | 3 | 0xD9 | | | | | | | |  |
| 域名长度 | 4 | Len | | | | | | | | 最大128 |
| 域名内容 | 5 | 0 | | | | | | | |  |
| … | … | | | | | | | |  |
| 4+len | n | | | | | | | |  |
| 校验和 | 5+len | SUM | | | | | | | | 所有字节累加的结果 |

**下位机上发：**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x03 | 0xD9 | ERR\_CODE | ERR\_TYPE | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

**2.25远程域名查询指令**

**上位机下发：**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x01 | 0xDA | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 |

**下位机上发：**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Byte/Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 说明 |
| 包头 | 0 | 0x55 | | | | | | | | 固定值 |
| 1 | 0xAA | | | | | | | |
| 载荷数据段长度 | 2 | 2+len | | | | | | | | 单位：  字节 |
| 包类型 | 3 | 0xDA | | | | | | | |  |
| 域名长度 | 4 | Len | | | | | | | | 最大100 |
| 域名内容 | 5 | 0 | | | | | | | |  |
| … | … | | | | | | | |  |
| 4+len | n | | | | | | | |  |
| 校验和 | 5+len | SUM | | | | | | | | 所有字节累加的结果 |

**2.26设备切换Ｕ盘指令**

**上位机下发：**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x01 | 0xDB | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 |

**下位机上发：( CODE 00:成功, 01:失败)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x02 | 0xDB | CODE | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 | 1 |

**2.27设备固件升级指令**

**上位机下发：**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x84 | 0xDC | 结束标志 | 序号高8位 | 序号低8位 | Bin | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 128 | 1 |
| **备注** | 1. 结束标志第一包为1，最后一包数据为2，其他为0 2. 序号从0开始   3、最后一包不足128字节，填充0xFF补齐 | | | | | | | | |

**下位机上发：( CODE 00:成功, 01:失败)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | 0x55 | 0xAA | 0x02 | 0xDC | CODE | SUM |
| **字节数** | 1 | 1 | 1 | 1 | 1 | 1 |